‘Making of a Strong Woman’: A Constructivist Grounded Theory on Young Women’s Experiences at Menarche in Papua New Guinea

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A thesis submitted for the degree of
Doctor of Philosophy

College of Medicine and Dentistry
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May 2021

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Elizabeth Simaim Maulingin-Gumbaketi

May 2021

Acknowledgements

My PhD journey has been a mixture of excitement, pain, struggle and sacrifice. While I have enjoyed the privileges of living in Australia—a developed country—the experience of undergoing a PhD study has been extremely humbling. With that, I will forever be grateful to Professor Ronny Gunnarsson (principal advisor between 2013 and 2017) and Professor Sarah Larkins (secondary advisor) for getting me started and constantly cheering me to the finishing line. Ronny's departure from James Cook University left me feeling like a chick without a hen. But it was nicely filled when my PNG *susa* (as I usually relate to her) Michelle-Redman MacLaren took the baton from Professor Ronny Gunnarsson in early 2018 as the principal advisor. I have had no regrets since. My journey from 2018 onwards has been one of intense learning, strenuous endeavours, constant support and keeping focused. To you my *susa* Michelle, I truly value your professional guidance. I would have never asked for a better advisor—*tenk yu tru susa*! For that, I am indebted for your great support, and our friendship will linger for eternity.

I would have been lost in this PhD wilderness without the professional guidance, advice and moral support from all my advisors. I would like to acknowledge and sincerely thank them all for their undying professional advice, support and confidence in my ability to reach the finishing line of this PhD journey. They include Dr Michelle Redman-MacLaren (principal advisor), Professor Sarah Larkins (advisor-mentor), Professor Maxine Whittaker (secondary advisor), Professor Ronny Gunnarsson (external advisor) and Dr Gun Rembeck (external advisor). You all have played an immense role in every big or small way possible to make this journey worthwhile for me. Special thank you to Gun Rembeck for sharing your thesis at the inception of this PhD study. Your thesis guided my way of thinking and set me on course in this PhD study on adolescent transition and menarche. I would also like to acknowledge Dr David Plummer and Professor Francis Hombhanje, who have left my advisory team.

This PhD journey would not have come to pass without the moral support and push from my family, who have witnessed and shared the pain and excitement of what it means to be a PhD student. I pay special tribute to my best friend, buddy and husband Benedict Gumbaketi and two sons Hansley and Shaun Gumbaketi, who have stood by

me despite the challenges life threw at us. Only the three of you fully appreciate the pain and sweat put into this piece of work. Thank you for believing in me. For this, I dedicate this PhD thesis to the three of you with greatest love and appreciation from the depth of my heart.

Field work would not have been possible without the support from various people. First, I would like to acknowledge all the study participants from PNG for freely sharing your stories. Without your stories, this study would not have transpired. I would like to especially acknowledge and thank Jeanette Selep, Stella Susuve-Rumbam and Agnes Tal from PNG World Vision; Heni Meki and the team from PNG Anglicare; and Lisa Wainama and Rex Buka from the National Capital District Commission for supporting with participant recruitment and data collection. You all have been amazingly great. I would like to especially thank Jeanette Selep for assisting with transcribing the interviews. From the National Health Department, I thank the PNG Medical Research and Advisory Committee for giving ethical approval for this study, and Edward Waramin and Agnes Pawiong for taking up the recommendations of this research into the new National Health Plan.

I also pay tribute to James Cook University, especially the College of Medicine and Dentistry (CMD), Graduate Research School (GRS), Library Services (Mark Collins and Scott Dale) and IT department (Clint Patterson and IT team) for the professional development programs, resources and support during the course of my PhD. I would like to especially thank the CMD for the award of small research grants to support this PhD study and the GRS for top-up scholarship. Special thank you to the Cohort Mentoring Program led by Associate Professor Melissa Crowe of the Division of Tropical Health and Medicine for additional training and mentorship, and James Cook University Human Research Ethics Committee for ethical approval. Special thanks to my cohort mentor Dr Karen Cheer for advice and editorial support for my thesis and manuscripts and A/Professor Liz Tynan for providing additional writing support. A special mention to Ms Laurie Talah for the artwork used in the theoretical model and Mr Gins Felix for supplying photos.

Finally, I would like to acknowledge the Government of Australia through the Department of Foreign Affairs and Trade's Australia Awards for the financial support

up until 2016. I would like to sincerely thank James Cook University for the tuition fee scholarship to help me complete this study.

Statement of the Contribution of Others

Statement of Contributions to Co-authored Works in Thesis

Below is the statement of contribution of each of the authors towards two of the manuscripts for publication from Chapters 2 and 4 of the thesis. These authors have also given their consent for the publication and inclusion of these manuscripts in this thesis.

Chapter	Details of publications	Nature and extent of contribution from each author	Acknowledgement of author contributions to this paper and consent for inclusion in this thesis
Two	**Maulingin-Gumbaketi, E.**, Larkins, S., Whittaker, M., Rembeck, G., Gunnarsson, R., and Redman-MacLaren, M. (2021). Socio-cultural implications for women's menstrual health in the Pacific Island Countries and Territories (PICTs): A	**EMG** designed the systematic scoping review; acquired and analysed literature; and drafted ad edited the manuscript. **SL** provided advice and support for scoping review process; reviewed manuscript for intellectual content; and reviewed and provided feedback on final manuscript. **MW** provided advice and supported scoping review process; and reviewed and provided important	**Sarah Larkins** Signature: _____ **Maxine Whittaker** Signature: _____ **Gun Rembeck** Signature: _____

	systematic scoping review.	intellectual advice on the manuscript. **GR** provided advice and supported scoping review process; and reviewed and provided advice. **RG** provided advice and support in the review process; provided important intellectual advice on the manuscript; and reviewed the content and provided feedback on manuscript. **MRM** provided support for the literature review design process; reviewed and provided intellectual advice on the manuscript; and reviewed and provided feedback on the manuscript, including the final manuscript.	**Ronny Gunnarsson** Signature: _____ **Michelle Redman-MacLaren** Signature: _____
Four	**Maulingin-Gumbaketi, E.**, Larkins, S., Gunnarsson, R., Rembeck, G., Whittaker, M. and Redman-MacLaren, M. (2021). 'Making of a Strong Woman': A constructivist	**EMG** conceived of and conducted the research; analysed data and constructed the theoretical model; and conceived of, drafted and edited the manuscript. **SL** provided intellectual advice, content review and editing of the manuscript.	**Sarah Larkins** Signature: _____

	grounded theory of the experiences of young women around menarche in Papua New Guinea.	**RG** supported and provided support in conducting research; reviewed and revised manuscript for intellectual content; and provided feedback. **GR** reviewed and revised manuscript and provided feedback. **MW** provided intellectual advice on content; and reviewed and edited manuscript and provided literature to back up the discussion. **MRM** provided methodological advice in the application of grounded theory towards constructing of the grounded theory; reviewed manuscript for intellectual content and feedback on the manuscript; and supported with editing manuscript.	**Ronny Gunnarsson** Signature: _____ **Gun Rembeck** Signature: _____ **Maxine Whittaker** Signature: _____ **Michelle Redman-MacLaren** Signature: _____

Statement of Contributions by Others to the Thesis as a Whole

This thesis has been edited by **Elite Editing.**

Abstract

Menarche, the onset of first menstruation, is a significant biological milestone in females, representing sexual and reproductive maturation and a socio-cultural transition from girlhood to womanhood. However, individual experiences at menarche are diverse because of social norms, beliefs and practices around menstruation and menstrual blood.

Menstruation management for girls and women in Papua New Guinea (PNG) is challenging because of these norms and restrictive practices. This can negatively affect menstrual health and hygiene (MHH), their full participation in community activities, education and work. A contextualised understanding of socio-cultural norms, beliefs and practices, and the implications for MHH, is necessary to improve the girls' experiences so that they are able to manage menstrual health with dignity and equally access educational and work opportunities.

PNG, a country in the South Pacific region, is home to approximately eight million people and comprises over 800 diverse cultural and language groups. Menarche is a significant cultural event observed and celebrated in many parts of the country. Responses to the onset of menarche and subsequent menstruation are deeply entrenched in culture. Diverse cultural and language groups result in a variety of beliefs and practices around menarche.

Despite anthropological studies on beliefs and practices around menarche, there remains a gap in information on the experiences of young girls relating to MHH at menarche in PNG. A recent descriptive study conducted in PNG, Fiji and Solomon Islands focused on restrictive practices around menarche and their implications for MHH, but did not explore the personal experiences of women. An in-depth study was required to explore social and cultural beliefs and practices and inductively develop a grounded theory to explain the experiences of girls at menarche in PNG to address this gap.

Consistent with feminist and indigenous epistemological positions I brought to this study, constructivist grounded theory methodological principles and approaches were used. The study explored social and cultural norms, beliefs and practices to inductively

and theoretically explain the experiences of young girls at the onset of menarche in PNG. Young and older women (n = 98) between the ages of 13 and 45 years were purposively and theoretically sampled and then interviewed in focus group discussions (n = 10) and/or in-depth interviews (n = 6) using *Tok Pisin* (a lingua franca of PNG). Interview transcripts were analysed using the methods of initial, intermediate and advanced coding. Initial codes developed from early interviews with purposively sampled participants helped to inform the subsequent interviews with participants that were theoretically sampled until data saturation was reached. Further theoretical sampling of existing data occurred following intermediate coding to support emerging categories. Iterative and constant comparative methods, complemented by memoing, were employed throughout data collection and analysis to merge and build the concepts until a theoretical model was formed.

'Making of a Strong Woman' (core category) with four interconnected categories—'Having Baby Sense', 'Beginning of Learning', 'Intensifying Learning' and 'Achieving Womanhood'—was identified from the data to form a theoretical model to explain the experiences of young women at menarche in PNG. 'Rural and Urban'—the place-based intervening condition—explains young women's menarcheal experiences in these two different environmental contexts.

Menarche was confirmed to be an important cultural event in this study. 'Making of a Strong Woman', the core category, explains the rationale for the traditional beliefs and practices to prepare young girls for womanhood. This study found that the process of 'Making of a Strong Woman' starts at 'Having Baby Sense' (Category 1). This is a stage in childhood when children have no knowledge and understanding about sexuality, sex and reproduction. Communicating these topics to children at this stage of development is culturally restricted and considered inappropriate until the girl reaches the developmental stage of having a 'changing body', and the 'Beginning of Learning' (Category 2) commences. This next stage refers to the onset of puberty, but before menarche. During this time, young girls continue to lack understanding about body changes. 'Intensifying Learning' (Category 3), the stage at menarche, is a significant juncture that enables focused learning about sexuality, sex and reproduction; womanhood roles; and responsibilities in a controlled and isolated environment—menarche ceremonies. Menarche ceremonies involve ritualised

practices, more so in rural than urban settings. ‘Achieving Womanhood’ (Category 4) signifies that the girl is now recognised as a woman after undergoing the menarche ceremony. This last stage is associated with ritualised cleansing from menstrual blood, feasting, singing and dancing, and giving of gifts. At this stage, middle-aged women are able to advise and support young girls to become women.

The experiences of young girls at menarche are underpinned by the process of ‘Making of a Strong Woman’ and linked to traditional customs around menstruation, menstrual blood and the value placed on girls being prepared for marriage. This grounded theory of ‘Making of a Strong Woman’ also explains that different locations (rural or urban) result in a different experience of menarche.

The grounded theory of ‘Making of a Strong Woman’ has two important (and somewhat paradoxical) implications relating to sexual and reproductive health. First, with reference to the Social Determinants of Health, Sexual and Reproductive Health Rights and Gender Inequity, the cultural process of ‘Making of a Strong Woman’ is considered a determinant of women’s MHH practices and overall wellbeing. The cultural beliefs and practices that stem from patriarchal perceptions of menstruation can negatively affect MHH, community participation, education and work and can be considered a form of gender violence. Second, culture is a source of strength and central to the Rights of Indigenous Peoples framework. The theory of ‘Making of a Strong Woman’ highlights the value of the menarche ceremonies as culturally appropriate systems for preparing young girls for womanhood.

This study establishes an important foundation to inform development of relevant approaches health promotion actions and approaches to sexual and reproductive health using a culturally appropriate approach. The study also highlights significant determinants for MHH practices that are embedded in social and cultural norms, beliefs and practices. Interventions to improve experiences of pubertal girls at menarche should include strategies to confront the negative aspects of these socio-cultural factors.

Abbreviations and Acronyms

Abbreviation	Description
AIDS	acquired immuno-deficiency syndrome
CASP	Critical Appraisal Skills Program
EHP	Eastern Highlands Province
ESP	East Sepik Province
FGD	focus group discussion
GoPNG	Government of Papua New Guinea
HiAP	Health in All Policy
HICs	high income countries
HIV	human immuno-deficiency virus
ISTAR	Individual Self-esteem and Transition in Adolescent with Respect
LMICs	low- to middle-income countries
MBP	Milne Bay Province
MeSH	Medical Subject Headings
MHH	menstrual health and hygiene
MHM	menstrual hygiene management
NCD	National Capital District
NCDC	National Capital District Commission
NDOH	National Department of Health
PICTs	Pacific Island Countries and Territories
PNG	Papua New Guinea
SRH	sexual and reproductive health
SRHR	sexual and reproductive health and rights

STIs	sexually transmitted infections
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations International Children's Education Fund
WASH	water, sanitation and hygiene
WHO	World Health Organization

Glossary

Term	Definition
Adolescence	Refers to the 'period of transition between childhood and adulthood that occurs in individuals between the ages of 10 and 19 years' (WHO, 2015, p. 1).
Adolescent transition	The developmental change occurring between childhood to adulthood that is characterised by pubertal maturation, including independence from parents.
Buggy	Refers to a culturally significant necklace from Milne Bay Province, Papua New Guinea.
Cleansing rituals	Refers to the act of cleansing that changes the woman from menstrual pollution to clean state.
Fes sikmun	*Tok Pisin* name for menarche or first menstruation (literally, first sick moon).
Gatekeeper	'Any person or institution that acts as an intermediary between a researcher and potential participants. A gatekeeper may also have the power to either grant or deny permission for access to potential research participants' (Singh & Wassenaar, 2016, p.2).
Girl	Refers to young females. In the context of this study, a girl is a young female at pre-menarche stage.
Girlhood	The period of a female person's life during which she is a girl.
Grounded theory	Grounded theory is an inductive methodology that provides systematic guidelines for gathering,

	synthesising, analysing and conceptualising qualitative data for the purpose of theory construction (Charmaz, 2001; Glaser & Strauss, 1967).
Haus-meri	*Haus-meri*—a culturally significant facility—is a *Tok Pisin* word for a women-only house; commonly used to isolate menstruating women and girls and prepare them for womanhood. *Haus-meri* is named differently in different PNG languages.
Health	Health is a 'state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity' (WHO, 2020c, p. 1).
Initiation	A process symbolising formal entrance or acceptance into a group or society, or admission to adulthood in a community in a rite of passage. It can also signify a change in initiate's role.
Isolation	The state of being in a place or situation that is separate from others. Isolation is a culturally significant process at menarche.
Menarche	Onset of first menstruation.
Menarche rites	Menarche signifies her transformation from childhood to adulthood. Most traditional cultures celebrate this transition with cultural and religious ritualised ceremonies of varying complexity, honouring not only the girl but womanhood itself.
Menstrual Health and Hygiene	Access to '(a) accurate and timely knowledge; (b) available, safe and affordable materials; (c) informed and comfortable professionals; (d) referral and access to health services; (e) sanitation and washing facilities; (f) positive social norms; (g) safe

	and hygienic disposal; (h) advocacy and (i) policy' (UNICEF, 2019, p.7).
Menstrual hygiene management	'Women and adolescent girls using clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials' (UNICEF, 2019 p.7).
Menstrual taboo	Any social taboos concerned with menstruation.
Menstruation	Sometimes called 'period', is normal vaginal bleeding that occurs as part of a woman's monthly ovulation cycle. Every month, a female's body prepares for pregnancy and if pregnancy does not happen, the uterus lining sheds. The menstrual blood comprises both blood and tissue from woman's uterus. (Ramirez-Gonzalez et al., 2016).
Ritual	Refers to a ceremony or action performed in a customary way.
Sexual and reproductive health	'A state of complete physical, mental and social wellbeing and not merely the absence of diseases or infirmity, in all matters relating to the reproductive system and to its functions and processes' (United Nations, 2014, p. 18).
Sik mun	*Tok Pisin* name for menstruation.
Social and Cultural Determinants of Health (SCDH)	'The non-medical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include

	economic policies and systems, development agendas, social norms, social policies and political systems' (WHO, 2010, p. 2). In the context of this research, SCDH refers to society's norms, values, beliefs and practices relating to health behaviours that might have a powerful effect on the behaviour of individual members of the community group.
Social Determinants of Health (SDH)	'Conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels. These social circumstances create societal stratification and are responsible for health inequities among different groups of people based on social and economic class, gender and ethnicity' (WHO, 2010, p. 12).
Tok Pisin	Lingua franca of PNG (PNG has three official languages: English, *Motu* and *Tok Pisin*).
Village	Refers to a community that is usually larger than a hamlet but smaller than a town, that consist of a population ranging between few hundred to a few thousand (Jones, 2012).
Village Volunteer Health Workers (VVHW)	Refers to members of the community who volunteer their services to promote health and mobilise communities who lack access to health care; help to identify community problems, and can respond creatively to local needs and within a local context. These VHHW are appointed by community leaders.
Woman	Refers to an adult female. In the context of this study, a young girl is socially recognised as a woman after menarche. Menarche defines the change in status.

Womanhood	The state of being a woman rather than a girl. Womanhood is socially and culturally defined by the girl's menarche status.

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Prologue

I grew up in the remote village of Kwimbu in Maprik District of East Sepik Province, Papua New Guinea (PNG). While growing up as a child, I had the privilege of observing women undergoing menarche rites. These ceremonies were associated with social and cultural norms, rituals, and application of taboos around menarche and menstruation. I witnessed three initiation ceremonies of girls having menarche in the Abelam society of Maprik in East Sepik Province. These practices ranged from the most painful and dangerous scarification ritual (explanation of the scarification process is in the story of my friend below this section) to the most celebrated ceremonies with feasting, singing and dancing, and giving of gifts. As I reflected back on those different ceremonies, I began to appreciate the fact that even within micro-cultures of PNG, the context of the cultural practices at menarche can differ. I acquired a sense of appreciation and understanding of why these cultural beliefs and practices at menarche are applied to the young girls through these observations and experiences.

In 1980, when I was 13 years old, I spent the Christmas holidays with my sister, who was married to a man from another village. I shared a house with my sister's young sister-in-law, who was my age and my bestie (best friend), when I visited my sister. One morning, I found my friend in the *arere* (awkward place at the edge) of the house. I made a fire and signalled her to come over to enjoy the fire with me on the cold, rainy morning. She was shy and sad, and the expression on her face was one of anxiety and fear as she knew her 'moment of truth' had arrived. She was reflecting on the *jik'ni* (traumatic rite of passage) that she had witnessed of her older female family members while growing up in the village. She also knew of her brothers' and father's plans to put her through the initiation rituals (*jik'ni*) at the onset of her menarche. Out of curiosity, I asked why she was sitting in the *arere* at that time of the morning. Her head was low in between her knees, her lips tight and her face appeared blank. It took her a while to respond to me. I had thought she must have done something wrong and had been scolded by her parents. As I stepped closer to her and touched her on the shoulder, I saw tears rolling down her face. Tears appeared like blood streaming down from a wound on her face. She whispered, *'Mi stap long arere yah [I am confined to the corner], mi kisim sik blo ol meri . . . sikmun [I got my menses]'*. A sense of sympathy quickly engulfed me, and soon I was also soaked in tears for my bestie. From

witnessing the traditional menarche rites, I understood how she was feeling because I realised the helpless state she was in and the hell she was going to go through. Not long after our encounter, my bestie was approached by her aunties and mother and was escorted to the *wang'na nga* (isolation house or *haus-meri* in Abelam language). I witnessed every process of the painful ceremonious torture and near-death experiences that my best friend experienced at menarche and shared some very emotional moments. My friend was carried (face down, backside up with legs and hands held tightly by members of her family) on her uncle's back and was ceremoniously beaten with *jik'ni* (small hard wood sticks from a special type of grassy plant) by a number of men lined up for that purpose. Each of those men took turns to beat her, and in the course of beating, my friend fell unconscious from the intensity of the pain. The beating was aimed to beat out the childhood behaviours and attitudes in her to make her realise that she is now a woman and no longer a child. The beating was intended to make her become strong mentally, emotionally and physically to assume womanhood responsibilities. She was taken into the house and part of the skin of both her upper arm and belly were superficially and painfully incised with sharp unsterile blades made from a cracked bottle to ceremoniously remove bad childhood blood and create a scar that would later physically signify her womanhood status in the community. That experience overwhelmed me with fear of traditional menarche rites.

I was 13 years old when I had my menarche. I did not know what it was. I felt scared and confused and did not know how to manage the flow. I was even more afraid to tell my older sister, with whom I was residing, when my turn came because I was scared of being isolated and initiated—a cultural process that prepares girls for womanhood. I wondered if other girls went through the same experience as I did. This confusing experience informed the focus of my PhD research—to understand how other girls experience menarche in PNG.

Chapter 1: Introduction

This thesis explores the phenomena of how girls experience menarche from the perspective of girls and women from East Sepik Province (ESP), Eastern Highlands Province (EHP), Milne Bay Province (MBP) and National Capital District (NCD) in Papua New Guinea (PNG). Menarche is associated with socio-cultural beliefs and norms that can result in restrictive and sometimes harmful practices in parts of PNG. I employed a constructivist grounded theory methodology to explore and analyse the experiences of young women from girlhood to womanhood. The study specifically explores the social and cultural norms, beliefs, and practices to inductively and theoretically explain the experiences of young girls regarding their understanding of the meaning of their body changes and menarche, and how they manage menstruation at the onset of menarche in PNG.

1.1 Introduction

In this Chapter, I introduce menarche as a significant development milestone for females within adolescent transitions and provide an overview of the current discourse globally and within PNG. I start by explaining the concept of adolescent transition and link it to menarche. Menarche is then defined and its significance described and aligned to the current discourses on sexual and reproductive health, specifically focusing on adolescent health priorities in the global literature (World Health Organization [WHO], 2015) and PNG National Adolescent Health Policy (National Department of Health [NDOH], 2014). I then present a brief overview of the socio-cultural significance of menarche and the girls' experiences, and implications for women's sexual and reproductive health globally. Regional experiences of women around menarche and menstruation are presented in Chapter 2. I introduce relevant demographic information and explain the significance of menarche and transition to womanhood in the PNG context. I then outline the rationale for this study, including the substantive area of inquiry, and finally the style and structure of the thesis.

1.2 Adolescence—A Global Health Priority

Adolescence is a significant phase in human development, yet remains the most neglected part of most health programs (WHO, 2015). Patton et al. (2016) posited that

‘unprecedented global forces are (either positively or negatively) shaping the health and wellbeing of the largest generation of 10 to 24 year olds in human history’ (p. 1). The impact of developmental transition on an adolescent’s health and wellbeing points to the need for increased evidence, strategies and interventions to improve the health of adolescents. Global efforts to enhance adolescent health are being enacted through international commitments and developmental policies, and human rights frameworks are being developed and tailored to address issues affecting the health of adolescents (Patton, Sawyer, Ross, Viner, & Santelli, 2016; Sheehan et al., 2017; United Nations, 2014, 2015; WHO, 2015, 2017, 2020a). This research helps to understand the social and cultural determinants influencing one aspect of adolescence—the transition phase that is menarche. In the next section, the concept of transition in adolescent development is explained to set the basis to define and explain menarche.

1.3 Adolescent Transition

Adolescence is a developmental transition period from childhood to adulthood that happens between the ages of 10 and 19 years (Meleis, 2010; Petersen, 1988; WHO, 2015). This developmental change in adolescence is activated by a sudden surge of hormonal changes resulting in various physical, cognitive, emotional, psychological and social changes (Steinberg & Morris, 2001; WHO, 2019). Adolescence marks an important transition in life, and this stage is described as a stage of breaking away from childhood in preparation for adulthood (Glozah & Lawani, 2014). How adolescents transit through this phase of life can influence and set the foundation for adulthood.

The universal concept of transition relates to the process of passing from one fairly stable stage or state of life, condition or status to another (Meleis, 2010). This generic concept of transition can be applied to any situation that depicts elements of change from one stage to another, including adolescence. The adolescent transition phase is characterised by sudden and dramatic changes in an individual’s life. Having an understanding of these different stages may be beneficial when dealing with adolescents.

The three theoretical stages of transition described by seminal French anthropologist Arnold van Gennep include ‘rite of separation’, ‘rite of transition’ and ‘rite of incorporation’ (van Gennep, 1960, p. vii). Known as the ‘rites of passage’, the three

stages of transition were based on the analysis of different ceremonies accompanying the typical crisis in an individual's life and are seemingly universal to the experiences of adolescents (Delaney, 1995; van Gennep, 1960). Delaney (1995) argued that the elements of the 'rites of passage' are relevant and reflective of the normal stages of transition in adolescents. The 'rite of separation' encompasses separation or disconnection from the individual's normal social life (van Gennep, 1960). This process is usually abrupt or intense in nature, causing individuals to start disassociating themselves from family and community, and it involves alienation or movement across boundaries. 'Rite of transition', the second phase, happens when the individual loses his/her old identity as a child, but is yet to be fully re-incorporated into the community or the new identity as an adult (van Gennep, 1960). This stage is usually associated with confusion and testing, and is described as a stage full of uncertainties and inconsistencies (trial and error). 'Rite of incorporation', the final stage of the process, involves re-integration, where the individual moves out of isolation and is re-integrated back into their society or the community with a new identity (van Gennep, 1960).

Stages of adolescent transition have also been divided into different age ranges. These stages include early adolescence (11–13 years), middle adolescence (14–16 years) and late adolescence (17–19 years); however, the suggested age ranges can differ according to different contexts (Barrett, 1996). Adolescents transiting through these stages portray different cognitive, psycho-social and physical characteristics (Steinberg & Morris, 2001; WHO, 2019). Brain development affects an adolescent's cognitive system and behaviour, including changes to the way individuals think and behave (Sanders, 2013). Behavioural responses to the transition process may include attributes such as isolation, disorientation, risk-taking and pushing boundaries (American Psychological Association, 2002; Meleis, 2010; Patton & Viner, 2007; Steinberg & Morris, 2001). Psycho-social changes are characterised by distress, irritability, anxiety, depression, changes in self-concept and self-esteem, mood swings, feelings of uncertainty, peer pressures, conflicting thoughts, self-identity and self-consciousness, role identity, role mastering, and sexual feelings (McLaughlin, Garrad, & Somerville, 2015). Apart from the hormonal surges, interactions with environmental stimulants also trigger the emotional responses (McLaughlin et al., 2015; Spear, 2002), and affect social role expectations and ideal body image (Meleis, 2010). Physical changes feature growth spurts and are marked by changes in body size and shape, such

as breast development in females (Spear, 2002; WHO, 2006). In addition, changes also occur to an adolescent's reproductive functions due to sexual and reproductive maturation.

Cognitive, psycho-social and physical changes are experienced by both males and females. One physical change representing reproductive maturation in females that is different from males is menarche. The next section defines and describes menarche and its significance.

1.4 Menarche

Menarche is derived from the Greek word '*men*', which refers to 'month' and '*arche*', meaning 'beginning' (Daniluk, 2003). The term menarche refers to the first menstruation in females (DiVall & Radovick, 2008). Menarche is observed and celebrated as an important social and cultural event in many societies and cultures, while being a significant biological development sign for all females. The next sections elaborate on the biological and socio-cultural significance and timing of menarche.

Menarche is a natural developmental milestone unique to females. Almost every adolescent girl will experience menarche once in their lifetime. Menarche signifies sexual reproductive maturation and fertility in females (DiVall & Radovick, 2008). As a developmental marker, menarche represents a significant change in a female's body during puberty that is additional to other developments such as appearance of breast buds and pubic hair growth. Menarche results from the interactions of the pituitary and hypothalamic functions of the female's body (DiVall & Radovick, 2008). Menstruation happens when an unfertilised ovum and the endometrial lining are shed from the uterine walls monthly (Ramirez-Gonzalez, Vaamonde-Lemos, Cunha Filho, Varghese, & Swanson, 2016). An ovum, which is a female gamete (female egg) within the reproductive system, forms into a zygote and then an embryo (usually forming a baby) when fertilised by a male sperm (DiVall & Radovick, 2008). Development of an ovum represents reproductive maturation and readiness of young woman's body for childbirth. The shedding of an unfertilised egg and endometrial lining in the form of blood flowing through a female's birth canal is physical evidence of the maturation of the girl's reproductive system (Ramirez-Gonzalez et al., 2016). However, the onset of menarche does not necessarily guarantee ovulation and fertility in all women (Hillard,

2018). A female's reproductive system can remain anovulatory for some time after menarche (Rosner, Samardzic, & Sarao, 2020).

Socially and culturally, menarche is a unique and memorable event and is held with esteem in many cultures, particularly in low- and middle-income countries (LMICs). The onset of menarche is recognised because it symbolises the ending of childhood and the beginning of adulthood for females in many cultures (DiVall & Radovick, 2008; Marván & Chrisler, 2018; Natsuaki, Leve, & Mendle, 2011). The onset of menarche is associated with a variety of socio-cultural norms, beliefs, perceptions and practices that may involve celebration, rituals, initiation ceremonies, dancing and giving of gifts (Adinma & Adinma, 2008; Coast et al., 2019; Gupta, Agarwal, & Agrawal, 2019; Hennegan, Shannon, Rubli, Schwab, & Melendez-Torres, 2019; Sumpter & Torondel, 2013). The onset of menarche is used by many indigenous cultures as a juncture to intensify support of and to prepare girls for womanhood (Ahmadu, 2010; Audrey, 1982; Perianes & Ndaferankhande, 2020; Sniekers, 2005). Despite the significance of menarche, some of these rituals and initiations pose a risk to an adolescent female's health and wellbeing. Evidence of these risks include bathing restrictions associated with genital infections, and isolation associated with emotional and psychological stress (Mohamed et al., 2018; Mumtaz, Sivananthajothy, Bhatti, & Sommer, 2019; Torondel et al., 2018). In rural Nepal, menstruating girls are banished to sheds, called '*Chhaupadi*', because of the perception that menstruating girls are dirty (Amatya, Ghimire, Callahan, Baral, & Poudel, 2018; Kadariya & Aro, 2015). However, in these sheds they suffer in cold and isolation, and are often at risk of illness and animal attacks (Amatya et al., 2018; Kadariya & Aro, 2015).

Although menarche typically happens at the later stage of puberty around the ages of 12 and 13 years (Rosenfield, Lipton, & Drum, 2009; Sawyer, Azzopardi, Wickremarathne, & Patton, 2018), the estimated age range for menarche is reportedly inconsistent and difficult to predict because of variations among individual females, countries, and ethnic and cultural groups (Binder et al., 2018; DiVall & Radovick, 2008; Karapanou & Papadimitriou, 2010). However, age at menarche has been generally declining since the last decade (Ameade & Garti, 2016a; Cabanes et al., 2009; Kaplowitz, 2006; Rees, 1993; Talma et al., 2013). This change has been linked to improvements in health and nutrition (Ameade & Garti, 2016a; Canelón & Boland,

2020; Rees, 1993). ‘Genetic influences, nutrition, physical activity and the pattern of childhood weight gain are also reported to play a role’ in determining when menarche occurs (C. Cooper, Kuh, Egger, Wadsworth, & Barker, 1996, p. 4). Comparison of age at menarche between high income countries (HICs) and LMICs shows a greater reduction in age at menarche in HICs than in LMICs (Canelón & Boland, 2020; Sawyer et al., 2018; WHO, 1986). Secular trends in age at menarche within countries show evidence of differences in age at menarche among different ethnic groups (Kaplowitz, 2006; Marván, Castillo-López, Del-Callejo-Canal, Canal-Martínez, & Núñez-de la Mora, 2020). For example, a study conducted in China on the secular trend on age at menarche among girls from 24 ethnic minorities between 1885 and 2010 found large variations in age at menarche among different ethnic minority groups. The study showed a ‘reduction in the average age at menarche among most of the ethnic minorities over time. The largest decrease was observed in Lisu, Kazakh and Korean girls’ (Song et al., 2015, p.2).

The timing of the occurrence of menarche is dependent on various factors and conditions, including genetic factors, environmental conditions, geographical location, nutritional factors, socio-economic status, physical activities, and environmental pollution and diseases (Canelón & Boland, 2020; Dossus et al., 2012; Ghimire & Ghimire, 2014; Karapanou & Papadimitriou, 2010; Moelyo et al., 2019; Sommer, 2013). Timing of menarche also reflects health status of the population in terms of the nutritional and prevailing environmental conditions (Ameade & Garti, 2016a). The age at menarche is an important determinant of chronic health outcomes such as cancer and heart disease in women (Charalampopoulos, McLoughlin, Elks, & Ong, 2014; Mishra, Cooper, Tom, & Kuh, 2009; Ramezani, Mirmiran, Gholami, Moslehi, & Azizi, 2014). The Women’s Ischaemic Syndrome Evaluation (WISE) on the age at menarche and the risk of cardiovascular disease outcomes in America concluded that history of early or late menarche is associated with a higher risk for adverse cardiovascular outcomes (J. J. Lee et al., 2019). A longitudinal study of ageing in Australia found that women with lower age at menarche may have reduced survival into old age (L. C. Giles, Glonek, Moore, Davies, & Luszcz, 2010). Apart from being the marker of sexual and reproductive maturation in females, the timing of menarche also demands psychological preparedness and social adjustments (Marván & Chrisler, 2018). Psychological preparedness, which involves pre-menarcheal awareness about

what menarche is and how to manage menstrual flow, is important so that young girls are prepared to avoid becoming surprised, scared and confused. Further, because menarche is associated with expectations of role change, girls must be prepared for these social expectations (Sniekers, 2005).

1.5 Sexual and Reproductive Health Risks and Consequences

Adolescence represents a critical transition juncture that poses sexual and reproductive health risks for children due to increased hormonal interplay and pubertal changes (Patton & Viner, 2007; Petersen, 1988). During this period of development, adolescents can become particularly vulnerable to unintentional risky social behaviours, such as unplanned pregnancies or HIV infections, due to increased emotional and behavioural changes. The sexual and reproductive health risks and the consequences can have a profound effect on the adolescent female's health and wellbeing across the course of her life (Patton, Sawyer, Santelli, et al., 2016). For example, pregnancy can affect many aspects of a young woman's life—through the end of formal education, restricted employment opportunities, increased poverty and growth retardation in undernourished girls (WHO, 2020b).

Morbidity and mortality relating to adolescent pregnancy is one of the global concerns (Patton, Sawyer, Santelli, et al., 2016; WHO, 2015, 2020b). One of the common causes of death among adolescent females between 15 and 19 years of age is related to pregnancy complications and childbirth (WHO, 2015). Each year, approximately 12 million girls aged 15–19 years and at least 777,000 girls below 15 years give birth in LMICs, and about 10 million of those are unintended pregnancies among adolescent girls aged between 15 and 19 years (WHO, 2020b). The risk of pregnancy-related conditions such as 'eclampsia and puerperal infections is greater in women aged 10–19 years than women aged 20–24 years, and babies of adolescent mothers face greater risk of low birth weight, preterm delivery and severe neonatal conditions' (WHO, 2020b, p.1).

Evidence is increasingly showing an association between early menarche and risky sexual behaviours among adolescent females (Cezimbra, Campos, Araujo, Guazzelli, & Atallah, 2020; Cheong et al., 2015; Downing & Bellis, 2009; Gaudineau et al., 2010). A comparative study between an early and normal menarche group in South

Korea found that the early menarche cohort was at higher risk of risky sexual exposures such as kissing, petting and sexual intercourse; being victim or the assailant of sexual assaults; intercourse without contraception; and pregnancy than the regular menarche group (Cheong et al., 2015). A review conducted by Ibitoye et al. (2017) found studies reporting evidence of girls having sex before menarche. Early sexual behaviours and sexual debuts have been linked to lack of pre-menarche educational support and to pre-menarche communication taboos (Chandra-Mouli & Patel, 2017; Hennegan et al., 2019; Ibitoye, Choi, Tai, Lee, & Sommer, 2017). While educational supports are necessary before menarche, communication taboos create gaps in communicating essential knowledge about the meaning of changes in the body, menarche, and the sexual risks and consequences. Consequently, young girls are left vulnerable to sexual risks and unintended pregnancies.

The United Nations Convention on the Rights of the Child, specifically Articles 18, 24, 28 and 29, clearly articulates that every child transitioning to adulthood has the right to adequate knowledge about their changing body (United Nations International Children's Emergency Fund [UNICEF], 2020). This statement also applies to changes relating to menarche and associated sexual risks and consequences while the child is in transition to adulthood. Parents, in particular, have the primary responsibility to ensure that their daughters are provided with adequate and appropriate knowledge to help them make informed decisions during this transition phase. However, there is increasing evidence showing challenges relating to pre-menarcheal education and preparations of young girls during this transition phase (Ibitoye et al., 2017; Kapoor & Khari, 2016; Manoshi, Shastri, & Paaoafaite, 2019). Pre-menarcheal awareness about changes to their body, menarche and sexual risk-taking behaviours has been linked to improved understanding about menarche and body changes and informed decisions about risky sexual behaviours during the transition phase from childhood to adulthood (Jewkes, Morrell, & Christofides, 2009; Rembeck & Gunnarsson, 2004). Every young girl deserves the right to adequate pre-menarcheal knowledge relating to their bodily changes and the ability to be able to effectively manage menstrual flow with dignity.

1.6 Menarche, and Sexual and Reproductive Health and Rights

Health is defined by the WHO as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' (WHO, 2020c, p. 7). This

definition embraces elements of human rights (Buller & Schulte, 2018; WHO, 2020c). Consistent with this view of health, sexual and reproductive health (SRH) is defined as 'a state of complete physical, mental and social wellbeing and not merely the absence of diseases or infirmity, in all matters relating to the reproductive system and to its functions and processes' (United Nations, 2014, p. 18). This definition of SRH implies the absence of disease and the existence of wellbeing with regard to any matters relating to sexual and reproductive functions. Menarche is an important function of sexual and reproductive system of females, and its occurrence is natural in almost every female. Therefore, menarche and managing menstruation hygienically and with dignity is a basic human right for every woman.

The SRH definition above infers the need for adequate access to appropriate pre-menarcheal knowledge to empower young girls so that they are able to manage menstruation hygienically, with dignity, and without stigma or risk. This support is critical for every girl entering puberty or adolescence because adolescence is a unique and critical developmental stage (Patton, Sawyer, Santelli, et al., 2016). Achieving physical, cognitive, emotional and social stability, as well as wellbeing including economic capacities, in adolescence sets the foundation for future adulthood and societal health and wellbeing (WHO, 2015).

Patton et al. (2016) argue that 'healthy growth across adolescence and young adulthood shapes life course and intergenerational trajectories so that health investments yield a "triple dividend"' (p. 1). The triple dividend is a framework for defining the parameters or areas of action to enhance the health and wellbeing of adolescents, and includes SRH (Patton, Sawyer, Ross, et al., 2016). These three areas include (1) comprehensive and integrated strategies beyond SRH and human-immunodeficiency virus; (2) inter-sectoral interventions to address health as health coverage and Social Determinants of Health lie beyond just health; and (3) a scaled-up response that requires establishment of a process for accountability and meaningful youth engagement, such as youth centres for SRH (Patton, Sawyer, Ross, et al., 2016, p. 1). This conceptual framework explains the rationale for supporting the transition of children through the adolescent stage and the distinctive recognition of SRH risks and consequences during adolescence as a significant human rights issue.

Sexual and reproductive health and rights (SRHR) were given significance at the Eleventh International Conference of the International Coordinating Committee of National Institutions for the Promotion and Protection of Human Rights, which took place in Amman, Jordan, from 5 to 7 November 2012, through the adoption of the Amman Declaration and Programme of Action (United Nations, 2014). The National Human Rights Institutions, through the Programme of Action, pledged to:

> '. . . protect and promote reproductive rights without any discrimination, recognizing reproductive rights include the right to the highest attainable standard of sexual and reproductive health, the right of all to decide freely and responsibly the number, spacing and timing of their children, and on matters related to their sexuality, and to have the information and means to do so free from discrimination, violence or coercion, as laid out in the Beijing Platform for Action and the Programme of Action of the International Conference on Population and Development'. (United Nations, 2014, p. 13)

This SRHR framework provides a platform for girls' rights to appropriate pre-menarcheal information about their sexuality, including menarche, so as to attain menstrual health and hygiene (MHH).

1.7 Rights to Menstruation Health and Hygiene

Access to MHH is a basic human right for females during menstruation (Winkler, 2019; Winkler & Roaf, 2015). The definitions and concepts of menstrual hygiene management (MHM)—underpinned by a human rights framework—set the parameters for influencing actions relating to how menstruation can be managed (Winkler, 2019; Winkler & Roaf, 2015). Two distinct but complementary definitions and concepts have emerged in the menstruation management sphere: MHM and MHH.

MHM is defined as:

> 'women and adolescent girls using clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials'. (UNICEF, 2019, p. 7)

The MHM definition is underpinned by water, sanitation and hygiene (WASH) elements (hardware and products) to guide interventions. However, the definition of MHM under-represents the comprehensive scope of menstrual issues relating to girls' knowledge and understanding of menarche, which is equally important in assuring girls' SRH and wellbeing and a healthy transition through puberty (UNESCO, 2014). This gap led to the emergence of the concept of MHH. In comparison to MHM, the concept of MHH incorporates a broader scope of psychological, socio-political and environmental factors that accompany effects of menstruation on mental, physical and emotional health, which includes SRHR (UNICEF, 2019). Therefore, the concept MHH complements and supplements the MHM concept and incorporates nine essential elements, which are inadequately captured in the MHM definition. They include:

> '(a) access to accurate and timely knowledge; (b) available, safe, and affordable materials; (c) informed and comfortable professionals; (d) referral and access to health services; (e) sanitation and washing facilities; (f) positive social norms; (g) safe and hygienic disposal; (h) advocacy and (i) policy'. (UNESCO, 2014; UNICEF, 2019; Winkler & Roaf, 2015)

Throughout this thesis, I will predominantly use the concept of MHH because of the broader scope of this definition and its relevance to both the substantive area of inquiry of my research and the socio-cultural context in which this research was conducted. I also distinguish these two concepts to give clarity to my argument that menstruation management within the context of SRH is a woman's and girl's right: Every woman deserves the right to access information, resources and psychological support to ensure effective menstrual health and psychological wellbeing.

The critical elements within the two menstruation definitions (MHM and MHH) explained above aim to enhance safe and dignified MHH practices and experiences for females. An absence of these elements raises concerns relating to gender discrimination and equality, such as the right to privacy, human dignity, gender equality, the right to work, education and awareness (Winkler & Roaf, 2015). To achieve gender equality, Winkler and Roaf (2015) described and situated critical elements of MHH within multiple articles of the human rights framework, conventions and covenants (Winkler & Roaf, 2015), summarised in Table 1.1.

Table 1.1: Alignment of menstrual hygiene management to human rights

Human rights, conventions and charters	Articles and sections	MHM component
UDHR ICCPR ICESCR	Article 1 Article 17(1, 2)	Human dignity and right to privacy
CEDAW CEDAW—Maputo Protocol (African Context)	Article 3, 5(a) Article 2(2)	Gender equality Sets the foundation to modify and/or eliminate unfriendly and harmful cultural and traditional practices that are based on the notion of inferiority and superiority or on stereotyped roles for each gender
ICESCR ICCPR	Article 2 Article 2(1) and 26	Non-discrimination and equality: Inter-sectionality
ICESCR CEDAW	Article 13 Article 10 and 10(f)	Right to education
CEDAW ICESCR	Article 6(1) and 11(1) Article 7 (b) and 11 (1 & f)	Right to work and just and favourable working conditions
ICESCR	Article 12	

CEDAW	Article 12, 12(2) and 10(h)	The human rights to health
ICESCR	Article 11(1)	The human rights to water and sanitation

Note: UDHR = Universal Declaration of Human Rights; ICCPR = International Covenant on Civil and Political Rights; CEDAW = Convention on the Elimination of all forms of Discrimination Against Women; ICESCR = International Covenant on Economic, Social and Cultural Rights.
Adapted from Winkler and Roaf (2015, pp. 21–35).

The Maputo protocol under CEDAW that emerged in Africa in 2003 calls for the modification of men's and women's perceptions and patterns of conduct through information, education and communication strategies (Dauer, 2019; Winkler & Roaf, 2015). The protocol also calls for the elimination of harmful traditional, cultural and other practices that are based on perceptions of gender inequality. These human rights frameworks presented in Table 1.1 set the basis for defining MHH, including a specific framework for addressing menstruation issues, and set the foundation for global actions to address menstrual health issues.

Various important global policy frameworks and targets are in place to guide countries to develop strategies to address issues relating to menstruation to enhance MHH. The United Nations through the Sustainable Development Goals targets—3.7 (Health and Wellbeing), 5.6 (Gender Equity) and 6.2 (Sanitation and Hygiene)—set the foundation for special attention and focus on initiatives to address the MHH needs of girls and women (Krusz et al., 2019; United Nations, 2015). In view of the broader issues affecting adolescent health, the WHO provides a global strategy for women's, child and adolescent health (2016–2030), which places emphasis on the accelerating efforts towards achieving Sustainable Development Goals targets (WHO, 2015).

As shown above, it is a right for every woman and girl to be prepared to manage menstruation effectively and with dignity. However, the experiences of females are both highly contextual and experienced differently between individuals. The next section explains the experiences of women and girls from a global perspective, focusing predominantly on the experiences of women from LMICs.

1.8 Menarcheal Experiences—A Global Perspective

Of the 7.7 billion people living on earth, approximately 50% are women (World Bank, 2021b). These women are likely to experience menarche once in their lifetime. Despite being significant, the onset of menarche can be stressful and traumatising for adolescent girls (Hennegan et al., 2019; Mason et al., 2017). The underlying reasons for this negative experience include lack of access to information; lack of WASH facilities; social norms and taboos; and community influences (Hennegan et al., 2019). These reasons are more prevalent in low-resource settings, most particularly, LMICs, compared with HICs because of lack of access to the information, materials and infrastructure required to manage menstruation comfortably (Chandra-Mouli & Patel, 2017; Hennegan et al., 2019; Sommer, Caruso, et al., 2016). Consequently, the onset of menarche can result in embarrassment, secrecy, fear, humiliation and stigma. These responses to menarche can compromise the health, wellbeing and rights of girls and young women through social isolation and exclusion from family and community activities, schools and work or risks from teasing and sexual harassment (Kansiime et al., 2020; Kapoor & Khari, 2016; Mason et al., 2017). Adolescent females are particularly vulnerable to negative events that affect their overall self-esteem and confidence (Hennegan et al., 2019).

In the following sections, the perceptions and reactions of young women at menarche; how young women access pre-menarche education; restrictive practices; menstruation management practices; implications for school attendance; and sexual health risks and consequences are examined and described to provide a global perspective on the experiences of young women at menarche.

1.8.1 Perceptions and reactions at menarche

Onset of menarche is associated with different experiences, and these experiences vary by individual and context. Research shows that experiences of young women can to a varying degree be either positive or negative (Dammery, 2016). Onset of menarche leads to women feeling scared, embarrassed and confused (Hennegan et al., 2019; Omar, Nadin, & Marjaneh, 2016). These negative experiences are linked to a lack of pre-menarcheal awareness about menarche and what to expect, a lack of moral and family support, unavailability of menstruation management materials and facilities,

and a lack of knowledge of and skills for managing menstruation (Hennegan et al., 2019; Koff & Rierdan, 1996; Sommer, Caruso, et al., 2016). Recent studies confirm that young women are often surprised, scared, shocked, stressed, ashamed and embarrassed at the onset of menarche (Adegbayi, 2017; Chandra-Mouli & Patel, 2017; Chang, Hayter, & Wu, 2010; DeMaria et al., 2020; Hennegan et al., 2019; McCammon et al., 2020; Rubinsky, Gunning, & Cooke-Jackson, 2020; Sommer, Caruso, et al., 2016). Some studies report women concealing their menarcheal status because of shame (Mason et al., 2013; Mohamed et al., 2018; Rheinländer, Gyapong, Akpakli, & Konradsen, 2019). Onset of menarche is also associated with stigma, teasing and ridicule, mainly from males (including family members, some peers and other male figures such as teachers), leading to shame and secrecy (J. Davis et al., 2018). These attitudes and practices often lead to social isolation and school absenteeism due to girls' fear and embarrassment (Hennegan et al., 2019; Marván & Alcala-Herrera, 2014; Mason et al., 2013; Sommer, Caruso, et al., 2016).

False perceptions about menarche often lead to fear (Chandra-Mouli & Patel, 2017). Some girls report feeling scared because they did not know what menstrual bleeding was at menarche and thought they were dying (S. C. Cooper & Koch, 2007). A study in Ethiopia reported girls feeling scared about disclosing their menstrual status at menarche because it was believed to be associated with pre-menarcheal sexual exposure (Smiles, Short, & Sommer, 2017). A study conducted in Nigeria reported that some mothers' first response to their daughter at menarche was that they thought the daughter had slept with a boy, resulting in menarche (Adegbayi, 2017). These misconceptions cause girls to feel scared and conceal their menstrual status without seeking support.

Positive attitudes and experiences of menstruation are linked to being informed about menarche, having moral support, looking forward to menarche, being ready for and having access to materials to manage menstruation, and feelings of being prepared for menarche (Chandra-Mouli & Patel, 2017; Erbil, Felek, & Karakaslı, 2015; Hennegan et al., 2019; Kapoor & Khari, 2016). A study in Turkey reported 52.9% of young women knew about menarche, looked forward to menarche and knew how to manage menstruation because mothers told them about menarche and what to do when menarche happens (Ozdemir, Nazik, & Pasinlioglu, 2011). Similar findings were

reported from a comparative study conducted in Lithuania, Malaysia, Sudan and the United States (Chrisler & Zittel, 1998). This study reported 50% of Lithuanian, 78% of Sudanese, 98% of Americans and 90% of Malaysian women were prepared for menstruation because they were prepared by their mothers. Another study conducted in Anand district, Gujarat state, India, reported that of the 900 girls interviewed, 38.0% felt comfortable with menarche and 31% believed menstruation to be normal (Tiwari, Oza, & Tiwari, 2006) when they reported having been prepared and supported by their mothers.

The type of experiences a young woman has at menarche are linked to three commonly described factors: (1) level of access to relevant information about sexuality and menarche at the pre-menarcheal stage; (2) personal, familial and community perceptions of menstrual blood and responses to menstruation (e.g. restrictive practices); and (3) availability (or not) of menstrual management facilities (Caruso et al., 2013; Chandra-Mouli & Patel, 2017; Chinyama et al., 2019; S. C. Cooper & Koch, 2007; Crichton, Ibisomi, & Gyimah, 2012). These factors are explored further below.

1.8.2 Accessing information

Menstruation is a topic that is not openly spoken about in most parts of the world. In many LMICs, this communication gap is commonly linked to the social norm that menstruation is considered a 'taboo' conversation and is not allowed to be openly discussed (Hennegan et al., 2019; Rubinsky et al., 2020; Thapa, Bhattarai, & Aro, 2019). In some social and cultural contexts, this taboo is underpinned by the perception that menstrual blood is bad, dirty and can cause harm to men (Dammery, 2016).

Knowledge about the changing body, menarche and menstruation is usually gained from sources including parents, female relatives, female peers, schoolteachers, mass media and cultural menarche rites (Chandra-Mouli & Patel, 2017). Mothers are considered the appropriate sources of information because they are females themselves and have the primary responsibility for preparing their daughters for womanhood (Chandra-Mouli & Patel, 2017; Coast et al., 2019). Despite being considered the appropriate sources for pre-menarcheal preparation of their daughters, mothers' abilities are often restricted for a variety of reasons. Communication taboos and shame are found to be common causes preventing a mother's ability to effectively prepare

daughters before menarche. Many mothers are reluctant to engage in such communication with their daughters because of shame linked to cultural taboos, which can prevent open and direct conversations with daughters about sexuality, menarche and menstruation (Burrows & Johnson, 2005; Dammery, 2016; DeMaria et al., 2020; Smiles et al., 2017). Mothers' inadequate knowledge about physiological changes and reproductive health was also found to be a cause of this shyness and discomfort in discussions (Mohamed et al., 2018; Rubinsky et al., 2020; Said-Mohamed et al., 2018; Sooki et al., 2016). For example, studies in the Solomon Islands (Akin, 2003), among the Akans of Ghana (Agyekum, 2002) and among many Indigenous language groups of Australia (Krusz et al., 2019) found that communication about menstruation and sexuality is a strong taboo and not allowed. In addition to, and often because of, a mother's inability to communicate, the grandmothers, aunties and other female peers become alternative preferred sources for support, guidance and advice on changing bodies and meaning of menarche (Chandra-Mouli & Patel, 2017; Clauson, 2012; Costos, Ackerman, & Paradis, 2002; Mohamed et al., 2018; Rana & Jami, 2018).

Fathers or male adult figures are less likely to initiate discussion because menarche and menstruation is a gender-sensitive topic that men and young women may feel embarrassed to engage in freely and openly (Isguven, Yoruk, & Cizmecioglu, 2015). However, in some rare circumstances, men are reported to engage in gender-sensitive communications, especially in the mother's absence. Some girls prefer confiding their menstrual status with their fathers on the basis of individual choices and a trusting father–daughter relationship (Coast et al., 2019; Mason et al., 2013).

Young girls also learn about body changes, menarche and menstruation through the formal education systems in schools. However, this form of learning varies between countries and local contexts, and often leaves gaps in knowledge and skills about sexual and reproductive functions of their bodies, including menstruation. Causes of these deficiencies include teachers' lack of content knowledge, shame, and social norms about the inappropriateness of male teachers teaching menstruation topics and teaching menstruation to classes consisting of mixed gender (Chandra-Mouli & Patel, 2017; Coast et al., 2019). Menstruation education in schools is reportedly happening after the onset of menarche—providing little help to girls at the time of their menarche (Ibitoye et al., 2017; Sommer, 2011). In the United States of America (USA), there is

evidence of scarce education about puberty within the education system, and general neglect of attention towards menarche and menstruation issues affecting girls in the USA (Radosevic, 2015; Sommer, Schmitt, Gruer, Herbert, & Phillips-Howard, 2019). A study in Jordan reported that teachers were worried about teaching young girls about menstruation because social norms maintain that the girls were too young for such teaching (Jarrah & Kamel, 2012). A 2020 study in Uttar Pradesh, India, found that stigmatisation is reinforced in schools, that is, menstruation is not normalised in school and menstruating girls are teased by both male peers and male teachers (McCammon et al., 2020). This study also found teachers feeling embarrassed to teach the subject of menstruation.

Menarche can also be learnt about through mass media, which may include print media, social media, radio and television advertisements. However, mass media has been criticised for not providing appropriate knowledge about menstruation, leaving girls feeling uncertain and scared (Chandra-Mouli & Patel, 2017; Radosevic, 2015). Radosevic (2015) also explained that companies in the USA use mass media to commercialise and promote menstrual products. The commercialisation of menstruation increases awareness about menarche and, especially in the last decade, teaches women to be unconcerned about menstruation and lead an active and concern-free lifestyle by using menstruation management products. However, while such advertisements help to improve the information gap, some girls still feel surprised at menarche (Radosevic, 2015).

Menarcheal rites, sometimes called menarcheal ceremonies, were traditionally used to convey sensitive information about SRH, including menstruation and womanhood roles and responsibilities. Although menarcheal rites are associated with norms and ritualised practices—some of which can be harmful—they contain essential elements for supporting the flow of culturally sensitive and/or shameful information between significant women and the menstruating girl. However, some elements of this traditional strategy are slowly diminishing over time because of changing lifestyles from effects of Westernisation. Research has identified the use of menarche ceremonies in Fiji in the Pacific Island Countries and Territories (PICTs) (Clauson, 2012; Sniekers, 2005), Canada (Markstrom & Iborra, 2003) and countries in Africa (Audrey, 1982; Munthali & Zulu, 2007; Nieminen, 2017; Powdermaker, 1958).

1.8.3 Restrictive practices

Menarche is associated with restrictive practices in many settings. These restrictive practices usually relate to taboos embedded in social and cultural norms based on the beliefs and perceptions that menstrual blood is harmful and impure (Akin, 2003; Bobel et al., 2020; Dammery, 2016; Suneela Garg & Anand, 2015; Hennegan et al., 2019; Shah et al., 2019). There is increasing evidence about the perception that menstrual blood can cause harm to men when they are in contact with menstrual blood (Dammery, 2016; Mohamed et al., 2018; Thapa et al., 2019). Thus, menstruating girls are perceived to be dirty when they are menstruating (Dammery, 2016; Dunnavant & Roberts, 2013). Commonly reported restrictive practices include communication taboos (discussed in section 1.8.2), social isolation, bathing restrictions, food restrictions and restricting access to common places such as temples (Dunnavant & Roberts, 2013; Mohamed et al., 2018; Mumtaz et al., 2019; Thapa et al., 2019; van Eijk et al., 2016).

1.8.3.1 Social isolation

Menarcheal girls are often isolated to avoid contamination due to their menstrual status. There is increasing evidence that some young girls at menarche are isolated for a period of time because of menstrual impurity (Akin, 2003, 2004; Dammery, 2016; Manoshi et al., 2019; Thapa et al., 2019). Some girls are isolated from being publicly seen during menstruating, social activities, and participating in community activities (Mohamed et al., 2018; Scorgie et al., 2016; Shah et al., 2019; Sinha & Paul, 2018). Costos et al. (2002) reported that menstruating women are perceived as unclean and therefore are not allowed to worship in a temple. Shah et al. (2019) also found that menstruating Muslim women are restricted from performing any religious activities such as praying, touching the Qur'an, entering the mosque and fasting during Ramadan. The isolation practices preventing young women from engaging in social activities and community participation have been found to cause women to feel stressed, angry and embarrassed (S. C. Cooper & Koch, 2007; DeMaria et al., 2020; Manoshi et al., 2019).

1.8.3.2 Bathing and food restrictions

In many settings, girls are not allowed to bath and restricted to only eat certain food at menarche. Evidence of bathing and food restrictions was reported in studies from Africa, India and Pacific Islands (Mohamed et al., 2018; Morrison et al., 2018; Mumtaz et al., 2019; Rheinländer et al., 2019). These practices also led to menstruating women feeling angry, dirty and confused (Mohamed et al., 2018). Food restrictions can potentially lead to dietary deficiency and anaemia. Evidence is emerging around the relationship between lack of washing and cleaning of the vulval area and damp re-usable menstrual fabrics leading to itchiness and reproductive tract infections (Hennegan, Dolan, Wu, Scott, & Montgomery, 2016; Sumpter & Torondel, 2013; Wall, Teklay, Desta, & Belay, 2018). Girls in some cultural settings are not allowed to cook and feed men because of beliefs around menstrual dirtiness (Mohamed et al., 2018).

The restrictive practices stem from the male-dominant perception of menstrual blood (Dammery, 2016; Dickerson-Putman, 1996; Dunnavant & Roberts, 2013). The restrictive practices are considered a paternalistic approach to suppressing women's liberty to effectively manage menstruation and attain positive psychological wellbeing. This is due to the perception in many LMICs that menstrual blood is dirty and polluting (Adegbayi, 2017; Alam et al., 2017; Dammery, 2016). For example, in Indian societies, a study concluded that gender bias in patriarchal societies is more evident in SRH outcomes for girls than boys. That study further reported that gender bias with other social factors negatively influences social construction about menstruation. This discrimination is reflected in the poor and unequal health status across socio-economic settings (Gundi & Subramanyam, 2020).

1.8.4 Menstruation management practices

Women have the right to MHH. However, many young women experience difficulty managing menstruation effectively for three important reasons: (1) lack of knowledge and skills of how to effectively manage menstrual blood flow, (2) lack of access to safe and appropriate water and sanitation facilities where and when needed, and (3) lack of proper materials to help safely manage menstrual blood. As explained in section 1.8.2, many young women lack pre-menarcheal awareness, leading to

confusion about what to do at the onset of menarche. Consequently, young women feel stressed, ashamed and confused (Adegbayi, 2017; Chandra-Mouli & Patel, 2017; S. C. Cooper & Koch, 2007; DeMaria et al., 2020).

1.8.4.1 Water, sanitation and hygiene facilities

Access to WASH (definition in section 1.7) facilities and materials to help young women manage menstruation is a basic necessity and human right (Hennegan, 2017; Keith, 2016; Winkler, 2019). However, evidence shows that proper WASH facilities and menstruation management materials are lacking, particularly in LMICs (Alam et al., 2017; J. Davis et al., 2018; Hennegan et al., 2019; Kaur, Kaur, & Kaur, 2018). Evidence also demonstrates that women in LMICs and some resource- limited settings in HICs continue to face challenges relating to WASH facilities. A comparative study by UNICEF between six countries (Kyrgyzstan, Malawi, Philippines, Timor-Leste, Uganda and Uzbekistan) on equitable access to WASH facilities in schools found gender, disability, rural–urban disparity, and regional and ethnic disparity by country as the main factors affecting access to WASH in school. For example, schools in Kyrgyzstan, populated by minority ethnic groups, were found to have inequitable access to WASH in schools. In a low-resource setting in an HIC (Australia), a study among Indigenous women showed lack of proper WASH facilities to manage menstruation (Krusz et al., 2019). Women in rural and disadvantaged areas of the LMICs are more likely to have poor WASH access compared with women from urban or advantaged areas of LMICs and HICs (Bobel et al., 2020; Chandra-Mouli & Patel, 2017; Dammery, 2016; J. Davis et al., 2018; S. Garg, Sharma, & Sahay, 2001; Hamid, Johansson, & Rubenson, 2009). WASH facilities are often found to be inadequate or even absent in schools (Chandra-Mouli & Patel, 2017; Chinyama et al., 2019; Michelle Redman-MacLaren et al., 2018), and if available, girls' reluctance to use these facilities is linked to shame from menstruation stigma and lack of materials such as menstrual pads, sanitation facilities, toilet paper and hand washing detergent in some countries (Chinyama et al., 2019; Hennegan et al., 2019; Mohamed et al., 2018).

1.8.4.2 Menstruation management materials

Adequate access to menstruation management materials (modern menstrual products) is often a challenge for girls and women in both LMICs and HICs (Krusz et al., 2019).

A study in the rural district of Nepal found that only three schools had waste disposal facilities, and none had private washing and drying facilities. The used cloths were taken home and burnt, buried or thrown into streams or secluded places where no-one could see the soiled materials or be 'contaminated' by them (Morrison et al., 2018). A survey in US high schools found statistically significant correlations between a school's failure to provide menstrual health products and female students missing school or leaving school early, and negative impacts on their ability to learn (Cotropia, 2019). Studies in LMICs revealed that access to menstrual pads is a greater challenge in rural than urban areas because of various factors such as cost of menstrual products and shame related to the purchase of menstrual pads in stores because of menstrual-related stigma (J. Davis et al., 2018; Hennegan et al., 2019; Shannon, Melendez-Torres, & Hennegan, 2020). Studies in the PICTs found accessibility was limited because of geographical barriers and limited points of sale of menstrual products (Huggett & Natoli, 2017; Mohamed & Natoli, 2017; Natoli & Huggett, 2016; UNICEF, 2018). Lack of access to appropriate materials to manage menstrual flow can result in leakage, causing embarrassment (Shannon et al., 2020). Because of lack of support to ensure MHH, there is now a global movement on period poverty. The global movement on period poverty aims at ensuring equitable access to MHH for all girls and women that is underpinned by basic human rights (Global Citizen, 2021).

1.8.5 Implications for school attendance and performance

Menarche affects school attendance. School absenteeism resulting from menarche is linked to embarrassment, restrictive practices, and lack of WASH facilities and menstruation management materials (Cotropia, 2019; J. Davis et al., 2018; Krusz et al., 2019; Morrison et al., 2018). Apart from menstruation management materials in schools, discussed in the previous section, girls are found leaving schools because of a lack of appropriate and accessible WASH facilities in schools (Morrison et al., 2018; Redman-MacLaren et al., 2018). Mason et al. (2013) reported girls having difficulties engaging in class because of fear of odour from menstrual blood or leakage of menstrual blood and subsequent teasing from peers, mainly male peers, in schools. In Indonesia, J. Davis et al. (2018) reported girls being absent from school while menstruating because of a lack of WASH facilities, a lack of knowledge, shame and secrecy. Cultural gender norms and taboos that seclude girls at menarche also prevent

girls from attending school. As reported in studies in Nepal (Morrison et al., 2018; Mumtaz et al., 2019), and the Pacific (Mohamed et al., 2018), isolation practices to avoid contamination and rituals for womanhood prevent girls from school attendance. Meeting traditional obligations for marriage immediately after menarche is one cause of school absenteeism associated with menarche in Pakistan (Mumtaz et al., 2019). Pre-menstrual syndrome or period pains also lead to discomfort, which consequently affects girls' attendance (Miiro et al., 2018).

1.8.6 Menarche and sexual health risks and consequences

Adolescence is a vulnerable time for many adolescents and is a time of increased risk for unwanted pregnancies and sexually transmitted infections (STIs) for females. Menarche is the juncture of sexual and reproductive maturation and readiness for childbirth; thus, menarche poses greater SRH risks for girls if they are unsupported and ill-informed (Chandra-Mouli & Patel, 2017; Cheong et al., 2015; Sommer, Sutherland, & Chandra-Mouli, 2015; Yoo, 2016). Menarche has been linked to the commencement of sexual intercourse, teenage pregnancies and STIs (Soefer, Scholl, Sobel, Tanfer, & Levy, 1985). Studies have found that earlier age at menarche is associated with earlier intercourse (Cheong et al., 2015; J. Dunbar, Sheeder, Lezotte, Dabelea, & Stevens-Simon, 2008; Gaudineau et al., 2010; Ibitoye et al., 2017), teenage pregnancy and increased risk of sexual assault (Cheong et al., 2015).

A most important strategy to ensure that young girls are supported is through transfer of appropriate knowledge about the meaning of her changing body, valuing her body and autonomy, and protecting herself against risky sexual activities. Pre-menarcheal education is necessary because it can potentially improve understanding and attitudes towards menstruation among adolescents and increase their awareness of risks, enabling them to protect themselves accordingly (Cheong et al., 2015; Rembeck & Gunnarsson, 2004; Soefer et al., 1985). This education must happen before menarche so that the young woman is prepared for menstruation and already equipped to make informed decisions (Rembeck & Gunnarsson, 2004). However, as discussed in section 1.8.2, many studies on menarche have found gaps in pre-menarcheal communication. To ensure adolescent females are effectively supported through this transition process, efforts are required to provide comprehensive sexual health education programs and appropriate tools for early intervention for children before menarche.

The global experiences of menarche demonstrate that onset of menarche is all too often associated with stress, fear, embarrassment and confusion due to a lack of pre-menarcheal awareness, moral support, and WASH facilities and other menstruation management materials, underpinned by negative social norms, beliefs and practices around menstruation and menstrual blood. These practices affect the emotional and psychological status of young women, and their school, work and community life. In the next section, I describe how menarche is experienced in PNG. A brief context of PNG is provided to equip the reader with a contextual understanding of the country.

1.9 Papua New Guinea—A Brief Background

PNG, an LMIC, is situated in the South Western Pacific Ocean (United Nations Population Fund [UNFPA], 2014; World Bank, 2021a). Classified as a Melanesian country, PNG is the largest in landmass of any of the PICTs (Department of National Planning and Monitoring [DNPM], 2009). PNG (see Figure 1.1) shares common political boundaries with Irian Jaya (an Indonesian province) to the west (land border), Australia to the south, Guam to the north and the Solomon Islands to the southeast (all sea borders). Eighty-five per cent of PNG is mainland, with an approximate land mass of 461,690 square kilometres (DNPM, 2009). Social and cultural diversity is a defining feature of PNG, with over 800 different languages and cultural groups (Simet & Iamo, 1992). *Tok Pisin* (lingua franca), English (formal language) and *Motu* (spoken by some cultural groups) are the official languages of PNG. In the context of such a diverse range of languages, *Tok Pisin* is the most commonly spoken and is the uniting language (McDonald & Moffatt, 2012).

PNG's population was estimated to be approximately 8.8 million in 2019 (United Nations, 2019b). Despite rapid urban migration, an estimated 87% of the total population still live in rural, isolated and often inaccessible locations of PNG, often compounded by challenging geographical terrain (DNPM, 2010). The rural population relies heavily on subsistence farming and still adheres to many traditional cultural beliefs and practices. However, peoples' lifestyles have been rapidly shifting from traditional to adopting a Western way of life due to increasing urban migration; religion; inter-marriage; and access to education, health services and paid employment.

PNG consists of both matrilineal and patrilineal cultures (Government of Papua New Guinea [GoPNG], 2012). However, most PNG cultures and sub-cultures are patrilineal (GoPNG, 2012; Koian, 2010; Saovana-Spriggs, 2007). The patrilineal culture in PNG empowers and positions men as the heads and decision-makers, which is observed in every aspect of both rural and urban cultures. This patriarchal position of men places women as being less significant in the society, leading to increased violence against women, less social and economic opportunities, limited access to health and education services, increased unemployment, and less political representation of women, thus affecting their general health and wellbeing (J. Anderson, 2015; Edwards, 2015; GoPNG, 2012).

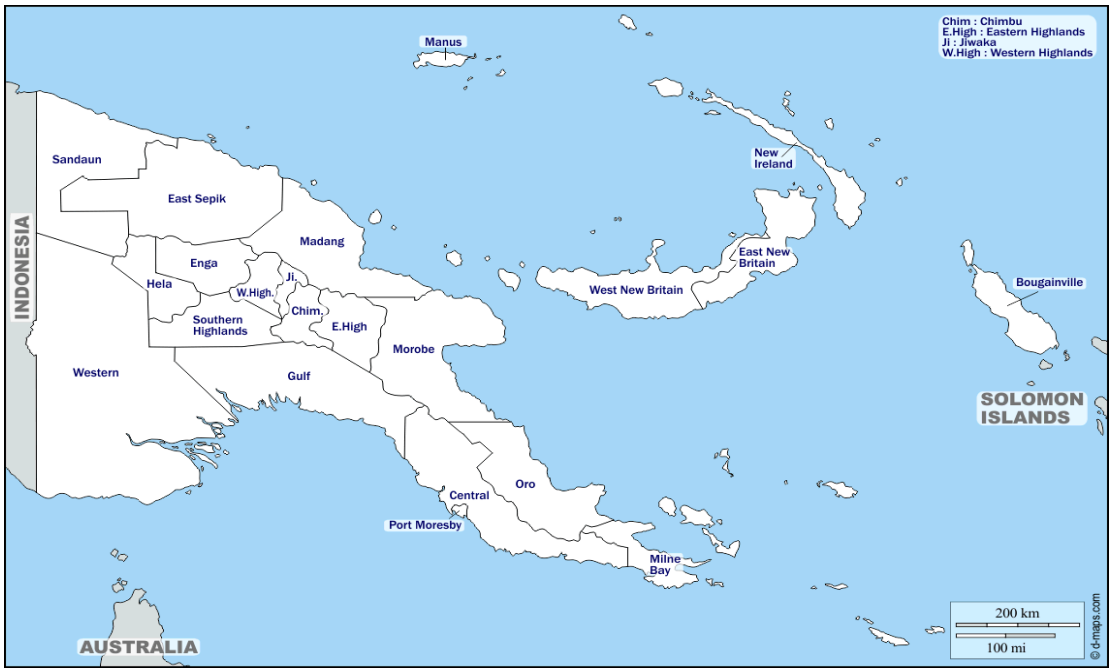

Figure 1.1: Map of Papua New Guinea (2007–2020 d-maps. Link: https://d-maps.com/carte.php?num_car=3862&lang=en)PNG gained its independence from Australia on 16 September 1975. Comprised of 21 administrative provinces, PNG is governed through a Westminster system headed by the prime minister of the country. The prime minister is the head of the National Executive Committee, which is responsible for national security, and economic and fiscal decisions. The 21 provinces are governed by Provincial Executive Councils, with elected governors as the provincial political heads.

PNG's demographic outlook reflects a youthful base with a disproportionately higher number of young people (aged 10–19) (National Statistics Office [NSO], 2019). This

group of young people is at the most vulnerable stage of their development and experiences some of the worst social and health consequences during the adolescent period, including teenage and/or unplanned pregnancies and HIV and AIDS as a result of risky sexual behaviours (Pameh, 2016; Sanga, Mola, Wattimena, Justesen, & Black, 2014; Vallely et al., 2010). This age group requires support to ensure their transition to adulthood is experienced with a minimum level of challenges associated with their biological changes.

Reviews from social and anthropological studies have shown that PNG has traditional institutionalised cultural systems that have facilitated transition of children at puberty (C. Jenkins, 1994; Lutkehaus & Roscoe, 1995). These systems are recorded in many parts of PNG for both males and females. Despite the different social norms, beliefs and practices associated with these systems, the common principle behind them was to prepare the young, naïve children for the gendered roles and responsibilities of adulthood. Menarche is one of those events that is recognised by most cultures in PNG. I specifically sought to explore how young girls and women experience menarche in PNG. Therefore, in the next section, I synthesise the findings of the anthropological and other recent studies about how menarche is experienced in PNG.

1.10 Experiencing Menarche in Papua New Guinea

Menarche and menstruation are important social and cultural events in PNG (Lutkehaus & Roscoe, 1995). While both menarche and subsequent menstruation are associated with social norms and practices, the onset of menarche is usually marked with ritualised practices (such as seclusion, initiation and cleansing), feasting, celebrations and dancing, and exchange of gifts (Lutkehaus & Roscoe, 1995). Given the diverse cultural and linguistic groups in PNG, the social norms, beliefs and practices differ between these cultures (Mohamed & Natoli, 2017). However, these beliefs and practices are commonly imposed by elders (both men and women) in both the patrilineal and some matrilineal societies, underpinned by common perceptions that menstrual blood is dirty and harmful to men (C. Jenkins, 1994; Lutkehaus & Roscoe, 1995; Malinowski & Ellis, 1929; Mead, 1940; Mohamed & Natoli, 2017). These beliefs about menstrual blood also underpin various restrictive practices such food taboos, social isolation and bathing restrictions (Mohamed et al., 2018; Mohamed & Natoli, 2017).

Many anthropological studies have reported forms of female initiation rites in PNG (C. Jenkins, 1994; Lutkehaus & Roscoe, 1995; Malinowski & Ellis, 1929; Mead, 1940; Stewart & Strathern, 2002; Tuzin, 1991). Lutkehaus and Roscoe (1995) reported over 83 different menarcheal rites in PNG. Two such communities include Massim and Papuan Coast in the southern region of PNG (p. 27). C. Jenkins (1994) remarked that initiation rites (for both males and females) are 'extremely' important cultural institutions used to transfer sensitive 'sexual and reproductive' knowledge from parents to the children. Jenkins (1994) also reported that not all parts of PNG observe and practise menarche rites and noted that not all communities within cultural groups that may practise menarche rites, do. However, the menarche rites are slowly diminishing in many cultures with the influence from the dominant Western culture that is slowly infiltrating many rural and remote parts of PNG (C. Jenkins, 1994).

Despite the existence of menarche rites in many parts of PNG, there has been a dearth of research documenting the experiences of women and girls at the onset of menarche. This paucity has created a gap in knowledge around the salient but silent, gender-specific, personal issues affecting women. The issues around menstruation affecting women and girls in PNG only started gaining attention recently in 2015, when the Australian Department of Foreign Affairs and Trade funded the Burnet Institute to conduct research on menstrual hygiene in the Pacific as part of the broader MHM and WASH intervention program (Mohamed et al., 2018). The ground-breaking descriptive study explored restrictive practices around menstruation in Fiji, Solomon Islands and PNG (Mohamed et al., 2018). Results from this study helped people working in and with these countries to understand the significance of menstruation and its impact on social inclusion, school attendance for young girls, and women's engagement in work and economic activities, as well as their overall emotional and psychological wellbeing. More specifically, this study documented that menstruation was associated with many restrictive practices, which were more common in the rural than urban study sites (Mohamed et al., 2018; Mohamed & Natoli, 2017). Restrictive practices related to avoidance of household chores and not being able to attend church or not being able to maintain menstrual hygiene, which in turn negatively affected female participation in schools, work and community life (Mohamed et al., 2018). This research laid the foundation for many other studies to follow, including this study.

The study by Mohamed et al. (2018) provided important evidence on current issues facing women during menstruation. However, the study was descriptive and had minimal in-depth focus to understand the fundamental social and cultural elements and theory to explain the experiences of women. In-depth exploration and theoretical understanding of the social and cultural aspects is important because menstruation is entrenched into the social and cultural way of life and is there to stay in PNG. To develop appropriate strategies to address the root cause of issues affecting women during menstruation, inductive theoretical evidence grounded in the data and co-constructed with study participants is required to explain the phenomena affecting young women's experience in PNG. Therefore, my study aims to explore the social and cultural phenomena that contribute to young girls' experiences at the onset of menarche in the rural and urban areas in PNG. This aim is further explicated in the description of the substantive area of enquiry for this study.

1.11 Substantive Area of Inquiry

The substantive area of inquiry for this study was to explore and understand the experiences of women and girls at menarche in PNG to inform the strategies that support a positive transition to womanhood. Specifically, this study sought to:

1. understand social and cultural factors affecting the experience of adolescent girls at menarche in PNG
2. understand how these experiences shape their knowledge, perceptions and practices at menarche
3. understand the perceived role for pre-menarcheal preparations of adolescent girls and the type of messages being taught
4. identify the best solutions for local-level action in MHH.

The key overarching research questions explored in this study were:

1. What are the experiences of adolescent girls at menarche globally and regionally in the PICTs? (in Chapters 1 and 2).
2. What are the experiences of adolescent girls at menarche in PNG? How do those experiences shape their knowledge, attitudes and perceptions towards menarche and body change? (in Chapter 4).

3. Who is responsible for pre-menarche preparations of adolescent girls and how is the preparation done? What messages are being taught? (in Chapter 4).
4. What is the best way moving forward to address issues affecting girls at the onset of menarche and body change? (in Chapters 5 and 6).

This research area explores personal and private issues affecting women in PNG. In the previous section (1.10), I explained that the experiences of women at menarche in PNG are embedded in social and cultural norms, beliefs and practices. A female researcher with an insider's perspective is better positioned to fully understand, comprehend, conceptualise and explain the theory of the felt experience of women at menarche in PNG (Asselin, 2003). In the next section, I explain my background to demonstrate the unique position I bring to this research as a local PNG female researcher, well placed to hear the women's stories, and understand and conceptualise their experiences of menarche. This position is also re-iterated in some sections in Chapter 3.

1.12 My Standpoint

Standpoint represents a researcher's position on how the world is viewed and can be understood (Rolin, 2009; Wylie, 2012). The standpoint approach also aims to give voice to the powerless and marginalised (Rolin, 2009). Part of this story relates to my epistemological, ontological and axiological positionality discussed in the methodology chapter (Chapter 3). In this section, I describe my background as a PNG woman undertaking this research with PNG women to co-create knowledge to amplify the silent but salient issues at menarche. This context is important as it gives value to how knowledge is acquired and re-told, not only from an indigenous perspective but as a woman who has experienced menarche as the participants have, in the social and cultural context of PNG. We talk about our stories and we tell the world our stories, and these stories can be told by myself as a female PNG researcher with similar experiences.

1.12.1 Locating myself as a researcher

To develop a theoretical explanation of the participants' stories, the researcher must be theoretically sensitive to the participants' stories from the outset to be able to understand the context and meaning of the story and re-tell the stories in a scientifically

acceptable standard. In this study, the theoretical explanation of the felt experiences of girls at menarche is largely informed by my personal upbringing, cultural knowledge and lived experiences of menarche in PNG.

During the course of this research, I constantly reflected on who I am and what I bring to this research as a PNG indigenous female researcher. This constant reflexivity when used in a grounded theory approach principally aimed to ensure a quality process in the course of this research (Birks & Mills, 2015). Constant reflection also provided me both an emic (insider) and etic (outsider) advantage. First, I place value in my positionality as an indigenous PNG woman, including the experience and knowledge I bring to this research in the process of co-constructing the theory to explain young women's experiences at menarche in PNG. Second, the experience of being born, raised and becoming a woman in a typical village in PNG is also valued because this experience gave me insight and perspective into the social and cultural phenomena of the girls' experiences at menarche. Finally, my professional experience (etic position) in the field of public health paved the way for me to understand, appreciate and become the women's voice or conduit for change on the salient issues affecting young girls at menarche in PNG through this research. The following sections explain these positions that I hold in this research to give context to the strategies I used to create new knowledge.

1.12.2 Cultural background

I am an indigenous PNG female researcher. I originate from a small village called Kwimbu in Maprik District in ESP of PNG. I was born to a family that is connected to many interconnected families that are extended through blood relations. There is a very strong sense of family and community. Most activities are done collectively as a family and community, including caring and sharing. My childhood and adolescent period was spent moving between the semi-urban and rural village context because my father was a medical orderly in Maprik District. Semi-urban referred to the local government district headquarters where civil servants lived and worked. Despite early exposure to Western ways of life, I was still connected to my traditional culture because my parents and extended families still maintained traditional norms. However, that movement enhanced my knowledge and understanding of the two different worlds I was living in and becoming accustomed to.

Having explained the experience brought to this research as an indigenous female PNG woman, I explicate the substantive area of this research in the next section.

1.13 Summary and Thesis Structure

In **Chapter 1**, the introductory chapter, I have:

- defined and explained that menarche is an important developmental milestone for females within the context of adolescent transition to adulthood
- explained that menarche is a basic human right within different human rights frameworks for adolescent females, and that within the SRHR framework, every adolescent female has the right to access to MHH
- explained that menarche is a significant issue affecting adolescent females by discussing global experiences of menarche
- briefly introduced PNG and explained the social and cultural significance of menarche in PNG's context, and explained the research gap
- introduced the substantive area of inquiry of the study, including the aims and objectives
- explained my standpoint in this study.

A brief summary of the remaining chapters in this thesis is provided below.

Chapter 2 reports the findings of a systematic scoping review undertaken to provide the regional context of experiences around menarche and menstruation to supplement the global and local perspective of menarche and menstruation provided in Chapter 1. The systematic scoping review explored social and cultural norms and practices to understand how these norms and practices affect women's ability to effectively manage menstruation in PICTs. This chapter is being prepared for publication.

Chapter 3 describes how the data were collected to construct a grounded theory to explain the experiences of woman at menarche in PNG. It starts by explaining the philosophical foundations of this study, followed by how and why grounded theory became the methodological choice rather than another qualitative approach. I then explain why constructivist grounded theory was the method of choice to guide how data were collected, analysed and presented. Finally, the principles to enhance quality of the research findings are described.

Chapter 4, a very important chapter throughout the thesis, presents the constructivist grounded theory of 'Making of a Strong Woman'. This constructivist grounded theory, which consists of a core category, four interconnected categories and two intervening conditions, explains why and how young women experience menarche the way they do in PNG's context. The contents of this chapter have been condensed and published in *BMC Women's Health* (Appendix 1).

In **Chapter 5**, I apply a theoretical code to expand the explanatory power of the constructivist grounded theory, 'Making of a Strong Women'. Social and Cultural Determinants of Health, the theoretical code, is strengthened by the application of the SRHR framework, gender equality and the Rights of Indigenous Peoples framework, using culture as a source of strength to the current discourses on quality, strength and limitations about menarche and menstruation. To ensure rigour of the process leading to the theoretical model (Figure 4.1, section 4.3), important elements used to ensure quality are explicated.

Finally, **Chapter 6** summarises this thesis by reinforcing the key discussions in each of the five chapters, presents the recommendations for action and concludes this thesis.

Chapter 2: Literature Review

PNG, the setting of my study, is a country within the PICTs. To provide context for the study, this chapter supports the reporting of global experiences of menarche outlined in Chapter 1 by systematically examining the experiences of women at menarche and menstruation in the PICTs, as reported in the literature. To provide the public health context of menarche, the broader implications of social and cultural beliefs and practices on the experiences of young women's MHH are examined and discussed. It is planned that the manuscript will be submitted for publication in the journal *BMC Reproductive Health*.

The suggested citation for this article is:

> Maulingin-Gumbaketi, E., Larkins, S., Whittaker, M., Rembeck, G., Gunnarsson, R., & Redman-MacLaren, M. Socio-cultural implications for women's menstrual health in the Pacific Island Countries and Territories (PICTs): A systematic scoping review. *BMC Reproductive Health Journal* (Under review).

2.1 Introduction

Menstrual health from the onset of menarche (first menstruation) is a girl's right (Hennegan, 2017; Keith, 2016; Winkler, 2019). However, it is increasingly recognised in developmental and academic work that the experiences of girls at menarche are inextricably linked to social and cultural norms, beliefs and practices.

Menarche and menstruation occur because of regular monthly shedding and secretion of unfertilised ova and the superficial portion of the endometrium—the *endometrium functionalis* in women (DiVall & Radovick, 2008). Menarche in pubertal girls signifies sexual and reproductive maturation (DiVall & Radovick, 2008), and menstrual health is an important aspect of the broader SRHR outcome (Phillips-Howard, Hennegan, Weiss, Hytti, & Sommer, 2018). We use 'girls' to refer to pre-menarcheal females, and 'women' subsequently to refer to both females at menarche and during their reproductive life, reflecting the change in the social status of girls to womanhood at menarche (Dammery, 2016; DiVall & Radovick, 2008; Rembeck, Moller, & Gunnarsson, 2006).

Menstrual health is the state of good MHM, defined as:

> 'Women and adolescent girls . . . using a clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary for the duration of a menstrual period, using soap and water for washing the body as required, and having access to safe and convenient facilities to dispose of used menstrual management materials'. (UNICEF, 2019, p. 7)

This definition is limited to WASH-related issues in managing menstruation. WASH—'an acronym for water, sanitation and hygiene—refers to the 'provision of safe water for drinking, washing and domestic activities, the safe removal of waste (toilets and waste disposal), and health promotion activities to encourage protective healthy behavioural practices among the affected population' (UNICEF, 2019, p.7) This definition includes managing menstruation hygienically and with dignity.

We prefer to build upon these definitions and use MHH in this review because MHH incorporates the definition of MHM along with the 'broader systematic factors linking health, well-being, gender equality, education, equity, empowerment, and rights' (UNICEF, 2019, p. 7). MHH is summarised as 'accurate and timely knowledge, available, safe, and affordable materials, informed and comfortable professionals, referral and access to health services, sanitation and washing facilities, positive social norms, safe and hygienic disposal and advocacy and policy' (UNICEF, 2019, p. 7). Managing menstrual health with adequate knowledge, safety and dignity, without stigma, is a human right for women (Hennegan, 2017; Keith, 2016; Winkler, 2019).

Given the significance of menarche and menstruation in women's sexual and reproductive lives, both these fundamental events are closely associated with socio-cultural beliefs and practices in many LMICs (Dammery, 2016; Hennegan et al., 2019; Sommer, Chandraratna, Cavill, Mahon, & Phillips-Howard, 2016). Many of these beliefs and practices involve restrictive practices and stigma for women during menstruation (Mohamed et al., 2018; Sommer, Hirsch, Nathanson, & Parker, 2015; Thakur et al., 2014). Studies in LMICs have found significant associations between cultural beliefs and practices and the impact on women's MHH (Farage, Miller, & Davis, 2011; Hennegan, 2017; Hennegan et al., 2019; Colin Sumpter & Belen Torondel, 2013). However, the extent of the impact of these beliefs and practices on women's ability to manage MHH are contextual and varied (Hennegan, 2017). There

is a need for more context-specific understanding of socio-cultural norms, beliefs and practices about menarche and menstruation to understand how best to address women's menstrual health and wellbeing.

PICTs in the South Pacific region comprise Polynesian, Melanesian and Micronesian countries with diverse cultural beliefs and practices. Menarche is an important cultural event in most cultures in the region (Lutkehaus & Roscoe, 1995; Mohamed et al., 2018). However, the beliefs and practices around menarche and menstruation differ among countries and cultures (Sommer, Caruso, et al., 2016). Beyond the anthropological literature, more evidence is required about the impact of socio-cultural norms, beliefs and practices on women's MHH in PICTs. These studies have started to emerge in the past decade, with findings that cultural norms limit women's ability to manage menstrual health (Mohamed et al., 2018). However, there is a need for more comprehensive understanding of the impact of socio-cultural beliefs and practices on MHH at the regional level.

2.2 Aim and objectives of scoping review protocol

A systematic scoping review was conducted to evaluate, analyse and document existing evidence about the social and cultural beliefs and practices about menstruation including menarche, and their implication on women's health and wellbeing in PICTs.

The objectives of the review are to:

- report on the quantity and nature of available evidence
- assess the quality of the evidence
- identify the social and cultural beliefs and practices about menstruation, including menarche in the PICTs
- determine the implications of the social and cultural beliefs and practices around menstruation for the health and wellbeing of women by synthesising evidence from PICTs.

2.3 Methods

This systematic scoping review was performed using the PRISMA systematic scoping review protocols (Tricco et al., 2015). This approach is suitable for questions where

literature using various approaches and methodologies is present in both peer-reviewed and grey literature. The search strategy was designed to identify peer-reviewed scholarly publications and unpublished grey literature about the experiences of women at menarche and during menstruation in PICTs.

2.3.1 Identifying publications

Searches for peer-reviewed and grey literature were carried out in two phases. Phase One of the search was performed between May and June 2019 by the first author (EG) under the guidance of an accredited librarian working at James Cook University, Australia. Phase Two of the search was performed in July 2020, with the aim of capturing any additional possible literature published between July 2019 and July 2020, using the same search strategy. The librarian assisted in the design of the search strategy and search strings, and guided the process of extracting data from databases, Google Scholar and relevant websites. The initial search was conducted on Medline/PubMED to modify and confirm the search terms with the librarian.

2.3.2 Search terms

Search terms included relevant Medical Subject Headings (MeSH) terms corresponding to these search terms in each of the databases that had thesauri (see Table 2.1). These search terms were derived from the key concepts of the review questions.

Table 2.1: Standard search terms

Concept number	Concepts	Search terms
1	Menarche and menstruation	Menarche OR Menarc* OR Menstrua* OR Menses*
		AND
2	Social and cultural beliefs and practices	Social* OR Cultur* OR Custom* OR Belief* OR Folk* OR Ceremon* OR Taboo* OR Practic* OR Tradition*
		AND

Concept number	Concepts	Search terms
3	Women's health and wellbeing	Wom#n OR menstrua* OR health* OR hygiene* OR wellbeing*
		AND
4	Pacific Island Countries and Territories	Pacific* OR Melanesia* OR Micronesia* OR Polynesia* OR Samoa* OR Cook* or Fiji* OR Guam* OR Kiribati* OR Marshall* OR Nauru* OR Caledonia* OR Niue* OR Mariana* OR Palau* OR "Papua New Guinea" OR Solomon* OR Tokelau* OR Tonga* OR Tuvalu* OR Vanuatu* OR "Wallis Futuna"

Standard search terms were applied as per the review protocol for Google Scholar and larger websites. However, within Google Scholar there were word limits of approximately 32 words (excludes connectors such as 'AND' and 'OR') to the search strings (Haddaway, Collins, Coughlin, & Kirk, 2015). In such a situation, the concept with the longest search string (Concept 4) was divided into six parts with the connector 'AND' to search terms of Concept 3, and the connector 'OR' thereafter until all search terms of Concept 4 were completed. While the limitations of Google Scholar are widely known (Haddaway et al., 2015; Halevi, Moed, & Bar-Ilan, 2017; Piasecki, Waligora, & Dranseika, 2018), because of time constraints, we limited the results to the first 100 returns per search. Altogether, six searches were performed, resulting in 600 relevant hits, which were all downloaded and exported into EndNote reference manager.

For the websites, where there were functions that allowed search strings to be entered, full search terms were entered. In situations where the search strings were lengthy and could not be accommodated, a number of searches were carried out. Smaller search functions, and minimum search terms containing key concepts such as 'Menstruation OR Menarche AND Culture AND Women OR Health OR Hygiene AND Pacific',

were used. All hits were scanned and 35 relevant articles retrieved. Relevant articles were manually downloaded and systematically grouped for analysis.

2.3.3 Peer-reviewed search strategy

Upon confirmation of the search terms, an extensive search was performed for peer-reviewed literature in six databases: Medline/OVID, Medline/PubMED, PsycINFO, CINAHL, Scopus and JSTOR. All relevant hits were exported to EndNote library management software. Based on the functionality of Google Scholar (Haddaway et al., 2015), some peer-reviewed literature not successfully retrieved from databases were retrieved from this source.

2.3.4 Expert search strategy

Experts working in the field relating to MHH in various capacities were contacted for additional references. This resulted in 16 references gathered and screened.

2.3.5 Grey Literature search strategy

Grey literature was searched on the Google Scholar database, as well as in a focused search on 28 relevant websites of international and local organisations dealing with menstrual issues. Grey literature refers to 'information produced at all levels of government, academic, business and industry in electronic and print formats not controlled by commercial publishing i.e. where publishing is not the primary activity of the producing body' (Tillett & Newbold, 2006, p. 70). This includes evidence such as theses, organisational and government reports, policy papers, and conference proceedings (Aromataris & Riitano, 2014; Haddaway et al., 2015; Tillett & Newbold, 2006).

2.3.6 Inclusion and exclusion criteria

The following inclusion and exclusion criteria were applied consistently throughout the search and analysis stage to find relevant literature that addressed the research question (Swift & Wampold, 2018). To capture documents about socio-cultural norms, beliefs and practices around menstruation and their implications for women's health and wellbeing in PICTs, we included peer-reviewed and grey literature according to the criteria shown in Table 2.2.

Table 2.2: Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Examined women's experiences around menarche and menstruation in relation to MHH in PICTs	Studies that do not reflect women's experiences relating to MHH in the PICTs
Were published between 1979 and 2020 (year of the review); 1979 was the year when the United Nations General Assembly adopted the Convention on the Elimination of All Forms of Discrimination against Women (United Nations, 2019a)	Studies that do not examine socio-cultural norms, beliefs and practices around menstruation and their implication on women's MHH in PICTs
Examined socio-cultural norms, beliefs and practices around menstruation and their implications for women's MHH in PICTs	Studies examining experiences of women born and raised outside of PICTs
Examined experiences of women who were born and raised in PICTs	Studies conducted outside PICTs and without relevance to these contexts
Studies conducted in PICTs, or reflecting on PICTs	
Studies conducted in the English language	

2.3.7 Screening and selection of articles

A total of 2568 articles were found with the initial search and were included in the initial screening by abstract and title (see Figure 2.1).

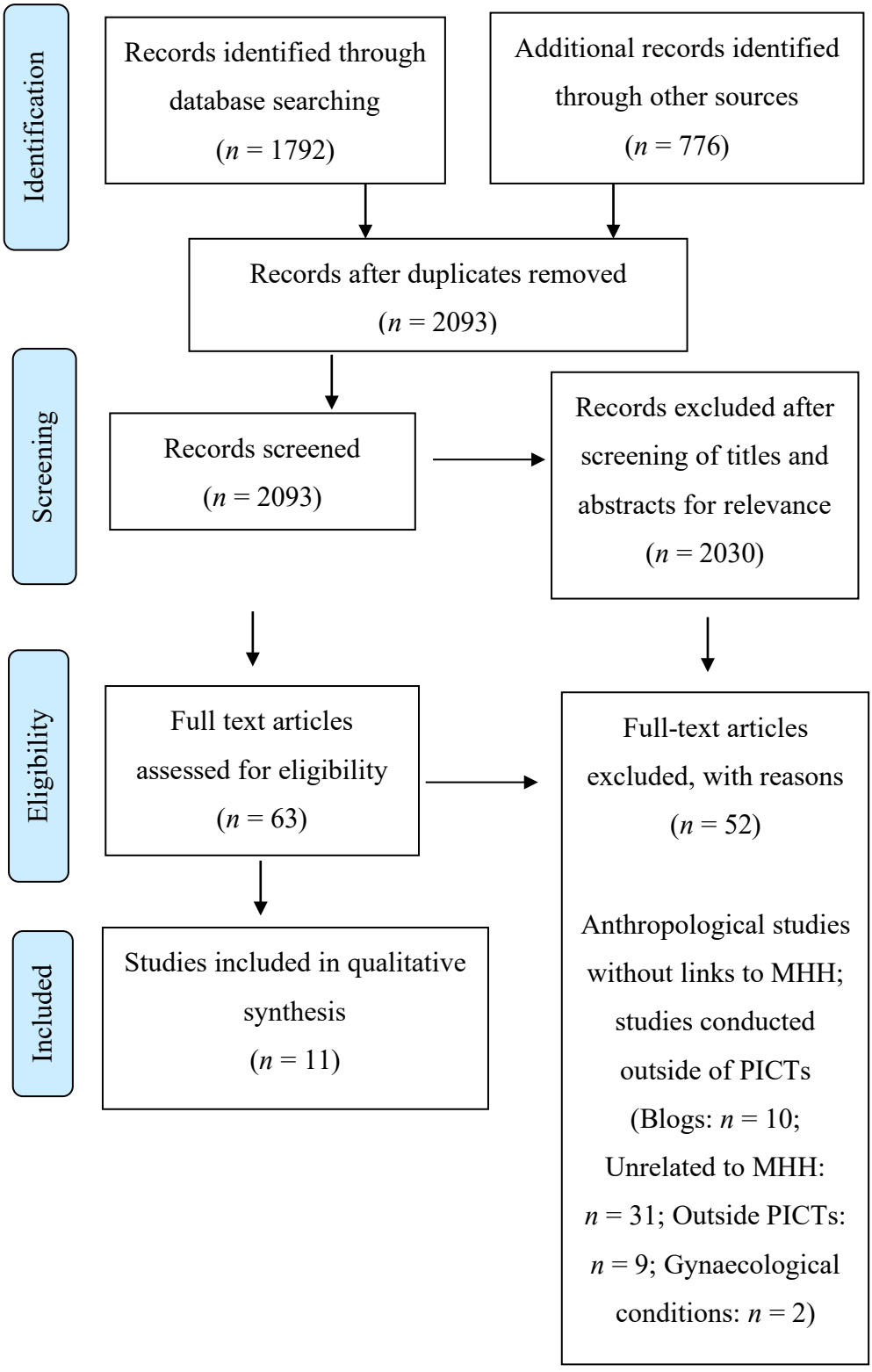

Figure 2.1: PRISMA flow diagram (Moher, Liberati, Tetzlaff, & Altman, 2009) Four phases of the PRISMA process were used to screen articles identified from databases and other sources. A total of 2093 articles were included after duplicates were removed. In the screening phase, title and abstract screening was

performed by the first author, resulting in 63 eligible articles for full text review. Fifty-two articles were excluded, with reasons reflected in Figure 2.1. All blogs were excluded after quality assessment for lacking methodological rigour. Full-text screening was performed independently with other authors to determine the final articles for inclusion (Tricco et al., 2015). Two authors (first and last author) later discussed the findings to determine which articles to include or exclude on the basis of the inclusion criteria. This process resulted in 11 articles meeting eligibility for qualitative synthesis.

Group discussion was necessary to resolve differences raised in assessments while reviewing the full text of articles (Pham et al., 2014). After the final list of articles for inclusion was agreed, the lead author reviewed the articles and extracted relevant data with cross-checking by other authors (see Table 2.3). The articles included were original peer-reviewed research articles, research reports, review papers, program descriptions and reports, policy papers, discussion papers, and commentaries.

2.4 Quality assessment and characteristics of articles

The Critical Appraisal Skills Program (CASP) quality assessment tool was used to assess the rigour, credibility and relevance of included articles using the relevant CASP assessment checklist (Critical Appraisal Skills Program, 2019). Quantitative and qualitative CASP checklists were used in this assessment: ten studies were qualitative, and one was quantitative (see Table 2.4). No articles were excluded on quality grounds.

2.5 Data extraction and analysis

The Socio-Ecological Framework for MHM in Figure 2.2 was used to extract and analyse the data (Caruso, 2013). This framework was developed by UNICEF and Emory University to guide researchers globally to generate findings about factors that affect MHM. The framework is intended to guide study design, with the five thematic areas (biological, personal, interpersonal, environmental and societal factors) shown in Figure 2.2 considered relevant and useful to evaluate existing literature and reports on experiences about MHM.

Biological factors relate to age and intensity of menstrual cycle (Caruso & Sahin, 2013), while the personal factors relate to a girl's knowledge, skills and beliefs. Interpersonal factors refer to the influence exerted by families, friends/peers and teachers. Community includes any member of the community with whom the menstruating woman associates. Environmental factors refer to menstrual issues relating to water, sanitation, hygiene and menstruation management material required to manage menstrual flow with dignity. Societal factors relate to policy, traditional cultural beliefs and social norms that potentially affect women's ability to manage menstruation effectively. These five thematic areas are considered highly relevant to systematically analyse and generate evidence relevant to the research question of this scoping review.

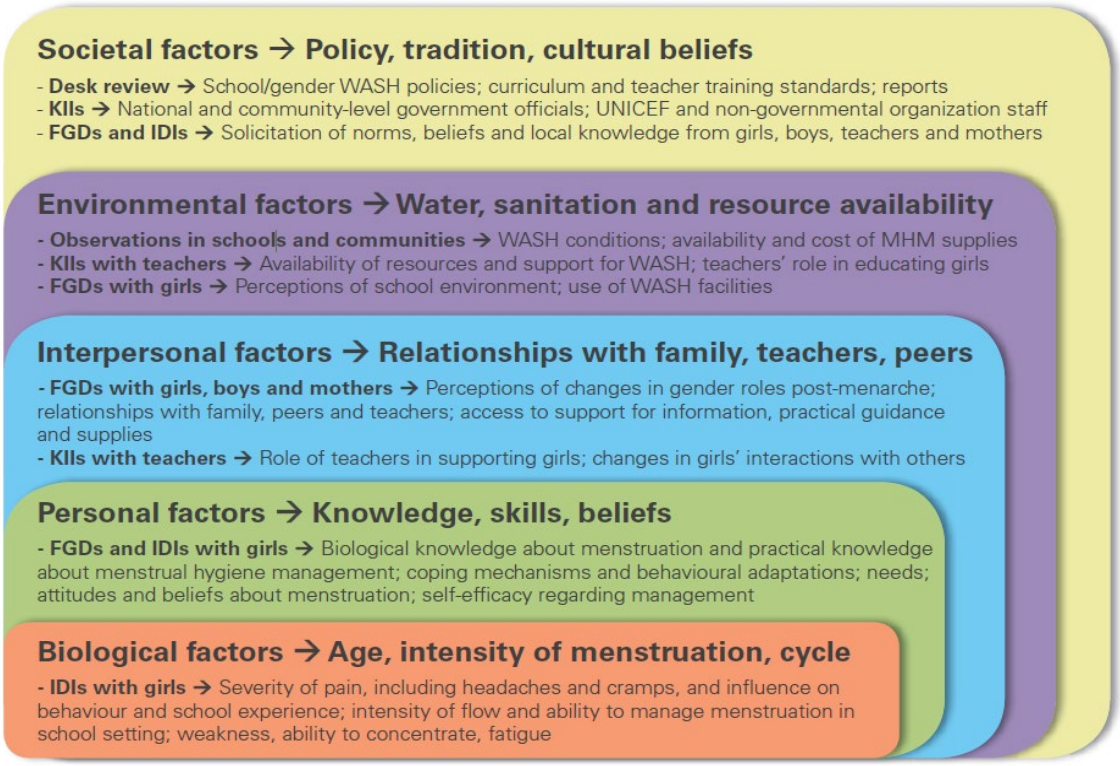

Figure 2.2: Socio-Ecological Framework for Menstrual Hygiene Management

KII = key informant interview; FGD = focus group discussion; IDI = in-depth interview; WASH = water sanitation and hygiene; UNICEF = United Nations International Children's Emergency Fund (Caruso, 2013, p. 3)

2.6 Results

The literature search yielded 11 articles that met the inclusion criteria. These articles reported studies conducted in three Melanesian countries (Fiji, PNG and Solomon Islands), one Micronesian country (Kiribati), two Polynesian countries (Western Samoa and American Samoa) and one Samoan community in Hawaii (see Table 2.3). The 11 included articles comprised five peer-reviewed articles and six grey-literature documents. One of these six is a book chapter (C. Jenkins, 1994) (see Tables 2.3 and 2.4). This review found limited literature on factors affecting MHH among women in PICTs. Of the 11 included works, only four (Fitzgerald, 1990; Mohamed et al., 2018; Sniekers, 2005; Vallely et al., 2012) were peer-reviewed and published (scholarly) articles, and out of the four scholarly articles, only one (Mohamed et al., 2018) is directly related to MHH. This paucity clearly demonstrates a dearth of research on MHH in the PICTs.

The review identified and categorised factors affecting MHH under the five socio-ecological factors: biological, personal, interpersonal, environmental and societal. Reported in Table 2.3, the included studies reported elements of societal factors and personal factors. Nine studies (Francois, Lauff, & Yamakoshi, 2017; Huggett & Natoli, 2017; C. Jenkins, 1994; Mohamed et al., 2018; Mohamed & Natoli, 2017; Natoli & Huggett, 2016; Sniekers, 2005; UNICEF, 2018; Vallely et al., 2012) reported elements relating to environmental factors. Ten studies (Clauson, 2012; Fitzgerald, 1990; Francois et al., 2017; Huggett & Natoli, 2017; C. Jenkins, 1994; Mohamed et al., 2018; Mohamed & Natoli, 2017; Natoli & Huggett, 2016; Sniekers, 2005; UNICEF, 2018) found evidence relating to interpersonal factors, and two studies (Fitzgerald, 1990; Francois et al., 2017) presented evidence linking to biological factors. Data extracted from each of the 11 articles are categorised according to these factors (see Table 2.3) and each are presented in turn.

2.6.1 Biological factors

Only two studies found elements relating to biological factors (see Table 2.3). One study conducted in Western Samoa, American Samoa and Hawaiian Samoa reported behavioural changes such as dizziness and feeling lazy, sleepy and tired from pre-menstrual syndrome resulting in decreased activity (Fitzgerald, 1990). While

decreased activity was reported, the study did not report the implications of pre-menstrual syndrome for social participation, including school attendance for young women. The second study conducted in Fiji (Francois et al., 2017) reported evidence of menstrual pain and other physical symptoms such as feeling tired and dizzy. Unlike the Samoan study, Francois et al. (2017) reported the effect of menstrual symptoms on social and physical activities and that young women were unprepared to manage these symptoms.

2.6.2 Personal factors

All included studies reported evidence of personal factors relating to knowledge, skills and beliefs, referring to pre-menarcheal awareness about menstruation and skills in managing menstruation. Ten included studies, except Fitzgerald (1990), reported young women feeling scared, embarrassed and confused at menarche, lacking comprehensive pre-menarcheal knowledge about menstruation, and usually being unprepared. However, evidence varied according to country and local contexts.

Compared with studies conducted in PNG (Mohamed et al., 2018; Mohamed & Natoli, 2017), Solomon Islands (Mohamed et al., 2018; Natoli & Huggett, 2016) and Kiribati (UNICEF, 2018), the studies conducted in Fiji (Francois et al., 2017; Huggett & Natoli, 2017; Mohamed et al., 2018) reveal evidence of access to education and information about menstruation and hygiene practices—commonly learnt at school before menarche. However, knowledge gaps relating to monthly menstruation cycles existed. Clauson's (2012) and Francois et al.'s (2017) studies conducted in Fiji reported that menarcheal ceremonies, where young women are isolated and talked to by older female members of the family (mothers, aunties and grandmothers), were used to prepare young women for womanhood. Lack of pre-menarcheal knowledge was commonly linked to taboo and secrecy resulting in limited communication, shame and embarrassment.

There is evidence that young women lack knowledge and skills on how to effectively manage menstrual blood and safely dispose of soiled pads (Mohamed et al., 2018; Mohamed & Natoli, 2017; Natoli & Huggett, 2016). In Fiji, young women with a disability faced more challenges than able-bodied girls (Francois et al., 2017). The studies in PNG and Solomon Islands commonly found women lacked pre-menarcheal

knowledge and the ability to manage menstruation (Mohamed et al., 2018; Mohamed & Natoli, 2017; Natoli & Huggett, 2016). Lack of knowledge and skills were commonly associated with lack of pre-menarcheal knowledge due to shame and secrecy.

Shame and embarrassment around MHH were found to restrict social and economic activities in studies conducted in Fiji, Solomon Islands, PNG and Kiribati (Francois et al., 2017; Huggett & Natoli, 2017; Mohamed et al., 2018; Mohamed & Natoli, 2017; Natoli & Huggett, 2016; UNICEF, 2018). Shame and embarrassment were also usually linked to teasing and bullying by males. Boys' lack of knowledge about menstruation resulted in teasing and bullying of young menstruating women in schools. This evidence was found in the study conducted in Kiribati (UNICEF, 2018), where reported knowledge gaps in both young women and school-aged boys about menstruation led to teasing and bullying.

2.6.3 Interpersonal factors

Interpersonal factors relating to relationships with families, teachers, peers and members of the community with whom the young women interact on a daily basis pose a variety of challenges. All 11 included studies reported challenges relating to pre-menarcheal awareness and preparation (see Table 2.3). Similarly, all studies reported that many young girls lacked awareness and preparation before the onset of menarche. Common explanations for this related to mothers' embarrassment, lack of knowledge, secrecy and taboos.

However, this review found that despite fear and embarrassment, Fiji reported a traditional way of preparing young women for womanhood—menarche ceremonies. Two studies conducted in Fiji (Clauson, 2012; Sniekers, 2005) found that menarcheal ceremonies were an important juncture through which girls are informed directly about SRH. Girls in Fiji (Francois et al., 2017; Huggett & Natoli, 2017) and Kiribati (UNICEF, 2018) also reported learning about menstruation in SRH classes in schools, while in Solomon Islands (Natoli & Huggett, 2016) and PNG (Mohamed & Natoli, 2017), 'many young women lacked pre-menarcheal knowledge about menstruation and were unprepared for menarche, subsequently experiencing feelings of fear, confusion, shame and embarrassment' (p. 4). 'While mothers, other female relatives,

girlfriends and female teachers are important sources of information and support about menstruation, they themselves may lack an accurate and comprehensive understanding of the issue and perpetuate misconceptions' (Natoli & Huggett 2016, p.4). In particular, male teachers may feel uncomfortable talking about menstruation, and need training to assist them in this task (Natoli & Huggett 2016). In Fiji, the 'onset of menstruation is viewed as signifying the transition from childhood to womanhood, and it is viewed as a 'normal' bodily process. It is not a strictly taboo subject; however, 'levels of secrecy and discretion vary according to religious and cultural background and prevailing attitudes and beliefs, and therefore vary among and between Fiji's main ethnic groups, *i-Taukei* and Fijians of Indian origin' (Huggett & Natoli, 2017, p.4).

Menstruation is a difficult topic to teach in schools. The review found teachers lacked the ability to effectively support young women in schools during menstruation. Study in Kiribati found teachers were under-trained to teach the MHH subject and under-resourced to manage students' expectations (UNICEF, 2018). Although menstruation is taught in schools in both rural and urban schools in PNG, teachers acknowledged limitations of subject area relating to managing menstruation and challenges associated with menstruation (Mohamed & Natoli, 2017). In Fiji, PNG, Solomon Islands and Kiribati, menstruation is taught in mixed girls' and boys' classes, limiting the depth and scope of knowledge that can be provided and increasing girls' vulnerability to teasing (Francois et al., 2017; Huggett & Natoli, 2017; Mohamed et al., 2018; Mohamed & Natoli, 2017; Natoli & Huggett, 2016; UNICEF, 2018). This approach can also limit girls' opportunities to ask questions about menstruation and hygiene because of shyness and cultural taboo.

Seven studies (Francois et al., 2017; Huggett & Natoli, 2017; C. Jenkins, 1994; Mohamed et al., 2018; Mohamed & Natoli, 2017; Natoli & Huggett, 2016; UNICEF, 2018) reported teasing and bullying, especially from boys and men. These studies reported that teasing commonly led to girls feeling ashamed and embarrassed. These studies revealed teasing was linked to menstrual taboos and lack of understanding about menstruation on the part of boys and men. The study in Kiribati (UNICEF, 2018) reported that boys did not feel comfortable talking about menstruation because it is a taboo, and therefore had limited understanding of why women and girls menstruate.

The study also reported that the girls feel paranoid when they are mocked by fellow students, especially boys, when menstrual blood leaks through their skirts.

2.6.4 Environmental factors

Environmental factors related to WASH facilities were found to exert a significant impact on the ability of young women to manage menstruation effectively and with dignity at home, schools, workplaces and public places (Caruso, 2013). Lack of these facilities affected school attendance, work, community participation and economic activities in studies conducted in Fiji (Francois et al., 2017; Mohamed et al., 2018), Solomon Islands (Natoli & Huggett, 2016), PNG (Mohamed & Natoli, 2017) and Kiribati (UNICEF, 2018).

'Adequate' WASH facilities are defined as access to clean and female-only secluded toilets with running water, and availability of toilet tissue, menstruation management materials (at reasonable cost) and sanitation facilities for disposing of soiled materials (Caruso, 2013). Comparing the adequacy of WASH facilities between countries, the studies in Fiji (Francois et al., 2017; Huggett & Natoli, 2017; Mohamed et al., 2018) consistently revealed that WASH facilities were better than in PNG (Mohamed et al., 2018; Mohamed & Natoli, 2017), Solomon Islands (Mohamed et al., 2018; Natoli & Huggett, 2016) and Kiribati (UNICEF, 2018). However, the WASH facilities were reported as poorer in rural village settings compared with urban settings in all of these countries. Further comparison found that the urban squatter settlements in PNG, Solomon Islands and Kiribati had poorer WASH facilities than Fiji.

Working women reported leaving work because of challenges in managing menstruation in workplaces (Huggett & Natoli, 2017; Mohamed et al., 2018; Mohamed & Natoli, 2017; Natoli & Huggett, 2016). Cost, supply chain and material choices in managing menstruation were generally more challenging for girls and women in Solomon Islands compared with PNG, Fiji and Kiribati (Francois et al., 2017; Huggett & Natoli, 2017; Mohamed & Natoli, 2017; Natoli & Huggett, 2016; UNICEF, 2018). Access to cash played a bigger part in determining the type of materials girls and women were able to acquire to help them manage menstruation. In all PICTs, access to menstruation products was even more challenging for women living in rural areas compared with urban areas (Mohamed et al., 2018).

2.6.5 Societal factors

Cultural norms, beliefs and practices were found to affect women's ability to manage menstruation effectively and with dignity. Traditional and cultural beliefs related to restrictive practices are linked to longstanding perceptions about the harmful nature of menstrual blood. These restrictive beliefs and practices were found to be common in studies conducted in PNG (C. Jenkins, 1994; Mohamed et al., 2018; Mohamed & Natoli, 2017), Solomon Islands (Mohamed et al., 2018; Natoli & Huggett, 2016) and Kiribati (UNICEF, 2018) and less common in Fiji (Francois et al., 2017; Huggett & Natoli, 2017; Mohamed et al., 2018). In Fiji, the levels of secrecy and discretion varied according to religious and cultural background, commonly among the main ethnic groups, *i-Taukei* and Indo-Fijians (Francois et al., 2017; Huggett & Natoli, 2017).

The traditional cultural beliefs and practices around menstruation vary between countries and contexts because of education, influence from religion and changes in traditional lifestyles due to Westernisation. The Last Taboo studies (Mohamed et al., 2018; Mohamed & Natoli, 2017; Natoli & Huggett, 2016) conducted in PNG and Solomon Islands reported restrictive practices are more commonly practised in rural than urban areas, while in Kiribati (UNICEF, 2018, p. 9), the traditional beliefs and practices are strong in both urban and rural settings. In two Fijian studies (Clauson, 2012; Sniekers, 2005) and one in Samoan countries (Fitzgerald, 1990), the restrictive practices were reported to be uncommon in both urban and rural areas. While there was little evidence of and denial of cultural beliefs and practices around menstruation in Samoan countries (Western, American and Hawaiian), there was an assertion that culture relating to 'stoicism' about menstrual pain was found to play a significant role in Western Samoa in the recognition and expression of menstrual symptoms (Fitzgerald, 1990).

Restrictive practices were found to affect women socially and psychologically, including their ability to manage menstruation effectively. In a study conducted in Fiji, PNG and Solomon Islands, Mohamed et al. (2018) reported one of the women from PNG saying:

> *'They are dirty and you know they have a . . . cultural belief. They think that you make the men . . . and the male sibling in the house . . . you know the food you touch makes them sick and they get older quicker and they don't have the strength to work,*

> *you make them weak so . . . they won't be . . . like physically active in doing men's work . . . that's the belief'* (KII Female health worker; urban PNG). (pp. 7–8)

The significance of ceremonies marking menarche was reported in two anthropological studies (Clauson, 2012; Sniekers, 2005) conducted in Fiji. The same ceremony is alluded to by C. Jenkins (1994) in her report-describing it as 'initiation' or 'menarche rituals' (p. 27). These authors reported the menarcheal ceremonies (or rituals) facilitate gender identity and preparation of girls for womanhood. Apart from preparation of womanhood, C. Jenkins (1994) explicitly explained that because of the belief that open communication about sexuality may pique curiosity (leading to earlier or greater experimentation with sex), menarcheal rituals or initiations are traditionally used by parents to control the flow of information about sexuality, sex and reproduction to young women (p. 27). This ceremony typically involves mothers, grandmothers and aunties in teaching and advising young girls about SRH topics. However, this ceremony no longer occurs regularly because of changes in the traditional ways of life and education.

Some women continue to observe traditional beliefs around menstruation that exclude them from community, social participation and sexual activities. Vallely et al. (2012) reported that menstruating women used customary menstrual steaming to clean blood that was 'blocked' before sex, with the belief that steaming would allow free flow of blood and cleanse the vaginal area before sex. Studies from PNG (Mohamed et al., 2018; Mohamed & Natoli, 2017), Kiribati (UNICEF, 2018) and Solomon Islands (Mohamed et al., 2018; Natoli & Huggett, 2016) found menstruating women were not allowed to cook and feed men or go near men because that could destroy men's strength in warfare, gardening, fishing and hunting. The study in Samoa reported that menstruation is not considered a taboo concept or polluting, and the restrictive belief systems and resulting changes in behaviour are individual choices (Fitzgerald, 1990). While menstruating women paid attention to personal hygiene, there was no elaborative evidence about MHM. However, men perceived that pre-menarcheal coitus is a pre-requisite for menarche to begin and coitus after childbirth is required for resumption of postpartum menstruation.

No study explicitly reported major policy issues such as policy review, budget provisions or minimum standards for addressing MHH practices.

Table 2.3: Included literature synthesised using Socio-Ecological Framework

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
Clauson, 2012	Fiji: village setting (Kadavu Island)	To understand how urbanisation affects how menstruation is treated in Fijian communities	No evidence	Girls aware of menstruation & menarche at pre-menarche Supported by mothers, grandmothers & aunties Girls learn about SRH at menarcheal ceremony	Girls learn about menstruation from village nurses & at schools Learning in the presence of boys in schools is challenging Teasing results from shame and embarrassment	No evidence	Evidence of cultural practices Menarche ceremonies exist but rarely observed—religious influence & living away from home Menarche ceremonies prepare girls for womanhood	Menarche ceremonies used to prepare girls for womanhood Education also reinforces pre-menarcheal learning No evidence of restrictive practices

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
							Restrictive practices not evident	
Fitzgerald, 1990	Western Samoa: rural village (Savai) American Samoa: semi-urban villages (Tutuila) Hawaiian Samoa: urban context	To see if culture change results in a change in menstrual experience	Stoic about menstrual pain but likely to seek medical attention Behavioural changes linked to PMS[a] leading to decreased activity, increased sleepiness	Evidence of females paying extra attention to personal hygiene & proper disposal of menstrual materials	Menstruation viewed as a normal, natural & private affair for women Public evidence of sexual behaviour for unmarried women is a cause of shame to individuals and family	No evidence	Concepts of menstrual pollution & taboo-not evident Casual conversation about menstruation evident between intimates Believe pre-menarcheal coitus is pre-requisite for menarche	Cultural factors play significant role in the recognition, evaluation and expression of menstrual symptoms No evidence of menstrual uncleanness but increased attention to menstrual hygiene

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
	(Honolulu)						Belief- menstruation is evidence of sexually active status	
Francois et al., 2017	Fiji: school settings in Ba, Lautoka & Ra; rural, urban and peri-urban schools	To assess menstrual related challenges in schools	Evidence of menstrual pain and physical symptoms—tiredness, dizziness, causing exclusion from social & sporting activities in schools	Lack menstruation knowledge Evidence of some knowledge gap Common knowledge source—mothers Staining clothes cause	Evidence of learning from school, but teaching menstruation in presence of boys' presence leads to shame, discomfort Repeated teasing from boys prevents girls	Evidence of adequate WASH facilities meeting standards However, facilities lack privacy, security and sanitary pads	Cultural taboos & norms lead to lack of menstrual information Evidence of discomfort learning about menstruation in same class with boys Cultural taboo causes discomfort	Girls face multiple MHH challenges due to lack of knowledge & unpreparedness; menstrual pain; fear/embarrassment of staining clothes; teasing; lack of WASH facilities

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
			Feel unprepared to manage symptoms	fear, shame & lack of class concentration Staining leads to teasing	from seeking support	Evidence shows challenges relating to inconsistent availability of materials[b] due to frequent cyclones & floods	for male teachers to teach menstruation topics Some evidence of restrictive practices	Affects school attendance and participation
Huggett & Natoli, 2017	Fiji: school settings	Explore challenges experienced by women & girls managing menstruation & whether	Many girls have pre-menarcheal awareness prior to menarche	Evidence of access to education about MHH; however, gaps exist—monthly cycle; disabled	Menarche viewed as transition to womanhood Women in workplaces & market vendors face challenges	Evidence of high standards of WASH facilities in some schools, workplaces and public places	Menstrual taboo less strict, but levels of secrecy & discretion exist but vary according to religion and cultural	Women face multiple challenges affecting MHH. including lack of knowledge and unpreparedness, restrictive

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
		these challenges affect participation in school, work & community engagement		females often excluded access to menstrual education; generational gap—older women uneducated Menstruation restricts social activities	managing menstruation—single public sanitary facility Mothers information source but lack support Teasing affects school attendance	Some WASH facilities lack soap, toilet tissues and sanitary disposal facilities Evidence of some facilities being locked, unclean & requiring user fees	background and prevailing attitudes & beliefs between Fiji's two main ethnic groups, *i-Taukei* & Indo-Fijians Reaching menarche is a celebrated event Strong restrictive practices exist with Indo-Fijians	practices, menstrual materials and WASH facilities
C. Jenkins, 1994	PNG:	Acquire information on men's & women's	No evidence	Women reported having prior knowledge	Sources of information were mothers, older women,	Lacking safe method of disposing of soiled materials	Evidence of cultural beliefs and secrecy	Cultural beliefs and practices restrict pre-

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
	rural & urban communities	sources & levels of knowledge of pregnancy, childbirth, their customary beliefs & practices about reproduction, fertility control & experiences & attitudes towards childbirth		about menstruation before menarche	schoolteachers, aunties and peers Parents control emerging sexuality of children Sexuality information passed at a time deemed right by parents Evidence of menarcheal ceremonies to prepare girls for womanhood		around menstruation Taboo around menstrual blood—believed to be dirty and harmful Restrictive food and behavioural restrictive practices exist	menarcheal awareness Parents control flow of sexuality information Menarche ceremonies used to teach/prepare young girls for womanhood

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
Mohamed & Natoli, 2017	PNG, Fiji & Solomon Islands: urban and rural settings	Describe menstruation-related attitudes and beliefs that contribute to restrictive practices in PNG, Solomon Islands & Fiji, and the impact of these restrictions on the lives of women and girls	No evidence	Evidence of lack of menstruation knowledge including pre-menarcheal knowledge Lack of knowledge results from taboo and communication secrecy Feeling of shame leads to social exclusion &	Evidence of teasing, harassment, stigma and shame about menstruation compelling girls to be more cautious and secretive More common in PNG and Solomon Island than in Fiji Young women leave school because of	Evidence of barriers to effective MHH such as poor WASH facilities. Condition worse in PNG and Solomon Islands than Fiji. Women's' ability to effectively manage menstruation is limited by poor	Evidence of socio-cultural & religious beliefs & attitudes leading to behavioural restrictions of women. Restrictions impact on their ability to effectively manage MHH with dignity and fully participate in school, work, and broader community life.	Restrictive practices are common in PNG and Solomon Islands compared with Fiji Restrictive practices more common in rural than urban areas Some restrictive practices were perceived desirable and driven by women themselves

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
				affects young women's education	teasing and harassment, including lack of proper MHM facilities	WASH facilities.	Belief that menstruation is dirty, menstruation and menstrual blood brings bad luck to men and boys, and menstruation related secrecy and shame exists. Evidence of menstruation and health-related beliefs.	
Mohamed & Natoli, 2017	PNG:	Understand how women in PNG manage	No evidence	Girls lack comprehensive knowledge of	Mothers, other female relatives, friends and	WASH facilities in schools and	Evidence of common beliefs and discriminatory	Women face multiple challenges that influence their

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
	urban and rural settings	menstruation & explore barriers & challenges experienced by women in managing menstruation		menstruation—unprepared for menarche, leading to shame Evidence of teasing by boys leading to shame and embarrassment	female teachers are important source of information and support, yet many lack understanding of menstruation and MHM	workplaces rarely meet needs for managing menstruation because of lack of water supply, non-functioning toilets, unclean and poorly maintained facilities, and no disposal mechanism for used soiled menstrual	attitudes around menstruation being dirty and unhealthy causing difficulty for women managing menstruation Also negatively affects their emotional wellbeing High level of secrecy is challenging and becomes an additional barrier to effective MHH	ability to manage menstruation hygienically; these include lack of knowledge and unpreparedness, restrictive practices, menstrual materials and WASH facilities

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
						material; also lack of privacy, lack of secure places for washing and personal hygiene		
Natoli & Huggett, 2016	Solomon Islands: urban and rural settings	Understand how women in Solomon Islands manage menstruation & explore barriers & challenges experienced by	No evidence	Evidence of girls lacking menstrual knowledge and being unprepared for menarche, leading to shame & embarrassment	Support sources include mothers, other female relatives, friends and female teachers, but many lack accurate and thorough understanding of	Schools, workplaces lack WASH facilities for women to manage menstruation because of lack of water supply, non-	Beliefs & discriminatory attitudes around menstruation being dirty & unhealthy evident, causing difficulty managing menstruation by women	Challenges women face are multiple These challenges influence women's ability to manage menstruation hygienically Challenges include lack of knowledge and

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
		women in managing menstruation		Teasing from boys is evident, leading to embarrassment	menstruation and MHH	functioning toilets, unclean & poorly maintained facilities Lack of disposal mechanism for used materials Lack of privacy, lack of secure places for washing and personal hygiene also evident	These beliefs affect women's emotional wellbeing High level of secrecy is challenging and becomes an additional barrier to effective MHH	unpreparedness, restrictive & discriminatory practices, menstrual materials and WASH facilities

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
Sniekers, 2005	Fiji: villages and urban settings (Suva and Nausori)	Gain knowledge of Fijian female gender identity through studying the menarcheal ceremony	No evidence	Evidence of feeling scared, shamed, embarrassed—private and personal	Evidence of learning from schoolteachers, mothers, aunties and grandmothers Focused learning about womanhood expectations, MHH and SRH occurs during menarcheal ceremonies	No evidence	Evidence of cultural secrecy & taboo of discussing sexuality; however, some evidence of menstrual blood is considered 'mana', harmful and sacred Menarche is celebrated event No customs relating to restrictive practices	Although menarcheal ceremonies are becoming uncommon, female and womanhood identity is acquired through these ceremonies Learning for girls also takes place in schools

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
							Evidence of menarcheal ceremonies giving positive image but becoming rare	
UNICEF, 2018	Kiribati, South Tarawa, Abaiang & Abemam: rural & urban school settings	Explore the extent to which menstrual hygiene practices affect girls' educational outcomes and development in Kiribati	Evidence of menstrual pain and loss of concentration from mood swings	Evidence of knowledge gap relating to menstruation & reproductive health in girls, including others: school-aged boys and mothers Girls lack knowledge to	Teachers lack knowledge & awareness of MHH being part of curriculum Teachers under-resourced and undertrained for subjects and to manage students' expectations; consequently,	Evidence that safe sanitation is far below standard for menstruating girls Girls with disability face additional barriers in managing menstruation	Evidence of traditional beliefs and practices in both urban and rural settings Beliefs that menstrual blood is taboo Restrictive practices, cultural beliefs causing restrictive	Young women face multiple challenges managing menstruation due to lack of knowledge, teachers' lack of knowledge, traditional restrictive practices, shame and secrecy, poor

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
				track onset of periods Lack of knowledge in boys leads to curiosity, teasing and bullying of girls in schools Teasing and bullying causes girls' school absenteeism, shame & embarrassment	girls receive incomplete information regarding menstruation and SRH	Evidence of school absenteeism & decreased school participation due to poor WASH conditions in schools to help manage menstruation Cloths, diapers & sanitary pads used to manage menstrual blood	communication among men and boys, consequently leading to teasing and bullying of girls, causing girls to feel scared & embarrassed Significance of culturally appropriate disposal method of soiled material is linked to cultural taboo	WASH facilities, bullying and teasing This affects girls' school attendance Young women with a disability face additional challenges

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
						Product choice is determined by availability & accessibility to cash	around menstrual blood	
Vallely et al., 2012	PNG: Sexual Health Clinic in Port Moresby	To investigate intra-vaginal practices and vaginal microbicide acceptability, and discuss implications of findings for future HIV prevention policy and	No evidence.	Women perceive and support the view that menstrual blood is harmful Belief that the use of menstrual products blocks bad air	No evidence	Evidence that menstruating women cleanse vulva before sex with water, soap and vaginal inserts (crushed garlic) for improved genital hygiene and vaginal	Evidence of traditional customs and norms relating to menstruation, beliefs and perceptions about menstrual blood However, some women admit having sex while menstruating	Diverse range of intra-vaginal practices were reported Customary menstrual 'steaming' practices Use of material fragments, cloths and newspapers to absorb menstrual

Publication	Country & study setting	Study aim/area of enquiry	Biological factors	Personal factors	Interpersonal factors	Environmental factors	Societal factors	Summary of evidence
		research priorities		from flowing inside of women's body Hence, women use 'smoking & steaming' practice to clean their birth canal		soap for vagina tightening Customary 'steaming' practices and menstrual blood is absorbed using fragments of materials, cloths, newspapers, baby nappies and sanitary towels		blood were reported Unprotected sex during menstruation was commonly reported

Note: PMS = pre-menstrual syndrome.

[a] Materials such as water, soap, toilet paper and sanitary pads.

Table 2.4: Quality assessment of included documents

Publication	Article type	Study design	Was there a clear statement of the aim?	Is a (qualitative) method appropriate?	Was the research design appropriate to address the study aim?	Was recruitment strategy appropriate to research aim?	Did data collection method address research issue?	Has the relationship between researcher and participants been considered?	Have ethical issues been taken into consideration?	Were the data sufficiently rigorous?	Is there a clear statement of findings?	Will results help locally? (value of the research)
Clauson, 2012	GL-RR	Original. research: Qual. design	Y	Y	Y	Y	Y	CT	Y	Y	Y	Y
Fitzgerald, 1990	SA	Original research: Mixed methods	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Publication	Article type	Study design	Was there a clear statement of the aim?	Is a (qualitative) method appropriate?	Was the research design appropriate to address the study aim?	Was recruitment strategy appropriate to research aim?	Did data collection method address research issue?	Has the relationship between researcher and participants been considered?	Have ethical issues been taken into consideration?	Were the data sufficiently rigorous?	Is there a clear statement of findings?	Will results help locally? (value of the research)
Francois et al., 2017	GL-RR	Original research: Qual. design	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
Huggett & Natoli, 2017	GL-RR	Original research: Qual. design	Y	Y	CT	Y	Y	Y	Y	Y	Y	Y
C. Jenkins, 1994	SA-BC	Original research: Qual. design	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Publication	Article type	Study design	Was there a clear statement of the aim?	Is a (qualitative) method appropriate?	Was the research design appropriate to address the study aim?	Was recruitment strategy appropriate to research aim?	Did data collection method address research issue?	Has the relationship between researcher and participants been considered?	Have ethical issues been taken into consideration?	Were the data sufficiently rigorous?	Is there a clear statement of findings?	Will results help locally? (value of the research)
Mohamed et al., 2018	SA	Original research: Qual. design	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mohamed & Natoli, 2017	GL-RR	Original research: Qual. design	Y	Y	CT	CT	Y	Y	Y	Y	Y	Y
Natoli & Huggett, 2016	GL-RR	Original research: Qual. design	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Publication	Article type	Study design	Was there a clear statement of the aim?	Is a (qualitative) method appropriate?	Was the research design appropriate to address the study aim?	Was recruitment strategy appropriate to research aim?	Did data collection method address research issue?	Has the relationship between researcher and participants been considered?	Have ethical issues been taken into consideration?	Were the data sufficiently rigorous?	Is there a clear statement of findings?	Will results help locally? (value of the research)
Sniekers, 2005	SA	Original research: Qual. design	Y	Y	CT	Y	CT	CT	N	CT	Y	Y
UNICEF, 2018	GL-RR	Original research: Qual. design	Y	Y	Y	CT	Y	N	Y	Y	Y	Y
Vallely et al., 2012	SA	Original research: Qual. design	Y	Y	Y	Y	Y	N	CT	Y	Y	Y

Note: BC = book chapter; GL = grey literature; SA = scholarly article; RR = research report; RA = review article; Qual = qualitative; Quant = quantitative; SRW = systematic review; RW = review (not systematic); Y = Yes; CT = can't tell; N = No (Abbreviations consistent with CASP tools).

2.7 Discussion

This review found that research on MHH is very limited in the PICTs, beyond the anthropological literature about beliefs and practices around menarche and subsequent menstruation. This finding is consistent with a recent unpublished literature review on menstrual hygiene in the Pacific (Burnet Institute, WaterAid, & IWDA, 2016). The lack of evidence on MHH demonstrates a lack of attention on addressing women's SRH and in particular the menstrual issues in the Pacific (Burnet Institute et al., 2016). Evidently, research on MHH in the PICTs is largely externally driven and lacks critical indigenous and epistemological perspectives from Pacific Islanders. Further, the research lacks inductive and participatory research approaches that empower participants with lived experience to have control over the research agenda, the process and actions to address their felt issues (Bergold & Thomas, 2012). This view is important because menstrual issues affecting women in the Pacific are personal and ingrained into people's way of life.

Despite different settings and populations, the synthesis of descriptive evidence from a few countries (PNG, Solomon Islands, Fiji, Kiribati and Samoa) reflects common themes relating to MHH, with manifestations that differ in response to context between and within countries. Using the Socio-Ecological Framework, the synthesis highlighted multiple challenges faced by women in PICTs, at menarche and throughout their reproductive life, relating to MHH. These challenges have important implications for consideration when addressing SRH issues specifically relating to menstruation in the PICTs. These implications are now discussed at individual, institutional and societal levels (McCammon et al., 2020).

2.7.1 Individual level

At the individual level, women generally lacked pre-menarcheal knowledge, and understanding about menstruation and skills for managing it, often leaving them unprepared for menstruation. The lack of pre-menarcheal knowledge was linked to mothers' inability to teach the daughters, resulting in fear, shame and confusion. This is similar to studies conducted in other LMICs (Caruso et al., 2013; Chandra-Mouli & Patel, 2017; Mason et al., 2017; McCammon et al., 2020).

Mothers' inability to teach their daughters was linked to shame and taboo, which was also found in a study conducted in Uttar Pradesh, India, that found young women lacked knowledge about menstruation (McCammon et al., 2020). Inability to effectively manage menstruation due to lack of skills and menstrual management materials was also reported by Caruso et al. (2013) in Sierra Leone, leading to shame and embarrassment. Restrictive practices can also potentially affect a range of personal factors such as pre-menarcheal awareness and preparation, self-esteem and psychological wellbeing, and MHH practices (MacRae, Clasen, Dasmohapatra, & Caruso, 2019; Scorgie et al., 2016; Sommer, Hirsch, et al., 2015).

2.7.2 Institutional level

WASH facilities are critical requirements to support girls and women to manage MHH with dignity (UNICEF, 2019). This review found a lack of WASH facilities in schools, workplaces and rural areas. This finding is consistent with many studies conducted on WASH and MHH in LMICs (Alam et al., 2017; Chinyama et al., 2019; J. Davis et al., 2018; Elledge et al., 2018). Lack of WASH facilities affects women's ability to effectively manage menstruation and to fully participate in community activities, education and work. This finding is also evident elsewhere (Chandra-Mouli & Patel, 2017; Hennegan et al., 2019; Sommer, Chandraratna, Cavill, Mahon, & Phillips-Howard, 2016), reporting lack of toilet facilities in schools restricting girls from educational attendance (Sommer, 2010), and women's employment, economic and religious activities (Sommer, Chandraratna, et al., 2016). Lack of WASH facilities often left women feeling ashamed and embarrassed. This review found girls absenting from schools as a result of lack of proper toilet and sanitation facilities. McCammon et al. (2020) found that structural challenges at school, such as inadequate bathrooms, cause difficulties for girls to manage menstruation effectively in school.

2.7.3 Societal level

Findings from this review suggest that misconceptions and restrictive practices resulting from the social norms and beliefs around menstruation and menstrual blood are a determinant of women's MHH, and emotional and psychological wellbeing of women. Although the review found disparity in menstrual beliefs and practices between countries, the findings suggest that these beliefs are ingrained into the cultural

beliefs and perceptions of menstruation including menstrual blood (Sommer & Sahin, 2013), and may continue to remain and influence MHH practices of women in the PICTs. Social norms and practices around menstruation are critical elements that influence women's ability to manage MHH (Adegbayi, 2017; Ameade & Garti, 2016b; Krishnan & Twigg, 2016; Kumar & Srivastava, 2011; Mason et al., 2013).

Curiosity, shame and gender-bound secrecy were also found to influence behavioural practices such as bullying and teasing from male figures, and the inability of male teachers to effectively support female students during menstruation in schools. Misguided knowledge of boys has been found to help promote and perpetuate stigma, acts of teasing, and bullying of women during menstruation (Y. T. Chang, Hayter, & Lin, 2012; Mason et al., 2013; Rembeck & Gunnarsson, 2011).

Taboo and stigma against menstruating women—leading to restricted SRH and menstruation communication, social and community participation, education and work—are considered a form of gender-based violence induced by patriarchal perceptions of menstrual blood (Goldblatt & Steele, 2019; Upadhyay, 2017). Stigma, shame and secrecy around menstruation are linked to menstrual taboos (Dammery, 2016; Phillips-Howard et al., 2016; Secor-Turner, Schmitz, & Benson, 2016; Sommer, 2010; Sommer & Ackatia-Armah, 2012). Myths and rumours about menstruation found in this review led to fear, shame and self-isolation (UNICEF, 2018). They were also found in studies conducted in India (Suneela Garg & Anand, 2015) and Ghana (Agyekum, 2002), leading to psychological distress in menstruating women.

The use of the Socio-Ecological Framework in this analysis has highlighted important challenges and multiple focus areas for interventions. A multi-level approach is required to facilitate and create a supportive environment for a positive menstruation experience.

2.8 Recommendations

The menarcheal ceremonies provide an important alternative to SRH communication because of communication taboo and secrecy relating to menstruation and menstrual blood. The menarcheal ceremonies reported in Fijian studies are traditional cultural systems used by older women to prepare young women for womanhood and are also found in African studies (Bergsjo, 1994; Powdermaker, 1958) to prepare girls for

womanhood. The model can become an alternative model for incorporating teachings about SRH topics including menstruation.

The majority of evidence related to the implication of traditional social and cultural norms, beliefs and practices on MHM. Policy-related evidence relating to MHH was minimal. Lack of policy-related evidence may infer lack of evidence informing practice or a mere lack of consideration for gender-specific issues due to subordination of women, cultural taboos, shame and secrecy. Negative norms, beliefs and practices that condition the experiences of women and girls at menarche result from the predominant patriarchal social and cultural environment within PICTs. These norms, beliefs and practices cushion the interplay of negative perceptions and reactions that impede women's ability to successfully manage MHM. Despite disparities in experiences among countries, and rural and urban contextual settings, planning to include males in SRH education programs in an effort to influence their perceptions about menstruation is paramount. WASH facilities should be considered beyond schools to include work environments, public spaces, and rural and urban settings. WASH facilities should be an essential item in public resource planning that links to people's movements and resettlements, including following migration and disasters. Consideration of developing menarcheal ceremonies into a contemporary learning model for teaching SRH topics in the Pacific may be worthwhile.

2.9 Strengths and Limitations

This is the first systematic scoping review performed about MHH in the Pacific. Consistent with indigenous epistemological standpoints, this review was undertaken by a Pacific Island research scholar as part of her PhD studies, supported by PhD advisors from an Australian University. Conducted from an Australian university, this review had good access to grey literature and relevant worldwide websites, including individual authors conducting research on menstruation in PICTs and international organisations.

To ensure a high-quality review, this review used PRISMA scoping review processes and the CASP assessment tools for quality assessment of included articles, and applied the Socio-Ecological Framework to thematically extract and synthesise findings. Research on MHM (apart from anthropological studies) in PICTs mostly commenced

a few years ago. Hence, the number of studies conducted thus far is insufficient to fully understand the factors influencing MHM and the broader implications of menstruation on the wellbeing of girls and women.

2.10 Implications for Further Research

Country-specific research around menstruation is a necessary first step for PICTs. Further, because menstruation is deeply embedded in the social and cultural fabric of PICTs, research done by local researchers and the use of indigenous and feminist epistemologies and participatory action approaches are important considerations in the way knowledge is created. One important consideration for PICTs is to prioritise understanding local socio-cultural norms around menstruation because menstrual experiences are contextual, and given the diversity in the social and cultural contexts in the PICTs, local contextual knowledge is paramount.

2.11 Conclusion

Menstruating girls and women have rights to manage menstruation effectively and with dignity (Sommer, Caruso, et al., 2016). However, it is evident from this review that important societal, environmental, interpersonal and personal factors affect the experiences of girls and women around menstruation. Of these four factors, socio-cultural norms, beliefs and practices appear to be extremely important underlying determinants that require local action. Menstruation is deeply embedded in the diverse localised social and cultural fabric of the society; thus, a localised research and action plan is necessary. Consideration should be given to utilising indigenous and feminist epistemologies and participatory approaches to understand country-specific issues around menstruation.

2.12 Summary

In this chapter, I have systematically evaluated, analysed, synthesised and documented existing evidence about the social and cultural beliefs and practices about menstruation including menarche, and their implication on women's health and wellbeing in PICTs. I have:

- explained the background and rationale for the systematic scoping review

- explained the methodological process of the systematic scoping review
- described how articles were excluded and included using the PRISMA protocol
- described and presented quality assessment and key characteristics of each included article
- discussed the results using the Socio-Ecological Framework, implications and recommendations

In the next chapter, I report on the methodology and methods used to conduct this PhD study.

Chapter 3: Methodology and Methods

3.1 Introduction

This chapter describes the summary of the methodology and methods, and rationale for the critical decisions undertaken in methodological choices in this research. The chapter contains three sections. First, the key elements of relevant philosophical perspectives and research paradigms are examined to explain why and how I reached my philosophical standpoint underpinning the qualitative methodological research design used in this study. Second, I outline the critical aspects of qualitative methodology, and explain why grounded theory was chosen as the overarching research methodology, and constructivist grounded theory specifically. Finally, I describe how constructivist grounded theory methods were applied in this study.

3.2 Determining Philosophical Perspectives and Paradigms

Research students are required to learn the knowledge, skills and principles of performing research (Birks & Mills, 2015). One critical aspect is the ability to reflect upon and explain the axiological, ontological and epistemological assumptions that underpin the chosen philosophical paradigm (worldview) informing the conduct of the study. In this section, I define philosophy and explain how I, as the researcher, view the world and position myself within this world of research. After setting the context, I will explain why and how I arrived at my philosophical standpoint that influenced the research design and implementation.

So what is philosophy and how does it relate to research? The term philosophy refers to the study of knowledge and wisdom about the nature of reality, values and human conduct (Warburton, 2013). Alternatively, Birks (2014) referred to philosophy as a 'view of the world encompassing the [research] questions and mechanisms for finding answers that inform that view' (p. 18). One mechanism for finding answers is through the systematic conduct of research (Grix, 2004; Naidoo, 2011; Warburton, 2013). In science, the term research is referred to as the 'diligent systematic enquiry into nature and society to validate and refine existing knowledge and to generate new knowledge' (Naidoo, 2011, p. 1). Hence, philosophy intrinsically underpins the way new

knowledge is found/constructed through research, based on logical argument (Grix, 2004; Warburton, 2013).

Worldview is defined as a personal and historical point of view (Vidal, 2008). A researcher conducting research has their own worldview (Birks & Mills, 2015). This stems from their set of beliefs and assumptions about the nature of reality within that world, the researchers' place (or positionality) and relationships (or interactions) occurring in that world (Guba & Lincoln, 1994; Kivunja & Kuyini, 2017). These belief systems and ways of thinking about the world—known as paradigms—set the foundation for how research is designed and conducted (Birks & Mills, 2015; Grix, 2004; Killam, 2013). Therefore, researchers are encouraged to explain their philosophical assumptions to ensure a robust research design and valid research outcomes (Birks & Mills, 2015; Creswell & Poth, 2016).

Axiology, ontology, epistemology and methodology are the four philosophical assumptions that constitute a researcher's worldview (Killam, 2013). These foundational assumptions guide the choices of researchers on how research is designed and conducted (Creswell, 2013; Guba & Lincoln, 1994, 2005; Saunders, Lewis, Thornhill, & Lewis, 2019). In the following sections, I define each of these assumptions and link them to my own philosophical stance.

Axiology—the research ethics and values within the research process—explains how a researcher's own ethical values influence the research process (Saunders et al., 2019). Influenced by my upbringing, religious affiliation, and close family and communal interaction, I bring into this study the values of love, respect, fairness, justice and compassion.

Ontology is the study of the nature of reality (Creswell, 2013). Researchers have their own beliefs and perceptions about the nature of reality, which influences their way of seeing and studying the research participants (Guba & Lincoln, 1994). Truth is socio-culturally constructed (Burr, 2015), shaped by cultural, historical, political and social norms that operate within that context over time (Darlaston-Jones, 2007; Gergen, 1985). I am a Papua New Guinean woman, born and raised in the typical village of Kwimbu in Maprik District of ESP. I have lived in three different worlds: PNG (rural and urban) and internationally (Australia). My beliefs about the nature of reality are

influenced by exposure to the cultures of these environments; my personal experiences; what I heard, observed, learnt and believed to be true and normal as a child; and interacting with people over time within these different social and cultural environments.

Epistemology examines assumptions about how knowledge is created—what constitutes acceptable, legitimate and valid knowledge—and relates to how researchers come to know what they know (Saunders et al., 2019). To understand the subjective realities within the substantive area of this study (explained in Chapters 1 and 2), I use both etic and emic standpoints as a mature indigenous PNG woman with lived experiences of menarche myself, while seeking to amplify voices of PNG women through exploring, understanding and re-telling the stories of their personal experiences. I believe experiences at menarche are subjective (personal) and central to women experiencing it. These lived realities cannot be the same for everyone. This philosophical paradigm, based on my axiological, ontological and epistemological assumptions, set the foundation of my approach to research. My beliefs and ways of thinking—my research paradigm—inform the methodology and methods I used in this study.

Methodology refers to how researchers discover new knowledge in a systematic way that is consistent with the axiological, ontological and epistemological assumptions, and can be described as a set of systematic strategies or plan of actions that underpin the choice of specific methods or procedures (Killam, 2013). The methodology I chose for this study, consistent with my axiological, ontological and epistemological position and suitable to answer my research questions, was constructivist grounded theory. In summary, Table 3.1 reflects the concerns, characteristics and questions I bring to this study.

Table 3.1: Summary of the belief system underpinning my research

Paradigm elements	**Concerns**	**Personal characteristics**	**Questions**
Axiology	Ethics, values	Love, respect, compassion & fairness, social justice	What is the nature of ethics?

Ontology	Nature of reality	Relativism Social Constructivism	What is the form and nature of reality and what is there that can be known about it? What exists? How can we sort existing things out?
Epistemology	How knowledge is acquired	Experiences are personal and central to women; knowledge is socio-culturally located	What is the nature of knowledge and the relationship between the knower and the would-be known? How do we know what we know? How is knowledge acquired?
Methodology	Principles that inform the steps taken to acquire the knowledge	Constructivist grounded theory methodology	How can the knower go about obtaining the knowledge and understanding he/she believes can be known?

Source: Abdul & Alharthi (2016); Annells (1996); Guba & Lincoln (1994).

Having explained the elements of my philosophical paradigm, and the assumptions, beliefs and values I brought to the study, the next section applies key tenets of ontological and epistemological assumptions within dominant philosophical paradigms. These key tenets provide the foundation for the theoretical framework I enact in this research.

3.3 Reaching My Philosophical Position

A researcher's ontological assumptions about the nature of reality underpin their belief about how knowledge can be created, that is, their epistemological assumptions. These beliefs and assumptions, called a paradigm, are necessary to justify and ensure robust research design (Guba & Lincoln, 1994). Therefore, it is imperative that my philosophical position based on my belief system is made explicit to justify the methodological choices adopted for this study. To articulate my personal axiological, ontological, epistemological and methodological positions, I start by exploring the dominant philosophical paradigms and perspectives and define their ontological and epistemological assumptions.

Ontological and epistemological assumptions are inseparable because they both set the foundation for methodological assumptions (Abdul & Alharthi, 2016; Guba & Lincoln, 1994). Grix (2004) equated ontology and epistemology as 'what footings are to a house: they form the foundations of the whole edifice' (p. 57). This knowledge led me to understand and appreciate that knowledge generated through use of a methodology without firm ontological and epistemological foundations could be challenged and may lead to unsound findings.

The dominant philosophical paradigms I explored for this research included positivism, post-positivism, critical theory, and interpretivism or constructivism (Guba & Lincoln, 1994; Killam, 2013; Lincoln, Lynham, & Guba, 2011). The ontological position of each of these paradigms is as follows:

- Positivism: Reality is singular and apprehendable.
- Post-positivism: Truth exists but it can never be accurately apprehended.
- Critical theory: Reality exists but is shaped by value and experiences, and relationships of power that are social and historically located.
- Interpretivism/constructivism: Reality is socially constructed and based on previous experiences and interactions; realities are co-constructed (Abdul & Alharthi, 2016; Annells, 1996; Birks, 2014; Guba & Lincoln, 1989; Killam, 2013; Kivunja & Kuyini, 2017).

In view of these broader philosophical paradigms, I identified interpretivism and constructivism as the relativist ontological foundations most consistent with my values, while drawing upon the critical approaches of feminist and indigenous epistemological positions to enact my research work. As an indigenous PNG woman, a relativist ontological position was consistent with my experience and worldview, and was thus used to inform the design of this study. The following section explains how a relativist ontology, using interpretivist and constructivist elements enhanced by critical theory, informed my choice of constructivist grounded theory methodology.

3.3.1 Relativist ontology

Relativism is an epistemological position within the interpretivist or constructivist philosophical paradigm (Killam, 2013). As a relational concept, relativism assumes that 'all truth is relative' (Dickson, 2008; Drummond, 2005; Killam, 2013). The concept of relativism implies truth has to be relative to something to give the statement a discernible meaning and that nothing can be relative in itself (Drummond, 2005).

Relativism is based on the belief that multiple mental constructions of reality exist that are subjective, dynamic and contextual (Annells, 1996; Guba & Lincoln, 1994). This means each individual has their own perception and belief about the nature of reality. Although individualised perceptions and beliefs about reality may be conflicting, they are considered correct because individual assumptions are different. Individual assumptions are influenced by personal experiences, social interactions and historical context in time, and therefore relativism supports the possibility for multiple realities that are socially constructed (Guba & Lincoln, 1994). Relativism strongly contrasts with realism (Guba & Lincoln, 1994). Relativism that is based on interpretivist or constructivist paradigm accepts that multiple truths exist and these truths are subjective (Killam, 2013). By contrast, realism—an ontological perspective of positivist paradigm—accepts the notion that a single truth does exist and this truth is objective (Killam, 2013).

Interest in relativism as a philosophical doctrine dates back to ancient Greece and was associated with the Greek philosopher Protagoras, a 'sophist' (teacher of grammar, literature and philosophy) of approximately 490–421 BC (Baghramian & Carter, 2015). Since then, various elements of relativist philosophy have emerged and have

become popular through the work of German philosopher Immanuel Kant and his associates (Baghramian & Carter, 2015). Consequently, a variety of elements of relativism have been described (Baghramian & Carter, 2015; Drummond, 2005), such as:

- Cultural relativism: Someone's values, practices incuding beliefs should be understood according to that person's culture, rather than be judged against another's criteria (Tilley, 2000).
- Conceptual relativism: Different cultures view the world through conceptual schemes that cannot be reconciled (Bar-On, 1994).
- Alethic relativism: Belief that all truth is relative. What is true for a social group or an individual may not be true for another—there is no superior context to make judgement (O'Grady, 2014).
- Epistemic relativism: 'Knowledge is valid only relatively to a specific context, society, culture or individual' (Seidel, 2014, p.1).
- Moral relativism: Belief that what is right and wrong is relative to an individual or culture (Baghramian & Carter, 2015).

John Dickson posits a simpler relativist taxonomy—there exist two different types of relativism: descriptive and normative (Dickson, 2008). Descriptive relativism posits that different cultures have different moral codes, while normative relativism posits there is no absolute 'right' or 'true'; there are only beliefs that are 'right' or 'true' relative to the culture in which they are held, which claims that there are no universally valid moral principles (Dickson, 2008).

Social constructionism—a form of epistemic relativism—is concerned with methodological understanding and science (Baghramian & Carter, 2015). Social constructionism posits that 'reality is not simply 'out there' to be discovered only by empirical investigation or observation; rather, it is constructed through a variety of norm-governed socially sanctioned cognitive activities such as interpretation, description, and manipulation of data' (Baghramian & Carter, 2015, p.20). In social constructionism, individuals are regarded 'integral with cultural, political and historical evolution, in specific times and places' (Galbin, 2014, p.6). Social constructionism further believes that the way human life exists is dependent on the

social and interpersonal influences (Gergen, 1985). According to Burr (2015), social construction is concerned with one or more of the following assumptions:

- critical stance towards 'taken-for-granted' knowledge
- historical and cultural specificity
- knowledge is sustained by social processes
- knowledge and social action go together (pp. 2–5).

The principles of relativist ontology set an important foundation for exploring and understanding the reality in this study—the experiences of women and girls at menarche in PNG. These experiences are different for each woman, while all women's experiences in PNG are socially and culturally constructed. Social and cultural norms established by dominant power-holders within society over time created an order for the society to function within. PNG is a country with many language and cultural groups. These cultures have different social norms, beliefs and practices around menstruation including menarche, and are constantly changing. Therefore, experiences of girls are different for different girls in different social and cultural contexts.

The explanation about relativist ontology also sets the foundation to understand the relationship between the socio-cultural norms, beliefs and practices, and menstrual experiences. Critical theory, discussed in the following section, explores power and explains fundamental elements relating to social justice and human rights that helps to explain the implications of menstruation experiences.

3.3.2 Critical theory

The relativist approach is informed by a critical theory lens and can support researchers to develop findings that situate the experiences of participants within a broader social and political structure (Charmaz, 2019). Critical theory is a radical and emancipating social philosophy that represents a shift from positivism to a post-positivist paradigm (Bohman, 2005; Guba & Lincoln, 1994). Knowledge creation in feminist theory, critical race theory, cultural theory, and gender and queer theory is underpinned by critical theory (Bohman, 2005).

Critical theory comprises four essential characteristics that underpin the process of knowledge creation. First, critical theory is oriented towards assessment and critiquing

of societies and cultures to reveal, confront and/or challenge the dominant power structures and systems that oppress and suppress minority groups in order to liberate and/or empower those minority groups (Guba & Lincoln, 1994; Killam, 2013; Macdonald, 2017; Reeves, Albert, Kuper, & Hodges, 2008; Thompson, 2017). Critical theory also assumes that reality can be discovered that was once malleable and has been shaped over time by social, political, cultural, economic, ethnic and gender-related values and norms (Guba & Lincoln, 1994; Killam, 2013). Killam (2013) states, 'anything that is considered real needs to be examined critically and critiqued in the context of the oppressive social and political structures' (Chpt. 8, p. 53).

Second, critical theory is underpinned by values in human rights and social justice (Mertens, 2010), with the aim of empowering and giving voice to the suppressed and voiceless—a tenet that makes critical theory different from other paradigms (Killam, 2013). Value is placed on transparent research processes and participant involvement in research with particular attention to respect, beneficence, justice and cultural influences on participant experiences, human rights, and ethical codes of conduct (Killam, 2013). Research is designed to benefit or liberate the oppressed groups in the community, and therefore their involvement in the study is essential. In order to protect the oppressed groups in a community, the research is guided by a set of specific ethical guidelines (Killam, 2013).

Third, critical theory underpins critical inquiry—the process of knowledge generation—and relies on interaction between researcher and participants to discover reality. In the course of discovering knowledge, researchers remain aware of the influence of their values, including that of the participants' value in research (Killam, 2013). Cultural complexities and influences on research are also considered. Methodologically, reality is acquired from researcher–participants dialogue through logical arguments (Guba & Lincoln, 1994, 2005). This dialectical nature of interaction is essential to avoid misrepresentation of a co-constructed truth that can potentially be influenced by the researchers' ignorance. Therefore, critical theory encourages researchers to cross-check reality with participants—a process called member-checking—to confirm the realities that can potentially be influenced by culture or other differences (Birt, Scott, Cavers, Campbell, & Walter, 2016; Killam, 2013). Furthermore, 'member-checking, also known as respondent validation, is a technique

for exploring the credibility of results' (Birt et al., 2016, p.1). This methodological principle ensures the voices of the marginalised and oppressed groups are presented accurately as heard (Mertens, 2010).

Critical inquiry is central to constructivist grounded theory methodology (Charmaz, 2016). Grounded theory is a qualitative methodology that explores and explains rather than describing the phenomena (Birks & Mills, 2015). Kathy Charmaz—the founder of the constructivist grounded theory methodology—posited that 'pursuing critical inquiry with constructivist grounded theory leads to social justice permeating the methodology [and] not simply the findings' (Charmaz, 2019, p. 10). To enhance understanding, categorisation of categories, and making abductive inferences of the puzzling data, constructivist grounded theory methodological principles demand that the researcher's reflexive stance is carefully considered with that of the participants (Charmaz, 2019). The critical lens of constructivist grounded theory can enable researchers to develop theoretical categories by situating their participants' lives within larger political and social structures (Charmaz, 2019).

Critical theory, which centralises human rights and social justice, is fundamental to understanding, communicating and seeking solutions to improve the experiences of females where menstrual taboo affects MHH. Menstruation is a gender-segregating issue facing women. The socio-cultural norms, beliefs and taboos that restrict girls' rights to MHH in a male-dominated society in PNG are considered a form of gender violence (Biersack, Jolly, & Macintyre, 2016; Cardoso et al., 2019). Therefore, my relativist ontology, which draws on critical feminist and indigenous epistemologies, is used to explore and explain issues of menarche and menstruation and how we gain knowledge about reality.

3.3.3 Critical feminist epistemology

Feminist epistemology, informed by critical theory, centralises gender in research inquiry by asking 'woman' questions (Wildman, 2007). The 'woman' questions are aimed at identifying and challenging omission of women and their needs from the analysis of any societal issues. These theoretical questions are aimed at examining power relationships (Wildman, 2007).

Feminist epistemology refers to the 'ways of knowing' that studies various influences of gendered conceptions, norms, interests and experiences in knowledge production (E. Anderson, 1995). Feminist epistemology is closely linked to feminist theory. Feminist theory aims to understand the nature of gender inequality and utilises feminist epistemology to study the nature of knowledge from feminist standpoints (Harding, 2012). Gender inequalities are socially constructed and reflected in how societies are historically organised (Lorber & Farrell, 1991).

Feminists have a particular interest in epistemology that seeks to establish gender-based knowledge from a woman's perspective. Feminist theory posits that knowledge is derived from personal experience, which helps each individual to view things from a different perspective (Wylie, 2012). Feminist epistemology is closely linked to feminist standpoint in knowledge creation and privileges women's silent but salient voices. Standpoint, which refers to the epistemological position of a person (Cockburn, 2015), claims that the worldviews of a person or group are understood differently. Understanding of these worldviews is dependent on the person's or group's social position (Wylie, 2012) and bounded by shared experiences (Rolin, 2009).

The feminist standpoint theory, which took shape in the 1970s and early 1980 (Wylie, 2012), challenged and exposed the male-centric, patriarchal and universal male-dominant standpoint paradigms, which privileged men as knowing subjects (Moreton-Robinson, 2013). Essentially, feminist standpoint privileges women's knowledge, power and politics, and fair representation of women's lived experiences in a socially marginalised world (Crasnow, 2009; Ellis & Rodney, 2001; Rolin, 2009; Wylie, 2012). Although the historical evolution of feminist standpoint theory was contentious, these scholars used epistemic advantage within the gender dimension (Wylie, 2012) and laid claims of being better equipped (within gender dimensions) to understand some aspects of the women's world from the feminist or women's epistemological standpoint (Rolin, 2009).

The issues affecting women are unique, and these issues are socially and culturally constructed. I use my epistemic privilege as a woman to understand the stories of young women and girls at menarche and use my voice as a PNG female researcher to develop a grounded theory to explain the experiences of women in PNG. The next

section examines and explains my epistemic position as an indigenous PNG woman within the critical indigenous epistemological framework.

3.3.4 Critical indigenous epistemology

Indigenous epistemology is underpinned by critical race theory (Crenshaw, Gotanda, Peller, & Thomas, 1995). Critical race theory is a theoretical framework that is linked to broader critical theory (refer section 3.3.2) and developed out of epistemic philosophy to examine society and culture relating to race, law and power (Bohman, 2005; Crenshaw et al., 1995). Critical race theory seeks to address the dominant Western philosophical ideology, based on historical and institutionalised racism, which privileges dominant Western philosophical ideology and white dominant culture as supreme over others (Tate, 1997). Critical race theory recognises and posits that power relations influence how research is collected and interpreted (C. Dunbar, 2008). This theory examines the position of the researcher and the researched in relation to the socio-cultural, political and economic positions and conditions where and how research is acquired, interpreted and presented (C. Dunbar, 2008). These theoretical assumptions provide the basis on which indigenous research epistemology in knowledge creation is founded (Gone, 2018).

Indigenous epistemology underpins indigenous research principles that emphasise indigenous ‘paradigms’ rather than indigenous ‘perspectives’ (Wilson, 2001). Perspective represents ‘point of view’ (Boland & Tenkasi, 1995), while paradigm refers to ‘pattern of something or a model’ or basic belief system and theoretical framework (Abdul & Alharthi, 2016). The indigenous research principle that emphasises ‘paradigm’ embraces the principle of relatedness (see section 3.3.1, relativist ontology), which is less embraced in the Western scientific approach to knowledge creation. A Western approach, most often situated in colonialism, positivism and objectivism, embraces the ‘perspective’ principle, which depicts patriarchal and colonial power structure in the research approach and knowledge creation (Foley, 2013; Meyer, 2001). On the basis of this notion, indigenous researchers argue that indigenous epistemological, axiological and ontological standpoints be made explicit in research and knowledge creation (Foley, 2013; Meyer, 1998; Nakata, 2007).

Indigenous epistemology is linked to relativist ontology (section 3.3.1). Indigenous paradigms stem from the fundamental belief that knowledge is relational and is shared with all creation (Wilson, 2001). In research, the development of new knowledge goes beyond interpersonal researcher–researched relationships to include relationships with all creation, such as with cosmos, animals, plants and Mother Earth (Wilson, 2001). This perspective resonates with me. As an indigenous PNG woman researcher, I am well situated in this research because I understand local traditional socio-cultural wisdom and structural contexts, and ways of communicating and conducting research respectfully with other PNG women.

My relativist ontology, informed by critical theory and understood through critical feminist epistemology and critical indigenous epistemology, has provided the basis for my qualitative research methodology. The following section introduces qualitative research as a methodological choice, and explores key features of qualitative approaches most relevant to help answer my research question. I then explain why grounded theory is an ideal methodological approach to use to answer my research questions, with the rationale for employing constructive grounded theory provided.

3.4 Research Methodology: Choosing a Qualitative Research Approach

Qualitative research is a social inquiry that aims to understand human behaviours, thoughts and meaning-making in their natural setting (Creswell, 2014; Denzin & Lincoln, 2011; Liamputtong, 2013). In this section, I explain why I chose qualitative research. I describe four common qualitative methodologies and explain why grounded theory is chosen over these methods to answer my research questions. I then explain why constructivist grounded theory is chosen over other grounded theory methods for this study. I start by explaining the key principles and/or characteristics of qualitative study that underpin this methodological choice: natural setting; exploratory approach; flexibility, reflexivity and iterative approach; researcher–participant relationship; theory development; and insider perspective. These characteristics are discussed, informed and esteemed by various qualitative methodological scholars (Aspers & Corte, 2019; Birks & Mills, 2015; Glenn A Bowen, 2008; Charmaz, 2006; Liamputtong, 2013; Lincoln & Guba, 1985).

3.4.1 Natural setting

Qualitative research is a naturalistic approach that examines human experiences in the natural setting (Creswell, 2014). The qualitative research approach examines the experiences that occur in the natural setting in order to understand the context and make sense of the phenomena in terms of the meanings people bring to them in the societal and cultural context (Aspers & Corte, 2019; Denzin & Lincoln, 2011; Lincoln & Guba, 1985; McInnes, Peters, Bonney, & Halcomb, 2017). The qualitative approach enables the researcher to gain a deeper understanding and appreciation of the contextual and structural aspects relating to participants' thoughts, feelings and perceptions, including intentions and actions in their natural context (Creswell, 2014).This approach is in contrast to the quantitative approach, where the research is focused on testing and/or proving and disproving theories and hypotheses. Results of quantitative approach can be generalised to a given population, while in qualitative research, the findings are limited by context and cannot be generalised (Creswell, 2014; Liamputtong, 2013).

Given this study was conducted to acquire a holistic account of women's experiences of menarche in PNG, qualitative research was assessed as an appropriate approach. The methodological principles of the qualitative approach assisted me to acquire an understanding of the social and cultural factors that influence the experiences of women at menarche in their natural setting—the villages and towns they were born and raised in, and had menarche.

3.4.2 Exploratory approach

Qualitative research enables researchers to acquire rich descriptions of the phenomenon by using an exploratory approach (Charmaz, 2006; Mills & Birks, 2014). The exploratory nature of qualitative research enables the researcher to gain an in-depth understanding of topics that are often less understood (Creswell, 2014; Creswell & Poth, 2016; Mohajan, 2018). The exploratory nature of the study seeks to answer 'how' and 'why' questions to help explore and understand the social world in relation to why things exist the way they do (Mohajan, 2018). With reference to the substantive area of inquiry of my study, namely, to acquire an in-depth understanding of the participants' personal experiences, the exploratory principle of the qualitative

approach was appropriate for this study. This is because my study sought to explore and understand the socio-cultural norms, structures and systems that influence the experiences of young women at menarche.

3.4.3 Flexibility, reflexivity and iterative approach

Unlike quantitative research, qualitative research allows a flexible, reflexive and iterative approach throughout the research process. Flexibility, an inbuilt principle of qualitative research (Aspers & Corte, 2019), enables the researcher to change and adapt the research process in accordance with emerging results (Liamputtong, 2013). By being flexible, the qualitative researcher can enact greater spontaneity and adaptation to interact with the participants during the interviews in order to have a deeper understanding of the lived experience of participants. This was a critical aspect of my study.

Reflexivity includes a 'process of ongoing mutual shaping between researcher and research' (Attia & Edge, 2017, p.2). By being reflexive, the researcher examines their own beliefs, judgments and practices during the research process and how these might have influenced the research (Palaganas, Sanchez, Molintas, & Caricativo, 2017). The iterative approach refers to systematic, repetitive and recursive processes in qualitative data analysis (Kekeya, 2016). The iterative processes allow the researcher to purposefully and repeatedly move among the data (Kekeya, 2016), and to gain in-depth insight into the data to understand, conceptualise and develop meaning in the data collected related to the substantive area of inquiry by using a constant comparative analytical approach (Birks & Mills, 2015; Srivastava & Hopwood, 2009). Iterativeness and reflexivity are closely linked. The researcher uses both the reflexive and the iterative processes to fragment the data; sort and order qualitative data from interviews; observe and document; and generate these data into units of meanings, categories, patterns and themes forming sets of abstract information (Attia & Edge, 2017; Birks & Mills, 2015; Charmaz, 2006; Kekeya, 2016).

3.4.4 Researcher–participant relationship

Qualitative research relies on the relationship and rapport between researcher and participants (Råheim et al., 2016). A trustworthy, purposive and positive relationship between the researcher and participant can enable open dialogue and shape data

interpretation (Liamputtong, 2013). Rich and contextual information from the viewpoint of the people experiencing the phenomena can be co-created. Although qualitative research processes are often intensive and require a lengthy time investment, a qualitative approach allows for participants to voice and express feelings and experiences in their own words (Austin & Sutton, 2014; Creswell, 2009; Liamputtong, 2013). The researcher is instrumental in all aspects of the research from the formative to analysis stages, including interpretation; the researcher is required to establish the relationship and rapport (Birks & Mills, 2015; Charmaz, 2006). In this study, experiences of menarche are personal and often socially and culturally sensitive. The use of qualitative methodology allowed me as a researcher to develop trusting relationships with participants to enable them to share their personal and private stories. First, my position as a local PNG woman was important in this study because it caused the participants to generally feel at ease to share their stories with someone who can understand and relate to their experiences. Second, being able to communicate with the participants in the PNG lingua franca *Tok-Pisin* caused the participants to freely express their personal stories. Third, being from PNG, I understand the local cultural non-verbal communication cues and gestures and used them to my advantage to welcome and create rapport with the participants before the interview.

3.4.5 Theory development

Qualitative research comprises methodological principles that can facilitate a systematic process for theory development (Creswell, 2009). Theory development can help to explain the complexities of the problems being experienced by individuals that existing theories do not capture (Liamputtong, 2013). I wanted to construct a middle-order theory (Birks & Mills, 2015; Charmaz, 2017a) that explained the experiences of young women at menarche—qualitative research was a way I could achieve this goal.

3.4.6 Insider perspective

The use of qualitative research allows for an insider perspective to be utilised (Liamputtong, 2013). Being from PNG, I am an insider in this research with PNG women—I understand their experience because I share identity, language and experiences relating to the substantive area of inquiry (Asselin, 2003; Kanuha, 2000; Råheim et al., 2016). An insider researcher can gain additional contextual insights into

aspects of people's lived experiences, including clearer interpretation of the thoughts, perceptions and feelings expressed by participants. Through enacting reflexivity, the insider researcher can ensure the trustworthiness of the results. My position as a PNG woman played a critical role in this research. My personal experiences of having menarche in the village context allowed me to understand the participants' stories relating to the social and cultural beliefs and practices and how these norms affect their MHH. Being sensitive and reflexive to my emic position as a PNG woman, and my etic position as a researcher, enabled me to understand, conceptualise and construct a theory to explain young women's experiences at menarche.

Having discussed why qualitative research was chosen on the basis of six key principles, I now summarise common qualitative methodologies and why grounded theory was chosen to address the substantive area of inquiry for this study.

3.4.7 Qualitative research methodologies

Qualitative research methodologies have a multi-method focus that applies interpretative and naturalistic methods to understanding social phenomena (Aspers & Corte, 2019). The methodological choice for this study was underpinned by the substantive area of inquiry and my philosophical worldviews, explained in section 3.2 and 3.3 (Birks & Mills, 2015). Qualitative research can be conducted through a variety of methodologies. Examples of common qualitative research methodologies include narrative inquiry, case study design, ethnography, phenomenology and grounded theory (Creswell, 2013; Liamputtong, 2013; Mohajan, 2018). Key characteristics of each of these methodologies are presented in Table 3.2 (below) and help to explain why grounded theory methodology was chosen as the methodological inquiry approach for this study.

Table 3.2: Key characteristics of some qualitative methodologies

Qualitative inquiry	Field	Data collection	Data analysis	Study type	Nature of inquiry
Narrative inquiry	Humanities	Collaborative narrative, researcher & participant storytelling	Inductive	Narrative	Description of lived experiences
Case study	Various	Variety of techniques	Inductive Deductive	Descriptive Exploratory Explanatory	Evaluation studies
Ethnography	Anthropology and sociology	Participant observation and interviews	Deductive Inductive	Descriptive	Patterns of behaviour
Phenomenology	Philosophy	Interviews	Inductive	Descriptive	Description of lived experiences
Grounded theory	Sociology	Multiple interview stages	Inductive	Exploratory Explanatory	Theory development

Sources: Birks & Mills (2015); Creswell (2013); Khan (2014); Liamputtong (2013).

3.4.8 Narrative inquiry

Narrative inquiry is commonly used in the field of humanities and uses storytelling to explore and illuminate meanings of participants' personal stories and events (Creswell, 2013; Savin-Baden & Niekerk, 2007; Wang & Geale, 2015). The storytelling and re-storying process creates a collaborative relationship between the researcher and participant. Together, the researcher and participant negotiate meanings of the stories to clearly articulate and communicate the experiences in the context of the participants' lived experiences (Creswell, 2013).

3.4.9 Case study research

Case study research is a common research methodology across many disciplines and research fields (Harrison, Birks, Franklin, & Mills, 2017). Case study research is classified into three categories: descriptive case study, exploratory case study and explanatory case study (Zainal, 2007). This method is commonly used in evaluation of programs, events, activities and processes, and with individuals to gain in-depth understanding of the phenomena of interest (Creswell, 2014, p. 14). The key tenets of case studies are comprehensive, holistic and in-depth investigation and analysis of an issue within its context to understand issues from participants' perspectives (Creswell, 2014; Crowe et al., 2011; Harrison et al., 2017; Yin, 2014).

3.4.10 Ethnography

Ethnographic research originates from sociological and anthropological fields (Creswell, 2014; Liamputtong, 2013). This method describes cultural ways of human lives and seeks to understand the context or practices and the cultural rules that people have for making sense of the world over a long period of time (Austin & Sutton, 2014; Creswell, 2014; Daly, 2007; Liamputtong, 2013). Ethnography studies allow researchers to directly observe informants in their natural world over time (Austin & Sutton, 2014). The deep immersion of researcher enables the researcher to gather data (through interviews and observations) about socio-cultural behavioural patterns, and creates an explanation of the patterns of behaviours of that cultural group from an emic perspective (Austin & Sutton, 2014; Creswell, 2014; Liamputtong, 2013).

3.4.11 Phenomenology

Phenomenology explores and describes subjective phenomena (Creswell, 2009) and aims to generate knowledge about the individual's lived experience about certain concepts or phenomena of interest (Groenewald, 2004; Liamputtong, 2013). Rich descriptions of phenomena and their settings are captured using unstructured in-depth interviews (Groenewald, 2004). Phenomenology is commonly used in the field of philosophy and psychology (Creswell, 2014).

3.4.12 Grounded theory

Grounded theory is a qualitative methodology that explores and explains rather than describing the phenomena (Birks & Mills, 2015). As an inductive methodological approach, grounded theory systematically applies distinct sets of principles to build up theory from the data to explain the phenomena (Birks & Mills, 2015). These principles are explained in detail in the next two sections (3.4.12.1 and 3.4.12.2).

I wanted to develop a theory that explains the young women's experience and therefore required a methodology that can systematically support the development of an inductive theory grounded in the data. The qualitative methodologies summarised in Table 3.2, except for grounded theory, do not include systematic methodological principles and processes relevant to develop inductive theory grounded in the data. Hence, I chose grounded theory methodology. In the next section, I describe the historical context and key tenets of grounded theory methodology used to enact my study.

3.4.12.1 Choosing grounded theory methodology

Grounded theory is an inductive methodology that centralises systematic theory construction from qualitative data (Charmaz, 2001; Glaser & Strauss, 1967). This methodology was developed in 1967 by sociologists Anselm Strauss and Barney Glaser while undertaking the study 'Awareness of Dying' (Annells, 1996; Birks & Mills, 2015; Noble & Mitchell, 2016). Strauss was conversant in symbolic interactionism, while Glaser had expertise in descriptive statistics (Chun, Birks, & Francis, 2019).

Grounded theory methodology provides 'systematic guidelines for gathering, synthesising, analysing and conceptualising qualitative data in theory construction' (Charmaz, 2001, p.1). Theory development in grounded theory methodology involves a non-linear process that systematically filters issues of importance through inductive, iterative and comparative methodological processes from the stories of individuals and groups, and creates meaning from participants' experiences in their natural world (Charmaz, 2017a; Glaser & Strauss, 1967; Mills, Bonner, & Francis, 2006a). Grounded theory methodology requires a number of essential elements for theory development (Douglas, 2003). Birks and Mills (2015) describe nine such elements: (i) initial coding and categorisation, (ii) concurrent data generation or collection and analysis, (iii) memo writing, (iv) theoretical sampling, (v) constant comparative analysis, (vi) theoretical sensitivity, (vii) intermediate coding, (viii) identifying a core category, and (ix) advancing coding and theoretical integration (pp. 10–14). Application of each of these elements in research enhances the rigour of the grounded theory methodological process and helps validate the theoretical model to create meaning of the subjective experiences in their natural world (Birks & Mills, 2015). Grounded theory methodology was used in this study because it offered clear, flexible, systematic and inductive methodological approaches to assist me as the researcher to explore and explain the socio-cultural nature of the phenomenon under study in the natural environment of the women in PNG (Birks & Mills, 2015; Charmaz, 2006, 2017b; Khan, 2014).

An important characteristic of grounded theory methodology is that the study commences from specific naturalistic situations of participants, with the intent of understanding the nature and rationale of observed interactions (Douglas, 2003). Unlike a positivist approach, inductive theory generation in grounded theory is embedded in explanation of the phenomenon, rather than the generalisability that occurs from a positivist approach (Douglas, 2003). The inductive theory generation to explain a phenomenon under study is underpinned by concerns for humanity and is based on social justice as the fundamental basis in knowledge creation (Charmaz, 2006). Knowledge is not just co-created with participants, but rather the researcher interacts with and has the contextual ability to explain the social issues of humanity (Chun et al., 2019). This notion is in contrast to positivist paradigm enacted through quantitative research, where knowledge is measured and the theory is tested through

deductive analysis in a more controlled environment (Charmaz, 2001, 2006; Mills, Bonner, & Francis, 2006b).

Grounded theory is a flexible and evolving methodological approach (Charmaz, 2006). Since the development of grounded theory by Strauss and Glaser, researchers have been challenged to be explicit about their philosophical and paradigmatic worldview within the grounded theory sphere (Birks & Mills, 2015; Charmaz, 2017b; Mills et al., 2006b). In response to the challenge, a variety of grounded theory methodological genres have emerged based on different philosophical worldviews that researchers bring to the study. 'Traditional grounded theory' was associated with Glaser, while 'evolved grounded theory' associated with Strauss, Corbin and Clarke, and constructivist grounded theory was developed by Charmaz (Charmaz, 2006; Chun et al., 2019; Glaser & Strauss, 1967). More recently, transformational grounded theory was added to the grounded theory methodological evolution informed by the decolonising and participatory principles (Redman-MacLaren & Mills, 2015). Constructivist grounded theory was adopted for use in this study because it is suitable to address the substantive area of inquiry explained in section 1.11 of Chapter 1 and fits the philosophical beliefs and assumptions I bring to this study (explained in sections 3.2 and 3.3) (Birks & Mills, 2015; Charmaz, 2006). The experiences of girls and women about menstruation and menarche in PNG are personal, private and contextual and are deeply entrenched in the traditional social and cultural beliefs, perceptions and norms of the society. The principles of the grounded theory methodology explained earlier set grounded theory methodology apart from other forms of qualitative inquiry (see Table 3.2) as an appropriate methodological approach that can be used to inductively develop a theory to explain the underlying factors that contribute to the experiences of women and girls in PNG society.

Having explained the rationale for choosing grounded theory methodology, in the next section, I now explain the fundamental principles of constructivist grounded theory that informed how the research was systematically conducted.

3.4.12.2 Constructivist grounded theory

Constructivist grounded theory methodology is largely based on the premise of constructivism (Charmaz, 2006; Chun et al., 2019). As explained earlier,

constructivism is a 'social scientific perspective that addresses how realities are made' (Charmaz, 2006, p. 187). To construct a theory about the lived experience of participants, both the researcher and study participants contribute to explaining the realities about the phenomena of interest (Charmaz, 2006).

Constructivist grounded theory research methodology is widely associated with Kathy Charmaz. Charmaz first developed and explicated constructivist grounded theory methodology in her book chapter titled 'Grounded Theory: Objectivist and Constructivist' in the *Handbook of Qualitative Research* in 2000 (Charmaz, 2006). In response to invitation from Glaser and Strauss to apply flexibility in the use of grounded theory strategies, Charmaz (2006) examined and explicated a flexible set of principles, guidelines and practices of how to conduct a grounded theory study (p. 9). Charmaz made an immense contribution by enhancing the theoretical and methodological aspects of grounded theory (Birks & Mills, 2015). The essential aspects of constructivist grounded theory are based on the following key premises:

1. relativist epistemology
2. acknowledging research participants' and the researcher's multiple standpoints, roles and realities
3. adopting the researcher's reflexive stance towards their background, values, actions, situations, relationships with research participants, and representations of them
4. situating the research in the historical, social and situational conditions of its production (Charmaz, 2017a, p. 2).

I am of a firm view that realities are multiple, socially constructed and contextual—consistent with a relativist ontology (Burr, 2015; Charmaz, 2017b; Guba & Lincoln, 1994; Killam, 2013). Constructivist grounded theory methodology was used in this study for four important reasons. First, relativist ontology and critical feminist and indigenous epistemology fit with my philosophical worldview (Chun et al., 2019). Second, my insider position as a PNG woman doing research with PNG women is a key contribution to this study. I have contextual knowledge and personal experiences of having menarche within the social and cultural environment of PNG (Charmaz, 2006; Mills et al., 2006b). Third, the grounded theory methodology allows flexibility in practical application of methods and processes (Charmaz, 2017a). The 'flexible'

principle allows me as a novice researcher to adapt to the hyper-diverse local contexts in PNG and the participants' expectations, while maintaining the methodological principles of grounded theory methodology during data collection and analysis phases. Finally, a central tenet of constructivist grounded theory allows for co-creation of knowledge with co-researchers—constructivist grounded theory posits knowledge can be collectively constructed between the researcher and the participants (Charmaz, 2006; Mills et al., 2006b). Constructivist grounded theory is a systematic, inductive, interactive and comparative methodological approach that adapts to the changes required to ensure methodological rigour, and validity results in trustworthy research findings (Charmaz, 2006). The inductive analysis enabled theory development from the women's stories. Participants took part in the research by collectively participating in the construction of the grounded theory by confirming the theory and the inter-relationships between the properties, dimensions, concepts, categories and core categories. These constant comparative and iterative methods were used during the process of data collection and analysis to further explore the concept until data saturation was reached

Having discussed the rationale for using constructivist grounded theory methodology, the next section explains how the constructivist grounded theory methods were applied in this research.

3.5 Conducting the Research

The methods section of this chapter comprises ten subsections: (1) becoming theoretically sensitive to the key concepts of the substantive area, (2) selecting study sites, (3) engaging with research collaborators, (4) obtaining gatekeeper approval, (5) obtaining ethical approval, (6) entering study site—Phase 1, (7) entering study site—Phase 2, (8) collecting and analysing data, (9) developing theoretical model, and (10) ensuring research quality.

3.5.1 Becoming theoretically sensitive

Theoretical sensitivity in grounded theory refers to the researcher's prior relationship with the field of research and their ability to understand the interactions that occur within the data to systematically generate theory of the phenomenon under study (Corbin & Strauss, 2014; Glaser & Holton, 2007). Theoretical sensitivity is more

succinctly referred to as the 'researcher's ability to recognise and extract from the data elements that have relevance for the emerging theory' (Birks and Mills, 2015, p. 181). A researcher's personal history and/or prior knowledge can help to enhance their theoretical sensitivity towards the phenomenon under study (Orland-Barak, 2002; Thistoll, Hooper, & Pauleen, 2016). Theoretical sensitivity can also be acquired from a 'grounded theory preliminary review'—a form of literature review to become theoretically sensitive before proceeding to the theory development stage (Thistoll et al., 2016). The grounded theory preliminary review helps to build theoretical codes for later use in grounded theory research. Grounded theorists are also encouraged to be theoretically sensitive when interacting with the data (Birks & Mills, 2015; Charmaz, 2006; Mills et al., 2006b). Explicating the researcher's history and knowledge of the substantive area of study increases confidence and trust in the theory that is developed during the research.

Despite my personal experience of menarche in a rural setting in PNG, I needed to understand and familiarise myself with the topic and key concepts of menarche as presented in the literature. To increase my awareness of the topic and as part of the confirmation seminar requirement of the PhD, I conducted a global literature review at the beginning of this PhD study—a principle that is increasingly accepted in grounded theory (Hussein, Kennedy, & Oliver, 2017). Much of this review is reported in Chapter 1. A second review of the literature—a systematic scoping review—was conducted after data collection and analysis. The systematic scoping review, reported in Chapter 2, explored the socially and culturally situated experiences of young girls and women at menarche in PICTs.

In addition to enhancing my awareness of the research topic, the first review of literature conducted at the beginning of this PhD study also increased my awareness about diverse beliefs and practices around menarche globally, and in different parts of PNG. My theoretical sensitivity about social and cultural implications for young women's experiences at menarche from my lived experience (outlined in my standpoint statement in Chapter 1) was expanded. My broad understanding of how women experienced menarche and womanhood in different social and cultural contexts raised my theoretical sensitivity and helped to inform purposive and

theoretical sampling of women and girls with rich experiences to share stories based on their experiences.

Having understood the different contextual knowledge of sexuality and menarche in different environmental contexts globally, and in PNG, I discussed potential study sites and the rationale for choosing these study sites with my advisors during an advisory panel meeting in 2013. I proposed four study sites in PNG (see Figure 3.1).

3.5.2 Study site and selection of participants

Because of time and resource constraints for a PhD study, the study was conducted in the NCD of PNG with participants from ESP, EHP, MBP and NCD recruited and interviewed in Port Moresby (in NCD). Figure 3.1 shows the geographical locations from where the participants originated.

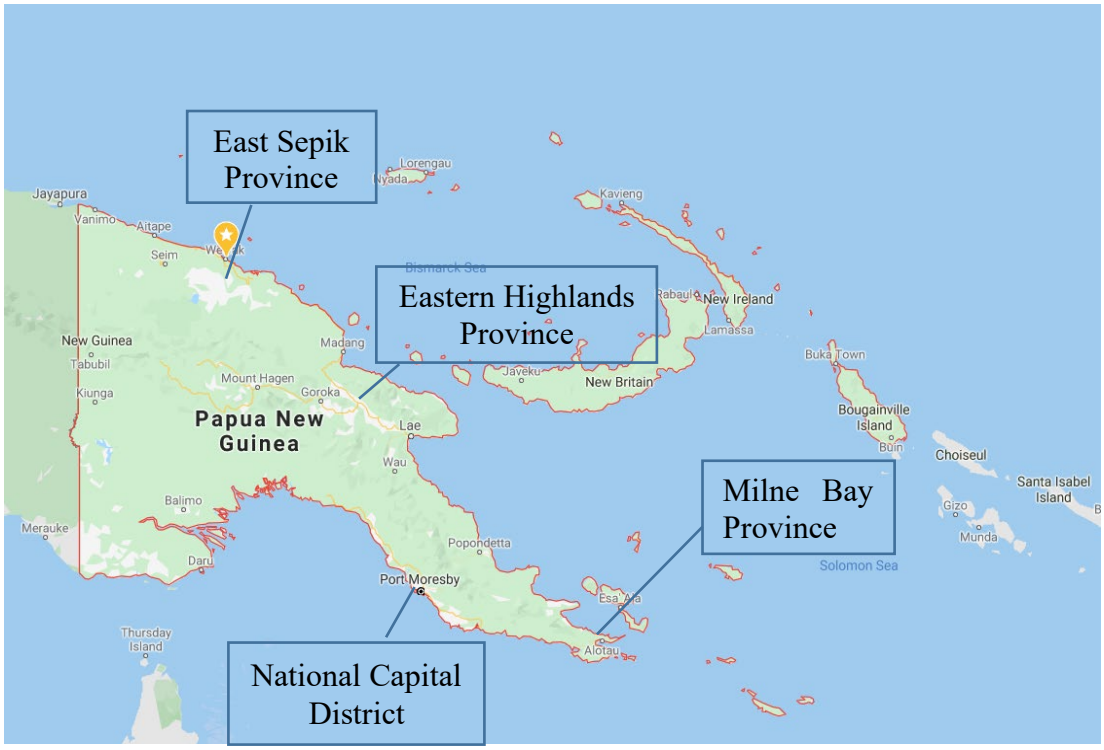

Figure 3.1: Map showing study sites in Papua New Guinea (Google Maps, 2020) Selection of participants from these four study sites ensured a variety in experiences of having menarche across different social and cultural contexts (Andrews, 1985; Y. T. Chang et al., 2010). In addition to being culturally diverse, as discussed in Chapter 1 (section 1.9), PNG is also experiencing rapid socio-cultural transitions from traditional village lifestyle to modern urbanised lifestyle due to improvements in education, economic activities, religion and urban migration

(GoPNG, 2012). Given these societal changes, stories of participants from ESP, EHP and MBP were aimed to create an understanding about experiences of menarche from the rural perspective, while stories from NCD would represent menarche experiences from the urban context. These contrasting settings were thought to provide a broader understanding of how women and girls would experience menarche in these different settings.

A second reason for selecting participants from these four sites related to prior anthropological studies that had reported varied social and cultural characteristics around puberty, menarche rites, beliefs and practices around menarche, sexuality, and marriage in these four study sites (Gillison, 2002; C. Jenkins, 1994; Leavitt, 1991; Lepani, 2012; Lutkehaus & Roscoe, 1995; Malinowski & Ellis, 1929). In ESP and EHP, the female initiation rites exist to mark the transition from girlhood to womanhood; however, the types of initiation practices vary across different language groups. For example, in ESP, the isolation, initiation and scarification practice is a tradition at menarche in some villages along the Sepik River of Angoram, Ambunti and Yangoru-Sausia Districts of ESP (Lutkehaus & Roscoe, 1995). In EHP, an anthropological study reported that menarcheal girls were isolated in the menstrual huts and restricted to certain food taboos and bathing restrictions, and pre-marital courtship practices occurred to find a potential future husband (Dickerson-Putman, 1996). MBP was selected because of some interesting pre-menarche sexuality practices, which may be different according to different parts of the province. For example, in the Trobriand Islands in MBP, anthropological studies have reported sexual initiation practices at puberty and before menarche with a belief that pre-menarcheal sex can trigger menarche (Lepani, 2015; Malinowski & Ellis, 1929). NCD was selected because of the change in social trends from a traditional to more modern/urban way of life (Ware, 2005).

As I began to understand about the different beliefs and practices around menarche through my extensive reviewing of the literature, my curiosity grew. I wanted to understand more about PNG by exploring the difference in beliefs and practices around puberty and menarche. More importantly, I wanted to understand the experiences of girls with the introduction of modern menstruation management practices and sex education in formal school programs and through media. However, before engaging

with participants, I needed to find an engagement strategy to formally link me with the participants with rich information to share.

3.5.3 Engaging with research collaborators

In June of 2013, my initial principal advisor (Associate Professor Ronny Gunnarsson) and I organised an ISTAR (Individual Self-Esteem and Transition in Adolescents with Respect) conference in Cairns, Australia, which included international participants. It was there that I first presented my research proposal publicly, and later again at the PNG Medical Research Symposium in Lae, Morobe Province, during October 2013.

The ISTAR conference drew participation from the National Capital District Commission (NCDC) and NDOH in PNG. The NCDC team was led by a veteran PNG female politician and consultant to the NCDC. Among the team of people from the NCDC was the executive officer to the NCDC commissioner. The NDOH team comprised Head of Adolescent Health, and Head of Policy and Planning in the NDOH. I presented my research proposal and later met with some team members from the NCDC and NDOH, and requested support to conduct this research in PNG. Although I was known to the team from the NDOH and some participants from the NCDC, this meeting was an appropriate introduction for me in the capacity of researcher. Both teams (NCDC and NDOH) indicated their willingness to support the study because they saw the value this research would have for policymakers and service providers. During the meeting, I was advised to write a letter to the secretary of health at the NDOH and the manager of the NCDC seeking permission. This permission is considered ethically appropriate as each of these people held a gatekeeping role.

3.5.4 Obtaining gatekeepers' approval

The term gatekeeper is described as 'someone who controls access to an institution or an organisation such as a school principal, managing director or administrator', who are the data owners such as personnel, clients or service users (Singh & Wassenaar, 2016, p.2). Gatekeepers' permission is increasingly required by ethics committees for data collection, including research collaborations, access institutions and individuals (Collyer, Willis, & Lewis, 2017; Singh & Wassenaar, 2016). In addition, approvals from gatekeepers to facilitate field support and access to study participants, which was required for this study (Collyer et al., 2017). Further, gatekeeper approvals are

necessary as a sign of respect to authorities and to enable practical research collaborations.

The gatekeepers in this study included the provincial administrators of ESP and EHP, the chief executive officers of the Milne Bay Provincial Health Authority, and the city manager of the NCDC. Formal approval letters were obtained from the NCD, provincial administrators of ESP and EHP, and chief executive officer of the Milne Bay Provincial Health Authority. Copies of these approvals are attached in Appendix 10. In addition, approvals were verbally sought from the institutional managers of PNG World Vision and PNG Anglicare prior to data collection in 2014. Written approvals were retrospectively obtained from the a/national director of World Vison PNG and from the country director of PNG Anglicare Inc. in March 2021. Retrospective approvals formalised the verbal approvals in 2014. Both these organisations played a pivotal role in supporting the research by allowing research to be conducted at their venues. Some study participants were also recruited from clients that access their services.

3.5.5 Obtaining ethical approvals

Ethical approvals for this study were obtained in 2013 from the Medical Research and Advisory Council (MRAC13.40) of the NDOH, PNG, and the Human Research Ethics Committee (H5317) of James Cook University, Australia. All participants gave consent before participating in the study. Written consent was obtained from participants that were able to read and write. Women unable to sign (illiterate and old women) gave their fingerprints as a consent for study. Parental consent was obtained for participants between the ages of 13 and 18 years as per the approved ethics process. A written information sheet and consent form were sent to each participant before the study to read and understand so that they could make an informed decision to participate in the study. However, all participants were over the age of 18 years and were able to consent to the study themselves before the interview commenced. The information about the study was read and explained to the participants, and they were given the opportunity to ask questions before consenting to the study. The process and protocols of obtaining participant consent were explained to the research collaborators when entering study sites. Entry into the study site (PNG) was carried out in two phases (1 and 2). The field work lasted for approximately 3 months and 2 weeks commencing

in November 2013 (Phase 1). Phase 2 commenced in February 2014 and ended in April 2014.

3.5.6 Entering study site—Phase 1

On 24 November 2013, I made the first field visit from Cairns to Port Moresby (PNG) for 2 weeks in this new capacity as a researcher. Purposes of that trip were to:

- establish and confirm relationships with research collaborators and research assistants
- explain the study purpose, participant recruitment criteria, and participant consent protocols and forms, and organise interview venues
- pre-test the semi-structured open-ended interview guide with the aim of improving the interview guide, improving my interview skills and identifying key concepts relating to the substantive area of the study.

On 25 November, I first met with the executive officer to the manager of the NCDC (whom I met at the ISTAR conference), who led me to the NCDC youth desk. I was introduced to the youth co-ordinator and his colleague. We met and chatted, and I invited them for lunch the following day. The next day (26 November), I took them out for lunch (away from office distractions) as a way of creating rapport and developing a working relationship with them. Creating rapport and relationships is critical in PNG to ensure organisational support and assist in the organising of participants for interviews. Youth co-ordinator and his colleague from the NCDC were willing to organise a focus group for the pre-test interview and subsequent interviews. I used the lunch opportunity to explain the research project, recruitment criteria and protocols, information sheet, and participant consent for them to organise a focus group for the pre-test interview. They were both invited to ask questions. Both youth co-ordinators were also given a chance to explain the research back to me, demonstrating they understood the research requirements and processes, including recruitment (inclusion and exclusion) criteria and how to obtain the participants' consent. They both understood and were excited to be involved. After the briefing, I left an envelope containing copies of recruitment criteria, information sheets and informed consent forms. The NCDC youth desk assisted and were able to recruit appropriate participants through their program's network, and organised the first focus

group for pre-testing the interview tool and subsequent focus group discussion (FGD), and individual interviews with participants from MBP and ESP. All interviews took place in the NCDC conference room. It was not possible to conduct interviews outside the formal office environment in accordance with participants' choice and place of comfort because of ongoing security risks in Port Moresby. Although the setting was unfamiliar, the women were happy and shared the best of their personal stories. A group of women from ESP brought some bottles (instruments used to remove bad blood from a girl's body) and *bilums* (traditional tote bags made from tree fibres) to show what they used to wear during the menarche ceremonies.

The first FGD, which was a pilot, happened a week later (2 December) with a group of four women (age between 26 and 44 years) from ESP at the NCDC conference room. Four participants were recruited using my personal network from informal settlements in Port Moresby. While the first FGD enhanced my interview skills, the process also helped the youth coordinators develop participant recruitment skills and learn how to correctly and ethically obtain participant consent so that they were prepared for the subsequent recruitment process.

I also used my prior working relationships and networks to connect with staff of World Vision PNG and PNG Anglicare. After the meeting with NCDC youth coordinators, I met with the operations manager and her two team members from World Vision, and country director of PNG Anglicare Inc. and her team members one day later. The operations manager of World Vision and country director of PNG Anglicare were colleagues in my past public health roles, which made my entry into World Vision PNG and PNG Anglicare easier.

Because this was a PhD project with limited funding, a meeting planned between all research collaborators did not happen, although this might have been good practice. Instead, I spent 2 days each with the teams from World Vision PNG and PNG Anglicare Inc. to prepare them to support my research project. On 27 November 2013, I met operations manager of World Vision and country director of Anglicare PNG Inc. separately at their office to brief each of them about the research project, building upon prior email communications.

On the second day, I returned to each of the two organisations separately, this time to meet research assistants. On 28 November 2013, I met with the operations manager and two officers from World Vision who were appointed to support me with the research project. I met with the team in their conference room and explained the research project, recruitment criteria, information sheet and consent forms, and how to obtain consent if the participants were unable to read and write. I encouraged the operations manager and the two appointed officers (research assistants) to raise questions for clarification, which they did, and they were happy to be involved. The two research assistants supported participant recruitment, obtaining participants' consent and taking field notes, while the operations manager provided oversight. One of the appointed officers continued to provide her support through to transcribing 11 transcripts, while I transcribed six. To ensure consistency and quality of each of the transcripts with the interview data, the transcripts were cross-checked between the one research assistant and myself. Three FGDs were organised by World Vision PNG. Twenty-eight of the participants recruited by World Vision knew how to read and write and were able to read, understand and sign the consent forms, while three young women consented with fingerprints. World Vision's conference room was used for the interviews. I had observed that the formal space for interviews was not conducive for the young girls from the settlements of Port Moresby, as the place and sitting arrangements appeared too formal, which caused girls to become apprehensive. Consequently, the second FGD in NCD with the young post-menarche women aged 13–24 years from settlements of NCD was less interactive. The interview ended in less than an hour. Although a follow-up individual interview was requested with two young women for in-depth individual interviews, they were reluctant to turn up.

On 29 February 2014, I met with the country director of Anglicare PNG Inc. Anglicare is a provider of health and literacy services in Port Moresby. Based on my prior email communications with the deputy director of PNG Anglicare, the Anglicare team were looking forward to my visit. The director and deputy director had prior discussions and decided that deputy director would be assisting with participant recruitment for the interview. I had a separate meeting with the deputy director and explained the research project, consent, recruitment criteria (inclusion and exclusion), and the process for recruiting the key informants for the study. I also gave deputy director the opportunity to ask questions for clarification if there were any doubts about the process. I also

explained that if participants were unable to sign, fingerprints should be obtained alternatively. I left the information pack, which included information sheets and participant consent forms, and requested deputy director to recruit and organise meetings with the informants. Deputy director from PNG Anglicare Inc. was able to organise three FGDs and two in-depth individual interviews from EHP and ESP.

Possible meeting venues were discussed with all three organisations (NCDC, World Vision PNG and PNG Anglicare). Because of security concerns, they all decided they would bring participants to their conference rooms for interviews or ask the participants to make their own way to the interview and later be reimbursed for the transport cost. These costs were reimbursed with flex cards (mobile phone credit) worth 3 PGK (in PNG Kina, equivalent to approximately 1 AUD) each and lunch. Each participant was given the opportunity to ask further questions for clarity, which they did. After each of the meetings with the three organisations (NCDC, World Vision PNG and PNG Anglicare), I left participant information packs (both the *Tok Pisin* version and the English version), participant recruitment criteria and consent forms.

Each of these organisations (NCDC, World Vision PNG and Anglicare) were able to recruit participants for the interview using the recruitment criteria. The women were predominantly those that accessed their services. This approach to participant selection was easier as the participants that met the recruitment criteria were easy to find. The next section describes the recruitment process used in this study.

3.5.7 Entering study site—Phase 2

I returned to Port Moresby (PNG) on 22 February 2014. The purpose of this visit was to facilitate data collection. Having established a working relationship with World Vision PNG, NCDC and PNG Anglicare during Phase 1 (section 3.5.6), this visit was conducted to recruit more participants, conduct interviews and collect data.

Grounded theory methodological principles recommend purposive sampling as an initial sampling step, followed by theoretical sampling. Purposive sampling was initially carried out in 2013 (Phase 1) to recruit participants to identify data sources relevant to the area of study (Birks & Mills, 2015, p. 68) and to identify participants that met recruitment criteria, in particular, the women with rich experiences of having menarche in the four selected study sites. Theoretical sampling followed after

analysing data from participants recruited using purposive sampling—consistent with grounded theory methodology (Birks & Mills, 2015). Theoretical sampling is a 'process of identifying and pursuing clues that arise during analysing in grounded theory' (Birks & Mills, 2015, p. 181).

In November 2013 (site entry—Phase 1), purposive sampling was initially used to recruit participants for the first FGD with women from ESP. Purposive sampling helped to select participants who could offer an insight into the experiences at menarche (Birks & Mills, 2015; Charmaz, 2006). Data collected from the purposive sampling were analysed and initially coded (detailed description of coding is explained in section 3.5.9). The analysis also helped to inform modifications to interview guides, improve my interview skills, further develop my theoretical sensitivity and increase my curiosity to further explore codes (Charmaz & Thornberg, 2020).

Initial codes and concepts from the pilot interview provided the basis for more in-depth exploration with theoretically sampled participants. Theoretical sampling helps to increase theoretical saturation of emerging conceptual categories (Charmaz & Thornberg, 2020; Glaser & Strauss, 1967). Having identified concepts and codes, I applied a theoretical sampling method to further recruit participants from ESP, EHP, MBP and NCD for subsequent FGDs and individual interviews until data saturation was reached. Adequacy of data occurred when the same concepts were repeated and no new stories were told by the participants (Birks & Mills, 2015; Charmaz, 2006; Low, 2019). The socio-demographic characteristics of the study participants are shown in Table 3.3.

Table 3.3: Socio-demographic and study characteristics of participants

Study sites (provinces)	**Data collection strategies**	**Number of interviews**	**Number of participants**	**Participants' distribution by age range (years)**		
				13–25	26–44	>45
East Sepik	FGD	4	27	10	9	8

	Individual interview	3	4	2	2	0
Eastern Highlands	FGD	1	8	3	3	2
	Individual interview	0	0	0	0	0
Milne Bay	FGD	2	25	11	10	4
	Individual interview	3	4	0	1	3
National Capital District	FGD	3	30	12	17	1
	Individual interview	0	0	0	0	0
Total		16	98	38	42	18

A total of 98 participants (see Table 3.3) were recruited for the study. These participants originated from ESP, EHP, MBP and NCD, as shown on the PNG map (see Figure 3.1), and were living in Port Moresby. All interviews took place in Port Moresby, the capital of NCD, because of time and resource constraints for my PhD study. I was unable to travel to ESP, EHP and MBP as planned to conduct the interviews because of insufficient financial resources to support the grounded theory research project, which required multiple travel expeditions in and out of the study sites. Port Moresby was an ideal location to recruit participants that met the recruitment criteria for this study because it is a melting pot for all cultures in PNG (Cox & Underhill-Sem, 2011). Therefore, it was easy to purposively and subsequently theoretically sample participants that met the pre-established criteria for the study. Although participant recruitment in Port Moresby easily met the recruitment criteria (see Table 3.4), the interviews did not happen in the natural village setting as planned because of funding limitations for field work. While rich data were obtained from the interviews conducted in Port Moresby, interviews of participants in their villages coupled with observation of the natural environment would have added more richness to the data collected on the experiences of girls and women around menarche.

A defined set of inclusion and exclusion criteria for initial purposive sampling, shown in Table 3.4, was used to recruit young girls and women with rich experiences of menarche. The principal criterion was that all participants must have had menarche. A

second criterion was that the participants from ESP, EHP and MBP must have been born and have experienced puberty and menarche in rural villages of ESP, EHP and MBP; this ensured data would be co-generated about the rural context of young girls and women's experiences. In NCD, the participants must have been born, experienced puberty and had their menarche in any part of NCD to understand the urban context of young girls and women's experiences.

Table 3.4: Purposive and theoretical sampling: Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Post-menarche young girls and women	Pre-menarche young girls
Young girls and women within the age range of 13–44 years	Girls below 13 years and women aged 45 years and over
Participants from ESP, EHP and MBP must have been born and raised and gone through puberty including menarche in the villages[a] of these provinces	Participants outside of these four (4) study locations
Participants from NCD must have been born and raised and gone through puberty including menarche in NCD	

[a] Village refers to a clustered human settlement or community, larger than a hamlet but smaller than a town, with a population ranging from a few hundred to a few thousand (Jones, 2012).

Ages of participants ranged from 13 to 44 years. The minimum age of 13 years was chosen because of the estimated average age at menarche for girls (Pathak, Tripathi, & Subramanian, 2014), while the age of 44 years was chosen as the maximum age because it is the estimated age at which menopause begins for many women of reproductive age in LIMCs (Kowalcek, Rotte, Banz, & Diedrich, 2005). Despite this age limit, about 18 women (see Table 3.4) aged over 44 years also participated in the interview. I was unable to refuse their participation as this would be culturally inappropriate in PNG. The unexpected advantage of having women aged over 45 years in the study was that their stories added a richness to my understanding of the social

and cultural phenomena at menarche, which were often less audible and explicit in stories of younger participants.

The participants were divided into two focus groups at each study location. Younger women aged 13–24 years were grouped together, while the other focus group consisted of women aged 25–44 years. Such groupings were considered necessary in FGDs to eliminate potential shyness in group discussions because of the wider age ranges, and to promote greater peer interaction during discussions while sharing experiences (Acocella, 2012; Liamputtong, 2013; Redmond & Curtis, 2009). The participants comprised both married and unmarried women. Participants' education and socio-economic status were not considered in this study as the study aimed to acquire a generic understanding of menarche experiences in PNG. However, these factors are important and can be considered in future studies.

Sixteen data collection events were conducted, comprising (1) FGDs ($n = 10$) and (2) in-depth individual interviews ($n = 6$). Most data collection events lasted for approximately 1 hour. Individual interviews were used to capture more in-depth stories from women of special interest, that is, women who had shared rich experiences of menarche and were willing to share more (Birks & Mills, 2015; Liamputtong, 2013). Individual participants were women who either were referred by participants from the FGDs or were notably shy during FGDs and were later followed up and interviewed after the FGDs because they had richer experiences to share. This process was repeated until data saturation was reached (Birks & Mills, 2015).

Individual interviews were used to gain more in-depth personal and private stories from women and girls with rich experiences that could not be fully expressed in FGDs. Individual interviews are described in the literature as necessary to ensure comfort of the participant to share personal stories in private (Denzin & Lincoln, 2005; Liamputtong, 2013). However, this concept was not applicable to the cultural context of my study. Although individual interviews require a one-on-one interview with researchers, the practical application needed to be contextualised culturally. When individual interviews with participants were sought as a follow-up from the FGDs, one or two other female individuals (usually of the same age range) accompanied the individuals to the study. This observation was considered a normal practice in the collective cultural context of Melanesian countries, where many activities are

collectively done (Frewer & Bleus, 2015; Redman-MacLaren et al., 2014). In this research situation, it would have been shameful and culturally inappropriate to turn away the individuals accompanying the interview participants. I could not turn away the other women and so allowed an individual conversation in the presence of participants' friends because the other women provided a sense of comfort for the participants to share their stories. In this situation, the questions were directed at the principal participant to understand her experiences. However, both the participant and the participant's friend responded to the questions relating to the experiences of the principal participant. The friend participant also assisted the principal participant to respond to some questions. Data were collected from both the principal participant and the friend and analysed together. All women were included in the interview, although the focus of the study was on the designated individual participant. Subsequently, four individual participants (three elderly women between the ages of 50 and 65 from MBP and one middle-aged woman of 40– 50 years) were accompanied by other individuals (their peers) to the interviews. Informed consent was gained for all research participants. I considered this an individual interview because, despite the presence of the individual participant's peers, the questions were directed to the principal participant to obtain deeper and richer information about stories shared during the FGDs or as a follow-up from the FGDs. From the seven individual interview invitees, only one young woman from the fringes of NCD refused to be interviewed after the FGD because she felt uncomfortable to talk about her private body parts.

One individual interview only lasted for 20 minutes because the woman felt uncomfortable talking to me—she expressed her shame. My position as a senior educated woman and a PhD student researcher from an overseas university created a power difference that might have affected the interview. The woman felt shy and could not answer gentle but probing questions. This experience was different with individual interviews when the participants came to the interview in the company of female friends—participants eagerly shared their experiences. The sensitive nature of the interview and the place where the interview was conducted might have also caused this woman to feel shy. I stopped the interview to ensure her sense of wellbeing and safety. This woman was comforted, and re-assured that the data she provided would not be identified. Further, she was asked whether or not she wanted her partial data to be used in the analysis. She agreed for the inclusion of her partial data, and she left

feeling comfortable after we had a snack together. Below is a memo written about this observation:

> *Today I observed from an individual in-depth interview that the named woman was shy to talk about her menstruation experiences. The woman felt uncomfortable and the interview did not proceed. This woman came along for the individual in-depth interview while other participants for individual interviews had a company. Could this be a methodological issue? This experience gave me a sense of realisation that, the individual in-depth interview did not work in PNG context when discussing private sensitive topics.* (Memo dated 3 March 2014)

This participant's discomfort may reflect that the traditional approach to the individual interview ('one-on-one' approach) may not be relevant for the PNG cultural context when discussing sensitive topics (Redman-MacLaren et al., 2014).

A semi-structured open-ended interview guide, developed by myself as lead researcher with support from my advisors, was derived from the substantive area of inquiry and used in the interviews (see Appendix 2). The open-ended questions were intentionally unstructured to allow leading questions to be asked in relation to the aims of the study and to allow key informants to tell their stories without applying structure. Open-ended questions allowed for a deeper engagement with informants by further probing into finding out more information. The interview guide started with a broad grand tour question, '*Tell me about you grew up as a child and became a woman in your society?'* This question was followed by further thematic questions, and probing questions to obtain a deeper understanding and to seek clarification on specific areas of interest in the participants' stories. This process went on until either the end of the interview guide or until data saturation was reached within each interview. The concurrent data collection and analysis process (explained in the next section) tailored the adaptation of research questions depending on the data collected, but was necessary because of the time and resource limitations of being in PNG.

All 16 data collection events (FGDs and interviews) were audio-recorded using an MP3 recorder and later downloaded onto my laptop after each interview and uploaded onto NVivo Plus software (version 11). Field notes were written in consultation with two research assistants (from World Vision PNG and NCDC youth desk). All audio-recorded data collection events were transcribed and analysed. Research assistant from

World Vision PNG assisted by transcribing eight of the 16 interviews, while I transcribed eight. This research assistant was paid for assisting. All 16 manual transcriptions were uploaded to NVivo Plus software and analysed.

In the next section, I explain how data were analysed using iterative and constant comparison methods at different stages of data collection and analysis until the theory of 'Making of a Strong Woman' was developed.

3.5.8 Analysing data

Constructivist grounded theory principles were applied to data analysis. The principles applied included inductive, iterative and constant comparative methodological processes until the theoretical model was developed (Charmaz, 2001). Iterative and constant comparative processes are two essential principles of grounded theory methodology that contribute to the analytical power of the conceptual categories (Charmaz & Thornberg, 2020). Constant comparative analysis is an iterative process of analysing qualitative data whereby collected data are coded into emergent codes or themes and are constantly revisited after initial coding until it is clear that no new themes are emerging (Hewitt-Taylor, 2001).

Grounded theory is aimed at building theory through construction of categories directly from data (Birks & Mills, 2015). Charmaz explains that, as grounded theorists, we study early data and begin the process of separation, sorting and synthesising these data through qualitative coding (Charmaz, 2006, p. 3). The process of coding, distilling and sorting gives a handle for making comparisons with other data segments. All the while, memos (analytic notes) about codes and comparisons and emerging ideas about data that occur in the process of analysis are maintained throughout. Based on the nature of the methodological principles, sampling, data collection and analysis methods are concurrently done using the iterative, constant comparative approach and memoing of emerging concepts in the course of theory development.

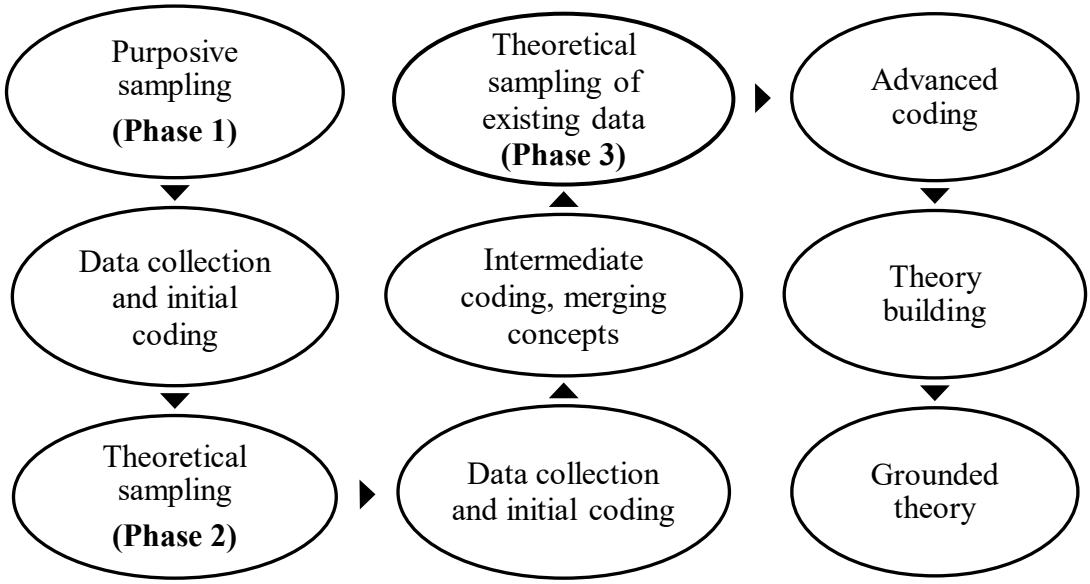

Figure 3.2: Process of sampling, data collection and analysis to construct grounded theory

Purposive and theoretical sampling, as explained in the previous section, were sequentially conducted at different phases of data collection and analysis. Here, I link these two (purposive and theoretical) sampling processes to the iterative and constant comparative processes of data collection and analysis because these three processes are interconnected and give richness or value to the grounded theory development process (Charmaz & Thornberg, 2020). Figure 3.2 shows when purposive sampling (Phase 1) and theoretical sampling (Phases 2 and 3) were done in relation to the different stages of coding until the theoretical model was developed.

The interview guide used in this study was developed to address the substantive area of inquiry of this study. To ensure consistency, the interview guide was developed in English and translated to *Tok Pisin* and was translated back to English. A PNG colleague, proficient in both English and *Tok Pisin*, helped by cross-checking the translation of the interview guide. The same interview guide was used to interview participants in both FGDs and in-depth individual interviews to explore women's pre-menarche understanding of the meaning of body changes and menarche, social and cultural beliefs, and perceptions and practices, and how girls are prepared for womanhood. The languages of *Tok Pisin* and/or English were used in FGDs and interviews, depending upon the participant's preference. The use of *Tok Pisin* as a common means of communication between participants and myself as the researcher

was suitable because it enabled a trusting relationship between us, and the language was suitable to discuss sensitive topics such as sexuality and menstruation for ease of two-way communication and expression of experiences by participants (Redman-MacLaren, Mafile'o, Tommbe, & MacLaren, 2019).

At the end of each interview, big ideas were cross-checked with my two research collaborators to confirm meaning. We debriefed, reflected on the stories, examined data, discussed concepts, examined field notes, discussed learnt lessons, theoretically sampled, re-strategised and invited more participants. This process was used until the end of the data collection in the field. This process helped to understand what the data meant and what common story was emerging from the participants' stories. This process occurred between 2013 and 2015.

The initial data collected from purposive sampling was manually transcribed, uploaded to NVivo software and initially coded following data collection. The transcripts were printed, read and re-read two times to familiarise myself with the data (participants' excerpts). I went through the transcript and separated each excerpt line by line and distilled them by colour-coding and assigning short conceptual labels (Charmaz, 2006; Charmaz & Thornberg, 2020; Saldaña, 2013). These conceptual labels were my way of describing and making 'conceptual' sense of what the excerpt meant in relation to my substantive area of inquiry. In the process of this coding exercise, I made notes (using memos) of the codes that required further exploration to acquire in-depth understanding. A sample of initial coding and a related memo are attached in Appendix 7. This methodological approach assisted the process of developing the theoretical model because it supports an audit trail of the process of how the grounded theory emerged from the inception of the sampling, data collection and analysis stage to theory development (Charmaz & Thornberg, 2020). This process further helped to adjust my interview guides and develop my theoretical sensitivity and my level of curiosity to explore the codes in more depth to either confirm or seek further clarity on the codes and their relationships (Thistoll et al., 2016). To seek further clarity on the codes and the clarity on relationships between the codes, I applied theoretical sampling in Phase 2 (see Figure 3.2). This enabled me to gain a more in-depth understanding of the initial codes generated from purposively sampled participants. This process resulted in 15 further interviews. Some participants were theoretically sampled, and

data were collected simultaneously until adequacy of data was reached (Low, 2019). Data from theoretically sampled participants were coded following all 15 interviews. Intermediate coding was then conducted to merge key concepts identified in initial coding.

Theoretical sampling (Phase 3) was used to further interrogate existing data. With support from Michelle Redman-MacLaren (Principal Advisor), who is also fluent in *Tok Pisin*, I elevated existing codes to focused codes that became more refined and abstract. Theoretical sampling in Phase 3 (see Figure 3.2) was also used at the later stage during data analysis (after coding of initial data) to refine and strengthen the process of forming the theory (Murray, Stanley, & Wright, 2014). At this stage, existing data were revisited and theoretically sampled to confirm, clarify and expand categories to reach advance coding and theory building. While re-analysing the data, I iteratively moved between different codes, concepts and emerging categories, and constantly compared them, continuously memoing to identify relations and linkages to enable the elevation of key concepts to build a theory from the data (Birks, Chapman, & Francis, 2008; Birks & Mills, 2015; Charmaz, 2006). The process continued until the core category of 'Making of a Strong Woman', four inter-connecting sub-categories and two intervening conditions were identified.

A constant comparison method was used throughout the study until the core category and supporting categories were determined (Carmichael & Cunningham, 2017; Hewitt-Taylor, 2001). Unfortunately, the iterative process between sampling, data collection and analysis were not fully applied in the field because of the short amount of time as explained earlier in the two previous sections (3.5.6 and 3.5.7). I had limited research funding for the PhD study to fully support the field work. Instead, I conducted the first round of interviews, as explained in section 3.5.6, and completed all the interviews with participants between February and April of 2014 in Port Moresby. I commenced analysing the data in May 2014 (explained in section 3.5.7). Further theoretical sampling, and the iterative and constant comparative method—movement between the data, codes and categories, were applied during the analysis stage (Phases 2 and 3), along with memoing to enhance interpretive quality.

Following this explanation of the data collection and analysis processes, the next section specifically explains how data were analysed using the three different analysis

stages, initial, intermediate and advanced coding, leading to the development of the theoretical model.

3.5.9 Developing the theoretical model

Data analysis was guided by the constructivist grounded theory principles. An inductive approach to data analysis using an iterative constant comparative method and memoing of key concepts was applied at initial, intermediate and advanced stages of coding and analysis until the development of the theory (Birks et al., 2008; Birks & Mills, 2015; Charmaz & Thornberg, 2020).

3.5.9.1 Initial coding

At the initial stage of analysis, raw data were studied by myself as the lead researcher to familiarise myself with the data (Mills & Birks, 2014). In the coding process, each line of the raw interview data was read through, and chunks of relevant data related to the inquiry questions were coded and labels assigned to each code that both summarised and accounted for each portion of the data (T. M. Giles, de Lacey, & Muir-Cochrane, 2016). The relevant In-vivo codes were also identified and coded in their natural form at the initial stage of coding and analysis (Saldaña, 2013). The In-vivo code is 'a form of qualitative data analysis [that] places emphasis on the actual spoken words of the participants' use [of] specific words' (Manning, 2017, p. 1). This form of coding helps researchers to highlight important concepts by using participants' direct phrases or voices that might not otherwise be understood when using other forms of coding in cross-cultural studies (Manning, 2017).

3.5.9.2 Intermediate and advance coding

At the intermediate and advance coding stages (see Figure 3.2), segments of data identified through iterative and constant comparison approaches/methods were collapsed, re-organised and elevated using more abstract and conceptualised codes for theory building and eventual development of grounded theory (Birks & Mills, 2015; Charmaz, 2006; Hoare, Mills, & Francis, 2012). Over 100 abstract codes were reached at the intermediate level of analysis that required further comparative analysis. Memoing and diagramming representing relationships between intermediate codes

and developing categories continued throughout the analysis process. This resulted in a core category supported by four main categories.

A storyline linking initial findings was written in April 2018 to help explicate the relationship between each of the categories to the core category, and the conditions that evolved in the initial, intermediate and advanced coding and analysis process. A storyline is a tool or a 'strategy for facilitating integration, construction, formulation and presentation of research findings through the production of a coherent grounded theory' (Birks & Mills, 2015, p.180). As a novice researcher, I struggled at this stage to abstract and elevate the codes and wrote a memo on my reflection:

> *What does menarche really mean and why is it such a significant event in many cultures of Papua New Guinea? Every women is relating their experiences to their childhood and what and why things happen the way they do while growing up. I have reflected on my own personal experiences, observations and recalled what I heard from my grandparents, parents and other immediate family members. I have also reflected on the descriptive accounts from anthropological studies on menarche. They are all leaning towards one in-vivo code that kept ringing strongly in my mind, "Taim mipla sikmun na ol mekim displa kastom bai mipla kamap strong lo mekim wok blo ol meri (The cultural practice they do to us when we menstruate is to make us strong to perform womanhood responsibilities)" (Older woman from EHP-FGD01). I thought this was the answer to my struggle and I must discuss with my supervisor-Michelle Redman-MacLaren.* (4 May 2018)

At this point, potential categories for the theoretical model were being identified in an effort to create an explanation of the phenomena under study. To ensure the rigour of the study process leading up to the constructivist grounded theory, the next section describes the critical steps taken to ensure quality of this research.

3.5.10 Ensuring quality of research

Appropriate criteria to assess quality and rigour in grounded theory studies are still contentious (Shenton, 2004). Qualitative researchers including the grounded theory researchers argue that criteria used to assess quality in quantitative research cannot be applied to qualitative studies because of different paradigms of these two extreme approaches (Shenton, 2004). Consequently, relevant strategies that best suit methodological components of qualitative studies including grounded theory are now

being developed and applied to ensure quality (Rolfe, 2006; Shenton, 2004). Birks and Mills (2015, pp. 33–47) suggested three factors that influence quality in grounded theory studies: researcher expertise (researcher's knowledge and skills), methodological logical congruence (acknowledging personal philosophy in relation to study area) and procedural precision (paying attention to rigorous application of iterative and evolving grounded theory methods). Charmaz and Thornberg (2020) posited that 'grounded theory needs its own set of criteria for evaluating quality due to its unique features' (p. 10), and offered a useful range of criteria, checklists and guidelines to be used while constructing grounded theory to ensure quality.

Credibility, transferability, dependability and confirmability are important elements that enhance quality of grounded theory (Charmaz & Thornberg, 2020). These elements or criteria first emerged from Guba's writings when comparing and contrasting strategies between qualitative and quantitative approaches, and are becoming increasingly used to guide development and application of strategies to assess quality and rigour of qualitative studies, which include grounded theory studies (Anney, 2014; Charmaz & Thornberg, 2020; Lincoln & Guba, 1985; Orland-Barak, 2002; Shenton, 2004). Table 3.5 summarises the key characteristics of the elements of trustworthiness and strategies that were adapted from Anney (2014) and used in this study.

Reflexivity, memoing and an audit trail also ensure quality in research. Reflexivity ensures researchers explicate their position relating to the concepts of the substantive areas of inquiry of the study. Apart from increasing creditability, reflexivity also deepens the researcher's understanding of the research so that the reader is able to evaluate the research (Dodgson, 2019). Charmaz and Thornberg (2020) states, 'Constructivist Grounded Theory requires strong reflexivity throughout the research process' (p. 11).

Table 3.5: Trustworthiness criteria and strategies

Criterion	Description	Strategies applied in this study
Credibility	Confidence in the 'truth' of the findings	Standpoint, reflexivity, member-checking, interview technique
Transferability	Shows that the findings have *applicability* in other contexts	Sampling, data collection and data analysis strategies
Dependability	Shows that the findings are *consistent* and could be repeated	Memoing, audit trail, coding/recoding strategy, peer examination
Confirmability	A degree of neutrality or the extent to which the findings of a study are shaped by the respondents and not researcher bias, motivation or interest	Memoing and reflective journal

Source: Anney (2014); Lincoln & Guba (1985); Shenton (2004); Charmaz and Thornberg (2020).

Memoing is an important strategy to enhance quality in qualitative research (Birks et al., 2008). Commonly used in grounded theory studies, the memoing technique assists researchers to make 'conceptual leaps from raw data to abstractions that explain the research phenomena in the context within which they are examined' (Birks et al., 2008, p.1). Keeping an audit trail is a strategy that involves recording and examination of the inquiry process and product in order to validate the data (Anney, 2014). This process entails the researcher maintaining a record of accounts of all major decisions relating to the grounded theory research to allow tracking of decision-making to avoid researcher bias (Anney, 2014; Glenn A. Bowen, 2009).

Member-checking is another strategy for improving quality in qualitative research (Anney, 2014). Described as the heart of credibility (Anney, 2014), member-checking is considered the single most important strategy to reinforce credibility and accuracy of the findings (Birt et al., 2016; Shenton, 2004). Member-checking involves checking the data accuracy 'on the spot' in the course and at the end of the data collection dialogues, and verification of emerging theories and inferences at data analysis stage (Shenton, 2004). Unfortunately, member-checking was not possible in the usual way because of limited funds and opportunity to return to PNG. My inability to check the grounded theory with research participants was replaced by the 'grab' and 'fit' strategy when the grounded theory constructed from this study was presented at the Pacific SRH conference (Chametzky, 2013). Further detail on how the 'grab' and 'fit' strategy was applied is explained in section 5.7 in Chapter 5.

Although rigour and quality of the grounded theory methodological principles and strategies applied in this study have been demonstrated at the outset of this chapter, this section seeks to explain the strategies used to ensure rigour of the findings of this study. To ensure rigour of the research findings, the application of these strategies can promote confidence of the findings. The practical application of these strategies is discussed in section 5.7 of the discussion chapter. The next section summarises this chapter.

3.6 Summary

In this chapter, I have explained why and how I used constructivist grounded theory in this research that led to the construction of the grounded theory for 'Making of a Strong Woman'. I explained that the constructivist grounded theory methodological choice was based on my philosophical standpoint (axiological, ontological and epistemological position) within this research. I described the philosophical framework to set the basis for how I reached my philosophical position—the key philosophical elements that set the foundation on which my philosophical position as a researcher is established. This philosophical position also provides the basis for my methodological choice. The key elements that enhanced the process of developing grounded theory are defined and explained. I explored common qualitative methodologies and explained why I chose grounded theory for this study. I described the key characteristics and advantages of grounded theory methodology and explained

why constructivist grounded theory was relevant for theory development. I described the key principles of constructivist grounded theory and explained how I applied these methods during my data collection and analysis.

In the next chapter (Chapter 4), I will report the findings of the constructivist grounded theory study.

Chapter 4: Findings

4.1 Introduction

This chapter presents the constructivist grounded theory to explain the adolescent girls' experience at menarche in the provinces of ESP, EHP, MBP and NCD in PNG. Specifically, the key elements of socio-cultural norms, beliefs and practices about menarche and menstrual blood, along with the interconnectedness and mutually reinforcing perceptions and practices associated with the onset of menarche, are explained. I theorise how girls understand and learn about their changing bodies, and cope at the onset of menarche to achieve womanhood within the broader social and cultural context. The theoretical model (see Figure 4.1) is used to explain the conceptualised categories, properties, dimensions and intervening conditions of the grounded theory that explains the journey of adolescent girls to womanhood, as encapsulated in the core category of 'Making of a Strong Women'. The intervening condition, an essential principle of grounded theory, refers to situations or circumstances that positively or negatively influence an action to either occur or not occur (Glaser & Strauss, 1967). The intervening condition of 'Urban and Rural' represents the two distinct 'place-based' contexts that underpin and influence the core category and all categories, and contextualises the holistic lived experiences of how girls experience menarche in PNG. The findings presented in this study have been published in the journal *BMC Women's Health*.

The suggested citation for this article is:

> Maulingin-Gumbaketi, E., Larkins, S., Gunnarsson, R., Rembeck, G., Whittaker, M., & Redman-MacLaren, M. (2021). 'Making of a Strong Woman': A constructivist grounded theory of the experiences of young women around menarche in Papua New Guinea. *BMC Women's Health*, *21*.

A copy of this published article is included as Appendix 1.

I begin by outlining and explaining the core category to set the context for the young women's experiences in transition from childhood to womanhood in PNG. Each category is then explained to give theoretical context to the phenomenon, evidenced

by stories shared by the participants. This evidence explicates the experiences of adolescent girls at menarche in PNG.

4.2 Making of a Strong Woman

'Making of a Strong Woman' is the core category of the constructivist grounded theory. The core category encapsulates four interconnected categories: (1) 'Having Baby Sense', (2) 'Beginning of Learning', (3) 'Intensifying Learning' and (4) 'Achieving Womanhood'.

'Making of a Strong Woman' was drawn from an emotional statement shared by an elderly woman from ESP. The concept was repeated in all interviews of women from the four study locations.

> *'Long strongim mipla, ol bai putim mipla long haus na toktok lo mipla . . . . Na mipla bai kisim strong . . . olsem mipla meri . . . na mipla bai kamap strong [To make us strong, they will put us in the house and talk to us . . . . Then we will acquire the strength . . . and become aware of our womanhood . . . and we will become strong].'* (Elderly woman, ESP, FGD-02)

This statement accentuates the rationale for socio-cultural practices for constructing an ideal woman from a young immature girl to assume socio-cultural obligations in the complex physical and cultural environment in which they live. Women further explained that the rationale for 'Making of a Strong Woman' is to provide focused support and create awareness about their body changes in a cultural environment where open communication about sexuality is shameful. A young woman from NCD explained: *'Em tambu ya . . . em samting blo sem . . . em castom blo mipla [It's not allowed . . . it's a shameful thing . . . it's our customs]'* (Young woman, NCD, FGD-02).

Given this systematic lack of open communication, the society uses isolation, initiation and cleansing ritualised practices associated with cultural beliefs as a way of preparing girls for womanhood.

The core category contains two important concepts: 'Making' and 'Strong'. Women referred to 'making' as a process of creating and 'strong' as having power to move

heavy weights or perform other physically, and mentally and emotionally, demanding tasks:

> *'Taim ol wokim custom lo mipla em olsem . . . bai body na tingting blo mipla kamap strong long wokim strongpla wok olsem garden [When they do custom to us, it's like . . . our bodies and our mind will be strong enough to do tough jobs as gardening].'* (Elderly woman, ESP, FGD-02)

The concepts of 'making' and 'strong' underpin the socio-cultural practices used to support the development of an ideal woman.

4.3 The Theoretical Model

The grounded theory model shown in Figure 4.1 depicts an incremental process of learning and preparing young girls for womanhood. The process commences at 'Having Baby Sense' (Category 1), which is followed by 'Beginning of Learning' (Category 2), triggered by the changing body, and progresses until the girl achieves womanhood (Category 4). 'Intensified Learning' (Category 3), which happens at *fes sikmun* (literally means menarche), incorporates focused, intensive and sequentially staged ritualised practices at *fes sikmun* in order to *kamap meri* (literally becoming a woman). *Fes sikmun* is a *Tok Pisin* word for menarche and will be used interchangeably with menarche throughout this chapter. Although these cultural practices (isolation and initiation practices) vary in different study sites, the common goal for these practices is to increase a girl's awareness of her changing body and changing attitudes, and prepare girls for womanhood including marriage. However, not all girls achieve the socio-cultural status of womanhood, which will be discussed in Categories 3 and 4.

Achieving womanhood includes key recommendations for improving the experience of menarche for girls in PNG. These recommendations are based on the participants' personal experiences and reflections of having menarche in their respective socio-cultural environments in the four study sites. The women have made important recommendations for improvements to make the experience of menarche safer and more respectful for later generations of young girls.

The theoretical model (see Figure 4.1) represents the processes in the journey from girlhood to womanhood. The journey is conceptualised as winding and is best summarised by a young woman in NCD as *'bitter-sweet'* (NCD, FGD-03). Girls grow up with no knowledge about the meaning of body changes until their body starts maturing and changing. Each of the developmental changes is associated with socio-cultural practices that are aimed to help the young girls and women to become conscious of the meaning of their body changes and menarche.

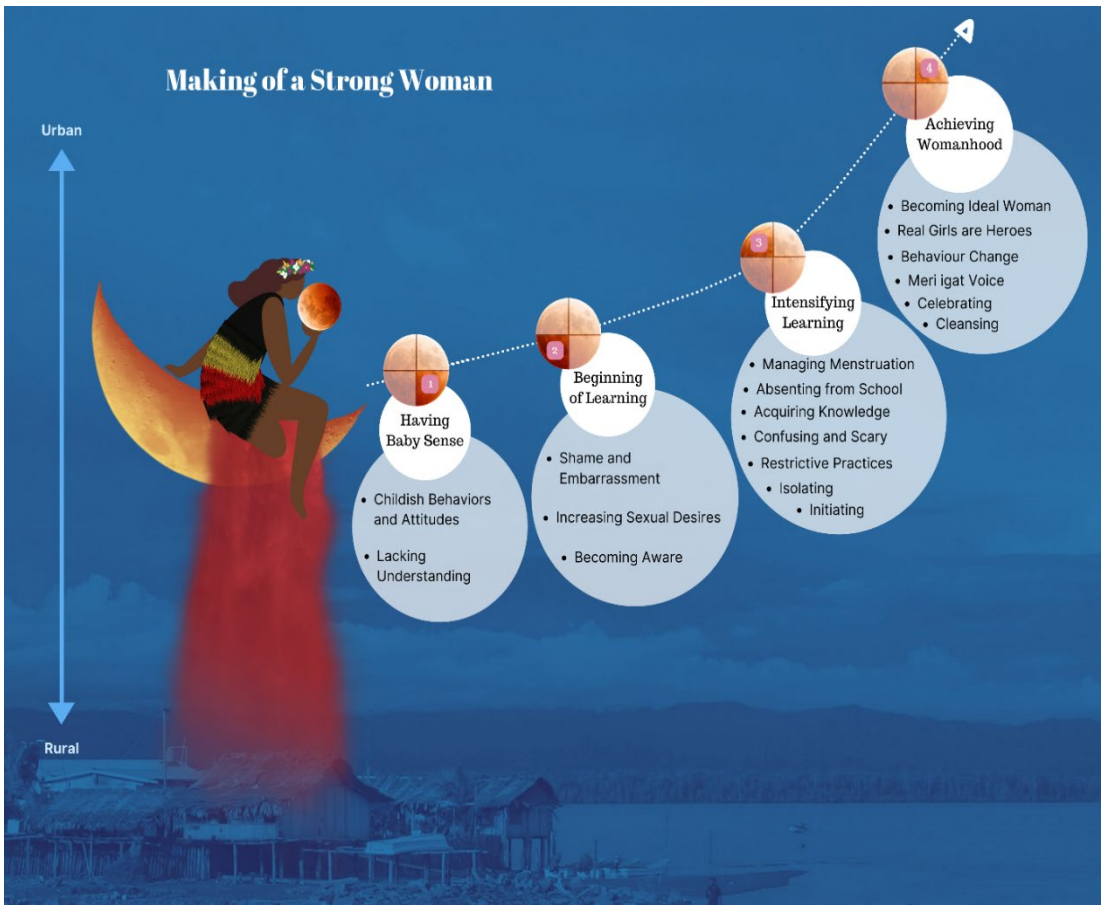

Figure 4.1: Theoretical model of 'Making of a Strong Woman'. Artwork: Talah Laurie. This theoretical model was designed by Talah Laurie. Talah gave permission to use her artwork for the purpose of this thesis and research work. The process for 'Making of a Strong Woman' is highly associated with cultural beliefs and ritualised practices around menstrual blood and the socio-cultural value placed on women's role in the community. Some socio-cultural practices are friendly, while others are harsh. However, most women in the study appreciated going through these ritualised practices. Women valued undergoing traditional ritualised practices because the practices caused them to become aware of the meaning of their body changes and menarche in relation to childbirth and the roles

and responsibilities of womanhood in a culture that prevents open communication about sexuality. Further, some women explained that the practices caused them to become strong. This is how a young woman from NCD described her experience:

> *'I don't know about other countries but for PNG we got it bad when it comes to this period. It's not straight forward. It's like we go through a lot of hardships to get to womanhood, . . . but then this culture is our culture. This culture inducted me, and forced me to learn that I am no longer a little girl anymore. I have to go through these process to learn my new roles and responsibilities that I am changing into a woman.'* (Young woman, NCD, FGD-03)

The practice of 'Making of a Strong Woman' also caused some women to acquire respect in their family and within the wider community. Women still believe strongly that young girls should undergo these rituals to change their behaviour and attitude to gain respect in the community and to avoid risky sexual behaviours and consequences such as pre-marital sex, which often leads to unplanned pregnancies at an early age.

'Making of a Strong Woman' is a collective process that involves extended family and community members. Isolation, initiation and cleansing ritualised practices provide an opportunity for focused teaching and preparation where immediate and extended female family members are involved. Men and women involved in the isolation and initiation process have distinct cultural roles and responsibilities. Grandmothers and aunties (including mothers in some situations) are usually involved in the teaching and caring of menstruating girls, while fathers, uncles and grandfathers are involved in making decisions about the application of cultural practices, restrictive practices and duration of isolation of the menstruating young woman; building menstrual huts; toilets; and initiation rituals.

4.3.1 Intervening Conditions

The process for preparing girls for womanhood is influenced by the intervening condition of the environment being rural or urban. Intervening conditions are 'the structural conditions bearing on action/interactional strategies that pertain to a phenomenon and facilitate or constrain the strategies taken within a specific context" (Strauss and Corbin 1990, p. 96). How the girls are prepared for womanhood in rural areas is different from an urban context because of changes in the environmental

conditions including the social and cultural norms. The process of 'Making of a Strong Woman' differs between the rural and the urban contexts. The full extent of these cultural beliefs and practices is slowly diminishing because of the shift in traditional cultural systems and processes. Some young girls are taking different pathways, outside of established cultural norms, to achieve womanhood. The various pathways of how adolescent girls' experience of achieving womanhood is explained under the four categories is represented in the theoretical model (see Figure 4.1).

4.4 Having Baby Sense

'Having Baby Sense', the first category, represents the childhood stage and is an important cultural premise for 'Making of a Strong Woman' within the theoretical model. Women commonly used and related the phrase of 'Having Baby Sense' to childhood, pre-pubescent and pre-menarcheal stages where many of them were unaware of what was happening to their bodies. This was how a young woman described her childhood experience: *'Mi baby sense yet yah. Mi no understandim [I was still a child with childhood thoughts. I did not understand] what was happening to my body'* (Young woman, ESP, Individual interview-02).

'Having Baby Sense' is largely characterised by innocence, not knowing and lack of abstract thinking.

4.4.1 Childish behaviours and attitudes

'Having Baby Sense' is also characterised by childhood behaviours and attitudes, which are expected to cease before the girl achieves womanhood. An elderly woman from Milne Bay explained: *'We play a lot . . . when we a still baby . . . when we grow, our parents tell us to stop acting baby baby'* (Older woman, MBP, FGD-02).

There is an expectation that a girl child is expected to change their childhood behaviour and attitudes when physical bodily changes occur. While growing up, girls are expected to help with domestic duties such as babysitting, collecting firewood, fetching water for family meals and doing dishes. These practices are aimed at starting to instil in the female children the expected duties of womanhood.

‘Having Baby Sense’ is an important cultural premise for ‘Making of a Strong Woman’ because of the girl child’s lack of abstract and logical thinking at childhood demonstrated in their inability to understand, comprehend and make sense of their body changes. Further, cultural taboos about open communication prevent girls from learning about their body changes in childhood. Moreover, traits typical of young girls, such as not knowing, are culturally undesirable traits in a mature woman. The girls are expected to develop into mature and strong women who can perform social and cultural obligations. Therefore, cultural systems and processes are put in place to eliminate those childhood characteristics from ‘Having Baby Sense’ and to prepare young girls to become strong women.

4.4.2 Lacking understanding

Many girls do not know about the meaning of body changes during childhood. Women explained that they did not understand the significance of their body changes and expectations that were associated with these changes for two commonly mentioned reasons.

First, at the stage of ‘Having Baby Sense’, girls lack abstract thinking and the ability to conceptualise and comprehend their body changes because of their naïvety and innocence as a child. A young woman from NCD said, *‘Mi baby yet . . . nana blo mama yet na mi no save long wanpla samting yah [I had baby sense . . . my mother’s little baby and I did not understand anything]’* (FGD-02). Similar statements were echoed throughout the study when discussing their childhood stage. An educated young woman from an FGD in NCD said, *‘We could not really connect the information. Information was not clear’* (FGD-02). Consequently, the girls were unable to understand and make sense of what is happening to their bodies. Women expressed feeling confused and lost when they heard about menstruation. *‘Ol tok sikmun na kain olsem, mi no bin save em wanem samting [They talked about menstruation but I had no idea about what it was]’* (Young educated woman, ESP, FGD-03).

Second, girls lack understanding because of cultural secrecy, shame and taboos. Women commonly explained that discussion of private body parts and menstruation with children is *‘tambu’* (taboo). Mothers, fathers or any members of family are not

allowed to directly discuss private body parts with a growing child. An elderly woman from Milne Bay expressed that, *'It's a taboo to talk about women's secret parts of the body with young children. . . . It's our custom. We were never told'* (MBP, Individual interview-02). Mothers who had the primary responsibility to inform their daughters early about body changes were unable to do so because of shame. A young woman recalled her experience and said, *'Mama no tokim mi wanpla samting. Em sem ya [Mother did not tell me anything. She was shy]'* (ESP, Individual interview-02). Consequently, pre-pubescent girls are rarely made aware of the significance of their body changes during their childhood.

4.5 Beginning of Learning

'Beginning of Learning' refers to puberty and the pre-menarche stage. Women often referred to *susu sanap* (breast buds) as a social marker for reproductive maturation. An elderly woman from EHP explained: *'Taim susu blong mi kamap nau, sikmun ino yet . . . em mama papa i tok, yu kamap meri nau [When my breast was developing, not menstruating yet, my parents told me that I was becoming a woman now]'* (Elderly woman, EHP, FGD-02).

Other intimate sexual bodily changes representing reproductive maturation, such as vaginal, pubic and underarm hair growth, were rarely mentioned during the interview because of embarrassment.

'Beginning of Learning' is characterised by confusion and embarrassment, lack of knowledge, learning indirectly, family mobilising support, increased *tingting long man* (increased sexual feeling towards men) and preparing for womanhood. These characteristics are explained below.

4.5.1 Shame and embarrassment

The changing body is associated with shame and embarrassment. Most women expressed feeling surprised, confused, ashamed and embarrassed when their breasts started appearing. Women also spoke about feeling strange when their breasts started developing. A young woman from NCD expressed:

> *'We have conflicting emotions, . . . confused and ashamed. Like for myself, I have just regrets . . . , when I started experiencing all these body changes. I was like,*

whom am I going to speak to, why am I female, why did God made me a women . . . , there's something wrong with me and you know . . . those were the emotions.' (Young woman, NCD, FGD-03)

Most women felt surprised, confused and embarrassed because they were unaware of why their breasts were developing because of lack of understanding. A young woman from ESP who grew up in the village recalled her experience and said, '*I was surprised and felt ashamed because I did not understand'* (ESP, Individual interview-02). However, confusion and embarrassment were less commonly described by women who had prior awareness and formal education. A young woman aged between 25 and 45 years who grew up with her elder sibling who was a teacher explained that she was not too scared because she was already aware of her body changes when they appeared and was prepared for it. *'My sister . . . told me about my breast that I am now a becoming a woman . . . . That's why I was not really scared'* (ESP, FGD-01).

Susu sanap increases self-consciousness and changes in attitude of girls towards their body. The girls tend to become more aware of their body changes and pay more attention to their bodies to avoid shame and embarrassment. Women commonly spoke about concealing their bodies to avoid shame from being teased, gossiped about and stared at: *'When the susu (breast) is coming up . . . they (girls) feel bad to expose them'* (Young woman, MBP, FGD-01).

Body changes, which included breast development, also triggered teasing and gossiping from male peers, leading to embarrassment for many women. Teasing and gossiping were common in all stories. Many women spoke about being teased by male peers and men, while a few women spoke about being teased by older women including some family members. Teasing from male peers in schools was apparently common in the stories of young women who attended schools. These women explained that teasing in schools led to them feeling shame and embarrassment: *'When we go to school . . . they'll just tease us . . . they even follow us home. So it's like a cause for shame and embarrassment'* (Young woman, NCD, FGD-03). Women felt that teasing was quite traumatic. Although both males and females were involved in teasing young girls, teasing from the opposite sex was more traumatic because it related to their private body parts: *'Ol boys, taim ol tisim you, ol bai kisim yu stret lo bun [When boys tease you, they'll get you good and proper]'* (Middle-aged woman, ESP, FGD-04).

Teasing using unfamiliar names to describe the girls' changing body can potentially be traumatic when intimate words for private body parts, swear words or unfamiliar names are used. A young woman from NCD (FGD-02) explained that one such name is *'tomato meat'*, which is used to describe the breasts as something meaty and juicy.

Girls are stalked after breast development because of sexual attraction from males. Women spoke about being stalked by boys because of sexual attraction towards themselves: *'When they see a girl with popping breast, they'll admire, tease and whistle at us. They even follow us home from school'* (Young woman, NCD, FGD-01). Stalking was common in both rural areas, but was more common in the urban areas of NCD.

Susu sanap caused girls to isolate themselves from their parents, social activities, friends and peers because of embarrasment: *'I kind of isolate myself. I stopped playing and socialising cos everybody is gonna stare at you and . . . you think, there's something wrong on your body'* (Young woman, NCD, FGD-03). The practice of isolation as a result of teasing was common in all stories.

Teasing, ridiculing, gossiping and stalking prevent girls from attending school. For example, a woman in ESP reported that one of her classmates left school and never returned after she was scolded and ridiculed for washing her menstrual blood with water from the school water tank that was usually used for drinking.

4.5.2 Increasing sexual attraction

The changing body increases changes in emotions. Common emotions talked about by most woman were sexual desires resulting in risky sexual behaviours. Women explained that when their body starts changing, they start feeling attracted to males, especially after breast development. A woman from NCD recalled her own experience and said, *'Taim susu kamap nau olsem, mi gat tingting lo man nau [I started thinking of men when my breast started developing]'* (Young woman, NCD, FGD-01). A few women recalled that as young girls, the sexual feeling for boys was strong, causing them to have boyfriends and engage in sexual relationships early in their teenage years. A number of those women spoke about having sexual relationships early, such as *'Mi stap yangpla yet na mi bin gat boyfriend [I was very young when I started having boyfriend]'* (Young woman, ESP, FGD-04). These women expressed that they had

limited knowledge about what their body changes meant, including sex education. They had limited direct parental support because they lived away from their parents for education or lived with relatives. One older woman recalled her experience and regrettably said, *'Sapos mi bin stap wantaim mama papa, mi no inap gat bel. Mi sakim tok [If I was with my parents, I would not have been pregnant. I disobeyed]'* (MBP, FGD-01). Women also believed that parents were good support when it comes to body changes and become over-protective of their daughters after their breasts start developing so that the girls are prevented from risky sexual exposures that may result in unplanned pregnancies. Unplanned pregnancies are culturally unacceptable for many cultures in PNG as it brings shame and embarrassment to the family.

4.5.3 Becoming aware

Girls start becoming aware about the meaning of body changes and menarche after *susu sanap*, directly and indirectly. Direct learning is provided by parents, guardians and family members, friends and peers, school, and media. Indirect forms of learning occur through observation, jokes and teasing, scolding, myths, metaphors, analogies, and death threats, which are often unclear and lead to confusion, shame and embarrassment.

Most women learnt about body changes and menarche while growing up through indirect forms of communication. As noted in 'Having Baby Sense' (previous section 4.4), parents, especially mothers, have the primary responsibility to talk to their daughters about body changes. However, because of shame and secrecy, mothers were often unable to discuss topics about sexuality with their daughters. Consequently, often the indirect communications are their only, and often incomplete and incorrect, forms of learning.

Girls also start learning when family members prepare for menarche. *Susu sanap* is a social marker to commence preparation by families for the cultural practices at the onset of menarche, including marriage. Because menarche is associated with cultural practices, rituals, feasting, celebration and rewarding, family members are required to prepare for this occasion. The preparation involves preparing material wealth for the occasion. An elderly woman from EHP explained:

'Mipla sa wok custom ya. Taim ol lukim susu blo mi kamap bikpla nau, papa na mama tingim olsem em bai lukim (first) sikmun blong em nau. Ol redim sampla kago pinis olsem moni na sampla pig [We do custom. When my breast started developing, my parents knew that I would be seeing my (first) menstruation soon. So they prepared goods such as money and pigs for the occasion].' (EHP, FGD-01)

Women recalled only being told about the significance of their changing body, menarche and marriage, including the expectation of womanhood, when the parents and family members were preparing for the menarche ceremonies.

Girls also learn about private body parts from observation. In some villages in the four study sites, some women do not hide their breasts. Young girls learn from seeing women with breasts and learn that as girls they will be developing breasts. However, they lack the understanding of the significance of breast development:

'Mi lukim ol mama na bubu gat susu na mi save lo susu. Tasol mipla ino sa save taim em kamap. Mipla sa kirap nogut na sem [We learn from seeing breasts from our mothers and grandmothers but we became surprised when it appeared on our bodies].' (Older woman, ESP, FGD-02)

Most girls in urban areas learn from the media such as the television, radio, internet and commercial advertisements, compared with girls in rural areas. Many younger girls are now becoming more aware of their bodies early instead of being first told by their parents. Although this is educational, some older women thought this practice encouraged girls to engage with boys early at a pubescent age, which was considered inappropriate by the women. An elderly woman from the highlands of PNG, but living in Port Moresby, spoke about how girls start engaging with boys early at the pubescent stage because of the influences from various forms of media. Another younger woman commented, *'Girls nowadays don't feel shy. As soon as their susus (breast) starts popping out, they are out in the dark with boys . . . . They are wrongly influenced'* (Young woman, NCD, FGD-02).

Jokes and teasing are used as a form of communication about private body parts. In MBP, jokes are sometimes used to dispel shame to talk about private body parts. A few Trobriand women from MBP spoke about how they learnt about their breasts from older women through jokes. Jokes were commonly used by older women such as aunties and grandmothers to indirectly convey messages about the changes occurring

to girls' bodies: *'As for me, God was good to me. He gave me wisdom. There was no education. So I was learning through the joke'* (Older woman, MBP, Individual Interview-02). These older women would gather together and, if a young girl happened to be among them, they would look at the girl's body; when a change was noticed, the women would use that change as a basis to jokingly relay a message to the girl. This was how a young woman from MBP described her experience:

> *'When my susu (breast) was popping out I did not know because it was very small. I went swimming with my aunties and they saw the susu and said, our girl is growing big now . . . not long her little susu will attract the boys.'* (MBP, FGD-02)

In MBP, women explained that jokes were an acceptable part of their ways of expressing and communicating with each other in the community: *'For us we joke and that's how we learnt, its normal'* (Young woman, MBP, FGD-02). Although jokes and teasing were culturally acceptable in MBP, women from ESP and EHP considered jokes and teasing to be ridiculing and traumatic. While recalling her experience, a young woman from ESP said, *'Ol joke lo mi . . . nau ol mekim mi pilim sem nau mi karamapim susu blo mi [They joked at me . . . and I felt ashamed and covered my breast]'* (Young woman, ESP, FGD-04).

Women spoke about learning about body changes from scolding, swearing and beating. Women from all study locations explained that it was a common practice for young girls who disobeyed their parents to be scolded, sworn at, beaten and/or ridiculed by describing their changing bodies. For example, an older woman from EHP expressed that the way she was told was indirect and abstract:

> *'Ol ino save tok susu, ol sa tok, yu lukim long front blo yu yah, em nau yu bikpla meri. So yu mas harim tok [They did not say breast, they normally say, see the front of you (referring to her breast), you are big girl now. So you must listen].'* (Elderly woman, EHP, FGD-01)

This woman expressed that this form of communication was confusing because she did not understand what the parents meant about her changing body. Further, the message was communicated indirectly: *'Ol ino tok stret [They did not talk straight]'* (EHP, FGD-01), which caused confusion. Similar concerns were expressed by other women from other provinces (ESP, MBP and NCD). Some women admitted that these

forms of communication were harsh; however, they acknowledged that the practices were necessary to cause the young naïve girls to obey and realise that their body was changing. However, a few women in the interview felt that such harsh forms of communication were usually unfriendly and were not effective for learning. Many women expressed feeling ashamed when scolded about their private body parts. This approach causes the girls to become terrified about their body changes and lose self-esteem.

Death threats are used to convey stern warnings about the reality of the girls' body changes, pre-marital sex and risk of pregnancy outside of marriage. Death threats are usually issued with the intention to protect the girls by making them aware of the inappropriate behaviour and consequences relating to pre-marital sex and pregnancy outside of marriage. An elderly woman from MBP explained and said, *'If you make any silly mistakes and you become pregnant . . . they threaten us. They say, you don't stay in this house, we'll kill you'* (MBP, Individual interview-02). The use of death threats was common in the stories of women from NCD, which represents common experiences of women from the urban context. The use of death threats is used by family when scolding the girl to prevent her from engaging in sexual activities that may lead to teenage pregnancies. Women also spoke freely about other reasons for girls to engage in risky sexual behaviours, such as to earn cash to help them meet daily needs: *'Oli salim ol yet. Oli lukim mani pinis na ol bai mekim yet [They've seen money and they won't stop]'* (Elderly woman, NCD, FGD-02). Deaths threats were frequently linked to the increased social activities and prostitution in the NCD area.

Parables, metaphors, analogies and stories were commonly used to convey messages indirectly about body changes and menarche to young girls. These forms of communication were used because of the difficulties of directly talking about private body parts due to shame. For example, a young woman from MBP spoke about how her grandmother taught her about when to expect menarche by using the analogy of a coconut:

> *'Before lo mi kisim sikmun blo mi, bubu blo mi kisim coconut na em tok, you lukim disla kokonas ya, em yangpela. Nau yu stap, em yu yangpela olsem displa kokonas. Yu just skelim life cycle blo disla kokonas em yu same olsem displa kokonas [Before I got my (menstrual) flow, my grandmother got a coconut and told me, you are*

becoming a woman. You are like this coconut. This coconut has a cycle. You are same as the coconut].' (Young woman, MBP, FGD-02)

Women reported different types of metaphors and analogies used in their provinces. Following are some examples of the metaphors and analogies used to make young women realise their changing body status:

- *Kandre blo yu bai lukim yu [Your uncle will see you]* (EHP, FGD-01)
- *Kiau blo yu bai buruk [Your egg will break]* (EHP, FGD-01)
- *Liklik samting ya bai sik [Your little thing will become sick]*(EHP, FGD-01)
- *Marita blo yu bai kam [Your marita (red fruit) will come]* (EHP, FGD-01)
- *Lek blo yu bai buruk [Your leg will break]* (EHP, FGD-01)
- *Moon bai kilim yu [Moon will kill you]* (EHP, ESP, MBP, NCD)
- *Pisin blo mama bai lukim yu [Mother's bird will see you]* (EHP, FGD-01)
- *Sista blo yu bai kam autsait [Your sister will come out of you]* (NCD, FGD-02)
- *Bai yu lukim wanpla liklik samting [You will see a little thing]* (NCD, FGD-02)
- *Bai yu pekpek blood [You will excrete blood]* (NCD, FGD-02)
- *Bai yu lukim mun [You will see the moon]* (EHP, ESP, MBP, NCD)
- *Bai yu sik mun [You will have moon sickness]* (EHP, ESP, MBP, NCD).

However, often the use of metaphors, analogies and stories is ineffective because they are too abstract for young girls to understand. Moreover, because of the girls' inability to understand abstract knowledge, they are unable to understand *tok-bokis* (*Tok Pisin* phrase for parable): *'Mipla still confuse. All no explain gut lo mipla [We still feel confused. They do not explain to us properly]'* (Young woman, ESP, FGD-03). Therefore, tougher measures as discussed earlier are sometimes used with the intention of alerting the girl to body changes.

Sex education is being taught in schools. Many women stated that girls are starting to formally learn about puberty in schools, more so in urban than rural areas because of shame. Some women from NCD said some schools are increasingly teaching subjects about body changes to young children, mainly at the puberty stage. Although the subject type is unclear, an NCD woman said her children were learning about body

changes in school and were studying about it at home, unlike her experience: *'I think they are learning somethings at school now. I've seen their (my children) books and their exercise books'* (Young woman, NCD, FGD-03). However, even within schools in NCD, there appears to be a difference in sex education in schools between the past and the present. A few NCD women aged 35 years and more who might have attended primary and secondary education about 10 years before felt that the sex education during their times was provided too late, after menarche. A young woman explained, *'I think, home economics was helpful too. But . . . that was a bit late too for most of us'* (Young woman, NCD, FGD-03). When specifically asked about broader SRH topics, some women recalled learning very little about SRH including menstruation from the formal school environment because male teachers were reluctant to teach the subject because of shame: *'Lo taim blo mipla, the subject was just introduced but teacher ino save toktok long displa samting . . . em samting blong sem ya [The teacher never taught this subject . . . it's a shameful thing]'* (Young woman, NCD, FGD-02).

Under 'Beginning of Learning', I have discussed the various ways in which young girls start learning about their body changes. Most girls learn through indirect means of communication, which are often unclear and confusing, and lead to embarrassment and shame. In the following category, I explain the rationale for the traditional cultural practice that is aimed to increase learning.

4.6 Intensifying Learning

Girls' knowledge about body changes and menarche increases at *fes sikmun*. Intensifying learning is characterised by cultural practices of isolating, initiating, restrictive practices, feeling scared, increasing family support, focused learning and preparation of girls for womanhood.

Girls start learning at *fes sikmun*. This learning is a traditional institutionalised way of learning and commonly happens through the traditionally instituted menarche ceremonies, which include the cultural ritualised practices of isolation, initiation and the cleansing process. Girls learn about body changes, menarche and womanhood expectations including the roles and responsibilities during menarche ceremonies. The practice of isolation, initiation and cleaning was common in all stories of all women

in all four study sites. However, there are apparent variations in how isolation, initiation and cleansing practices occur between the urban and rural contexts.

4.6.1 Isolating

The menarche girls are commonly isolated from their place of comfort in an unfamiliar place, commonly referred to as the *haus-meri* (menstrual hut). Young menarche girls can be isolated from 2 weeks to a month. The isolation practice commences immediately at the onset of menarche. Isolation in unfamiliar places is more commonly practised in rural than urban areas, where many traditional cultures are still being observed. The unfamiliar places include special menstrual huts built to house menstruating women, and these menstrual huts are located at different locations in the community according to different cultures but commonly on the fringes of the village community. Women used different names to describe menstrual huts, which are named differently in different cultures. These names include the *haus-meri* (women's house), *liklik haus* (small house) and *arere* (the fringes) in *Tok Pisin.*[1] Women from the Abelam-speaking language group of the ESP referred to the menstrual hut as *'Wanga Nga (haus-meri)'* (ESP, FGD-02). As many women commonly mentioned *haus-meri* when referring to menstrual hut, I will use the term *haus-meri* from here onwards. Although named differently, they all serve the same purpose. The *haus-meri* is where focused learning occurs, and is a women's only house used to isolate the menstruating women from menstrual contamination and to prepare young girls for womanhood. These houses are commonly secluded and cannot be accessed by men. The only people allowed are mothers, aunties, grandmothers and pre-menarcheal girls.

The practice of isolation and the concept of *haus-meri* are common in all study sites. However, the extent to which it is practised is different between rural and urban areas and among different cultural and language groups. The location of the *haus-meri* in village communities in the rural areas varies according to different cultures. The houses can be built either next to the family house or at the fringes of the village. For example, *'Ol go putim mi longwe long haus, long hapsait tru [The house was further away from the family house]'* (Older woman, EHP, FGD-01). In an extreme case, a woman who was born and raised in one of the Highlands provinces, but now lives in

[1] *Tok Pisin* is a local lingua franca in PNG.

Port Moresby (in NCD), spoke of her experience and explained that the isolation hut was built next to the toilets away from the main village: *'Haus blo mipla sa stap longwe, arere long toilet or arasait long main village [Our house was built next to the toilet and away from the main village]'* (Young woman, NCD, FGD-02). Another young woman from another Highlands province (Enga), also living and working in Port Moresby, spoke about her observation of the location of the menstrual hut and that menarcheal girls shared houses with domesticated pigs:

> *'Taim ol meri lukim sikmun, ol bai putim ol igo insait long displa hap. Sait sait pig sa stap na long baksait em bed blong ol meri istap. Namel igat paia, ol meri lukim sikmun ol bai igo sindaun long hap [When women menstruate, they are isolated in a house shared with the pigs. On both sides are the pigs and at the back is the woman's space].'* (Young woman, NCD, FGD-02)

However, many of these extreme traditional isolation practices are disappearing. In some parts of PNG, isolation is no longer observed. For example, a young woman from Wosera in ESP said, *'Lo Wosera yet, em mi lukim, mipla nogat displa pasin [In Wosera, we do not have this practice]'* (Young woman, ESP, FGD-04). Women from MBP (FGD-01) explained that in some MBP cultures, women are sent off to the bushes to stay during the term of their menstruation: *'Taim ol havim disla [When they menstruate], they don't stay in the village. They go to the bush and stay because it's our custom'* (Young woman, MBP, FGD-01). The woman stays in the bushes for as long as she is menstruating and returns to the village after her menstruation is over; however, this practice is on the decline.

The concept of *haus-meri* is still practised in the urban areas, but the isolation practices are commonly less intensive and modified. A young woman spoke about her experience and said she was isolated in a girls-only bedroom rather than a proper *haus-meri*: *'I was isolated in girl's only room . . . . My other sisters had to vacate the room for me'* (Young woman, NCD, FGD-02). The extent of the rituals was less and the full application of the *haus-meri* concept was not applied because of a lack of both resources and the extended family support required as the menarche ceremony is usually a communal activity.

The girls experiencing menarche are immediately isolated at the onset of menarche for two common reasons. The first is to prevent contamination from menstrual blood: *'Ol*

haitim mipla because blut ya em nogut . . . em dirty . . . em bai bagarapim ol man [They isolated us because the blood is bad . . . it's dirty . . . it will destroy man]' (Older woman, EHP, FGD-01). The sudden act of isolation also demonstrates the cultural perception of menstrual blood being dirty and contaminated. Menstrual blood is generally perceived in women's stories as dirty, unclean and harmful to men. Therefore, men are not allowed to access the *haus-meri*, cross paths with menstruating women or receive food cooked by menstruating women (refer to section 4.6.4 for details about restrictive practices):

> *'Taim mipla lukim first sikmun blo mipla, hariap bai oli putim mipla igo insait long haus me, em haus blo ol meri tasol. Man ino inap go insait. Bihain nau ol wokim custom lo mi [When we see our first menstruation, they quickly isolate us into menstrual hut, which is the woman's only house. Men are not allowed. Later they did custom on me].'* (Young woman, ESP, FGD-02)

The second is to keep the girl in a confined space and use her menstrual status as a concrete point to explain to her about the expectations, risks and consequences associated with the changing body, menarche, menstruation management, and womanhood roles and responsibilities. An elderly woman from ESP who went through the menarche ritual explained:

> *'Ol putim mipla insait lo liklik haus nau . . . ol bikpla meri olsem aunty na tumbuna bai givim mipla ol strongpla skul toktok [They'll put us into the house, then . . . the aunties and grandmothers will come and give us sensitive educational talks].'* (Older woman, EHP, FGD-01)

The menarche girls are commonly isolated and kept in seclusion for an unspecified duration. During isolation, the menstruating girls undergo initiation and cleansing rituals before they can exit isolation. Some women who went through the isolation practice felt surprised, ashamed and traumatised because they were not told about it before menarche. Women felt ashamed because their menstrual status, which was supposed to be something private, suddenly became a focus of public knowledge and attention: *'The men must not know that you are getting your flow . . . because it's a shameful thing so, it's supposed to be a secret between me and mother only'* (Elderly woman aged over 45, MBP, FGD-01). Many women explained that the isolation process is associated with ritualised initiation activities to cause the girl to realise that

she is no longer a young girl but has become a woman because of menarche. These practices are more common in rural than urban areas.

4.6.2 Initiating

For most girls, learning occurs during the initiation stage. This is when the girl is initiated, taught and prepared for womanhood. The initiation stage is highly associated with various cultural perceptions, beliefs, practices and rituals. A middle-aged woman from ESP passionately said, *'Ol bai wokim custom lo mipla lo mekim mipla strong [They will do custom work on us to make us strong]'* (Middle-aged woman, ESP, FGD-01). However, the practices vary in extent and style according to urban and rural settings, and cultural and language groups. The process, practice and extent of initiation are richer and stronger in the rural than urban areas. Preparation of girls is done in the form of taboos, ritualised teaching and skill transfer to prepare young girls for womanhood. Various forms of taboos are explained in section 4.6.4.

During isolation and ritualised practices, the girls acquire knowledge about womanhood roles and responsibilities. Some women from EHP spoke about undergoing intense counselling about body changes, sex and reproduction before marriage, pre-marital sexual risks and consequences, change of childhood attitudes, and roles and responsibilities before exiting isolation. These talks are given by grandmothers and aunties in the menstrual hut. However, after the cleansing process, the male members of the family (grandfathers and uncles) are involved in a secluded hut (not the menstrual hut) in another round of stern warnings and advices to the girl about the significance of her body changes and the risks and consequences associated with menarche and body changes*: 'Mipla wokim bikpla paia na ol kandre to kam na korosim pikinini meri [We made big fire and the uncles came and gave some hard talks to the daughter]'* (Older woman, EHP, FGD-01). The details about the cleansing process are explained in section 4.7.1. Cleansing rituals signify that the girl is free from menstrual pollution.

Girls also learn about sexual risks and consequences at *fes sikmun*. Most women recalled that they did not know about the significance of their body changes before menarche. Most became aware of these changes at the onset of menarche and after they were isolated and advised in private:

'Ol tokim mi olsem, nau em yu bikpla meri. Bodi blo yu em senis . . . . Ol givim mi stronpla toktok. Nau em olsem yu meri na yu nonap lo toktok wantem man . . . . Once man em touchim skin blo yu ya em bay u bel [They told me that you have become a woman now. Your body has changed . . . . They gave me strong advice and warned me not to talk to men . . . . If the men touches your body, you can fall pregnant].' (Young woman, ESP, FGD-03)

The initiation process causes the young naïve girls to change childhood attitudes, behaviours and characters. Women believed that the practice is necessary to transform the young and naïve girl's childhood behaviours, attitudes and characters. However, some women regarded initiation as a form of punishment for bad behaviour and for dealing with the childish characteristics of young girls. A young woman from ESP who underwent the traditional initiation practices of whipping and incision spoke about how her initiation practice was aimed at dealing with some of her childhood behaviours: *'Yu bikhet stap, taim blo yu long kisim stick bai yu kisim pen blo yu [Go ahead and be disobedient. When your turn comes, you will feel (the pain) it]'* (Young woman, ESP, FGD-02). Initiation is also done to rouse girls from 'Having Baby Sense' or childhood behaviours, attitudes and mindset to realise, understand and appreciate their changing body at the onset of menarche.

Women also recalled being told about demonstrating acceptable behaviours and attitudes, and respect for elders in the community. A young woman recalled being advised by parents and female relatives:

'Rispek long ol bikpla lain or ol kain pasin olsem em yumi mas stil soim. Respect towards elderly people or ol bikpla man meri or harem tok na bihainim [We were told about respecting older people. Respect towards older people and change of attitudes].' (Young woman, ESP, FGD-04)

Initiation practices cause young girls to become strong women. Women explained that while in isolation, the girls are usually advised about womanly roles and responsibilities. They are also put through initiation rituals to prepare them psychologically to become strong:

'Ol wokim custom, em long mi bai kamap strongpla meri. Bai mi wokim samting olsem helpim mama papa long kuk na karim ol hevipla samting [When they do custom on me, that will make me become a woman. I will be strong and fit to do

womanly things like helping parents to cook and other things like carrying heavy stuff].' (Young woman, ESP, FGD-03)

Although some initiation processes were harsh and tough for young girls, some women who went through initiation rituals, such as whipping and scarification rituals, thought it was a bitter-sweet experience. It was bitter because of pain, but the outcome of the initiation ritual was appreciated as it changed their perception about their body, changed their attitudes and characters, gave them confidence as women, and caused them to become strong women in the society: *'Em castom ya. Ol mekim disla ol samting (initiation) lo mi na mi kamap meri. Strongpla meri [I underwent the initiation ritual, and that made me a strong woman. It's our culture]'* (Young woman, ESP, FGD-03).

Initiation is associated with different types of rituals to cause the girl to realise her changing body. These rituals take different shapes and forms according to different cultural backgrounds in PNG. The girls undergo the ritual as a behaviour change activity. Some of the rituals are harsh while others are less so. For example, in ESP, women from some parts of the Abelam[2] society spoke about scarification. Scarification takes place when the girl's body is subject to severe beating and skin incisions. The scarification practice involves starving, chanting, whipping, incision and application of medicinal plants. The skin is incised with sharp instruments such as bamboo blades or pieces of broken bottles. The scars from the sores caused by incision are physical representations of womanhood in a specific culture in Maprik District of ESP:

'Ol paitim mi lo stick pinis, ok narapla taim ol katim mi long bel blo mi na susu tu. Bihain sua drai, em makim olsem yu kamap meri nau [They whipped me with sticks, then they incised my belly and my breasts. The scars represent womanhood].' (Elderly woman from Kombikum village in Maprik, ESP, FGD-02)

A young woman described her experience:

'Yes, mi hap indai (showing signs of distress when recalling), nau ol wasim mi ken nau ol putim mi go insait long haus. Mi tanim igo tulait, body blo mi em pen stret [Yes, I fell unconscious. They poured water over me and put me back into the

[2] Abelam is a language group in Maprik District, ESP, PNG.

> *isolation house. I could not sleep until morning because of pain on my body].'* (Young woman, ESP, FGD-02)

This is one of the harshest, most humiliating and punitive treatments that can be given to a young girl, and those who went through it said it was traumatic and a 'near-death experience'.

The women from EHP spoke about *'kukim lo bikpla paia [heating with fire]'* (Middle-aged woman, EHP, FGD-01). The women explained that the ritual is usually done around a bonfire. The fire is built in a communal house where immediate families (aunties, uncles, parents and grandparents) gather and intensively talk to the girl about their body changes, behaviours, attitudes and characters, and womanhood roles and responsibilities. This is usually done immediately after the isolation process.

Despite the harsh and painful initiation experiences, some women appreciated the rituals, even the scarification, because these rituals made them realise and appreciate their body changes and identity as a woman: *'Em olsem kastom em bikpla samting ya. Ol wokim disla kastom na olsem yumi kamap olsem meri [The custom is a big thing. They did the custom and we able to become a woman]'* (Young woman, ESP, FGD-03).

They considered the practices necessary to change their childhood behaviour:

> *'Papa mas wokim kastom long mi bikos mi bebi sense na sikmun em kamap kwik so ol mas mekim bai mi save [Father had to do custom on me because I was still a child and I had my menstruation so they must do this for me to understand that I am a woman now].'* (Young woman, ESP, Individual interview-02)

This knowledge and self-appreciation came after the initiation process. Some of them said that if they had not gone through this rigorous process of initiation, they would have gone astray and fallen victim to unwanted pregnancy.

However, the practices are slowly diminishing as a result of social change, migration, formal education, religious influence and breakdown in social structure. First, some villages are slowly becoming modernised. In MBP, the stories were diverse. While cultural practices were observed in some villages, in others, they were not. The villages that maintained strong practices were usually remote and isolated. Women from the

Trobriand Islands could not recall undergoing initiation rituals because many of their cultures have faded: *'Menstruation is nothing to us (long pause). There's no special treatment. There's no special celebration. It's different now than during our bubu's* (grandparents) *time. Many of our cultures have changed'* (Older woman, MBP, FGD-02). However, they noted that the cultural practices around menstruation are still active on Russel Island in MBP. Further, not all aspects of the cultural process of isolation and initiation are practised today, as they were in the past and in rural areas: *'Custom ino strong olsem bipo [Custom is not strong as in the past]'* (Older woman, MBP, FGD-02). This change was reported by many women from all four interview sites. Older women in particular were able to relate and compare how the isolation and initiation process was performed in the past compared with how it is done today. One older woman from MBP who grew up in a village but moved to Port Moresby was surprised at how much the cultural practices of preparing girls for womanhood have changed: *'Like from my observation, the traditional way of doing things were already fading away . . . after 15 years, when I returned to the village, there's a lot of change back at home'* (Older woman, MBP, FGD-01). These changes are gradually happening because of the breakdown of the traditional social and cultural structures put in place by the ancestors to prepare girls for womanhood.

Most women in the study compared past with present practices from observation, and spoke a lot about the implication of the shift in the traditional cultures for preparing girls for womanhood, particularly teenage pregnancies and pre-marital sex and pregnancies: *'Before that we parents are in control but now, they have boy-girl relationship in school, and they get pregnant, which is not good'* (Elderly woman, MBP, FGD-01). Many women (young and old) did not like the change because they saw the benefit of how the traditional cultural practices had prepared an ideal woman with characters and attitudes that were considered appropriate, such as respect for elders. These changes were commonly linked to parents' education, death of older people who strongly believed and enforced those cultures, migration out of traditional villages and communities to urban areas, modernisation, and religious influences: *'Taim em senis. Nau em nogut. Ol pikinini ino harem tok [Time has changed. It's longer good. Children are not listening to parents]'* (Older woman, EHP, FGD-01).

Older women reported that many young children do not respect the traditional customs in these modern times, especially in urban areas, because they are influenced by modern lifestyles, which are also contributing to the breakdown of cultures. In the urban area of NCD, women spoke about isolation practices, but only few spoke about initiation practices. Women explained that although initiation practices were considered culturally significant, they were not practised because of limited capacity in terms of family support and facilities: *'The culture was not performed in full because all the families were in the village'* (Young woman, NCD, FGD-03). Other young women who lived in the fringes of the city (settlements) explained that their parents had forgotten about cultural beliefs and practices because of the length of time they had been away from villages: *'Mi em ol parents blo mi ino save long custom bikos ol lusim ples longtaim [My parents did not know about the customs because they left village long time ago]'* (Young woman, NCD, FGD-01).

4.6.3 Acquiring knowledge

Women spoke about various sources of how they obtained information about menarche. Common sources include menarche rites (isolation and initiation process), mothers, grandmothers, observation, parables and metaphors, and schools. Most of these sources of learning are explained in section 4.5.3 under Category 2 ('Beginning of Learning'). Here, I explain how learning happens and what messages are commonly taught to the menarche girls during the isolation and initiation process. I explain the sources of support in transferring the knowledge about the expectations, risks and consequences associated with the changing body and menarche.

Preparation of young girls for womanhood is a communal activity by the extended family members of the menarche girls. Family support is important at the time of menarche. Consequently, the family support is intensified at the onset of menarche. Family members may include immediate parents, grandparents, aunties and uncles. Each of these persons has a defined role in the menarche ceremony and ritualised activities. When women were asked about who has the sole responsibility to prepare girls for womanhood, many women said mothers. Women believed that mothers are considered the preferred primary source of support because they are female, and they understand the body changes that are happening to the girls. More importantly, mothers are preferred because the daughters are their children: *'The first teacher is the*

mother in the home . . . because it's her child' (Elderly woman, MBP, Individual interview-02). Further, mothers are the most appropriate and responsible person from whom to seek support and help: *'It should always be the mothers, they should have the responsibility'* (Young woman, NCD, FGD-03). Women also spoke about other secondary sources of support, including aunties, grandmothers, sisters and female peers. The women recalled their experiences with these 'secondary sources of support', saying that they confided their menstrual status to their older sisters, grandmothers, aunties and peers because they felt more comfortable with them:

> *'Mi open long bubu blo mi olsem na mi go stret lo tupla. Sampla oli tokim sista or meri blo kandre [I was scared and I told my grandparents because I was open with them. Some women tell their sisters and aunties].'* (Young woman, ESP, Individual interview-01)

Some women said both parents have the responsibility of preparing their daughters for womanhood, although fathers (and any other significant male figures) are culturally not preferred when it comes to talking about body changes: *'Fathers and brothers should not be involved'* (Young woman, MBP, FGD-02). However, a few women talked about fathers being the preferred choice in very rare situations. As one young woman in Port Moresby discussed, although her father was not directly involved in talking about private body parts with his daughters, *'He (father) made sure I had menstrual pads'* (Young woman, NCD, FGD-03). Another young woman stated, *'Taim mums ino stap bai papa givim mani na mi go baim Stayfree [Father helped me obtain Stayfree (brand of menstrual pad) in Mother's absence]'* (Young woman, NCD, FGD-01).

Aunties, uncles and grandparents have cultural obligations to support the parents and prepare the girls for transition at menarche. The cultural role of the extended family involves enforcing cultural beliefs, restrictions and practices. The grandmothers and aunties are usually involved in taking care and advising the menstruating girl about body changes, changing roles and responsibilities, and marriage obligations: *'Bubumeri bai toktok lo mi. Aunty bai kukim kaikai, na karim mi igo wasim na kukim pipia blo mi [Grandmother will talk to me. Aunty will cook and bring food and wash me and burn my rubbish]'* (Young woman, ESP, Individual interview-01).

As noted above, fathers were considered culturally inappropriate for direct support of and communication with girls at menarche. However, according to the stories of most women from all study locations, fathers, brothers, uncles and grandfathers have significant cultural roles in the entire transition process. Their roles involve decision-making about cultural practices, rituals, enforcing cultural taboos, and organising cultural rituals and cleansing rites. A young woman who went through initiation practice said:

> *'Daddy tok, yu nonap go skul long wan week. Bai mi stap lo haus. Em culture blo mipla, na mipla bai wokim custom long yu [Daddy said, you won't go to school for one week. You will remain at home and undergo the cultural practice because it's our culture].'* (Young woman, ESP, FGD-03)

In some cultures, the pre-menarche girls are allowed to provide company to the menstruating girl by staying with the menarcheal girls in the *haus-meri* for the entire period of isolation. This was voiced mainly by women from ESP. A woman spoke of her typical experience and said, *'Ol liklik meri . . . kam na stap wantaim mi. Mipla bai tanim rop na wokim bilum [Little girls gave me company and help me make bilums]'* (Older woman, ESP, FGD-02). Bilums are carry bags made out of tree bark. While in the company of the menstruating girl, pre-menarcheal girls may learn by hearing and observing what is being said and done to the menarcheal girls. This includes learning skills of how to twine bush fibres to make *bilums*—one of the necessary skills women are generally expected to possess.

Isolation and initiation practices are associated with various restrictive practices. These restrictive practices are discussed in the next section.

4.6.4 Restrictive practices

Isolation and initiation practices explained in section 4.6.1 and 4.6.2 are associated with various types of restrictive practice. At menarche, the girl is immediately subjected to certain taboos and restrictions, which differ according to culture and language groups. These restrictive practices are more commonly practised in the rural than urban areas. These taboos include food-related restrictions, sharing of eating utensils, drinking of water, bathing restrictions, accessing public spaces such as waterholes and gardens, common toilet facilities, and public spaces.

4.6.4.1 Food-gardening, harvesting and cooking

Women spoke about taboos relating to food. Menstruating women are not allowed to cook and feed family members, especially the male figures in the family. This is based on the belief that the food prepared by menstruating women is contaminated with her menstrual blood and can cause harm to men's health and wellbeing, and reduce the strength in men required for warfare: *'Pikinini man no ken kisim kaikai lo han blo mi taim mi sikmun. Strong blo me bai lus [Sons or male figures will not get from me when I'm menstruating because he will lose his strength]'* (Elderly woman, EHP, FGD-01). Menstruating women are not allowed to harvest food gardens, or enter gardens or food storage areas, as their menstrual blood can contaminate and destroy food: *'Garden too, em tambu, mi no ken go. Em pik bai bagarapim [Even the gardens, I should not go. The pigs will destroy the garden]'* (Older woman, EHP, FGD-01). Even the cooking utensils are not supposed to be shared with menstruating women.

4.6.4.2 Eating and drinking restrictions

Menstruating women are not allowed to eat certain food or drink water during menstruation. It is believed that drinking of water will cause the girl to lose a lot of blood through menstruation: *'Oli tambuim mi na mi no dring wara . . . wara bai meking mipla lusim planti blut [they restricted me to drink water . . . water will make us lose a lot of blood]'* (Young woman, EHP, FGD-01). Women also reported that certain food was not allowed to be eaten by menstruating woman as that can lead to certain health problems. Women also spoke of why certain ways of cooking food are preferred and why menstruating girls are not allowed to directly touch food while eating. For example, in EHP it is believed that food cooked over the fire will make the girls strong, and touching of food is prohibited as it can lead to heartburn:

> *'Ol kukim kaukau lo paia na givim mi bai yu strong. Yu noken touchim kaikai blong yu. Yu touchim na kaikai bai lewa blo yu bai pen ya, ol tok olsem [We were restricted to drink water. They cooked sweet potato on the fire, and forked it with the stick and gave me to eat. They said, I must not touch the food, otherwise I will get heartburn].'*
> (Middle-aged woman, EHP, FGD-01)

These taboos are commonly linked to the belief that menstrual blood is harmful and can bring bad luck.

4.6.4.3 Bathing restrictions

Bathing was reported to affect menstrual health, and therefore restrictions affect women's personal hygienic practices. As discussed in sections 4.5.1 and 4.5.2, menarcheal girls in isolation are commonly restricted from having access to water to clean themselves. Girls can remain without washing for more than a week, pending on the father's and/or family decision: *'We can stay in the house for three or four weeks'* (Young woman, NCD, FGD-02). During isolation, the girls are not allowed to wash, which can lead to infections. Women are only able to clean themselves properly after exiting the isolation phase, which can take a few weeks and sometimes months. Most women expressed remorse and anger because they recalled feeling dirty, smelly and disgusted: *'Waswas em tambu, em castom ya. Mi no allowed long waswas. Mi stap wantem dirty [Washing is taboo, it's our custom. I was not allowed to wash, I stayed with dirt]'* (Young woman, ESP, FGD-03). Women are not allowed to bathe because of various cultural beliefs and perceptions around menstrual blood. One of the common beliefs was the fear of contaminating common spaces accessed by men, such as footpaths, water holes and rivers, and mere exposure to men including older people:

> *'Igat belief olsem nogut mi wakabaut bai mi bagarapim rot blong ol mama papa long walkabout . . . olsem taim mi kisim sikmun em mi kamap olsem dirty or posin meri [It is believed that if I walk about on the common pathways, I might contaminate the pathway with my menstruation blood].'* (Middle-aged woman, ESP, FGD-02)

Sharing of family toilets with menstruating women is also restricted. In EHP, women reported that it is part of the cultural norm for family to build a separate toilet facility for a young menstruating girl at menarche so that her menstrual blood does not pollute the family, especially men. After the menarche ceremony, the toilet facility including the *haus-meri* is burnt down:

> *'Toilet yah, ol bai gatim tokim blo ol yet . . . taim kaikai pinis nau haus na toilet ya, ol bai kukim [The toilets, the menstruating girls will have their own toilets . . . when the ceremony is over, the toilets and haus meri will be burnt to clear up the place].'* (Elderly woman, EHP, FGD-01)

4.6.5 Confusion and fear

Women commonly felt surprised, scared and confused, and often concealed their menstrual status at the onset of menarche because they did not know when to expect it. Many women recalled their personal experiences and said it was their first experience and they were unprepared: *'First taim blo mi too na mi poret na faul ya [It was my first time. That's why I was scared and confused]'* (Young woman, ESP, Individual interview-03). The onset of menarche was more challenging for those who had no pre-menarcheal knowledge and appropriate materials to manage the menstrual blood. However, women who had some pre-menarcheal knowledge were less scared and were able to manage menstruation with less difficulty: *'Mi olsem, mama tokim mi . . . so mi no poret bikpla [For me mother told me . . . so I was not too scared]'* (Young woman, NCD, FGD-02).

The traumatic experiences were commonly linked to the mothers' inability to provide pre-menarcheal support: *'I was scared. My mother never told me about it because it is secret. She doesn't mention this sort of things because it's our culture'* (Young woman, NCD, FGD-03). As discussed earlier, most women expressed that mothers were usually reluctant to discuss menstruation because of shame and taboos. Women also spoke about confiding about their menstrual status with other females apart from their mothers, with whom they felt comfortable, such as older sisters, grandmothers and peers. The mothers' reluctance resulting in the girls feeling scared and confused was common in all women's stories in both urban and rural areas.

Clothes stained with menstrual blood were also found to be embarrassing. Most women expressed feeling ashamed of being teased and gossiped about because they did not know how to effectively manage menstruation. A young woman from ESP spoke about her traumatic experience when she was told by her own relatives at the marketplace that her clothes were stained. The girl did not know that she was menstruating until she was told by her aunties:

> *'Ol meri lukim stain lo dress blong mi na ol wok long whisper go kam. Nau ol kam tokim mi na mi krai bikos mi pilim sem [The women saw the stain and whispered among themselves. I cried when they told me because I was ashamed].'* (Young woman, ESP, FGD-04)

Women considered that menstruation is a private matter because it involved private body parts and should not become a public event. As was described earlier, women across all sites described being embarrassed when their menstrual status was made public through the isolation and initiation practices. A young woman spoke about her experience and said, *'I was ashamed because my menstruation is public. I really hated it'* (Young woman, NCD, FGD-03).

Women's reactions at the onset of menarche are also influenced by some harsh cultural practices. For example, in ESP, where the practice of isolation and scarification is carried out, the women expressed feeling scared and concealed their menstrual status because they feared going through the cultural practices:

> *'Mi fret na mi no tokaut, becos mi lukim . . . oli paitim liklik mama blo mi na putim ol go insait lo haus. Disla ya makim mi fret nau mi no tokaut [I was scared and did not reveal my menstrual status because I saw them beating my aunty and they put her into the menstruation hut. This scared me and I did not tell them].'* (Young woman, ESP, FGD-01)

The women also conceal their menstruation status because of the fear of being gossiped about and stigmatised because of cultural myths and rumours. Myths and rumours about the timing of menarche cause shame and embarrassment. Women were scared of revealing their menstrual status at menarche because it was perceived that if a girl has her first menstruation, she is believed to have had pre-marital sexual intercourse. This story was common from the Trobriand Islands in MBP: *'Custom blo mipla ol believe that when you have your period, em you sleep wantem man pinis ya [It's our custom. They believe that when you have your (first) menstruation, that means, you've already slept with a man]'* (Middle-aged woman, MBP, FGD-01).

However, the educated women in the group reported that the cultural myths and rumours about menstruation were based on people's misconceptions about the cause of menstruation: *'But for me, I never slept with a man before I experienced my flow . . . maybe they are tricking and telling lies'* (Middle-aged woman, MBP, FGD-01). The myths and rumours about pre-menarcheal sex causing the onset of menarche were linked to a cultural practice that encouraged early exposure of pubescent, pre-menarcheal girls to sex during the Milamala festival in the Trobriand Islands. During this time, the women said *'sex is free'* including for young pre-menarcheal girls: *'They*

wait for that event. They are free to just go and do anything. Do all the sex they need . . . before they are matured . . . say 10, 9 years old, they are already into this Mila Mala thing (referring to festival)' (Middle-aged woman, MBP, Individual interview-03). They felt that it would have been unlikely for the myth to exist if free sex was not culturally encouraged during the Milamala festival: *'Sapos Mila Mila nogat, displa pasin bai nogat [If Milamala festival did not encourage free sex, the myth would not have existed]'* (Middle-aged woman, MBP, FGD-01).

4.6.6 Absenting from school

Onset of menarche causes girls to absent from schools for various reasons. The girls commonly leave school because of a lack of proper menstruation management materials, water and toilets, and facilities in school to manage menstrual blood: *'Mi no go skul bikos mi nogat samting lo rausim blut but em castom [I did not go to school because I had nothing to manage menstruation]'* (Young woman, ESP, FGD-02). Girls also leave school because of the stigma associated with staining and contamination from menstrual blood in school. A young woman spoke about how one of her schoolmates left school out of shame and never returned:

> *'I remember, in primary school, a girl menstruated. The blood was flowing and she washed herself from the tank water because there was no place to clean herself. They scolded her and made fun of her and she left school for good.'* (Young woman, ESP, FGD-01)

The girls also remain home so that they can be better supported to manage menstruation effectively with the support of their mothers. This was evident in the stories of women in the urban settings where mothers were able to provide support to their daughters.

School attendance was also affected because of the menarche ceremonies. This experience was common in the stories of women from rural and urban areas. Menarcheal girls are required to remain at home to undergo isolation and initiation practices at the onset of menarche. Isolation and initiation appeared to be mandatory cultural practices in all of the women's stories:

> *'Kastom blo mipla em, first sikmun em olsem ol yangpela gel ba ol stap insait long haus. Em ol bai wokim castom long em [It's our culture. At first menstruation, girls*

are required to stay isolated where she will undergo cultural practices].' (Young woman, ESP, Individual interview-02)

The girls are also required to stay home to avoid contamination of common spaces shared by men and older people:

'First blood yu lukim em olsem em ba dirty. Mipla ino inap go autsait long haus. Ol man ino inap lukim mipla. Em tambu yah [First menstrual blood is dirty. We are not allowed to go out of the house. Men must not see us. It's a taboo].' (Elderly woman, EHP, FGD-01)

Women also spoke about leaving school because they were ashamed to use the toilet facility in school to manage menstruation because it was too public: *'We have no good toilets and no showers in schools to clean ourselves even in Port Moresby . . . so mother said, I should stay at home'* (Young woman, NCD, FGD-01).

Women reported that girls are not allowed to go to school until the menstruation flow ceases and after the isolation and initiation practices are over. This practice can take approximately 1–6 weeks: *'Mi stap insait long haus long 3 wik [I was isolated for 3 weeks]'* (Young woman, ESP, FGD-02). Further, girls feel embarrassed returning to school after being absent to undergo cultural practices because of the stigma associated with menstruation. Two young women from ESP spoke about their experiences and said they absented from schools to undergo the isolation practices and rituals. One of them was absent from school for 3 weeks, while the other was away for 3 months to undergo scarification rituals associated with menarche. Both girls did not proceed far in their education. The woman who had her menarche in NCD expressed that despite her refusal, she was forced to undergo the cultural ritual. Some men in the surrounding settlement took part in her ritual, which was also witnessed by some of her male school friends. When asked how she felt at school, she said she felt embarrassed and always hid the scars on her body, and no-one in her school realised what had happened to her body: *'Em ol no save. Mi haitim body blo mi so ol bai nonap lukim . . . em sampting blo sem ya [They did not know because I hid my body . . . it's a shameful]'* (Young woman, ESP, FGD-03).

4.6.7 Managing menstruation

Menstruation management is challenging for most women in both rural and urban areas for various reasons. Common reasons are lack of MHH facilities and materials, lack of proper knowledge and skills required to effectively manage menstrual flow, cultural practices, and the cost of buying materials. Women in rural areas reported facing more challenges compared with urban areas.

First, women spoke a lot about lacking appropriate materials to manage menstruation, with women from rural areas most affected. Proper materials such as modern menstrual pads are inaccessible to most women. Bush materials such as leaves and mosses are used to manage menstruation. The use of leaves and mosses were common in stories of older women who had their menstruation in the traditional past. Elderly women from EHP and ESP spoke about using bush materials. An elderly woman from ESP aged 50 years said she would sit on banana leaves to allow the blood to flow onto them when she menstruated heavily: *'Mi em lip banana ya. Taim blut em ron bikpla mi sindaun antap long em [I sat banana leaves when menstrual flow was heavy]'* (50-year-old woman, ESP, FGD-02). In EHP, two elderly women aged between 55 and 65 years spoke about using a moss. They would collect mosses from the rain forest, sun-dry them and use them to absorb menstrual blood:

> *'Mi putim displa liklik samting yah (referring to moss) long insait long (reluctant to mention private body parts). Displa em long stopim sikmun yah ino ken kamap bikpla na planti na ino ken ron olsem wara. Em olsem long stopim nau bai em (blut) bai kamap liklik (ron liklik liklik). Ol bai putim displa liklik samting yah stap antap long stone yah lo big bus, em ol bai kam givim long mi long putim [I put the small thing (referring to moss) inside private body parts. This will stop big blood flow. The thing was collected on the stones in the forest].'* (Elderly woman aged 60 years, EHP, FGD-01)

Some women did not use anything and allowed blood to flow freely until it ceased. The younger women of less than 50 years in age living in rural areas with not access to modern materials to manage menstruation said they used what was at available, such as towels and cloths:

> *'Mi no save lo Stayfree long ples . . . . Because em isolated stret lo town, nogat wanpla samting. The only thing em wokim em disla laplap ya, olsem blanket blo*

baby [I did not know about menstrual pads in the village. Because it's so isolated from towns, there is nothing. The only thing available was a piece of cloth like baby's blanket].' (Young woman, MBP, FGD-01)

Modern disposable menstrual pads are less accessible to rural village women than those from urban areas because of unavailability of stores: *'Even ol trade store o ples tu ino salim [The trade stores are not selling them in the village]'* (Young woman, MBP, FGD-01). The use of bush materials other than cloths was more embarrassing because these materials did not prevent leakage. For example, the women from MBP spoke about a cultural group in MBP where the women are sent to the bushes to stay until menstrual flow ceased: *'Women in village . . . are sent to the bushes to stay until the blood finished'* (Young woman, MBP, FGD-01). This practice was similarly described by women who were isolated. One of the reasons for isolating young girls at menarche is out of respect, so that she can manage menstrual blood in isolation because of lack of proper materials to manage menstruation. The practice of isolation provides a space for her to manage her menstrual flow with close support from family members: *'Long tu to tri dei's mama wokim bed lo lip . . . na mi sindaun antap lo lip inap blut I drai [For two to three days, I sat on leaves prepared by mother . . . until the blood flow ceased]'* (Middle-aged woman, EHP, FGD-01). Women in urban areas managed menstruation differently. Some women spoke about using menstrual pads, while others spoke about using towels and cloths. The type of material used at the onset of menarche depended on the availability of materials, and their mother's knowledge and application skills:

'Mums blong mi tok, . . . pads mi baim na stap, go kisim na wearim. Nau mams lainim mi long hau bai mi putim pad na mi usim [Mother said, I bought some pads and they are there, go get them and put them on and I used it].' (Young woman, NCD, FGD-01)

Although modern menstrual management products were available in shops in urban areas, some women lacked money to buy the products. Other women had the money but felt shy to purchase them: *'Yu go lo wanpla stoa na baim pad blo mi . . . mi sem yah. Yah sista yah kam pinis yah [Can you go and buy me a pad, I'm shy . . . this thing (menstruation) is here].'* (Young woman, NCD, FGD-02)

Managing menstruation hygienically in the school environment was also difficult for girls who went to school because of inadequate water supply, improper toilet facilities and lack of sanitary disposal facilities:

> *'We had water problems in school. I found it difficult when having my period because of no proper toilet. I felt ashamed when taking showers too because the showers were open. Other times we ran out of water and I could not clean myself and pretended to be sick.'* (Young woman, ESP, FGD-04)

Parental education made some difference to the practice of bathing and keeping clean. Most women who were raised by educated parents did not observe the cultural restrictions on bathing and were able to maintain menstrual hygiene. For example, a young woman from ESP who was raised by her older educated sister was encouraged to keep herself clean when menstruating: *'Mi mas waswas . . . klinim mi yet na mi sa stap [I washed myself and kept clean at all times]'* (Young woman, ESP, FGD-04). Educated parents are able to understand the importance of washing and keeping private body parts clean while menstruating. Those parents and guardians are able to advise and prepare young girls before menstruation. Women who also went through the difficulty of managing menstruation themselves were able to help their daughters based on their personal experiences: *'I told my daughter, sikmun (menstruation), the blood is smelly. It's not good for people to smell your body so you must wash and clean yourself . . . because our body smells'* (Young woman, MBP, FGD-01).

Women spoke about lack of proper knowledge about how to wear and dispose of menstrual pads, and the importance of maintaining personal hygiene at menarche:

> *'Mi no bin save lo wearim pad. So . . . mi sa wearim pants tasol na stap. na mi sa stainim mi yet planti [I did not know how to wear a menstrual pad. So . . . I only wore my panties and stayed (at home) and I stained myself a lot].'* (Young woman, ESP, Individual interview-02)

Women who had some pre-menarcheal information on how to manage menstruation were able to manage menstrual flow easily: *'My sister taught me so . . . olsem na i bin isi lo helpim mi yet [My sister taught me . . . that's why it was easy to help myself]'* (Young woman, ESP, FGD-04). Lack of knowledge about proper ways of wearing

menstrual pads was more common in rural than urban areas mainly because of access to information and education of parents and guardians.

4.7 Achieving Womanhood

Womanhood is achieved after the cleansing rituals. The girl is now recognised as a woman. The achievement of womanhood is characterised by cleansing, feasting, celebration and rewarding, changing of roles and responsibilities, bride price, and marriage.

4.7.1 Cleansing

Cleansing is an important cultural process that happens after initiation. Cleansing is ritualised, and marks the end of and exit from the isolation and initiation practices. Ritualised cleansing was common in the stories of older women from ESP, EHP, MBP and NCD. The act of cleansing the girl with water frees the girl from contamination with menstrual blood. A young woman from Maprik in ESP explained, *'Ol wasim na klinim mi. Ol i bilip olsem taim mi kisim sikmun em mi kamap olsem dirty or posin meri [They washed and cleaned me. They believe that, when I have my menstruation, I became dirty or a sorcerer]'* (Young woman from Maprik, ESP, FGD-01).

The cleansing process commonly involves washing, rituals and chants. However, the practice of cleansing is performed differently across different cultures. In EHP, cleansing is performed with water but is associated with feasting, giving the girl the best meal, dressing the girl in traditional attire, giving of gifts, celebrating and partying. Celebrations can go on from a few days to 1 week. During this time, the male members of the family such as the father, uncle and grandfathers gather together around a bonfire inside the hut and offer advice to the girl about womanhood roles and responsibilities. Some older women from Maprik in ESP explained that in their community, the menstruating girl is carried to a nearby stream or water hole and thrown into the river. She dives under a log or stick and comes out the other side to symbolise the end of menstrual pollution. She is then washed and cleansed by her aunty, with chanting, and allowed to walk back home (FGD-01).

Traditional cultural practices around cleansing are changing. Many older women who had their menstruation in the villages in the past when traditional cultures were still

strong and intact said the ritualised cleansing practices are disappearing: *'Taim blo mipla em hatpla taim. Custom em strong yet [During our time was tough because the culture was strong and intact]'* (Middle-aged woman, ESP, FGD-02). One common reason for this change, as explained by many women, to the disconnection from traditional culture due to urban migration out of villages for jobs, education and opportunities:

> *'In the urban context, they practice it but not to its full . . . there were some things that they did not have the capacity to do. But if it was in the village, I'm sure there could have been the whole package that could have come along with it.'* (Middle-aged woman, NCD, FGD-03)

The cleansing process also happened to girls who had menarche in the urban areas but to a lesser extent than in village settings.

4.7.2 Celebrating

Celebration is the final stage of the cultural practice process of making strong women. Celebration is a traditional practice that has been passed down through generations by forefathers and is still practiced in both rural and urban societies. Celebration commonly happens at both the entry and the exit phases of isolation. At the entry phase, celebration starts when the girl is taken into isolation. At the exit phase, celebration occurs after the ritualised cleansing process. In some cultures, celebration only occurs at the exit phase. In other cultures, celebration starts at the beginning when the menstruation status of the girl is made known to the family and continues throughout the duration of the girl's isolation and at the end of isolation. However, this practice varies among cultural contexts.

Celebration is a show of a family's happiness that their daughter has reached maturation and achieved womanhood: *'Ol sa hamamas lo pikinini meri grow up na kamap meri nau [Celebration is a show of happiness that their daughter has become a woman]'* (Young woman, ESP, Individual interview-03). Celebration is rooted in the cultural value placed on the girl child. Culturally, the girl is valued as an asset or commodity in marriage because of the bride price her family will receive. As explained earlier, the traditional cultural practice at the onset of menarche is performed to prepare the girl for womanhood. In womanhood, the girl is expected to assume certain socio-

cultural obligations: *'Taim ol baim yu wantaim bikpla mani lo bai laikim you long wokim olgeta samting we oli laikim long em [When they pay the bride price with big money, they will expect you perform certain roles and responsibilities]'* (Middle-aged woman, ESP, FGD-04). One of those obligations is marriage and childbearing. The girl is expected to bear children for her husband and be a good and supportive wife.

Celebration commonly involves feasting, singing, rituals and chants, gifts, dressing and beautification. However, the type of celebration varies according to the cultural environment. For example, in the urban areas, women from NCD talked about traditional singing, dancing and receiving gifts in the form of clothes, jewellery and cash from friends and families. However, a couple of women who grew up in a remote village in EHP explained that celebration involves the entire village community and neighbouring villages with feasting and dancing, dressing the young girl with traditional attire, and giving of gifts to celebrate the girl's achievement of womanhood: *'Oli tokim olgeta neighbouring village kam, olsem oli wokim bikpla feast [Neighbouring villages are invited to attend the feast and celebration]'* (Middle-aged woman, EHP, FGD-01). In MBP, one woman described, *'She went straight into the sea, washed, came out and rinsed her body with warm water. And then they gave her buggies and dressed her up with buggies[3] and made a big feast'* (Older woman, MBP, FGD-02).

Rewarding is an observed activity during the celebration phase in some cultures. Rewarding is a show of appreciation for the relatives' support and facilitation process during isolation, initiation and cleansing. However, not all women spoke about rewarding; it was commonly mentioned by those who went through the cultural process of isolation and initiation: *'Long hamamasim aunty na uncle, ol bai singaut lo anty tupla na givim moni lo tupla pinis [To make the uncles and aunties happy, they will give them amount of money as a token of appreciation]'* (Young woman, ESP, FGD-04).

Celebration and rewarding impose costs on the parents and families, and can be quite expensive. Food items are gathered and money is saved in advance to host this important cultural activity. To obtain cash, garden foods are sold in the markets. In

[3] Buggies are necklaces made out of shells and have monetary value. They are commonly used in Milne Bay Province.

urban areas, the girl's parents budget for this occasion. Such preparations are important so parents are equipped to reward those who participate to help with the cultural process:

> *'Taim yu lukim susu blong pikinini i bikpla, em displa taim yet yu mas preparim samting olsem mani na ring mani long stretim ol kandre. Because, ol bai dimandim bikpla mani yah [When daughter starts showing signs of breast development on her body . . . because they will demand big payments].'* (Young woman, ESP, Individual interview-01)

4.7.3 Becoming an ideal woman

The woman who has experienced menarche is expected to assume roles and responsibilities associated with womanhood, and change her attitudes and behaviours. The new roles and responsibilities include domestic chores such as cooking, cleaning, fetching water and gathering wood. She is expected to be able to build gardens independently from her parents. These roles and responsibilities, and cultural expectations in marriage, are explained to the woman while in isolation by the grandmothers and aunties.

Girls are also expected to cease displaying their childhood characteristics and demonstrate mature womanly attitudes and behaviours. These attitudes and characteristics include respect and obedience towards parents and elders: *'Respectim ol bikpla ol lain, harem tok blo mama papa. Yu mas noken sakim tok [Respect the elders and parents. Don't disobey]'* (Young woman, ESP, FGD-03). Girls are expected to cease all childhood activities, as well as to keep away from males to avoid sexual temptations. To avoid attracting the opposite sex, girls are commonly advised to keep their distance from men or to dress decently. Women explained that wearing shorts or short skirts that expose their thighs can easily attract boys. Girls are encouraged to wear clothes that cover their thighs and most parts of their bodies. Women from ESP, EHP and NCD explained that girls are not allowed to engage in pre-marital sexual activity as it is culturally inappropriate: *'Igat bikpla tambu long karim bel nating [There's a big taboo with pregnancy outside of marriage]'* (ESP, FGD-04). However, this norm does not apply to all cultures. In the Trobriand Islands in MBP, some women spoke of pre-marital sexual exposure, which is encouraged

during the yam festival (Milamala). The women explained that during this festival, sex is free.

4.7.4 Behaviour change

Menarche ceremonies also aim to change the attitudes of young girls to socially acceptable attitudes. Women recalled being told at menarche that they must change their attitudes and behaviours because they are now women and not girls anymore. The isolation and initiation practices, as reported by many women from all study sites, are necessary to remove childhood behaviours and cause the young girls to think like a woman:

> *'You bikpla meri nau na pasin blo yu mas senise . . . yu mas harim tok blong mama papa long wanem toktok . . . kain olsem wasim clothes, pulapim wara na helpim mama long wokim ol wok long haus [You big woman now and your character must change . . . you must listen to parents . . . and perform domestic duties such as doing laundry, fetch water for cook and help clean house].'* (Middle-aged woman, ESP, FGD-02)

Women from EHP reported that menarche ceremonies aim to change childish and sometimes bad behaviours in young girls. Before menarche, the parents and family members observe the girl's attitude, and if the girl's behaviours are considered bad, they will use the menarche ceremony to rebuke and advise the girl about acceptable behaviours in the community. This was how an older woman from EHP explained what happens in her community:

> *'Taim mi stap liklik, sapos mi sa wokim bikhet pasin . . . papa mama bai lukim na lockim long tingting blong ol na stap . . . taim samting ya (sikmun) kam nau . . . ol bai story na givim mi strongpla toktok. Ol bai tok, yu sa wokim olsem long bubu (grandparents) yah yu noken wokim olsem . . . nau yu em yu redi lo go marit nay u mas senisim pasin [When we are growing up, our parents will observe our attitudes and behaviours and keep them at the back of their mind . . . at menarche they will rebuke and give us strong advice . . . don't disrespect your grandparents, . . . you are now ready for marriage and you must change your behaviours].'* (Older woman, EHP, FGD-01)

Behaviour change is closely linked to the next section's concept—'real girls are heroes'—because the girl's characteristics are based on the family's judgement of an ideal image of a girl according to the community's perception of acceptable standards.

4.7.5 Real girls are heroes

'Real girls are heroes' (Middle-aged woman, MBP, Individual interview-02) was an expression used by a woman from MBP to describe the cultural perception of a strong woman. The expression describes women who can remain unmarried and abstain from pre-marital sex for a long period of time: *'Sapos em stap longpla taim em trupla meri [If she stays for long period of time, she's a real woman]'* (Middle-aged woman, MBP, Individual interview-02). This expression relates to the cultural expectations and desire for the girl to maintain her virginity until marriage. Women explained that because pre-marital sex and pregnancy outside of marriage are culturally unacceptable, the girls who are able to avoid the temptation of pre-marital sex and pregnancy outside of marriage for a long time before marriage are generally held in high esteem.

Characteristics of strong and weak women are culturally defined. The common characteristics of a strong or good woman include beautiful body (fatness and light skin are considered beautiful), virginity, physical fitness, and respect for elders and men. In EHP, women reported that the girls are fattened with more food while they are in isolation:

> *'Taim mipla sik mun, long 2–3 mun ol bai feedim mipla igo na mipla bai fat narapla kain stret. Skin blong mipla tu bai go lait [For 2–3 months when we are in isolation, they will feed and fatten us. Our bodies will grow lighter too].'* (Elderly woman, EHP, FGD-01)

Women explained that the girls who are fat, have lighter skin and are virgins are valued in marriage, which is reflected in higher bride prices. Further, strong women are culturally accepted and referred to as women who possess sets of qualities and characteristics that are considered culturally appropriate. They are usually respected in return. On the other hand, weak women are referred to as those who 'fall off the path' and engage in what are considered indecent activities such as premarital sex and pregnancy. Girls who are disrespectful, skinny or lazy, or are unable to cook, build gardens or perform other domestic chores, are considered weak:

> *'Meri ya em ino kamap gut . . . em kamap bun meri. Olgeta mit blong em i lus pinis. Em nogat strong long wok gaden [That lady does not look good . . . she is thin. All her body is wasted and she won't have strength to make gardens].'* (Young woman, ESP, FGD-02)

These judgements of girls' attitudes and body size are commonly related to the cultural obligations of women. Weak women become subjects of ridicule and bring shame on themselves and their parents. Strong warnings are commonly given to girls after they have achieved womanhood to ensure they remain strong until marriage: *'Mipla mas harem toktok blo mama papa [We were always told to listen to our parents]'* (Young woman, MBP, FGD-01). However, this culture of preparing girls for womanhood is slowly diminishing because of cultural changes, which are more evident in urban areas.

4.7.6 *Meri igat* voice

'*Meri igat* voice' is a code that was gifted from a quote from a woman from Milne Bay: *'Mipla ol meri igat voice [We women have voice]'* (Middle-aged woman, MBP, FGD-02). This phrase was used to explain their position and unique experience as women when discussing important points for consideration to improve the experiences of young girls at the *nambawan sikmun*. These women including many others from all four study sites expressed gratitude to have been part of this unique research that explored their personal and private experiences, which otherwise are usually concealed because of shame and taboo for open discussion.

On the basis of the women's personal experiences, most of them did not want young girls to go through the same experiences that they had experienced. They clearly expressed that they wanted their daughters to be aware of and ready for menarche. *'Based on my experience, . . . I am taking steps to help my daughter'* (Middle-aged woman, MBP, FGD-01). Women spoke about many ways to improve the experiences of young girls at menarche. Some of the important suggestions are as follows: preparing pre-menarcheal girls; providing health messages; building mother–daughter relationships; empowering fathers and male figures (boys/men, peers and male teachers); promoting the '*haus-meri*' concept; improving public water and sanitation facilities; increasing availability of sanitary products; desensitising the topic; and reviewing traditional cultures.

4.7.6.1 Preparing pre-menarcheal girls

Women from all study sites expressed a desire for their daughters to be informed about body changes before menarche so that the young girls can be prepared. Many older women suggested that preparation of girls should start at the pre-pubescent stage so that they can appreciate their body changes:

> *'Gutpla long start skulim ol pikinini long early age. Bai oli mas save long wanem samting bai kamap long bodi blong ol taim ol i grow up [I think we should talk to the girls early. So that they know about their body change when they are growing up].'* (Young woman, NCD, FGD-02)

4.7.6.2 Providing health messages

Women acknowledged the SRH risks and consequences associated with body changes and menarche. Some elderly women from MBP and NCD spoke about various areas requiring support for girls before menarche. These areas included body changes, psychological support, menstruation management, and sexual and reproductive risks and consequences due to the changing social environment in PNG. This support and advice needed to be based on the women's personal lived experiences:

> *'In the past, the risk of acquiring AIDS was not talked about much in our country. So, it's important that we talk to these girls at menarche about changing body and risks of acquiring AIDS or HIV. We must openly discuss this with them. It's nothing to be ashamed about.'* (Young woman, NCD, FGD-02)

4.7.6.3 Building mother–daughter relationships

A strong mother–daughter relationship is an important foundation for pre-menarcheal preparation. Most women thought that the mother–daughter relationship needs strengthening so that there can be a trusting relationship between mothers and their daughters to talk about private body parts freely without shame and embarrassment: *'Like with my girl as she was growing up, we have a relationship. There must be a trusting relationship between me as mother and my daughter'* (Middle-aged woman, MBP, FGD-01).

Mothers are considered appropriate people for preparation and support. Although women talked about other significant female support, it was apparent that mothers are

the preferred choice for support on most occasions because they are the first teachers: *'The first teacher is the mother in the home. They should be supported'* (Middle aged Trobriand woman, MBP, Individual interview-02).

4.7.6.4 Empowering fathers and male figures

Fathers are considered important because they are the heads of the family and are responsible for making major decisions such as enforcing cultural practices and advising girls at the onset of menarche. To procure the men's support for altering some cultural perceptions and harmful cultural taboos and practices imposed on girls at the onset of menarche, fathers and male figures should be made aware of the importance of making the transition process safe and without health risks and consequences.

Fathers are also considered important because they control 'the purse' (i.e. the financial resources) for the family. Fathers supported their daughters by providing advice and money for menstrual pads to help the girls manage menstruation. *'Daddy givim mani na mi go baim Stayfree [My father gives me money to buy my Stayfree]'* (Young woman, NCD, FGD-01). Fathers also feel responsible for their daughters and provide support when in a complicated relationship. For example, an educated woman from a polygamous family in NCD mentioned that her father made it his business to learn about her changing body and menarche: *'Coming from a polygamous family living with two mothers . . . my father made it his responsibility to communicate with us. He brought health books and told us to read for ourselves . . . . He made sure I had menstrual pads'* (Young woman, NCD, FGD-03).

Fathers have an important role to support their daughters in the absence of the mothers. Some fathers are closer to their daughters and need to have the appropriate knowledge and feel empowered to go against some of the cultural traditions and norms to support their daughters:

> *'We can have a program where we have all our men to be involved in it . . . so that our girls and daughters can feel free, cos some daughters are more closer to their fathers . . . children (girls) can feel free to approach them (fathers) when the time comes. If they are not educated themselves, they can make it hard for the girls.'* (Young woman, NCD, FGD-03)

However, some women considered fathers inappropriate and think that aunties and other female relative should be prepared instead of the fathers: *'But then, that would be challenging for single parents especially if the father is the single parent, so the aunties and other sisters or the siblings should help'* (Younger woman, NCD, FGD-03).

Girls' changing bodies and menarche can become the subject of teasing by males. Male teasing makes the girls feel ashamed. Some girls consequently lose self-respect and body esteem. Therefore, the women expressed that the boys must be supported to understand and support the girls: *'It's good to educate our children whether it be boys or girls. It's about time we make that awareness to them while at school and at home'* (Young woman, NCD, FGD-03).

Girls may have difficulties when menstruating in schools. Both male and female teachers have a duty to the children in their school. Apart from female teachers, male teachers were considered an important source of support in providing advice and moral support to girls when they menstruate in school. An elderly woman from MBP also saw teachers as an important source of support to advocate for better facilities to support menstruating girls in school so that they do not leave schools because of menstruation: *'Ol girls mas igat gutpla toilet lo skul lo helpim ol yet [Girls in schools should have toilets to help themselves]'* (Middle-aged woman, MBP, FGD-02).

4.7.6.5 Promoting the haus-meri concept

Some educated women from NCD thought the concept of *haus-meri* is an important cultural facility for preparing girls for womanhood. They said it should be modified and preserved as an ideal cultural facility to prepare girls before the onset of menarche:

> *'Regarding the isolation house, there are some things we can do to make it become more positive. The small house can be made to become more positive. For example, customary practices like not washing, not eating certain foods, are seen as unhealthy. Those practices should be done away with so that we can change.'* (Young woman, NCD, FGD-03)

The *haus-meri* can be considered a meeting house to facilitate learning to support the parents and families including elders to prepare and facilitate the girls for menarche.

The house can also become a place for training village volunteer health workers to train and support parents and their daughters about body changes and menarche:

> *'In the Department (of Health), we have Village Volunteer Health Workers (VVHW) or Village Birth Attendants (VBA). These are village women. So through the health system, they too can encourage these women (VVHW) to speak to the mothers who have daughters in their families to start preparing them before puberty or first menstruation.'* (Young woman, NCD, FGD-03)

Further, other good or positive practices such as celebrations and gifts can be preserved. The *haus meri* is a culturally acceptable place where mothers and daughters can access education about body changes, preparation for menarche and how to manage menstruation: *'If we have to create an intervention program, we have to have a place where the mothers and children can be brought in for support. So . . . the mother is supported to prepare her daughters in this program'* (Young woman, NCD, FGD-03).

4.7.6.6 Improving water and sanitation

Women expressed that water and sanitation facilities should be improved in public spaces, working environments, schools, homes and villages because they are important to help girls (and women) manage menstruation. This recommendation was based on women's personal difficulties in managing menstruation effectively. For example, a young woman from ESP found it difficult to manage menstruation in boarding school because of a poor water supply: *'Mipla sa gat problem long wara ya . . . na mi had long klinim mi yet gut [We have a water problem . . . I found it hard to clean myself well]'* (Young woman, ESP, FGD-04). Lack of disposal facilities in public places, schools and offices caused difficulty in disposing of soiled menstrual pads. One young educated woman from the Sepik Plains who is now working and living in Port Moresby spoke about finding it difficult and shameful to safely dispose of soiled menstrual pads in boarding school:

> *'Mi bin paitim hat long tromoi ol pipia blo mi. Bikos mi poret lo dog bai pulim long rubish [I found it hard to dispose of my soiled pad. Because I was scared of the dogs, in case they pull it out of the rubbish bin].'* (Young woman, ESP, FGD-04)

Because of lack of disposal facilities, the same young woman explained that she kept the soiled pads in the room, which gave off a bad odour: *'Mi sa kipim. Ino gutpla bikos em sa causim smell lo rum blo mi [I used to keep in in the room and it caused a lot of smell]'* (Young woman, ESP, FGD-04). Because of these reasons, women expressed the opinion that improving water and sanitation facilities in schools would help girls to better manage menstruation, keep clean and hygienic, and improve school attendance:

> *'Facilities olsem gutpla toilet na wara na ples blo kukim pipia mas istap lo school lo helpim lo girls [Facilities like proper toilets, adequate water supply and sanitary pad disposal facilities must be available to help young girls].'* (Young woman, ESP, Individual interview-02)

4.7.6.7 Availability of sanitary products

Because of difficulties accessing appropriate menstruation management materials, the women from NCD suggested that menstrual pads must be readily available in shops at a better price, especially in rural areas: *'Women in the village have too many difficulties, they don't have easy access to menstrual pads like we do in urban areas . . . . Government should make a policy for stores to sell menstrual pads cheaply in the villages'* (Young nurse, NCD, FGD-03).

Some women think female teachers should be educated to advise and help the girls menstruating in schools: *'A female teacher should be skilled or equipped with the knowledge so she can be in a better position to give advice or counselling to these girls in schools'* (Young woman, ESP, Individual interview-02).

Further, girls lacked proper knowledge about how to apply menstrual pads. Some women thought that female teachers must be provided with menstrual pads in schools so that they can help young girls to manage menstrual flows in schools: *'Teacher meri stap na em find out . . . em mas gat samting (menstrual pads) long helpim ol girls [If there is a female teacher in school, she should have the capacity to help the girl]'* (Young woman, ESP, Individual interview-02).

4.7.6.8 Desensitising the topic

Discussing private body parts and sexual matters with young girls and daughters is considered shameful and culturally inappropriate. However, people are aware that changing bodies and menarche become the subject of sexual attraction, teasing, harassment and ridicule for girls. The women recommended that people must be educated to understand that the changes in women's bodies and onset of menarche are natural and normal developmental processes and should be respected. However, they noted that cultural secrecy hindered open communication and the mothers' ability to freely communicate with and prepare their daughters at the pre-menarcheal stage. Therefore, they opined that parents, especially mothers, must be supported and encouraged to overcome cultural shame to freely speak to their daughters when their bodies start to change physically. It was considered important to inform daughters about the meaning of body changes and menarche during puberty:

> *'It's good to prepare your daughters early because when you don't teach them the purpose of menstruation . . . ol bai panic ya (they will panic). Because it's their first flow. Where to start, how ba you putim wenem ya (how to put on menstrual pads) . . . so it's good to guide and help her.'* (Middle-aged woman, MBP, FGD-01)

4.7.6.9 Reviewing traditional cultures

Some women thought that some cultural initiation practices were too harsh, life threatening and demeaning to women: *'Ol meri nogat voice . . . . They are more inferior or underneath long ol man [Women have no voice, they are inferior to men]'* (Young woman, ESP, FGD-04). Women from ESP, MBP and NCD strongly expressed that the cultural practices that are harsh and devalue a girl's status can be considered an indirect form of gender-based violence to women's right to happiness and self-esteem. Women suggested that such cultural practices should be reviewed with the elders of the community and modified. Women who went through the traditional cultural practices did not think those practices were necessary, and suggestions were made to remove these practices: *'Yumi educated na mipla bai againsim displa lo or custom way . . . this traditional law . . . custom . . . em harsh tumas [We are educated and we will go against this culture . . . this traditional law . . . it's too harsh]'* (Young woman, ESP, FGD-04).

Menarche was considered a normal developmental milestone, and educated women living in urban areas did not think that these practices were necessary: *'I thought it was stupid. Having growing up in the urban context, . . . I didn't see the necessity for it . . . I thought it was just ridiculous but I had to just go through it'* (Young woman, NCD, FGD-03).

4.8 Summary

Fes sikmun is a significant socio-cultural event in ESP, EHP, MBP and NCD. The onset of menarche and body changes were traumatic for many women. Trauma was associated with a lack of pre-menarcheal knowledge and expectations about menarche, how to manage menstrual flow, and shame and pain from cultural practices. Women expressed regret that their mothers were unable to help them. The mothers' inability was caused by shame and embarrassment because open discussion about private body parts is culturally taboo and secret. However, women who obtained support at the pre-menarche stage were ready and looked forward to the onset of menarche.

Onset of menarche is highly associated with cultural beliefs and practices. Menstrual blood is believed to be dirty and contaminate masculine strength. Hence, in each of the four study locations, there is a social and cultural system and structure designed to prepare girls for womanhood. The cultural process comprises stages of isolation, initiation, cleansing and exiting for achieving womanhood. This staged process is used to ensure women are kept in seclusion to avoid contaminating men through accessing common places such as rivers and streams, water, food gardens, and common paths. However, the principal reason for the cultural practice as conceptualised from the women's stories is about 'Making of a Strong Woman', which is the core category of this grounded theory study, as shown in Figure 4.1.

The cultural practices were considered traumatic because of food and water taboos; bathing restrictions; control of meals; and, for some, even physical trauma, which went on from a week to months for many women in the study. Some of the cultural practices were considered harsh and humiliating; however, after undergoing the cultural process, women expressed appreciation because the practice caused them to realise and appreciate their new status as women. Further, cultural practices forced them to realise their role as women.

Chapter 5: Discussion

5.1 Introduction

In this chapter, I restate the substantive area of inquiry and situate the study findings within relevant literature. Specifically, I expand the explanatory power of the grounded theory, 'Making of a Strong Woman', by applying the theoretical code of Social and Cultural Determinants of Health. This approach demonstrates how the theory adds to the global MHH discourse. I evidence the quality of this research by applying established criteria for constructivist grounded theory research and present limitations of the research.

5.2 Substantive Area of Inquiry Revisited

The substantive area of inquiry for this constructivist grounded theory study was to explore the experiences of menarche with women and girls in PNG to inform strategies that support a positive transition to womanhood. Specifically, this grounded theory study sought to:

- understand the social and cultural factors affecting the experiences of adolescent girls at menarche in PNG
- understand how these experiences shape their knowledge, perceptions and practices at menarche
- understand the perceived role for pre-menarche preparations of adolescent girls and the type of messages being taught
- identify the best ways forward for local-level action on MHH.

Having revisited the substantive area of inquiry and key objectives of the study, I present a summary of study findings to set the context for discussion about implications of the findings.

5.3 Summary of Key Findings

'Making of a Strong Woman' is the core and overarching category constructed from the constructivist grounded theory study, and explains the rationale and cultural

process of preparing young, naïve girls for womanhood. This theoretical model is supported by four interconnected categories: (1) 'Having Baby Sense', (2) 'Beginning of Learning', (3) 'Intensifying Learning' and (4) 'Achieving Womanhood'. Together with the intervening condition of 'Urban and Rural', the core category and the four interconnected categories explain experiences of menarche and much more, encompassing a holistic journey from girlhood to womanhood for women in PNG. In the next section, I define the theoretical code and present additional related theories that enhance the explanatory power of the grounded theory 'Making of a Strong Woman'.

5.4 Defining and Applying a 'Theoretical Code'

The explanatory power of the constructivist grounded theory for 'Making of a Strong Woman' is enhanced by the application of a theoretical code. Theoretical codes are 'advanced abstractions or concepts that provide a framework for enhancing the explanatory power of the storyline and its potential as a theory' (Birks & Mills, 2015, p. 119). Application of a theoretical code is a strategy used by grounded theorists to align, enhance clarity, promote precision, and increase relevance and credibility of grounded theory to extant literature (Charmaz, 2006; Glaser & Holton, 2007; Thornberg & Charmaz, 2013).

The public health theory of Social and Cultural Determinants of Health is applied as the theoretical code for this study. Social and Cultural Determinants of Health is further explained in section 5.6.1. The theoretical code is further buttressed by (1) the SRHR framework, (2) gender equity and (3) the Rights of Indigenous Peoples framework. The rationale for including culture as a determinant of health will be explained later in section 5.6.1. First, I define health and attest that health is a basic human right, and further explain how and why Health Equity and Social Determinants of Health were given prominence through the Alma-Ata Declaration on Primary Health Care and Health in All Policy movement. Following this explanation, the Social Determinants of Health framework is explained. Within the context of this explanation, I explain why culture is added as an important element to this framework. I then explain the attributes of the Social and Cultural Determinants of Health—the theoretical code applied to this grounded theory to inform improved health outcomes.

5.5 Understanding Health

Health is a 'state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity' (WHO, 2020c, p. 1). This definition emphasises health as a complex social phenomenon. The causal pathways to health inequity are beyond the science of 'germs and disease', and encompass multiple and more complex dynamic and interconnecting social pathways of health, illness and health inequities (Krumeich & Meershoek, 2014; WHO, 2010). This generic health definition provides the basis for defining other specific aspects of health, including SRHR. SRH is defined as a 'state of physical, emotional, mental and social wellbeing in relation to all aspects of sexuality and reproduction, not merely the absence of disease, dysfunction or infirmity' (United Nations, 2014, p. 18). These two definitions are underpinned by fundamental elements of basic human rights (Society for International Development, 2004).

In 1978, the Alma-Ata Declaration on Primary Health Care and 'Health in All Policy' ('HiAP') movement gave prominence to Health Equity and Social Determinants of Health (WHO, 2010, 2021a). The Alma-Ata Declaration recognised that 'enjoyment of the highest attainable standard of health is one of the fundamental rights to every human being without distinction of race, (gender), religion, political belief and economic or social condition' (WHO, 2021a, p. 1). The declaration further reaffirmed that 'attainment of the highest possible level of health is a most important world-wide social goal whose realization requires the action of many other social and economic sectors in addition to the health sector, and calls for wider actions to attain health equity' (WHO, 2021a, p. 1). The Alma-Ata Declaration contextualises health as a human right, promotes equity in health, recognises Social Determinants of Health as the platform for action, and calls for multi-sectoral actions to attain equity in health (WHO, 2021a). To achieve this global health goal of health equity, the HiAP concept evolved from a number of different world leaders' meetings (WHO, 2014). HiAP calls for integrated, inter-sectoral and multi-sectoral collaboration in addressing Social Determinants of Health towards a common goal of attaining health equity for all (WHO, 2014; WHO & GoSA, 2010).

Health equity is underpinned by human rights, fairness and social justice for health. Health equity is defined as the 'absence of avoidable, unfair, or remediable differences

among groups of people, whether those groups are defined socially, economically, demographically or geographically or by other means of stratification' (WHO, 2021b, p.1). This definition implies non-discriminatory and equitable access to health for all—meaning everyone should have equal access to and a 'fair opportunity to attain their full health potential and that no-one should be disadvantaged from achieving this potential' (WHO, 2021b, p.1). Hence, the theory of Social Determinants of Health—founded on human rights principles and social justice as the foundation for health equity—provides a platform for action to address inequality in health (Marmot & Allen, 2014; WHO, 2018a) .

Below, I define and describe important aspects of the theoretical code of Social and Cultural Determinants of Health, and explain the rationale for including culture as a determinant of health, using the principles of enculturation, cultural connectedness, cultural continuity and resilience (Auger, 2016). I expand the strength of the theoretical code by critically applying the following: (1) the SRHR framework, (2) gender equity literature and (3) the Rights of Indigenous Peoples framework.

5.6 Social Determinants of Health Framework

The Social Determinants of Health theory of public health provides the framework for addressing health inequities (Marmot & Allen, 2014). This theory was first reported by Marmot in the Whitehall studies in the early 1990s (Marmot, 1999; Marmot et al., 1991). In 2011, the Social Determinants of Health theory for public health was adopted at the World Conference on Social Determinants of Health in Rio de Janeiro (Stankiewicz, Herel, & DesMeules, 2015; WHO, 2011). This conference resulted in a determination to achieve 'social and health equity through action(s) on SDH and well-being by a comprehensive inter-sectoral approach' (WHO, 2011, p. 1). This declaration was made on the understanding that health equity is a shared responsibility by all (governments, and local and international communities) in an 'all for equity' and 'health for all' global action (WHO, 2011, p. 1).

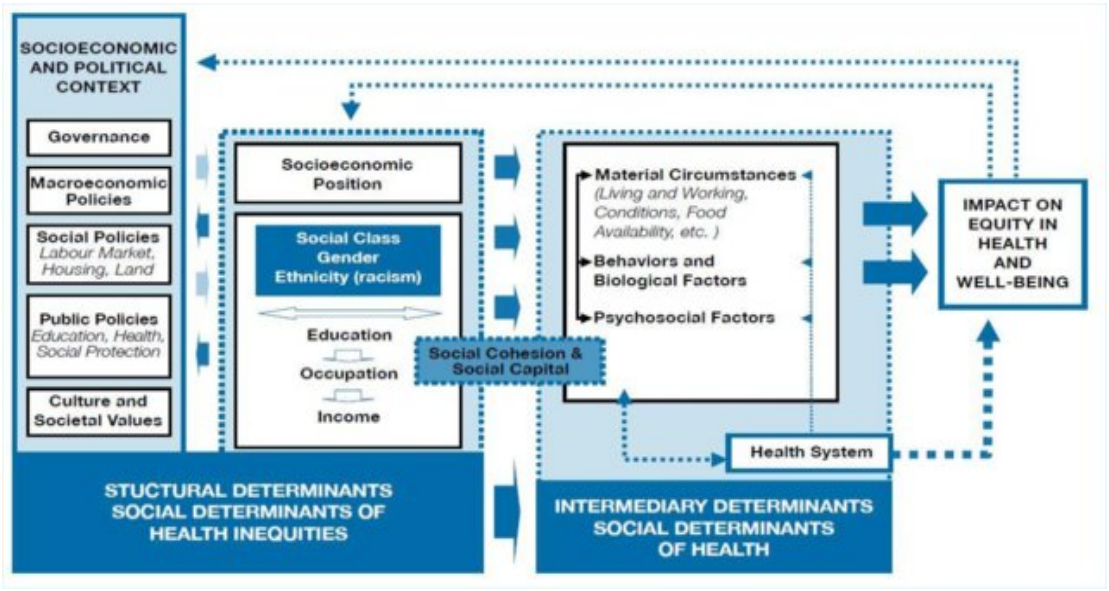

Figure 5.1: Final form of the Social Determinants of Health conceptual framework (WHO, 2010. p. 6) Social Determinants of Health is defined as 'conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life' (WHO, 2010, p. 12). These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems (WHO, 2010; Wilkinson & Marmot, 2003). The Social Determinants of Health are mostly concerned with health inequities—the unfair and avoidable differences in health status seen within and between countries (Marmot & Allen, 2014; Marmot, Friel, Bell, Houweling, & Taylor, 2008; WHO, 2010). This definition of Social Determinants of Health recognises systematic social causal pathways apart from biological causes of illness and health. These pathways explain the distribution of illness among different people and populations according to their social, political and economic structures, status and conditions (R. Bell, Taylor, & Marmot, 2010; Wilkinson & Marmot, 2003).

Given the complexities and diverse range of variables for Social Determinants of Health, the variables have been condensed into a summarised framework to guide policy actions (refer to Figure 5.1) (WHO, 2010; Wilkinson & Marmot, 2003). The 10 Social Determinants of Health are social gradient, stress, early life, social exclusion, work, unemployment, social support, addiction, food and transportation (Wilkinson & Marmot, 2003, pp10-29) (see Table 5.1).

Table 5.1: Areas for public policy and action

Action areas	Explanation
Social gradient	Life expectancy is shorter and most diseases are more common further down the social ladder in each society. Health policy must tackle the social and economic determinants of health.
Stress	Stressful circumstances, making people feel worried, anxious and unable to cope, are damaging to health and may lead to premature death.
Early life	A good start in life means supporting mothers and young children: the health impact of early development and education lasts a lifetime.
Social exclusion	Life is short where its quality is poor. By causing hardship and resentment, poverty, social exclusion and discrimination cost lives.
Work	Stress in the workplace increases the risk of disease. People who have more control over their work have better health.
Unemployment	Job security increases health, wellbeing and job satisfaction. Higher rates of unemployment cause more illness and premature death.
Social support	Friendship, good social relations and strong supportive networks improve health at home, at work and in the community.
Addiction	Individuals turn to alcohol, drugs and tobacco and suffer from their use, but use is influenced by the wider social setting.
Food	Because global market forces control the food supply, healthy food is a political issue.
Transportation	Healthy transport means less driving and more walking and cycling, backed up by better public transport.

Source: Adapted from Wilkinson and Marmot (2003, pp10-29).

Although the Social Determinants of Health framework provides important policy guidance for action to reduce heath inequities, this framework may lack local applicability for some LMICs. However, this framework does lay the platform for inclusion of further determinants of health. One such determinant is culture—which is only loosely referred to in the Social Determinants of Health framework. Culture, a source of strength, is valued and embraced among indigenous people, and self-determined culturally appropriate strategies or approaches are used as pathways to improve health and wellbeing of indigenous communities across the globe (Auger, 2016; Barker, Goodman, & DeBeck, 2017; R. Bell et al., 2010; Chandler, 2014; Chaturvedi, Arora, Dasgupta, & Patwari, 2011; Fernandez, 2014). Therefore, cultural approaches have a significant place within the Social Determinants of Health framework to achieve equity in health for indigenous people.

5.6.1 'Culture' as a determinant of health

Culture is a determinant of health. The word culture is difficult to define because any definition needs to fit a wide range of contexts (Birukou, Blanzieri, Giorgini, & Giunchiglia, 2009; Jahoda, 2012). Drawing on a range of definitions of culture, here I summarise culture as follows: a way of life with implicit and explicit patterns of norms, values, ideas, customs and behaviours shared by a particular people or society that are constantly evolving (Betsky, 1960; Birukou et al., 2009; Jahoda, 2012; Kroeber & Kluckhohn, 1952). People's way of life, or culture, can have a vast influence on the health and wellbeing of people by influencing how health, illness, death, and beliefs about cause of disease are perceived (Chandler, 2014; Fernandez, 2014). These conditions and beliefs are enacted through health-seeking behaviours and treatment preferences (Fernandez, 2014).

Culture can have both a positive and a negative impact upon health. Positively, there are numerous examples of cultural strategies contributing to gains in health outcomes among the LMICs and some resource-poor communities in the HICs such as Australia, the USA and Canada. For example, a male circumcision study in PNG found that cultural leaders welcomed the re-introduction of male circumcision as a locally appropriate HIV prevention measure, given the accompanying cultural focus on character building and culture preservation (Manineng et al., 2017). Another study conducted among African Americans using an African-centred cultural rite of passage

training strategy called ‘Let the Circle be Unbroken’, reported the training program was a viable program for improving self-esteem among young African American males (Okwumabua, Okwumabua, Peasant, Watson, & Walker, 2014). In a study on enhancing healthcare equity for indigenous populations in Canada, four key dimensions of equity-oriented health services as the foundation for supporting health and wellbeing of indigenous peoples were found (inequity-responsive care, culturally safe care, trauma- and violence-informed care, and contextually tailored care). The study recommended partnerships with indigenous leaders, agencies and communities to operationalise and tailor these key dimensions to local contexts (Browne et al., 2016). These studies demonstrate the value of culture as a determinant for improving health and wellbeing of people.

Culture is also found to negatively affect the health and wellbeing of people. A number of studies in LMICs report negative impacts of cultural beliefs and norms on girls and women’s MHH (Bobel et al., 2020; Coast, Lattof & Strong, 2019; Dammery, 2016; Hennegan et al., 2019). For example, cultural norms and beliefs about menstrual blood as dirty prevent girls and women from the intake of certain foods, which can potentially lead to malnutrition (Mohamed et al., 2018). Cultural taboos about pre-menarche communication lead to lack of knowledge about the meaning of body changes, sexuality and sexual risks, leading to unprotected sex and unplanned pregnancy (Ibitoye et al., 2017). In some worst-case scenarios, genital mutilation as a ceremonial rite for pubertal girls in many parts of the world, including the Dipo girls’ initiation in Ghana, are harmful to health (Adjaye, 1999; Leonard, 1996). It is important to include culture as a determinant of health because of the critical impact culture can have on people’s health and wellbeing.

Viewing culture as a source of strength, health has been defined by the Australian National Institute of Aboriginal and Torres Strait Islander Health Research as ‘a strength-based perspective, acknowledging that stronger connections to culture and country build stronger individual and collective identities, a sense of self-esteem, [and] resilience’ (Chandler, 2014, p. 2).

This definition—consistent with the Rights of Indigenous Peoples framework—acknowledges the value of enculturation, cultural connectedness, cultural continuity, resilience, activities and languages as determinants of indigenous people’s health

(Auger, 2016; Kingsley, Munro-Harrison, A. Jenkins, & Thorpe, 2018; Kingsley, Townsend, Henderson-Wilson, & Bolam, 2013).

The impact of colonisation on indigenous communities has been recognised globally. Consequently, the United Nations Declaration on the Rights of Indigenous Peoples provides a framework to address the social and economic inequalities resulting from colonisation (United Nations, 2007, 2011). The Declaration also provides an overarching framework that promotes and protects ethnic cultures in dealing with indigenous social, economic and cultural inequalities. The cultural determinants within that framework include, but are not limited to, 'self-determination; freedom from discrimination; individual and collective rights; freedom from assimilation and destruction of culture; protection from removal/relocation; connection to, custodianship of, and utilisation of country and traditional lands; reclamation, revitalisation, preservation and promotion of language and cultural practices; protection and promotion of traditional knowledge and indigenous intellectual property; and understanding of lore, law and traditional roles and responsibilities' (Chandler, 2014, p.1).

The health and wellbeing of indigenous peoples has been affected by colonialism and Westernisation through dispossession and assimilation processes, which saw much destruction of cultural connections to land, language and family, and generally the sense of belonging and being connected to the land—the source of strength (Auger, 2016). PNG, now a sovereign nation, was once under colonial rule and is still experiencing ongoing impacts of colonialism (Hayward-Jones, 2016; Jones, 2012; Kavanamur, Yala, & Clements, 2003; Ward & Ballard, 1976).

PNG has diverse, complex and dynamic ethnic, cultural and language groups (Simet & Iamo, 1992). The diverse cultures continue to inform the daily lives of people in towns, cities and village settings. However, impacts from colonisation, Westernisation and religion have caused disintegration of the fabric of the society and the traditional structural systems that governed and shaped people's way of life (Coupaye, 2013; Schieffelin, 2014). Some of the valuable cultural assets such as traditional arts, crafts and artefacts have disappeared as a consequence of imported religious beliefs (Gosden & Knowles, 2020; Schieffelin, 2014). Increased migration and urbanisation is leading to increased acculturation and assimilation to mainstream Western culture, resulting

in the disappearance of languages and traditional ways of life (Jones, 2012; Nagai & Lister, 2003; Ware, 2005). Those traditional cultural assets (traditional beliefs systems, cultural values and practices) that once nurtured and instilled appropriate ways of life for the younger generations are slowly dissipating. The impact of colonisation has caused destruction of the cultural fabric of PNG society—people's source of strength. Colonisation, then, is the underlying cause of many emerging contemporary social issues including many facets of health inequities and gender violence (S. Bell et al., 2018; Connell, 2003; Eves, 2016; Jewkes, Jama-Shai, & Sikweyiya, 2017; Jones, 2012; Kennedy et al., 2020).

Culture is an important determinant of health that can address health inequity. On the basis of the explanations made, I will from here onwards use the phrase Social and Cultural Determinants of Health when referring to both the 'social' and the 'cultural' determinants influencing health. The following sections define and describe three additional health-related frameworks—(1) the SRHR framework, (2) gender equity and (3) the Rights of Indigenous Peoples framework—to inform the positioning and interpretation of the 'Making of a Strong Woman' theory.

5.6.2 Sexual and Reproductive Health and Rights

Menstruation is a key function and signifier of health of the female sexual and reproductive system. The ability to safely manage menstruation and all aspects of SRH is a fundamental human right for females (Amnesty International, 2012; WHO, 2018b; Winkler, 2019). SRHR lay the foundation for women to have control over and attain the highest possible standard of their sexual and reproductive health (Frohmader & Ortoleva, 2012). The achievement of MHH (see Chapters 1 and 2) for all women requires every effort to confront barriers relating to laws, policies, economy, social norms and values, such as gender inequality, that prevent the achievement of SRH (Starrs et al., 2018). Therefore, to expand the utility of the Social and Cultural Determinants of Health framework, I use the SRHR framework to argue that social and cultural norms, beliefs and practices are barriers to women's MHH. In the next section, the concept of gender equity is described as a supporting theoretical code of Social and Cultural Determinants of Health.

5.6.3 Gender equity

Gender equity is increasingly being recognised as an important determinant of health for women, and underpins a female's right to menstrual health and SRH (Men, Frieson, Socheat, Nirmita, & Mony, 2011; Starrs et al., 2018; Winkler, 2019). Gender equity is inseparable from SRHR (Starrs et al., 2018). The inter-relationship between these two rights frameworks has greater potential to affect the attainment of gender equality and women's rights to health and wellbeing (Crockett & Cooper, 2016). Underpinned by fairness, gender equity is a concept that simply refers to fair treatment of both men and women, regardless of gender. This includes women's rights, obligations and opportunities, such as access to resources, opportunities and services such as health and education services, and the right to participate in economic activities and decision-making, regardless of gender (Men et al., 2011; Salamati & Naji, 2016). In the context of menstruation, gender equity and SRH rights empower females to ensure MHH (Gundi & Subramanyam, 2020).

Gender inequity is a reflection of how gender norms and roles are socially constructed in different communities (Lorber, 2010; Sen & Östlin, 2009). These socially constructed gendered norms and roles can lead to structural differences of gender roles and power relations between men and women (Salamati & Naji, 2016). These structural differences of gendered roles and power relations can negatively affect women's and girls' health and their levels of risk. One typical example is gender-based violence, which is commonly underpinned by the power relations of the gendered roles and norms within a society (Kennedy et al., 2020). Hence, gender inequality is linked to Social and Cultural Determinants of Health (Hammarstrom & Phillips, 2012; Men et al., 2011). To improve women and girls' SRH, we need a better understanding of how socially constructed differences in gender identity and unbalanced power relations affect women's health and wellbeing (Men et al., 2011). I use the principle of gender inequity and argue that the social and cultural process of 'Making of a Strong Woman' is linked to patriarchal perceptions of menstruation and menstrual blood, and maintain that negative practices are a form of gender-based violence against women and girls at menarche. Gender-based violence is commonly inflicted on women on the basis of gendered differences in social roles and norms (Kennedy et al., 2020). For example, forms of social and cultural norms, such as isolation practices because of

young girls' menstrual status, ritualised painful and restrictive practices, communication taboos, and teasing from males reported in Chapter 4, are considered forms of gender-based violence inflicted on young menarche girls and are based on the men's perception of menstrual blood. Menstrual blood is a normal biological process of reproductive maturation of females, and the perception of menstrual blood as dirty and harmful demeans women's status and marginalises women in the society.

5.6.4 Rights of Indigenous Peoples framework

The rights of indigenous people of the world are recognised in the United Nations Declaration on the Rights of Indigenous Peoples (United Nations, 2011), which was adopted by the United Nations General Assembly in 2007. The Rights of Indigenous Peoples framework is founded on the concerns and suffering from historic injustices due to colonial powers leading to dispossession of lands, territories and resources, and which have denied indigenous people the rights and freedom to development according to their own needs and interests (United Nations, 2011). The United Nations Declaration on the Rights of Indigenous Peoples establishes a universal framework of minimum standards for the survival, dignity and wellbeing of the indigenous peoples of the world (M. Davis, 2008). This framework also elaborates existing human rights standards and fundamental freedoms as they apply to indigenous peoples (M. Davis, 2008). People's rights to improved health and wellbeing are clearly articulated in this framework, which discusses the development of culturally appropriate traditional beliefs and norms of indigenous peoples to improve health and wellbeing of indigenous people. Article 11 of the Rights of Indigenous People framework specifically states:

> 'Indigenous peoples have the right to practise and revitalize their cultural traditions and customs. This includes the right to maintain, protect and develop the past, present and future manifestations of their cultures, such as archaeological and historical sites, artefacts, designs, ceremonies, technologies and visual and performing arts and literature' (United Nations, 2011, p. 913).

The menarche ceremonies, which include practices of isolation, initiation and cleansing, are traditional cultural practices that have been practised to prepare young girls for womanhood. With reference to using culture as a source of strength, discussed in section 5.6.1, I also use Article 11 of the above Declaration to argue that menarche

ceremonies can and should be further developed and used to improve the experiences of young girls at menarche in PNG.

The Social and Cultural Determinants of Health, along with the three intersecting frameworks and theories, have been described and aligned to menstruation and menarche—the substantive area of inquiry of this study. The next section increases the explanatory power of 'Making of a Strong Woman' by explicating the key components of each category and linking them to the theoretical codes, supplementary frameworks and theories in the current discourse on menstruation and menarche.

5.7 Explanatory power of 'Making of a Strong Woman'

The theory of 'Making of a Strong Woman' has two overarching implications. First, using the theoretical lens of the Social and Cultural Determinants of Health, supported by the SRHR and gender equity frameworks, the process of 'Making of a Strong Woman' can negatively affect women's menstrual health and wellbeing. Second, the process of 'Making of a Strong Woman' is an essential traditional and cultural learning model for preparing young, naïve girls for womanhood. In principle, the Rights of Indigenous Peoples framework supports culture as a source of strength. Therefore, the traditional cultural process for 'Making of a Strong Woman'—enacted through menarche rites—contains positive elements that can be further developed to improve the current SRH communication strategies in PNG, and potentially other PICTs. The positive elements of the traditional menarche rites can be used to amplify the existing SRH communications traditionally provided about SRH topics. These two major implications for 'Making of a Strong Woman' are categorised and discussed using the Socio-Ecological Framework shown in Figure 5.2.

5.7.1 Socio-Ecological Framework

The Socio-Ecological Framework was developed jointly by UNICEF and Emory University to guide researchers to extract and analyse factors that influence MHH. The framework in Figure 5.2 consists of five thematic areas: societal factors, environmental factor, interpersonal factors, personal factors and biological factors (Caruso, 2013).

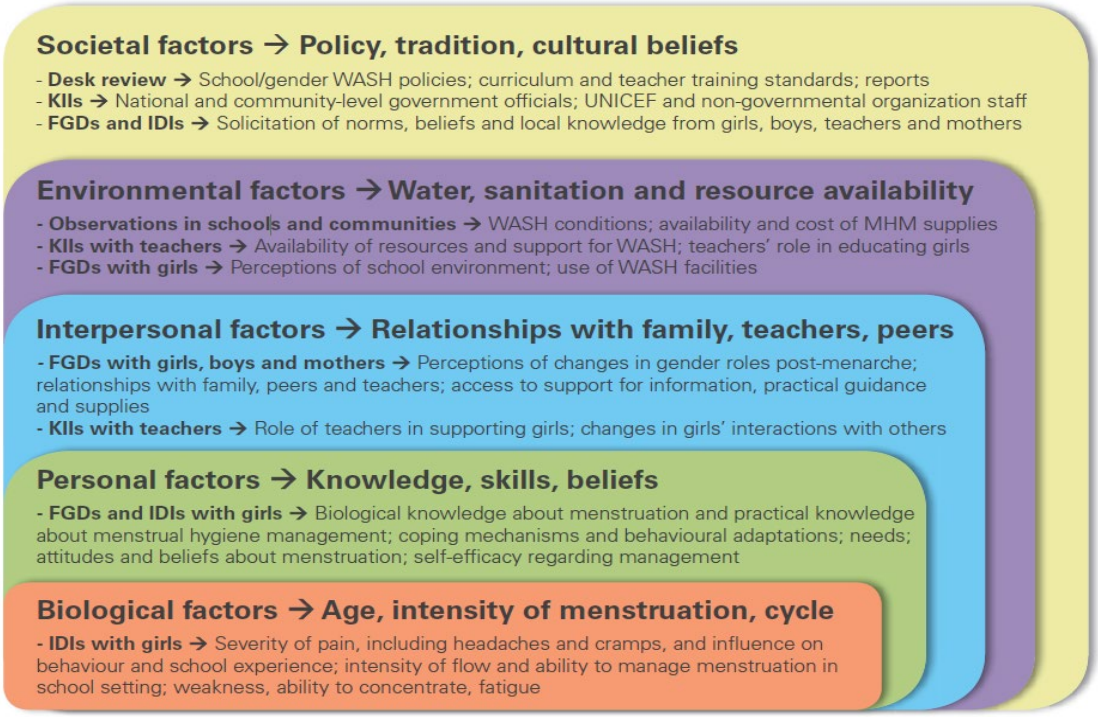

Figure 5.2: Socio-Ecological Framework for Menstrual Hygiene Management

KII = key informant interview; FGD = focus group discussion; IDI = in-depth interview; WASH = water sanitation and hygiene; UNICEF = United Nations International Children's Emergency Fund (Adapted from Caruso, 2013, p.5)

Although this framework is used to guide study design, these five thematic areas are relevant and useful to systematically analyse the implications relating to MHH experiences reported in this study. In adapting it to the theme of MHH, biological factors refer to age and intensity of menstrual cycle while personal factors relate to knowledge, skills and beliefs about menstruation and MHM. Interpersonal factors relate to the relationships of family, teachers and peers and their influence on a girl's access to information, guidance and supplies to help manage menstruation safely. Environmental factors relate to the availability of water, sanitation and hygiene facilities required to manage MHH, while societal factors refer to the availability of supportive policies for MHH, gender equity, indigenous rights and SRH, and the existence of traditions and cultural beliefs about menstruation (Caruso, 2013).

5.7.2 Societal factors

Societal factors refer to policies, traditions, cultural beliefs and social norms (Caruso, 2013). The process of 'Making of a Strong Woman' (core category) is found to be

highly associated with traditional ritualised practices, beliefs and social norms, with important implications that need to be understood. These implications affect various important aspects relating to menstrual health and wellbeing. First, the cultural norms around menarche and menstruation affect SRH communications, including menarche and menstruation. Second, these beliefs and practices affects women's and girls' personal hygiene, which can potentially lead to ill-health. In the next section, I provide further explanation of how the restrictive practices can affect young women's health relating to nutritional health, and emotional and psychological wellbeing. Third, the traditional practices, beliefs and perceptions about menstruation and menstrual blood stem from patriarchal perceptions and beliefs about menstruation and menstrual blood. I consider these to be a form of gender violence based on patriarchal power dynamics around gender-segregated roles in a patriarchal society. Finally, I elaborate on the positive aspects of the process of 'Making of a Strong Woman' and how this practice, when modified, can become a culturally appropriate strategy for SRH communication, including menstruation, in PNG.

5.7.2.1 Menstruation is dirty and taboo

Menstruation and menstrual blood is perceived differently in different societies and is associated with different belief systems and social norms (Sommer, Sutherland, et al., 2015). My study found that menstrual blood is perceived to be dirty and harmful, especially to men and food gardens. One of the rationales for 'Making of a Strong Woman' is directly linked to the perception of menstrual blood in the society. Young women's immediate isolation at menarche that happens at the stage of 'Intensifying Learning' (Category 3) is to avoid the contamination of men by menstruating young women. The finding that menstruation is dirty and harmful, leading to isolation, is consistent with many studies conducted in PNG (Faithorn, 1975; Hoskins, 2002; C. Jenkins, 1994; Lutkehaus & Roscoe, 1995; P. J. Stewart & Strathern, 2002), the PICTs (Akin, 2003; Francois et al., 2017; Huggett & Natoli, 2017; Mohamed et al., 2018; Pomer, 2017; UNICEF, 2018) and many LMICs (Adegbayi, 2017; Alam et al., 2017; Chinyama et al., 2019; Dammery, 2016). The harmful effects of menstrual blood on food and food gardens and public spaces are also reported in these studies.

The perception of menstrual blood being bad leads to other restrictive practices. These practices as reported in my data include using separate toilet facilities, and bathing and

cooking restrictions, which are consistent with the findings from anthropological studies conducted in PNG (Faithorn, 1975; Hoskins, 2002; C. Jenkins, 1994; Lutkehaus & Roscoe, 1995; P. J. Stewart & Strathern, 2002). The practice of segregating young women from the family home is also found in Nepal, where the menstruating girls are secluded because menstrual blood is considered bad and impure (Thapa et al., 2019). Menstruating girls are restricted from performing certain tasks, such as cooking and feeding any male figures, because of the belief that food cooked and served by menstruating women is contaminated with menstrual blood, and hence can bring bad luck. This finding is consistent with findings from other studies (Krusz et al., 2019; Kumar & Srivastava, 2011; Mohamed et al., 2018; Morrison et al., 2018; Omar et al., 2016; Sinha & Paul, 2018). Some studies reported that menstruating girls and women are socially excluded from gardening. It is believed that if they access gardens, pigs may break through the garden fences and destroy the gardens (in the highlands of PNG). These beliefs and perceptions of menstrual blood and restrictive practices are consistent with findings from the latest study conducted by Mohamed et al. (2018) in the Solomon Islands, Fiji and PNG. C. Jenkins (1994) also found the same in her work. Similar findings are reported in other country studies. For example, in India, menstruating girls are not allowed to go to marketplaces (Kumar & Srivastava, 2011). In Nepal, menstruating girls were found to be restricted from accessing temples, marketplaces, and rivers and streams to wash because of their menstrual status (Thapa et al., 2019).

5.7.2.2 Perception of gender roles

A girl child is valued in PNG for bride price, marriage and childbirth (Lutkehaus & Roscoe, 1995). This value is based on patriarchal structural power dynamics based on the traditionally defined gender roles and responsibilities (GoPNG, 2012; C. Stewart, 2012). Traditional female roles as domestic care providers include marriage, childbearing, raising children, caring for family members of the male, gardening and cooking (Garbe & Struck-Garbe, 2018; GoPNG, 2012). In many cultures of PNG, a girl is valued for her bride price in marriage—a practice that is still active, although illegal (Garbe & Struck-Garbe, 2018). Although the bride price can be viewed as a commercial strategy for money-making by her family, there is an argument that the

bride price seals the marriage and bridges the relationships between the girl's and boy's (in marriage) families (Eves, 2019).

One rationale for the theory of 'Making of a Strong Woman' is to prepare young girls for womanhood—that is, to be mentally, emotionally and physically strong to assume women's roles and responsibilities in the tough social, cultural and environmental conditions. Womanhood is achieved after the ritualised cleansing process at 'Achieving Womanhood' (Category 4 of this grounded theory) from menstrual pollution, a finding also reported in other studies (Amatya et al., 2018; Lutkehaus & Roscoe, 1995). After cleansing, the girls are then ready for marriage and the bride price. The girls must ideally be strong, healthy and smart—a traditional definition for women to be considered fit to enter into marriage and perform womanhood responsibilities associated with marriage, including sex, pregnancy, childbirth and domestic duties, which is another important rationale for 'Making of a Strong Woman' found in this study. The cultural definition of being smart and healthy involves being a virgin, fat and fair skinned before marriage. The process of preparing young girls for womanhood using menarche rites has been reported in studies conducted in the PICTs (Clauson, 2012; Lutkehaus & Roscoe, 1995; Sniekers, 2005), as well as other studies conducted in LMICs (Audrey, 1982; Kadariya & Aro, 2015; Markstrom & Iborra, 2003; Nieminen, 2017; Powdermaker, 1958).

In the next section, I re-iterate the significance and relevance of the cultural process of 'Making of a Strong Woman' as an ideal communication platform for SRH communication for early adolescent girls.

5.7.2.3 Value of 'Making of a Strong Woman' as a learning model

Despite the negative implications discussed in previous sections, there are also positive implications of 'Making of a Strong Woman'. Using cultural connectedness and continuity as a determinant of health and as a strength-based approach to improving indigenous peoples' health from the perspective of the Rights of Indigenous Peoples framework, 'Making of a Strong Woman' is an important traditional asset (Auger, 2016; Kingsley et al., 2018). If further researched and developed, this asset, based on the grounded theory, can become a model to improve women's experience at menarche, including SRH communication. The theory of 'Making of a Strong Woman'

represents a traditional culturally accepted institutional process for teaching young, naïve girls about sex, childbirth, menstruation management, and social roles and responsibilities in preparation for womanhood in a private space because of the sensitive nature of the topic and using menarche as a concrete basis for such discussions.

The ritualised traditional cultural process of 'Making of a Strong Woman' found in this study is characterised by three notable stages: isolation, initiation and cleansing (described under Categories 3 and 4). These three stages and their characteristics can be equated to a number of theories and findings in PNG, Fiji and Africa. Fiji has a similar set of stages in the traditional menarche ceremonies. These ceremonies are used to teach young women about SRH topics and womanhood responsibilities in preparation for womanhood (Clauson, 2012; Sniekers, 2005). Further, this finding confirms the findings relating to the characteristics of 'gender rituals' or 'female initiation' for menarche or the 'rituals of maturity' in the writings of Lutkehaus and Roscoe (1995). According to Lutkehaus and Roscoe (1995), female initiation and the 'rite of maturity' in Melanesia, which specifically refers to menarche, signals the 'coming of age' or 'maturation' and marks the transition from girlhood to womanhood (part 1, pp. 3–19). Moreover, the process, purpose and characteristics found in this study are similar to the female initiation ceremony among the Bemba tribe of Northern Rhodesia in Bemba, Zambia, Africa (Audrey, 1982). Finally, the stages of 'Making of a Strong Woman' resemble the three stages of the 'rite of passage' for adolescent transition, 'rite of separation', 'rite of transition' and 'rite of incorporation', described by van Gennep (1960). The traditional cultural process of 'Making of a Strong Woman' is valued because it provides a space for concentrated and more focused support to prepare girls for womanhood. This process has elements of value for SRH communication that need to be embraced and developed before they become extinct from the effects and influences of modernisation and Western civilisation.

Further research is needed to extract valuable elements of the traditional practices and develop a culturally appropriate learning model to teach young girls about culturally sensitive topics, such as sexuality and broader SRH topics, and to prepare girls for menarche. The same observation was made in the writings of C. Jenkins (1994). While referring to menarche rituals, C. Jenkins (1994) emphasised the importance and value

of these cultural practices to support how and when to transmit sensitive messages around sexuality:

> 'This social need (referring to how and when to pass on information about sexuality to young people) has been addressed in most of PNG's cultures by the development and maintenance of rituals which both mark the emergence of adult sexuality and attempt to channel it by controlling, at least for a while, the flow of information to young people. These rituals, initiation schools and ceremonies, for both men and women, have been extremely important cultural institutions where they occur'. (p. 27)

The theory and conceptual process of 'Making of a Strong Woman' for girls is similar to the concept of male circumcision practices as part of male initiation for boys in some cultures in PNG (Herdt & Leavitt, 1998; Manineng et al., 2017). In the traditional cultural context, male initiation practices involving circumcision are rituals performed to prepare boys for manhood. The traditional male circumcision ceremony is being explored as a strategy for HIV prevention. A recent PhD study on male circumcision by Manineng shows that male initiation ceremonies called '*Huelembo*' in Yangoru District, PNG, are being considered an ideal traditional institution for a comprehensive approach to HIV prevention based on the traditional value system, and how the traditional cultural system is conducive to improving health outcomes (Manineng, 2019). Male initiation is a similar traditional cultural process to 'Making of a Strong Woman', with similar outcomes of preparing the young person for adulthood according to their gender. Both these practices (menarche ceremonies and male initiation) encompass preparation in readiness for adulthood. The preparation process for adulthood incorporates teaching about sexuality, gender roles and responsibilities to girls and boys. Hence, 'Making of a Strong Woman' is an initiation process for consideration to improve SRH outcomes, including MHH, for females in PNG.

To summarise this section, I have explained that the theory of 'Making of a Strong Woman' has two important implications. First, the process of 'Making of a Strong Woman' has negative implications and these implications are discussed using the Social and Cultural Determinants of Health, supported by the SRHR framework and gender inequity. Using culture as a strength from the Rights of Indigenous Peoples framework, the theory of 'Making of a Strong Woman' is discussed as a culturally appropriate institution to improve SRH communication, including MHH.

5.7.3 Environmental factors

Environmental factors refer to the access to conditions necessary for accessible, safe and clean WASH facilities and resources to manage MHH with dignity. Here, I explain the implications of the findings of this study relating to MHH, with reference to WASH facilities and resources, at the stage of 'Intensifying Learning'. Managing menstrual health hygienically and with dignity has been linked to young women's sexual health and prevention of reproductive tract infections (Sumpter & Torondel, 2013; Torondel et al., 2018), psychological wellbeing, and self-esteem (Caruso et al., 2013; Rembeck & Gunnarsson, 2004; Sommer et al., 2013). This study generally found that proper WASH facilities required for managing menstruation with dignity were lacking in both urban and rural settings. Access to rivers or streams at menarche is more challenging for women in rural than urban areas because of restrictive movement practices imposed by men because of the belief that menstrual blood is dirty and harmful. Consequently, this false perception leads to young women's isolation at menarche for a few days to a number of weeks until the time of exiting to avoid contamination of men. This practice limits the ability of young women to effectively clean themselves from menstrual blood, which can potentially lead to reproductive tract infections. The restrictive practices due to isolation are consistent with findings from studies conducted in the PICTs (Mohamed et al., 2018; UNICEF, 2018).

Menstruation management products such as pads help women to manage menstrual flow effectively. This study found that many women lacked menstrual pads and resorted to using old cloths. Many women recalled that, because of shame, women who used old cloths washed and dried them inside the house, away from direct sunlight. This study did not explore further the relationship between menstrual hygiene and infections. Access to menstrual products was more difficult for women in rural than urban areas because of cost and availability. Cost, distance, shame and embarrassment were also reported as some impeding factors in managing menstruation. Women reported that many local stores either do not see the importance of selling menstruation management materials or are ashamed of buying and stocking them for sale.

Access to menstrual hygiene products is an issue in many other settings, such as the Pacific (Francois et al., 2017; Mohamed et al., 2018; UNICEF, 2018) and in rural

Western Kenya. In rural Western Kenya, sanitary pads were valued, but financial constraints resulted in prolonged use of each pad causing chafing. 'Improvised alternatives, including rags and grass, were prone to leakage, caused soreness, and were perceived as harmful for use' (Mason et al., 2013, p.1). Menstrual products should be sold without shame. Likewise, all women should be able to access shops to purchase menstrual pads without fear. However, this study found evidence of stigma associated with selling menstrual pads shared by women from MBP and NCD. Some shopkeepers in rural areas tend not to sell menstrual products because of the shame and stigma associated with menstruation, and young women also feel ashamed buying the products. This finding was also reported in a study conducted among Torres Strait Islander and Aboriginal women, where women are reluctant to buy menstrual products because of shame. They think the shops are tiny places and they might be seen by other people (Krusz et al., 2019). These perceptions, fear and shame restrict women's access to menstrual products and should be addressed. These attitudes and reactions are a result of how menstruation is viewed in the society and practised by family members, friends and peers of the menarcheal girls within the society.

5.7.4 Interpersonal factors

Interpersonal factors refer to the influence exerted by families, friends/peers and teachers. These factors relate to perceptions about post-menarche gender roles; reactions from families, peers, teachers and the community to menstruation; and access to support for information and practical guidance (Caruso, 2013).

Communication and support at the pre-menarche stage is vital to psychological expectations and preparation for menarche and the ability to effectively manage menstruation. Lack of pre-menarche awareness is linked to young women's inability to effectively manage menstruation and associated psychological stress (refer to section 4.6.5). This study found that one of the rationales for 'Making of a Strong Woman' is to use menarche ceremonies to teach and prepare girls for womanhood. However, this study found that cultural taboo prevents mothers from talking about menstruation with their daughters, resulting in young women's lack of pre-menarche knowledge about menarche and skills to effectively manage menstruation. Mothers are considered the primary source of knowledge transfer and support for pre-menarcheal girls. However, the support they provide is limited because of taboos around open

communication about private body parts and sexuality, and lack of appropriate knowledge and shame. At the stage of 'Having Baby Sense' (Category 1), the young girls are considered children and discussions around sexuality and private body parts are considered inappropriate. Any interventions aimed at initiating discussions with children at the 'Having Baby Sense' stage about sex and private body parts are likely to lead to parental resentment and are a risk to be managed. Other important sources of support include grandmothers, aunties and older siblings.

These findings about preferred sources of SRH information are common in many other studies (DeMaria et al., 2020; Gumede, Young-Hauser, & Coetzee, 2017; Kapoor & Khari, 2016; Kim & Choi, 2019). In the Pacific, mothers' ability to prepare daughters is restricted by communication taboos and lack of appropriate knowledge about reproductive functions and menstruation. It is also reported that grandmothers, aunties and older siblings or female peers are sought after more for information compared with the mothers because of shame and taboo (Francois et al., 2017; Huggett & Natoli, 2017; C. Jenkins, 1994; Mohamed et al., 2018; Mohamed & Natoli, 2017).

Fathers are occasionally involved in rare circumstances where mothers are absent. My study found that a few women considered the appropriateness of fathers in these roles, but only when based on a trusting father–daughter relationship and in very rare situations. This was commonly reported by a few young women in the urban settlements, where some fathers are single parents due to the mother's death or divorce. This finding was consistent in two other studies conducted in Kenya, Africa and Turkey, but the authors report the preference for fathers is uncommon (Isguven et al., 2015; Mason et al., 2013).

Sexual health education through schools and health education outlets provides avenues to teach young girls about menarche so that they are prepared before they start to menstruate. However, this study found a few issues relating to school education systems. First, a few women from urban areas stated that some schools do not teach SRH education. However, in recent years, schools in PNG have been ramping up efforts to include SRH education. Further research needs be undertaken to confirm the coverage, extent of and quality of school-based sex education programs in both urban and rural PNG. Second, the lessons in schools are often delivered after most girls have reached menarche, which respondents in the study claim is too late. Third, male

teachers feel shy about teaching the topic. These three findings are similar to findings from studies conducted in the PICTs (Francois et al., 2017; Huggett & Natoli, 2017; Mohamed et al., 2018; Mohamed & Natoli, 2017; Natoli & Huggett, 2016; UNICEF, 2018) and in other LMICs (Long et al., 2013; Sommer, 2010). A study conducted by Long et al. (2013) found that often the teachers are not fully aware of girls' menstruation-related practices, and communication with students about menstruation and reproductive health is frequently difficult. Sommer (2010) conducted a study in Tanzania reporting that girls requested the government to teach them about changing bodies and menses before menarche so that they are prepared. Teachers were also reportedly found to feel ashamed and reluctant to teach topics around sex and menses (Sommer, 2010).

Reactions from males towards menstruating girls can cause either positive or negative psychological impacts on the young women experiencing menarche. Women in this study recalled that the reactions of males towards their changing bodies at 'Becoming of Learning' (Category 2) and at menarche ('Intensifying Learning') brought shame and embarrassment on many occasions. Women reported being teased, stalked and ridiculed at times because of their changing bodies and at menarche. This report was common in the stories of young women attending school and other women from NCD, and among some women in ESP and MBP. Similar findings have been found in other countries. For example, a study conducted in Sweden reported boys teasing girls with words describing their body parts (Rembeck et al., 2006). Another study conducted in Northern Tanzania found teasing is prevalent, with 13% of girls experiencing period teasing and more than 80% expressing fear of being teased, especially by male classmates. The study further found that 'boys engage in period teasing because they perceive periods as embarrassing, especially visible markers of periods (odour or stains). Boys also believe it is strongly inappropriate for girls to reveal period status or to discuss periods with males, including male teachers' (Benshaul-Tolonen, Aguilar-Gomez, Heller Batzer, Cai, & Nyanza, 2020, p.1). Common causes of teasing from boys found in these different studies including my study relate to lack of suitable menstrual practices resulting in leakage of menstrual blood and lack of appropriate knowledge about menstruation in boys.

5.7.5 Personal factors

Personal factors refer to the girl's knowledge, skills and beliefs (Caruso, 2013). This includes the 'biological knowledge about menstruation and practical knowledge about MHM, coping mechanisms and behavioural adaptations, needs, attitudes and beliefs about menstruation, and self-efficacy regarding management' (Caruso, 2013, p.5). This study found elements of personal factors relating to knowledge, skills and attitudes towards menstruation.

Pre-menarche knowledge about body changes, meaning of menarche, and menstruation management knowledge and skills is a fundamental human right of every young girl (Winkler, 2019; Winkler & Roaf, 2015). In Category 1, 'Having Baby Sense', many young women were found to lack biological knowledge about the meaning of body changes, including menarche. Consequently, many women recalled feeling scared, confused and unprepared to manage menstruation. Women recalled lacking knowledge right through to the stage of 'Beginning to Learn', the second category of the grounded theory of 'Making of a Strong Woman'. This lack of pre-menarche knowledge was apparently linked to lack of ability to effectively manage menstruation. These two findings are consistent with findings from many studies conducted elsewhere in LMICs (Adegbayi, 2017; Alam et al., 2017; Cardoso et al., 2019; Erbil et al., 2015; Omar et al., 2016; Scorgie et al., 2016), as well as low-resource settings in HICs (Krusz et al., 2019).

Lack of pre-menarche communication during the 'Having Baby Sense' (Category 1) and 'Beginning of Learning' (Category 2) stages was embedded in the culture of secrecy, shame and silence, which is reported in many other countries (Chandra-Mouli & Patel, 2017; Coast et al., 2019; S. C. Cooper & Koch, 2007; Dammery, 2016). In India, only 11% of young girls had biological knowledge about menstruation before menarche and 71% of the girls were unprepared before menstruation (Kapoor & Khari, 2016). This difference was associated with a lack of pre-menarche education, a finding consistent with this PNG study's findings. Many young women become disadvantaged from having no access to pre-menarche knowledge due to cultural taboo, shame and secrecy surrounding menstruation. The taboo extends up until the girl reaches puberty at the stage of 'Beginning to Learn'. However, at this stage the study found that this was not direct and clear communication appropriate for the comprehension of a pre-

teen but more indirect communication, such as parables, resulting in confusion and embarrassment. This has also been found in other settings linked to a strong culture of taboo and secrecy around menstruation (Agyekum, 2002; S. C. Cooper & Koch, 2007; J. Lee, 2008; Rubinsky et al., 2020).

Every woman has the right to relevant knowledge and practical skills of how to manage menstruation appropriately before menarche so that they are prepared to effectively manage menstruation hygienically (Winkler, 2019; Winkler & Roaf, 2015). Cultural taboos, shame and secrecy cause delays in transfer of menarche knowledge to young women. Women only started learning about how to manage menstruation at the stage of 'Intensifying Learning' (Category 3), that is, at the onset of menarche, which was too late. The earlier girls learn the skills to manage menstruation, the more empowered and ready they are to manage menstruation with less stress. These issues surrounding menstrual management skills are consistent with the findings of the Last Taboo studies conducted in Fiji, PNG and Solomon Islands (Mohamed et al., 2018), and many studies conducted in LMICs (Chandra-Mouli & Patel, 2017; Hennegan et al., 2019; Kaur et al., 2018; Krishnan & Twigg, 2016). The Last Taboo studies described how young women's ability to manage menstruation was made difficult because of the beliefs and discriminatory attitudes around menstruation being dirty and unhealthy (Mohamed et al., 2018), as was found in this PNG study. Similar issues are described in a study conducted by Omar et al. (2016) in Jordan, where open discussion about menstruation is also considered a taboo and information about menstruation is also controlled and kept secret by parents until the girl reaches menarche.

Every woman has the right to positive experiences without being marginalised, discriminated against and stigmatised because of their menstrual status (Winkler, 2019). The stages of 'Beginning of Learning' (Category 2) and 'Intensifying Learning' (Category 3) were difficult for many young women. Women reported different coping strategies at these two stages to deal with different attitudes, perceptions and behaviours at menarche. The coping strategies were natural reactions by women dealing with the psychological stress associated with menarche. Many women recalled their experiences as traumatising, embarrassing and shameful at the onset of menarche. These feelings were largely linked to a lack of pre-menarche awareness and teasing from male peers, other men and women. Women reported concealing their menstrual

status from mothers and confiding in other female relatives and female peers. These different strategies were used to conceal menstrual status because of shame and embarrassment. Similar findings were also reported in a study conducted in Ghana, which reported social and emotional challenges, including shaming and disciplining of girls because of their menstruation (Rheinländer et al., 2019). The Ghanaian senior schoolgirls reported some coping strategies to conceal their menstrual status while in school and a preference to avoid public toilets, instead using private places to change menstrual pads and clean themselves during the day (Rheinländer et al., 2019). The process of 'Making of a Strong Woman' is deeply associated with ritualised practices before a girl is recognised as a woman. The process involved in preparing girls for womanhood found in this study is similar to menarche rites in some LMICs and indigenous communities, such as the Chaupadi practice in Nepal (Amatya et al., 2018; Thapa et al., 2019), the Chisungu practice of the Bemba tribe, Zambia (Audrey, 1982; Powdermaker, 1958) and the Kaanalda ceremony of the Navajo tribe in North America (Markstrom & Iborra, 2003). My study found that girls are isolated at menarche and restrictive practices are applied, but the isolation experiences were more stressful and lonely, and many women hoped that their daughters could avoid these experiences. This finding is similar to the findings from a study conducted in Nepal, where girls become psychologically affected because of menstruation exile (Amatya et al., 2018).

'Beginning of Learning' (Category 2) and 'Intensifying Learning' (Category 3) are stressful stages. Women recalled feeling ashamed about their changing body at 'Beginning of Learning' and in fear of being teased and stalked by males, especially their peers. A study in Kiribati found male peers stalking and teasing young girls in school, but the attitude of male peers was due to lack of knowledge. Male peers stalked and teased girls because they were curious and wanted to understand what was happening to the girl's body (UNICEF, 2018). At menarche ('Intensifying Learning'), women reported having different beliefs and perceptions about menarche and were generally scared, feeling lost and crying at the onset of menarche. Women reported feeling scared of dying at menarche because they believed that loss of blood at menarche would lead to death. Such perceptions and misconceptions are found in a number of different studies (Cevirme, Cevirme, Karaoglu, Ugurlu, & Korkmaz, 2010; S. C. Cooper & Koch, 2007; Rubinsky et al., 2020). DeMaria et al. (2020) found girls from the USA reporting misconceptions and uncertainties about menarche, and one

woman of Asian origin reporting that her sister thought she was dying from menstrual bleeding and did not tell her parents.

In my study, false menstrual myths that link menarche with pre-menarche sex are one of the causes for fear and shame in young women at Category 3, 'Intensifying Learning'. This study also found women feeling embarrassed and scared to reveal their menstrual status to mothers because of this myth. This reflects previous findings in the Trobriand Islands in MBP in PNG (Lepani, 2015), and other LMICs such as Ethiopia (Smiles et al., 2017) and Nigeria (Adegbayi, 2017). This false perception causes women to conceal their menstruation status to avoid being scolded and ridiculed by family members, leading to fear and depression.

5.7.6 Biological factors

Biological factors relate to the age of menarche and the intensity of the menstruation cycle. The intensity of the menstrual cycle relates to the severity of pain, headaches and cramps; bloating; moodiness; fatigue; 'fuzzy head' (poor ability to concentrate); amount of and duration of flow; and the influence on behaviour and school experience (Caruso, 2013). This study did not explore the biological aspects relating to MHH.

The Socio-Ecological Framework has been used here to discuss the implications of the grounded theory for 'Making of a Strong Woman'. The Socio-Ecological Framework includes important aspects for reporting experiences of menstruation and can be used in any setting. However, to become more useful, the Socio-Ecological Framework should be used at all stages of research: the planning, data collection, and analysis and reporting phases.

Having situated the theory of 'Making of a Strong Woman' in the broader body of relevant literature, the next section reports strategies used to ensure the quality of this research, consistent with the methodological principles of constructivist grounded theory.

5.8 Ensuring Quality of Research Findings

The process of constructing the grounded theory of 'Making of a Strong Woman' was rigorous to ensure quality. Reflecting upon section 3.5.10 from the methodology

chapter, this section explains the practical application of strategies to ensure quality while constructing the grounded theory of 'Making of a Strong Woman'. The four criteria posited by Charmaz and Thornberg (2020) were used to assess the quality of the research findings. These criteria include credibility, originality, resonance and usefulness. Below, I explain how I assessed the quality of this research by using these four criteria.

5.8.1 Credibility

The criterion of credibility assesses sufficiency of the data, and the systematic, comparative and iterative processes undertaken throughout the data analysis and including development of a thorough analytical process, researcher reflexivity and member-checking (Charmaz & Thornberg, 2020). The following steps were enacted to ensure credibility.

5.8.1.1 Reflexivity

Reflexivity is an important strategy to ensure quality in grounded theory. To ensure reflexivity, I explicated my philosophical stance to ensure methodological congruence (Chun et al., 2019). I increased my theoretical sensitivity relating to the key concepts of the substantive area of study in two ways. First, my philosophical paradigm and standpoint, described in Chapters 1 and 3, explains my position and familiarity with the social and cultural phenomenon under study. My worldview and standpoint gave me a positive advantage to understand the study participants and work with them through a trusting relationship and co-create the theory that explains personal experiences of women and girls at menarche. This explanation is provided in detail in the Methodology chapter (Chapter 3).

Second, my theoretical sensitivity of the key concepts of the substantive area of this study was increased through the application of four principles: (1) history, personal experience and professional experience; (2) literature review; (3) conference attendance; and (4) memoing during data collection and the analysis phase. My history, personal and professional experience has been reported in Chapter 1. These historical contexts and experiences increased my knowledge and understanding of the key concepts of the substantive area of inquiry of this study. A systematic scoping review was conducted at the inception of this study as part of the PhD study requirement for

confirmation of candidature—a principle that is increasingly accepted in grounded theory (Lo, 2016; Ramalho, Adams, Huggard, & Hoare, 2015). The scoping review increased my understanding of the key concepts about menstruation and menarche, which informed the design of the interview guide. This scoping review is reported in Chapter 2 and will be published in the journal *BMC Reproductive Health*. My theoretical sensitivity was also increased during data collection and analysis through the use of reflective memos. At the inception of this research and during the data analysis phase, I had attended three important conferences that helped me to gain understanding of the key concepts that related to the substantive area of inquiry of this study. These conferences were as follows: the ISTAR conference held in Cairns (ISTAR, 2021) in 2013; the PNG Medical Symposium in Lae, Morobe Province of PNG, in 2013; and the WASH Futures Conference in Brisbane in 2018. By attending these conferences, I started acquiring insight into the key concepts of the substantive area of inquiry of this study. During the data collection phase, I reflected on important concepts identified and wrote reflective memos. In writing these memos, I constantly reflected on my personal experiences and knowledge to explain the meaning of the concepts (Charmaz & Thornberg, 2020; Chun et al., 2019). These reflective memos were necessary as they helped to link and create relationships between different concepts, properties and dimensions and interpret meanings (Chun et al., 2019). Moreover, these reflective memos helped inform to write the storyline. In the course of writing the storyline, I constantly reflected on the memos written, which eventually gave me the ability to abstract and elevate the core category of 'Making of a Strong Woman' and the four interconnected categories reported in Chapter 4.

5.8.1.2 Purposive/Theoretical sampling

Purposive and theoretical sampling were performed during data collection and analysis at different phases (see Figure 3.2 in Chapter 3). Purposive sampling was done to recruit women with rich experiences of having menarche in the social and cultural setting of the four study sites, as explained in Chapter 3 (section 3.5.6 and 3.5.7). As explained in these two sections, purposive sampling was initially done to develop sensitivity to theoretical concepts, which helped inform Phase 2 of data collection (section 3.5.7). Mechanisms and strategies to ensure quality were in place. The recruitment criteria were used to guide the research assistants with participant

recruitment. The research assistants were briefed, and after the briefing session, the research assistant pack containing the information sheets detailing the study purpose and background, recruitment criteria, and consent forms were given to the research assistants to help recruit participants. During the briefing session, the method of obtaining consent was clearly explained to the research assistants. This explanation is made in detail in section 3.5.5. Consent forms were signed with prior explanation of the study, and options for exit were provided to ensure fairness and recognise the right of participants in the study to do so.

Theoretical sampling was carried out after purposive sampling and during the data analysis phase (see Figure 3.2, Chapter 3). Participants were also theoretically sampled (Phase 2 in Figure 3.2) to further explore and acquire more in-depth understanding of the concepts with participants who had richer stories. During data analysis (see Phase 3 in Figure 3.2), I returned to the existing data and theoretically sampled for more in-depth and theoretical insight and wrote reflective memos to help create meanings and relationships between concepts, properties and dimensions, and inductively build grounded theory from the data. This process led to advanced coding until the development of the grounded theory of 'Making of a Strong Woman'.

5.8.1.3 Memoing and an audit trail

Memoing and an audit trail were used to constantly reflect on my relationship and connectivity between different data and emergence of developing patterns, which were constantly compared, documented in memos and reflected upon throughout the study (Birks et al., 2008; Charmaz & Thornberg, 2020). Memoing was conducted and an audit trail was compiled throughout the data collection and analysis phases. The memos contained date, time, place (where memo was written) and topic of any important ideas, thoughts and feelings relating to the study objectives, properties, dimensions, concepts, categories and core categories that caught my attention during the data collection and analysis phases. I also recorded any connections and relationships between any of the concepts and categories that were eventuating within the collected data.

An audit trail was compiled, complementing regular memoing, to ensure clarity of the process of data collection to theory development. My audit trail captured major

decisions in relation to the grounded theory development, as well as allowed tracking of decisions made to avoid researcher bias (Bowen, 2009; Charmaz & Thornberg, 2020). Important decisions relating to theory development took place with study participants, and with PNG women during conference presentations and discussions, as part of the member-checking process, explained in the next section (5.7.3).

The records of various memos and the audit trail helped me to reflect on relationships between different concepts and categories, including decisions, towards the construction of the grounded theory of 'Making of a Strong Woman'. A copy of the audit trail containing important decisions relating to data analysis, leading to theory development, is attached in Appendix 6.

5.8.2 Originality

Originality refers to assessment of the findings to determine if the core category and interconnected categories offer new insights and provide fresh conceptualisation of a recognised problem, and establishes the significance of the analysis (Charmaz & Thornberg, 2020). The theory comprising the core category of 'Making of a Strong Woman' with the four interconnected categories and intervening conditions was inductively constructed from the data. The concepts, categories and intervening conditions provide a new insight and conceptual framework of the social and cultural factors that affect girls and women before and at menarche in PNG, as evidenced in the subsequent systematic scoping review and discussion chapter of this thesis. The theory increases understanding about the underlying players (norms and practices) within the society that underpin the girls' and women's experiences at menarche, and subsequently influence their menstrual health and wellbeing. The theory also increased understanding about the gaps in broader SRH communication in PNG.

5.8.3 Resonance

Resonance demonstrates if researchers have constructed concepts that represent participants' experiences and provide insights to others (Charmaz & Thornberg, 2020). To ensure resonance, the research must be able to demonstrate that the findings fit the data gathered to illuminate the participants' experience (Charmaz & Thornberg, 2020). 'Fit' is also achieved when 'concepts or ideas adequately articulates the pattern in the data which it purports to conceptualize' (Glaser, 1978, p. 18). The 'grab' of a theory

refers to the 'ability of an idea to capture the attention of a person quickly' (Glaser, 1978, p.18). Therefore, in reference to grounded theory, when a reader senses that he or she understands the concepts and/or the constructed grounded theory and what is going on, 'grab' is achieved. In the next two sections, I provide more detail on how this strategy was applied, using (1) member-checking and (2) conference presentation to assess the 'grab' and 'fit' of the constructed grounded theory of 'Making of a Strong Woman' (Anney, 2014; Birks et al., 2008; Chametzky, 2013).

5.8.3.1 Member-checking

Member-checking was not possible in the usual way because of limited funds and opportunity to return to PNG. My inability to check the grounded theory with research participants was replaced by the 'grab' and 'fit' strategy (Chametzky, 2013) as explained in Chapter 3, section 3.5.10. Conference presentations were used as an opportunity to facilitate an adapted 'member-checking' of the findings after the data analysis phase. In 2019, I presented the study findings at two conferences where PNG women were present. On 27 June 2019, I presented at a James Cook University public seminar on the Cairns campus at the James Cook University Sustainable Development Goals seminar series. On 9 July 2019, I made a similar presentation at the Pacific Sexual and Reproductive Health Conference (PSRH) at Stanley Hotel in Port Moresby, PNG. Many PNG women present at the two conferences were born and raised and went through puberty either in their local villages or in Port Moresby, and had a strong understanding of and cultural connections to their local villages and PNG, and related well to the topic of my presentation as well as met the inclusion criteria of this study. I took advantage of these opportunities and invited questions from PNG women conference participants at the outset of the presentation in order to critique and provide feedback on my grounded theory. Important feedback was obtained from PNG women attending these conferences. They discussed the relevance and 'fit' of the grounded theory about how menarche is experienced on a daily basis in PNG. I wrote a number of memos after the conference and one of them reads: *'This is a very important study. The diagram truly represents how we, the women experience menarche. Em kastom blo yumi em gutpla . . . em redim yumi lo marit [our custom is good . . . it prepares us for marriage]'* (Midwives from the highlands of PNG and Malaita of Solomon Islands, 9 July 2019).

I also learnt from this presentation that there was a clear difference in how women experienced menarche between the urban and the rural areas. Women also told me about the difficulties many girls and women face in both urban and rural areas to manage menstruation. Women also suggested that because menstrual blood is believed to be a harmful thing, men's perception and involvement in such research is important. Women (nurses) agreed that the experiences of women during menstruation are 'restrictive' and 'taboo', but showed appreciation that these initiation practices taught girls to behave compared with girls who grew up in towns and cities without undergoing cultural practices. The comments provided were largely positive, informing some small changes to my thinking but largely reinforcing the findings of this study. The feedback from these presentations helped me to understand that conference participants 'grabbed' the concept of the theoretical model and 'fitted' the everyday lived experiences of girls and young women at menarche in PNG. This meant that the applicability of the theoretical model was strong (Chametzky, 2013; Charmaz & Thornberg, 2020).

5.8.4 Usefulness

The quality criterion of usefulness relates to the assessment of the usefulness of research findings to people's everyday lives, and whether the findings can inform policy and practice and contribute to new research agendas (Charmaz & Thornberg, 2020). The findings of this study are useful in the following ways. First, the findings from this study supplement findings from the recent study on menstruation in PNG, Fiji and Solomon Islands (Mohamed et al., 2018) by providing a theoretical understanding of the impact on daily lives of girls and women having menstruation in the four study locations. This middle-range grounded theory is theoretically strong enough to inform other aspects of life in PNG, and may also have application within other Melanesian cultures of the PICTs. Middle-range theories simply refer to theories that lie between grand theories and practice theories (Liehr & Smith, 1999; Merton, 1968). Findings from this study can inform the review and re-development of sexual and reproductive messaging through curriculum development in schools and health education programs, as well as consideration of potentially more effective locations for delivery (e.g., *haus-meri*).

The SRH communication gaps identified in this study reveal the need for further research and development relating to menstruation and gendered perceptions about menarche and menstruation. Findings of this study further indicate the need to develop culturally appropriate SRH communication strategies to address gender-sensitive topics such as menstruation and menarche.

On the whole, this study has provided novel insights into the area of menstruation, a topic that has been least explored in PNG. In doing so, it increases our understanding of the social norms, practices and implications of menstruation on girls' and women's daily lives in and beyond PNG and into the PICTs.

5.9 Study Limitations

The study has several limitations. They include:

1. The findings represent the experiences of young female adolescents across PNG. The findings do provide a broader understanding of how young women experience body changes and menarche while transiting from girlhood to womanhood. However, because experiences of menarche are contextual, it does not exclude the possibility that others may perceive the problems differently as different problems may co-exist.
2. Although women from all four provinces were involved, this study was conducted in Port Moresby (study site) and not in respective provinces because of the financial limitations of the research. Therefore, the results may lack some richness of local contextual knowledge.
3. Although the study was conducted in 2014 and much might have changed in context because of the rapid cultural changes taking place in PNG, the findings were confirmed through member-checking strategies in 2019 (refer to section 5.8) as relevant despite some recent changes that might have occurred.
4. Research was conducted away from the participants' place of residence. The participants were required to travel to the interview site. Some participants with rich information were unable to reach the study site because of transportation costs.
5. Interviews were conducted inside the conference rooms of the institutional premises of World Vision, PNG Anglicare Inc. and the NCDC. Meeting in

conference rooms might have been strange and uncomfortable to some women and might have affected their ability to fully participate in the interview. One conference room was uncomfortable because of non-functioning air-conditioning, and participants were feeling hot and uncomfortable. An FGD (NCD, FGD-01) with participants from a settlement around Port Moresby was shorter, perhaps because they were interviewed in a conference room of an office environment. The office environment might have appeared unfamiliar to many of them and might have been threatening to some participants. Consequently, the interview lasted for less than 40 minutes. The venue for interviews is important to make participants comfortable to be able to freely share their stories.

6. One interview was conducted on the lawn (participants' choice) because the participants wanted to enjoy the cool breeze while being interviewed. The flow of the interview was disturbed halfway through and we were almost robbed. Consideration of the location of the interview is important to ensure safety and no interruptions.
7. The study found that the FGDs were dominated by only a few women. Some participants spoke less or did not speak at all. Rich data might have been missed in such group discussions.
8. Although the recruitment criteria allowed participants to be grouped into two FGD discussions (ages 13–25 years and 26–45 years), this plan was not enacted in my study. Despite clear explanations by research assistants, participants of all ages between 13 and 45 years participated in data collection activities in a single FGD. This observation is important in the context of PNG when conducting group interviews. Women tend to take comfort from each other when talking about sensitive topics such as menstruation.
9. This study found that in-depth individual interviews did not take place with an individual participant. The participant was accompanied by a friend or a relative of the same age range. While the interview was planned for an individual participant to tell her story, the accompanying participant supported the participant by explaining some aspects of the stories that would have not been told by the participant. The participant also took comfort from the friend and was able to freely share her stories with me. Although being from PNG, my status as a PhD student coming from an overseas university and once being

a senior public servant might have intimidated the individual participant from sharing stories. Hence, the strategy of having an additional person accompanying individual participant supported the interview process.

10. Finally, this study used stories from post-menarche women—many with a number of years since menarche. Given this situation, the stories may reflect the past rather than the contemporary experiences of menarche in PNG. Some responses might not have captured the recent improvements in SRH communication, including school-based programs, which may contribute to minimising the impact on menarche experiences.

5.10 Summary

In this chapter, I:

- revisited the research aims and summarised the key findings to provide the context for discussing the implications of these findings for women's menstrual health and wellbeing
- introduced, defined and described the elements of the theoretical codes: the SRHR framework, gender equity and the Rights of Indigenous Peoples framework. I argue that the cultural element is an important determinant of health through using the Rights of Indigenous Peoples framework. I discussed the concept of cultural continuity and cultural connectedness as a basis to suggest improvements in SRH community strategies to address issues around menstruation
- increased the explanatory power of the constructivist grounded theory of 'Making of a Strong Woman' in relation to the theoretical codes and the current discourses within the extant literature by using the Socio-Ecological Framework. This aims to demonstrate the power of 'Making of a Strong Woman' to improve approaches to the issues faced by women at menarche, including broader social changes, and to support the transition from girlhood to womanhood.
- explained the methods used to practically ensure research quality using the principles suggested by Charmaz and Thornberg (2020)
- Limitations of this study were also discussed.

In the concluding chapter (Chapter 6), I will summarise the research background, research aim, findings, and major implications and suggestions for the way forward, and briefly reflect on my journey in undertaking the research.

Chapter 6: Conclusion and Recommendations

6.1 Introduction

This chapter concludes the thesis by reflecting and summarising on the following: why this study was conducted, what I did, what was found, recommendations for action, recommendations for future research, and conclusion.

I was motivated by four reasons to conduct this study. First, my primary motivation for conducting this research came from my recent engagement as a planner at the NDOH in PNG. In undertaking a desktop review of divisional policies for the current National Health Plan 2011–2020 (NDOH, 2010), I realised that there were gaps in evidence to inform policy and action plans for adolescent health. The second motivation was from my professional experience, personal interest and exposure in working with women's health issues in public health for more than 20 years. Third, my personal experience of having menarche in PNG's social and cultural context was a strong motivation. Finally, my unique position as an indigenous PNG female researcher motivated me to voice menstrual health issues—the gender-specific issues affecting women in PNG.

Adolescence is an important development transition stage from childhood to adulthood. Apart from other developmental changes in both males and females, menarche is a unique biological change for adolescent females because it signifies sexual and reproductive maturation. More importantly, because menarche is a natural developmental transition for females, MHH is every woman's right. However, this developmental change is deeply embedded in various cultural beliefs and social norms. The burden and implications associated with the onset of menarche are profound, yet menarche is given little attention in the national, regional and global development agenda.

The onset of menarche influences young girls' smooth transition to womanhood—notably, their pre-menarche knowledge about body changes, the meaning of menarche, and how to manage menstruation effectively and safely with dignity. Experiences of women at menarche are different according to context. While evidence on the experiences of menarche in LMICs is increasing, the systematic scoping review

performed as part of this research identified a dearth of research on MHH in the PICTs, including PNG. The studies on MHH in the PICTs only gained momentum recently (5 years ago, at the time of writing this thesis) at about the same time this research was being developed and conducted (Francois et al., 2017; Huggett & Natoli, 2017; Mohamed et al., 2018; Mohamed & Natoli, 2017; Natoli & Huggett, 2016; UNICEF, 2018). While those studies increased our understanding of the impact of restrictive practices relating to menstruation on education, work and economic activities of women, they lacked theoretical understanding of the social and cultural beliefs and practices around menstruation that underpin those restrictive practices (and therefore could be a focus of interventions). My study aimed to explore the experiences of women at menarche in PNG because they are unique to the PNG context given the diversity of cultural and language groups. I specifically wanted to understand how the cultural beliefs and social norms affected pre-menarche knowledge about body changes and the meaning of menarche, and a girl's readiness to manage menstruation with dignity. The next section summarises what I did to arrive at the findings.

6.2 Summary of Methodology and Method

Both to be consistent with the requirement in grounded theory to acquire theoretical sensitivity on the key concepts of the substantive area of study, and as part of the university PhD requirements, a literature review was conducted. This review was done at the inception of the research process.

Constructivist grounded theory methodology, a qualitative research methodology, was employed for this study because I wanted to develop a grounded theory to explain the experiences of women at menarche in PNG. The qualitative research methodology was considered suitable because of its inherent methodological approach to explore the lived experiences of women and to understand the determinants of women's menstrual health and wellbeing (Creswell, 2013). The constructivist grounded theory approach allowed the co-construction of a grounded theory from the data (Birks & Mills, 2015; Charmaz, 2017b) and was validated through quality-enhancement approaches (Charmaz & Thornberg, 2020).

My philosophical worldview relating to my axiological, ontological and epistemological position as a researcher was examined at the outset of the study and

reflected upon throughout the fieldwork and analysis. I needed to understand my position in this research. This examination enabled me to realise my strategic position as a local PNG female researcher—more so with experience of having menarche myself in the local social and cultural context of PNG. I considered myself well placed to co-construct a grounded theory from participants' stories to explain their experiences at menarche because of my local knowledge. However, my local knowledge did not mean that I, as a researcher, should conduct this study alone. Hence, I worked closely with institutional heads as gatekeepers of information (Collyer et al., 2017) and research assistants. Concerted efforts were made to establish and build rapport and professional relationships with research assistants from PNG World Vision, PNG Anglicare Inc. and the NCDC youth desk so that they understood the context of the research and were able to support the research process and requirements well. This demonstration of reciprocity and respect created trusting relationships between us. I worked with the research assistants to organise, recruit and interview the participants, starting with FGDs and followed up with in-depth individual interviews. Data generated from these interviews were inductively analysed, resulting in the construction of a grounded theory of 'Making of a Strong Woman'. Consistent with grounded theory principles, I returned to Port Moresby in PNG and presented these findings at the 2019 Pacific Sexual and Reproductive Health Conference, where there was a large number of PNG participants present, supporting part of the requirement to confirm the theory.

6.3 Summary of Findings

The study found that young girls lack awareness of the significance of their body changes and menarche and are usually unprepared. Parents (especially mothers) who have a role in educating the daughters lack the ability to do so because of cultural shame and secrecy surrounding open discussion. Mothers' lack of communication is also linked to lack of correct knowledge. Although this study did not specifically explore the experiences of girls in relation to formal sex education in school programs, a few important findings emerged from the study that require noting. It was found from women's discussions that the school programs are not adequately addressing the special needs of young adolescent girls. Second, the cultural perception of menstrual blood as being harmful increases stigma and discrimination of young girls who are

undergoing normal biological changes. The restrictive practices of isolation, initiation, and food and bathing restrictions that stem from this cultural perception affect girls' attendance at school, women's participation at work and communal social activities, MHH practices, and nutrition.

Despite the negative consequences of these cultural practices, the isolation and initiation process at menarche provides an opportune space for intensified learning while using menarche and the changing body as the concrete subjects for direct communication to girls. The cultural practice of isolation and initiation is widespread in all study sites, is culturally accepted, and was strongly recommended by women for consideration when developing intervention programs to address these special needs for young adolescent girls. Women specifically recommended that the '*haus-meri'* concept be promoted and incorporated into the educational programs for menarche. Further, it was suggested that fathers, men and community leaders, who seem to maintain distance from menstruating girls, be educated about menarche and menstruation in men's health programs.

Finally, menstrual health education is currently given low priority in SRH education policy, the Adolescent Health Policy of PNG and the National Health Plan 2010–2020. Menarche is an important reproductive health function. On the basis of this study's findings, it is suggested that the two aforementioned policies and the new National Health Plan incorporate recommended strategies of this study that aim to address issues around pre-menarche preparation, access to MHH practices and removal of stigma for adolescent girls in PNG.

Finally, findings from this constructivist grounded theory have implications for SRH communication programs and policy action for PNG.

6.4 Recommendations for Action

Consistent with the constructivist grounded theory methodological process, a number of important recommendations have been identified to potentially improve the experiences of young women at menarche in PNG. These recommendations are based on the rigorous findings from this study. I also include the voice of participants who gave their suggestions for improvements. I posed one question about what is required for positive change at the data collection events. The participants' collective voice on

the way forward is important, especially when making changes to something that is ingrained in the traditional belief system of the society. Not doing so may potentially give rise to unyielding resistance from elders, commonly the male figures.

While engaging girls and women in discussing the recommendations, a woman from Milne Bay emphasised, *'Mipla meri igat voice [we women have voice]'* (MBP, FGD-02). That statement implied that women want to be heard through collectively suggesting ways to improve women's health issues. They want to be involved in creating solutions so that their daughters and other female relatives can have positive experiences of growing up and becoming a woman, including managing menarche with self-esteem. The participants expressed that this was the first time the topic of menstruation was discussed with them and they felt privileged to be involved in the study. Therefore, the recommendations provided below consist of both the researcher's suggestions and the participants' voices. These recommendations are strategies necessary to inform actions at different levels, be it policy- or program-level actions.

6.4.1 Integrate menstruation into mainstream sexual and reproductive health education programs

This study found that pre-menarche girls lack knowledge about menarche and menstruation because of cultural shame, secrecy and taboo. Consequently, young girls are often surprised at menarche and are unprepared to manage menstrual flow. Some girls lack skills of how to manage menstruation, resulting in leakage leading to embarrassment. Wider awareness of menstruation is essential to ensure all young girls receive adequate and accurate knowledge about menstruation before menarche. The following recommendations are suggested:

- Encourage a collaborative effort by health and education sectors to ensure menarche, menstruation and MHH become an integral part of SRH education in schools and in broader public health education programs.
- Develop quality language-specific school education materials, together with the teachers' capacity and willingness to educate girls and boys about menarche, the significance of body changes, and how to manage menstruation

effectively. This educational strategy should focus on girls before the onset of menarche.

- Develop education programs for mothers, aunties, grandmothers and other important older women to reinforce the correct information in initiation, at home and in community settings.
- Promote menstruation and MHH awareness, such as incorporating it into the broader SRH communication programs by using mass media outlets such as television, radio broadcasting network, social media and other innovative strategies.
- Review the existing adolescent health policy, SRH policy, relevant education policy and gender policy, with incorporation of MHH as an important issue affecting adolescent girls.
- Advocate to incorporate a policy in adolescent health and gender policy to abolish value added tax on menstrual products, in support of the global movement promotion of period poverty to increase accessibility and equitable distribution of menstruation management materials

6.4.2 Target training and desensitising meetings at community level

A common challenge faced by women was the lack of pre-menarche awareness due to social norms and taboos relating to menstruation and menstrual blood. These beliefs and norms are imposed by men. Women know that cultural secrecy hinders open communication and mothers' ability to freely communicate with and prepare their daughters at the pre-menarcheal stage. Fathers and men have decision-making powers that regulate and influence ways of life at the village and community levels. The women suggested that men, including fathers, be empowered and sensitised to openly talk to girls/their daughters about changing bodies, menstruation and pre-menarche preparations. Moreover, women said that some cultural initiation practices were too harsh, life threatening and demeaning to women. Harsh cultural practices such as whipping and skin incision cause a lot of pain and suffering for young women. Consequently, women suggested that the cultural practices that created barriers, and caused pain and health risks, should be closely reviewed with the elders of the community and slowly removed from the initiation activities. Women who went

through the traditional cultural practices did not think those practices were necessary. Therefore, a strong sentiment was expressed to remove suppressive culture:

> *'Yumi educated na mipla bai againsim displa lo or custom way. That's right we will go against this traditional law. Ino gutpla custom because em harsh tumas [We are educated and we will go against this culture. That's right, we will go against this traditional law. It's not a good custom because it's too harsh].'* (ESP, FGD-04)

Some women also felt that harsh cultural practices were men's way of suppressing women, and some women boldly stated that, culturally, women have no voice. This was a statement by a young woman from ESP: *'Ol meri nogat voice..., they are more inferior long ol man [Women have no voice . . . , they are inferior to men]'* (ESP, FGD-04). Men are culturally considered superior to woman and are responsible for decision-making:

> *'Man em bosim graun na saksak na olgeta samting long ples em ol igo pas na ol bosim. So even long taun . . . ol man em ol dominatim olgeta samting. So mipla ol meri still mipla stap ananit yet [Men are in charge of land and resources. Even in the towns and cities, men dominate everything. We, the females, are under them (suppressed)].'* (ESP, FGD-04)

Cultural practices that are harsh or demeaning, and devalue girls' status, can be considered a form of gender-based violence and negatively affect upon women's right to happiness and self-esteem upon achieving womanhood. Women suggested that men should be targeted and empowered to influence positive change of the negative customary practices that affect girls' pre-menarche awareness and menstruation management ability.

To change perceptions about the social norms and menstrual taboos, the following are recommended:

- In collaboration with community-level structures, such as the church, cultural leaders and the adolescent health section of the National Health Department, develop training manuals and conduct training on menstruation and MHH with (1) focused groups of strategically selected women leaders in the community with village elders (men) at the village level and create awareness of menarche, menstruation, MHH, menstrual beliefs, norms and taboos; (2) focused groups

of strategically selected male elders of the community (in consultation with village councillors) and educate them on menarche and menstruation, MHH, menstrual beliefs, norms and taboos; and (3) fathers and male figures through men's health programs and other educational strategies about the significance of body changes and menarche, and empower men and male figures to make critical decisions to promote positive cultures that do not affect girls psychologically or physically.

- In collaboration with women and men leaders of the village community, review existing traditional practices considered harsh and unsafe that lead to excessive psychological trauma to inform design and actions. Examples of such practices include whipping, bleeding and scarification of girls' and women's bodily parts because of their menstrual status.

Further recommendations coming out from these actions will help to develop further strategies/interventions to address menstruation issues and SRH issues affecting adolescent girls.

6.4.3 Promote a trusting mother–daughter relationship

This study found that shame and secrecy affect mothers' ability to discuss sexual and reproductive issues with their daughters, leading to girls' lacking awareness before menarche. A strong mother–daughter relationship will set an important foundation for pre-menarcheal preparation. Most women suggested that the mother–daughter relationship needs strengthening so that there can be a trusting relationship between mothers and their daughters to talk about private body parts freely without shame and embarrassment.

Mothers are considered appropriate people for preparation and support. Although women talked about other significant female support, it was apparent that mothers were the preferred choice for support on most occasions because they are the first teachers: *'The first teacher is the mother in the home. They should be supported'* (Elderly woman, MBP, Individual interview-02). Following are some important recommendations to improve mother–daughter relationships:

- Develop and implement projects and programs with community groups and women groups that can promote positive relationships between mothers and their daughters in discussing SRH knowledge, including menstruation.
- Include other important female figures in the awareness programs to improve understanding about menarche, menstruation and MHH, and how to manage menstruation effectively with different menstruation management materials and safely dispose of soiled materials.

6.4.4 Review current sexual and reproductive health communication strategies

This study found that the lack of pre-menarche awareness is due to mothers' reluctance in educating their daughters about menstruation due to shame and secrecy. It was also apparent that some women who attended school said they were either not or inadequately taught about menstruation themselves. Further, some women said the sexual health education program is taught too late, after they have had menarche. Male teachers in some schools were hesitant to teach sexual health subjects. Some women also reported that teaching sexual health subjects in the same class with boys was embarrassing for girls. Nurses and other health workers were reportedly not talking about MHH during health education programs. Based on these issues, the following recommendations are made:

- Review and revise the current SRH communication strategies used in health and education sectors so that MHH becomes one of the core topics in SRH communication programs.
- Ensure that SRH communication in the education sectors is held just before, rather than during menarche or after the average girl reaches menarche.

6.4.5 Co-create culturally appropriate learning model for sexual and reproductive health communication

Traditional menarche rites or ceremonies are customarily used to have a focused teaching about menstruation, sex, childbirth, and womanhood roles and responsibilities by using menarche as a concrete trigger event. Reflecting on women's' suggestions for change in section 4.6 and the reviewed literature, recommendations here are made to explore the potential of using the positive elements of traditional

menarche rites to improve awareness about menstruation and broader SRH topics for young girls and women.

Women in the study strongly suggested using the *haus-meri* concept. The *haus-meri* concept is an important cultural facility for preparing girls for womanhood. They (participants) said it should be modified and preserved as an ideal cultural facility to prepare girls before the onset of menarche:

> *'Regarding the isolation house, there are some things we can do to make it become more positive. The small house can be made to become more positive. For example, customary practices like not washing, not eating certain foods, are seen as unhealthy. Those practices should be done away with so that we can change.'* (Young woman, NCD, FGD-03)

The *haus-meri* can be considered a meeting house or a space to facilitate learning to support parents and families, including elders, to prepare girls for menarche, MHH, role expectations for womanhood, and broader SRH topics such as sexual health risks and consequences associated with the onset of menarche and menstruation. The house can also become a place for training village volunteer health workers to train and support parents and their daughters on the basics of body change and menarche:

> *'In the Department (National Department of Health), we have Village Volunteer Health Workers (VVHW) or Village Birth Attendants (VBA). These are village women. So through the health system, they too can encourage these women (VVHW) to speak to the mothers who have daughters in their families to start preparing them before puberty or first menstruation.'* (Young woman with nursing background, NCD, FGD-03)

Moreover, other good or positive practices such as celebrations and gifts can be preserved.

The *haus-meri* is a culturally acceptable place where mothers and daughters can access education about body changes, preparation for menarche and how to manage menstruation: *'If we have to create an intervention program, we have to have a place where the mothers and children can be brought in for support. So . . . the mother is supported to prepare her daughters in this program'* (Same young woman with nursing background, NCD, FGD-03).

The following recommendation is made:

- Collaborate with health and education sectors, and women's affairs, and develop programs that use the positive elements of menarche rites and lessons learnt from other cultures, such as Fijian menarche ceremonies and Chisungu female initiation rites (discussed in section 5.7), and develop a contemporary learning model using the *haus-meri* concept to improve pre-menarche awareness and preparation for menarche and the broader SRH communication.

6.4.6 Increase local production of menstruation products among business communities

Because of difficulties accessing appropriate menstruation management materials, the women suggested that menstrual pads must be readily available in shops at a better price, especially in rural areas: *'Women in the village have too many difficulties, they don't have easy access to menstrual pads like we do in urban areas . . . . Government should make a policy for stores to sell menstrual pads cheaply in the villages'* (Young woman, NCD, FGD-03).

In the school environment, some women thought that female teachers must be provided with menstrual pads and equipped with knowledge and skills to help young girls manage menstrual flow in schools. Further, women explained that girls lacked proper knowledge about how to apply menstrual pads: *'A female teacher should be skilled or equipped with the knowledge so she can be in a better position to give advice or counselling to these girls in schools'* (Young woman, ESP, Individual interview-02).

This study found that some shop owners in rural areas feel shy about selling menstrual pads in their shops because of stigma. Below are recommendations relating to menstrual hygiene products:

- Collaborate with health, education and women affairs sectors and develop programs to work in partnership with business and commercial networks and promote development of a variety of safe and affordable menstruation management materials.

- Create awareness for trade-store owners on menstruation so that they feel comfortable to sell the products.
- Provide schoolteachers with menstruation management products.
- Advocate for local production, cost-effective sale and equitable distribution of menstruation management materials. Advocate for essential menstruation packs for women and girls in rural and remote areas of PNG.
- Promote production of locally produced reusable sanitary pads

6.4.7 Expand access to 'safe' and gender-appropriate public water and sanitation facilities to ensure universal coverage

Improving water and sanitation facilities will help girls manage MHH effectively and with dignity. This includes having access to physically and culturally safe WASH facilities in public spaces, working environments, schools, homes and villages. Facilities such as adequate water, toilets, showers and disposal facilities were often not available to help young girls manage menstruation, and contribute to work and school absenteeism by women. Therefore, women expressed the opinion that improving water and sanitation facilities in schools would help girls to better manage menstruation and keep clean and hygienic, and improve school attendance.

The following recommendations are made:

- Increase access to proper WASH facilities. The distribution of WASH facilities should be universally provided in PNG. WASH facilities should not just target schools and institutions in PNG. Every member of the community should be encouraged to build proper and menstruation-safe toilets and proper disposal facilities for soiled menstruation materials for women.

These recommendations are based on the social, cultural and economic issues linked to the structural Social and Cultural Determinants of Health discussed in Chapters 4 and 5. The suggested recommendations contain actions to address the contemporary issues young women in PNG face at body changes and menarche so that they can have positive experiences. Many of these recommendations are from study participants calling for change to improve experiences of young girls transiting from girlhood to womanhood.

Having discussed the recommendations, the next section discusses research priorities for further studies and development.

6.5 Recommendations for Future Research

This constructivist grounded theory study conducted in ESP, EHP, MBP and NCD has contributed important knowledge by the construction of a grounded theory that explains girls' experiences of bodily changes and menarche while transiting from childhood to womanhood. Findings from the study give us a broader understanding of how young girls and women experience the transition to womanhood in PNG. This study did not capture men's perceptions of and attitudes towards menstruation, which is an important aspect. The principal reason was that I wanted to gain an in-depth understanding of the socio-cultural beliefs and norms that affect girls' and women's experiences at menarche as a first step to gaining a broader perspective of the gender-specific issues affecting girls and women when transiting to womanhood in both rural and urban settings in PNG. The following are potential areas for future research:

- Explore male perceptions of menarche, including subsequent menstruation, to understand the experiences of women at menarche from different gender and cultural perspectives. This research area hopes to directly address male attitudes towards and reactions to menstruation and menstruating women.
- Review the existing SRH communication strategy in PNG to incorporate strategies to effectively address menarche issues identified in this study. This recommendation is based on the findings from this study that the current SRH communication strategy happens after girls experience menarche. The recommendation is also based on the male reactions and attitudes towards menarcheal girls, which are linked to lack of knowledge and appreciation about menarche and broader SRH. Therefore, this research is critical at this juncture to address menstruation within the broader SRH communication strategies.
- Using a participatory research approach, develop and trial a culturally appropriate learning strategy for SRH topics using the *haus-meri* (menarche rites) to support girls to have positive menarche experiences. This conceptual strategy should be informed by findings from this study, and informed by other cultures' menarche ceremonies, such as in Fiji (Clauson, 2012; Sniekers, 2005) and the Chisungu female rituals of the Bemba tribe in Zambia (Powdermaker,

1958). It should be developed as a space for focused awareness provision to girls, and to provide support to their mothers and important others, to discuss body changes and menarche, including broader SRH topics. This research is important because cultural taboos around menstruation remain despite present approaches to awareness and have been normalised (become a way of life). Hence, a culturally appropriate model is required to facilitate improvements in communicating SRH knowledge.

- Investigate the application of the theory for 'Making of a Strong Woman' to other cultural settings in PNG and other Melanesian countries in the PICTs.
- Investigate why SRH-related topics are a taboo in the societies in order to support improved understanding and to inform action strategies.

Menarche is a highly sensitive topic in PNG. It is strongly recommended that the suggested research agenda should follow gender and indigenous epistemologies and a participatory approach to knowledge co-creation. The suggested approach will demonstrate a show of respect to indigenous people, who are custodians of traditional knowledge. The ontological and epistemological position of indigenous researchers will place them in a better position to co-create knowledge and suggest practical recommendations for actions by all parties involved in the research process.

6.6 Conclusion

Menarche is associated with socio-cultural beliefs and norms that can result in restrictive and sometimes harmful practices in parts of PNG. In this study, I have drawn on the experiences of many women to argue that there is a major need to improve holistic approaches to how young girls are prepared for womanhood if PNG is to have improved SRH outcomes for women. The narratives of participants from both urban and rural areas on menarcheal experiences have revealed important challenges relating to SRH communication at puberty. Their stories have demonstrated the desire for SRH and wellbeing, with new aspirations for change. To improve young women's SRH outcomes, a multi-sectoral holistic response is required at all administrative and governance levels for sustainable change in PNG. Evidence from this study has suggested ways for improving SRH communication if PNG seriously desires to consider the burden of SRH on the adolescent population, step away from the current arrangement and embrace new approaches.

Epilogue

I was raised by my parents but was a member of the communal family system, surrounded by extended family members: maternal and paternal aunties, uncles, cousins and grandparents. Members of the greater village community are also my relatives through extended blood lineage. My cultural identity and heritage is linked to my parent's clan and totem.

I grew up without any knowledge about menarche and the changing body. I was my mother's child and she had great dreams of my success, just like any parents would for their child, but she would not discuss any sex-related topics with me as I was growing up because it is culturally inappropriate. Today, I reflect on the experience of those formative years in an attempt to understand why my mother held back the much-needed knowledge that I needed. She was embarrassed because I was her child and was considered too young to understand. She lacked appropriate knowledge to explain in detail. Further, it was simply a TABOO! Consequently, I was left not knowing about menarche and was not prepared before menarche.

As I reminisce on my childhood, I can vividly recall how my parents tried to make me understand about my changing body. My mother had on many occasions scolded me in an attempt to convey the message to me because I was too young to understand. My parents (especially my mother) would say, *'Yu bikpla meri nau, susu sanap nau, wanem taim bai yu harem tok [You are becoming a big girl now, your breast is developing, when will you listen]?'* This phrase was typically spoken by my mother to make me listen and understand. Yet, I could not make sense of what was being said because I just could not figure out what she meant. One day, I was playing outside the house and my maternal uncle walked by and said, *'Pikinini meri, yu bikpla meri nau. Ino longtaim bai mipla kisim mani long yu [My daughter, you are a big girl now, not long we will make money from you]'.* My uncle implied that my body was changing, and after I reached menarche, I would be married and my family would obtain the bride price. I felt ashamed and embarrassed and began to conceal my body. The incident with my maternal uncle caused me to be aware of my changing body.

One early morning when I woke up, I felt wet between my thighs. I checked myself in the toilet and was lost for words. I was surprised and nervous. I could not tell my sister because I was scared of the cultural practices. I concealed my menstruation and never spoke a word about it for 3 months. I did not have menstrual pads and had many difficulties managing menstrual flow. These personal experiences caused me to understand the challenges of growing up and having menarche in the social and cultural context of PNG.

My professional experience in the public health service in PNG made me appreciate two things. First is the diversity of cultures of PNG. My job involved extensive travelling and working with different people from different cultural backgrounds throughout PNG. This experience made me learn that PNG has many micro-cultures within the many macro-cultures, and the cultural beliefs and practices are often different from each other.

I was privileged to acquire relevant experiences ranging from policy implementation to policy development at all levels of government in PNG. In 2009, I was managing the national health policy and planning section at the National Health Department in Port Moresby, PNG. My first task was to lead a team to develop a new National Health Plan 2010–2020 (NDOH, 2010). During the desktop review of the existing national health policies, although adolescent health issues were a priority focus, there was limited evidence to address adolescent SRH issues in PNG (NDOH, 2010). The main reason was because there was a lack of researched evidence available on the health of the adolescent population. I was in disbelief that such an important program was given limited priority in the public health domain, despite youth and adolescent age groups being largely represented in health statistics such as teenage pregnancy, HIV and mental health issues (S. Bell et al., 2018; NDOH, 2010; Pameh, 2016). That experience remained with me. When I left to pursue my PhD at James Cook University in 2012, I ended up with a research topic to explore the experiences of adolescent girls at the onset of menarche in PNG within the broader research area of Individual Self-esteem and Transition to Adulthood with Respect (ISTAR, 2021). The result of this research will significantly contribute to addressing SRH communication gaps and the emerging needs in MHH to support the transition phase from girlhood to womanhood in PNG.

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Appendices

Appendix 1: Making of a Strong Woman': A constructivist grounded theory of the experiences of young women around menarche in Papua New Guinea [Published article]

Elizabeth Maulingin-Gumbaketi, Sarah Larkins, Ronny Gunnarsson, Gun Rembeck, Maxine Whittaker & Michelle Redman-MacLaren. (2021). 'Making of a Strong Woman': A constructivist grounded theory of the experiences of young women around menarche in Papua New Guinea. *BMC Women's Health*, *21*, 1–17. https://doi.org/10.1186/s12905-021-01229-0

Authors' roles: EMG, RG, SL and GR conceived the study, participated in the design and coordinated the study. MRM supervised and helped EMG in data analysis and drafting of this manuscript. SL, RG, MW and GR contributed to editing of the manuscript.

Maulingin-Gumbaketi *et al.*
BMC Women's Health (2021) 21:144
https://doi.org/10.1186/s12905-021-01229-0

BMC Women's Health

RESEARCH ARTICLE Open Access

'Making of a Strong Woman': a constructivist grounded theory of the experiences of young women around menarche in Papua New Guinea

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Abstract

Background: Menarche, the first menstruation, is a significant developmental milestone for females. In Papua New Guinea (PNG), menarche is an important socio-cultural event marking transition from girlhood to womanhood. PNG is a culturally and linguistically diverse nation, with wide-ranging socio-cultural beliefs and practices around menarche. This study explored post-menarcheal women's understanding about body changes and menarche, preparation for menarche, and related cultural beliefs and practices at menarche.

Methods: A constructivist grounded theory study was conducted with 98 female participants who originated from four PNG provinces: Eastern Highlands Province; East Sepik Province; Milne Bay Province; and National Capital District. The participants were purposively and theoretically sampled, with 10 focus group discussions and six individual interviews conducted using a semi-structured interview guide for data collection. Focus group discussions and interviews were voice recorded and transcribed. Data were inductively analyzed using initial, intermediate and advanced coding, memos and constant comparative methods to develop a theoretical model that explains women's experiences at menarche. Interview participants also identified actions required to improve future experiences of girls at menarche in PNG.

Results: A grounded theory comprising the core category of 'Making of a Strong Woman' and four interconnecting categories ('Having Baby Sense'; 'Beginning of Learning'; 'Intensifying Learning'; and 'Achieving Womanhood') was constructed. 'Urban' and 'Rural' represented both geographical and socio-cultural intervening conditions that influence the experiences of girls at menarche. Experiences of young women at menarche were rooted in socio-cultural beliefs and practices. Women reported being physically and emotionally distressed and unprepared at onset of menarche. Mothers were considered important support, however, their ability to adequately prepare their daughters is limited by shame and secrecy. Despite these limitations, cultural practices at menarche provided an opportunity for intensive preparation of girls for womanhood.

Conclusion: Limited pre-menarcheal awareness of the meaning of body changes and menarche of girls was linked to culture of shame and secrecy about open discussion on sexuality. However, traditional cultural practices provide an opportunity for collective support and focused learning for girls. Findings from this study have implications for

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broader sexual and reproductive health education programs in addressing menstrual health and hygiene in PNG, and the Pacific.

Keywords: Menarche, Menstrual health and hygiene, Reproductive health, Papua New Guinea

Background

Menarche (onset of first menstruation) is an important developmental milestone for adolescent females. Pre-menarche refers to six months before menarche and post-menarche is six months after menarche [1]. Both concepts will be used throughout the text.

Menarche marks reproductive maturation, and transition from girlhood to womanhood. Evidence from both Low and Middle Income countries (LMIC) [2], and High Income Countries (HIC) [3, 4] shows significant variation in the experiences of adolescent girls before and at menarche in relation to knowledge (meaning of body changes and menarche), attitudes and practices. These experiences are largely determined by local environmental factors such as socio-cultural beliefs and practices around menarche and menstruation [5–7].

Menarche is an important traditional social and cultural event in many areas of Papua New Guinea (PNG) [8]. Menarche signifies the ending of childhood and beginning of womanhood and is associated with cultural beliefs and ritualized practices. These beliefs and practices vary according to different cultural and language groups in PNG [9]. Despite social and cultural transitions due to colonization and globalization, certain aspects of these beliefs and practices (isolation, initiation, cleansing ceremonies and celebrations) are still observed in both rural and urban areas of PNG [10].

Papua New Guinea is one the most culturally diverse countries among the Pacific Island Countries and Territories (PICTs) with over 800 different cultural and language groups in the population of approximately eight million people [11, 12]. Social and cultural norms, beliefs and practices continue to regulate the lives of people in PNG. This is especially so for the approximately 80% of the population who still live in rural and remote areas [13]. However, these beliefs and practices are diminishing due to external influences such as introduced religion, colonization, globalization, urbanization and inter-marriage [9, 14, 15]. With increasing levels of urban migration, people's lives are becoming less regulated by traditional socio-cultural norms, beliefs and practices because of the shift away from the traditional lifestyle and increasing level of education. National Capital District (NCD), where Port Moresby (country's capital) is located, is increasingly becoming the melting pot of traditional and modern lifestyles of PNG [16, 17]. In NCD, high rates of domestic and sexual violence [18], teenage pregnancies [19–21] and Sexually Transmitted Infections (STI) including Human Immunodeficiency Virus (HIV) infections [9] are linked to the breakdown of socio-cultural norms and fabrics of the society.

Women comprise almost half of the total population in PNG, yet they typically have lower social status than men and continue to live with many challenges [22]. The predominantly patriarchal cultures in PNG place women in a disadvantaged position in a number of domains [9, 12, 23]. For example, the maternal mortality ratios are shockingly high with an estimated rate of 215 maternal deaths per 100,000 live births in 2015 [23, 24]. Women continue to experience high rates of sexual violence [9] with 44 percent of women reporting they had been sexually abused in a 2008 study [74]. Seventeen percent of the total burden of sexual abuse involves girls between the ages 13 and 14 years [22]. In the education arena, literacy and educational attainment for women and girls continue to remain low, with 39% of females compared to 61% males, enrolled in secondary schools in 2015 [22]. Furthermore, women are underrepresented in national politics, thus are unable to influence national policies, while men continue to have power and dominate decision making [12, 23]. However, in some matriarchal societies as on Bougainville Island, woman play a key role. They brokered peace negotiations during the secessionist war between 1989 and 2000 and continue to enact their traditional leadership roles in decision making [25].

Descriptive anthropological studies on various cultures in PNG have documented significant cultural beliefs and practices around menarche and subsequent menstruation [8, 26–28]. These studies were usually conducted by non-Papua New Guineans reporting the diversity of cultural beliefs and practices around menarche and subsequent menstruation in PNG. However, there is a dearth of information on the experiences (knowledge, attitude and practices) of young adolescent girls at menarche in PNG. Mohammed and colleagues' recent formative study investigated menstruation in three nations of the Pacific (PNG, Fiji and Solomon Islands) [5], reporting cultural beliefs and restrictive practices that impact on the Menstrual Hygiene Management (MHM) of young girls and women. However, the study had two limitations. First, the broader socio-cultural location of the study sites were unclear—naming of study sites for any socio-cultural studies in PNG,

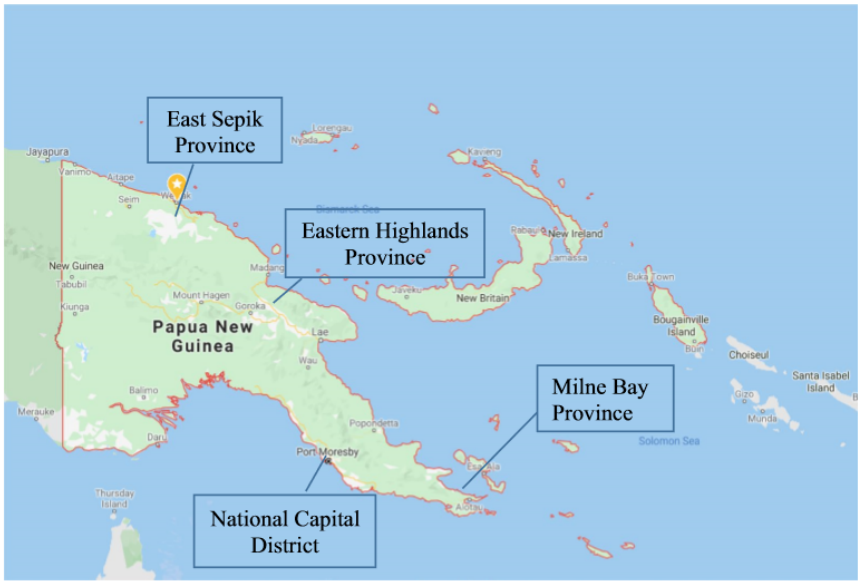

Fig. 1 Map of Papua New Guinea showing study sites. *Source*: Google maps [62]

for example is important given its cultural hyper-diversity. Second, the study was descriptive in nature. Consequently, authors were unable to provide nuanced understanding of the socio-cultural phenomena around the restrictive practices that impact on MHM, critical for policy and programming on menstrual health and hygiene management as well as sexual and reproductive health more broadly in the Pacific context [29].

Deeper and more contextual understanding about the meaning of socio-cultural beliefs and practices and their implications for girls' experiences is required given the vast and diverse cultures in and among different countries [2, 29]. The substantive area of inquiry for this constructivist grounded theory study was to explore the experiences of menarche with women and girls in PNG to inform strategies that support a positive transition to womanhood. Specifically, this grounded theory study sought to:

1. Understand social and cultural factors impacting on the experience of adolescent girls at menarche in PNG;
2. Understand how these experiences shape their knowledge, perceptions and practices at menarche;
3. Understand the perceived role for pre-menarcheal preparations of adolescent girls and the type of messages being taught; and
4. Identify the best solutions for local-level action on menstrual health and hygiene.

Methods

Constructivist Grounded Theory (CGT) methodology was used to inductively generate a theory to explain both rural and urban women's experience of menarche in PNG.

CGT was the methodology used as it is a useful methodology for exploring participants' experience of menarche in their natural settings and enables the researcher to inductively co-create highly contextualized knowledge with participants [33]. In addition, CGT is consistent with the constructivist philosophical stance of the lead author [73]. Data collection was conducted in Port Moresby, National Capital District, PNG with post-menarcheal women from four provinces (Fig. 1): East Sepik Province (ESP); Milne Bay Province (MBP); Eastern Highlands Province (EHP) and National Capital District (NCD).

A semi-structured interview guide was developed (Additional file 1) by the lead author (EG), an East Sepik woman who has worked in the health sector and lived in NCD for over ten years. The guide was field-tested by EG in November 2013 with one focus group, and then adjusted with input from co-author (RG) prior to

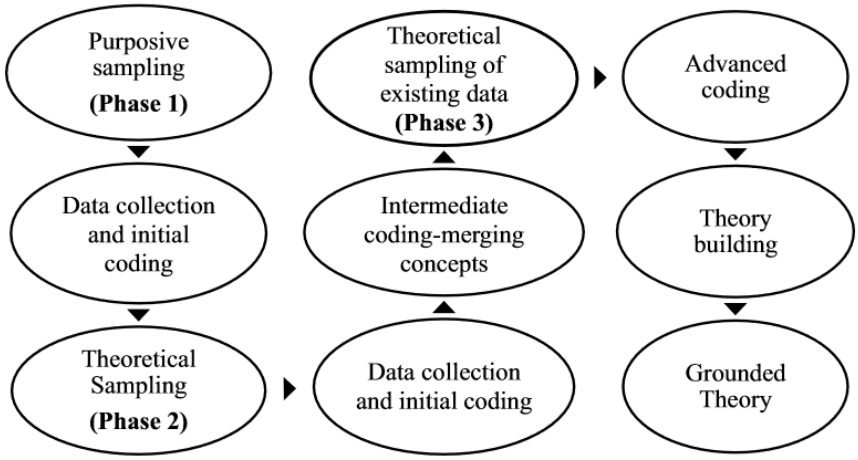

Fig. 2 Process of sampling, data collection and analysis to construct grounded theory

subsequent use. The interview guide was developed in English, translated to Tok Pisin (a lingua franca of PNG) and back-translated to ensure accuracy and consistency [30]. Data were collected by EG who used existing relationships with World Vision PNG, NCD Youth Office, Anglicare PNG and personal networks to identify and recruit participants. Participants who were the service recipients from these three organizations were identified and recruited by research assistants using the recruitment criteria. All focus group discussions and interviews were recorded using MP3 audio recorder and transcribed later. Interviews lasted between 45 and 65 min each. EG was supported by two PNG research assistants who took field notes and transcribed focus group discussions (FGDs) and individual interviews (IIs).

FGDs and IIs were facilitated to explore women's premenarcheal understandings of the meaning of body changes and menarche, social and cultural beliefs, perceptions and practices, and how girls are prepared for womanhood. The languages of Tok Pisin and/or English were used in FGDs and IIs, depending upon preference of participants. Purposive sampling of participants (Phase One) (Fig. 2) was followed by theoretical sampling (Phase Two). Women who were born, raised and had menarche in the four study sites were eligible for inclusion. The nominated age range for participants was 13–44 years. This age range includes post-menarche young and older women with personal experiences of menarche who are able to share stories. Cultural diversity, varied cultural beliefs and practices about menarche, sexuality, menstruation, and the evolving modern lifestyles were considered. A total of 98 women participated in FGDs (n = 10) and IIs (n = 6) during 2013 and 2014. Homogeneity in socio-cultural and educational status and age was sought for FGDs so that participants felt comfortable to share their stories [31]. FGDs were facilitated with young women (13–25 years) separate to older women (26–44 years). Women of 45 years and over also volunteered to attend—these women could not be refused participation because it was culturally inappropriate for EG, as a PNG woman, to do so. Elizabeth Gumbaketi (EG), lead researcher is a senior PNG indigenous woman with many years of experience in Public Health in PNG, and who experienced menarche in a village setting in PNG. The remaining authors have demonstrated an ongoing commitment to the improved sexual and reproductive health and wellbeing of women and girls in Pacific island nations, and other settings.

The demographic characteristics of participants is shown in Table 1. Due to resource constraints for a PhD study, all data were collected and later analyzed following the process described in Fig. 1.

Data collected from FGDs and IIs were coded after all data collection events by EG, using N-Vivo Plus software (Version 11). Initial coding was conducted following data collection due to constraints in the field environment. Intermediate coding was then conducted to merge key concepts identified in initial coding. Theoretical sampling (Phase 3) was used to further interrogate existing data. EG, with support from MRM, elevated existing codes to focused codes that became more refined and abstract. Iterative and constant comparative methods and continuous memoing were used during analysis to identify relations, linkages and enable the elevation of key concepts to

Table 1 Socio-demographic and study characteristics of participants

Study sites (provinces)	Data collection strategies	Interview number	Total participants number	Participants' distribution by age range		
				13–25 years	26–44 years	>45 years
East Sepik	Focus Group Discussion	4	27	10	9	8
	Individual interview	3	4	2	2	0
Eastern Highlands	Focus Group Discussion	1	8	3	3	2
	Individual interview	0	0	0	0	0
Milne Bay	Focus Group Discussion	2	25	11	10	4
	Individual interview	3	4	0	1	3
National Capital District	Focus Group Discussion	3	30	12	17	1
	Individual interview	0	0	0	0	0
Total		16	98	38	42	18

build a theory from the data [30, 33, 35]. The process continued until the core category, four interconnecting subcategories and the intervening conditions were identified. To increase theoretical sensitivity, and as part of the scholarly requirement for a PhD, a literature review was in part conducted prior to the study and then completed after data collection and analysis. To ensure credibility and accuracy of the grounded theory, the findings were presented at two conferences where PNG women were present and invited to provide feedback. PNG women conference attendees were asked if the constructivist grounded theory model comprising the core category of 'Making of a Strong Women' and the inter-connecting sub-categories appropriately explained the experiences of young PNG women at menarche. The responses from women attending demonstrated 'grab & fit'. The concepts of 'grab' and 'fit' assess the quality of the grounded theory—'grab' enables the reader or listener to understand the idea and what is going on while 'fit' ensures meaningful links between concepts and the data [64].

Ethical considerations

Ethical approval for this study was obtained from the Papua New Guinea Medical Research and Advisory Council (reference number: MRAC13.40) of National Department of Health, Papua New Guinea and Human Research Ethics Committee (reference number: H5317) of James Cook University, Australia. All participants gave consent before participating in the study. Written consent was obtained from those able to read and write. Some women who were illiterate gave their fingerprints as a consent for study (as approved by ethics committee). Parental consent was obtained for participants under the age of 18 years as per the approved ethics process. Written information sheet and consent forms were sent to each participant before the study to read, understand and make an informed decision to participate in the study. For illiterate women, the study was explained before the interview to enable informed decision before participation in the study.

Results

The constructivist grounded theory of 'Making of a Strong Woman' explains the rationale for the social and cultural process that happens to young naïve girls at premenarche and menarcheal stage in order to 'Achieve Womanhood'. Young naïve girls are those who have no previous personal experience of menarche or menstruation. The key findings in this study suggest that the experiences of girls are rooted in social and cultural beliefs and practices around menstruation and patriarchal perceptions of menstrual blood as polluting. Although the experiences are traumatic, the isolation and initiation process provides a valuable traditional educational asset for preparing young naïve girls for womanhood in the society that restricts open communication about private body parts such as 'vagina' or 'breast'.

The core category of 'Making of a Strong Woman' with four interconnected categories: 'Having Baby Sense'; 'Beginning of Learning'; 'Intensifying Learning' and 'Achieving Womanhood' emerged through the inductive analysis. The four categories with the properties and intervening condition are explained in sequence according to the theoretical model (Fig. 3).

Making of a Strong Woman

'Making of a Strong Woman', the core and overarching category represents the phenomena that connect all concepts, categories, properties and their intervening conditions and explains the experiences of having *fes sikmun* (menarche, which is literally 'first sick moon') in Tok Pisin.

The core category of 'Making of a Strong Woman' explains why and how the young naïve girls undergo the social and cultural process at menarche. Women explained that the rationale for 'Making of a Strong

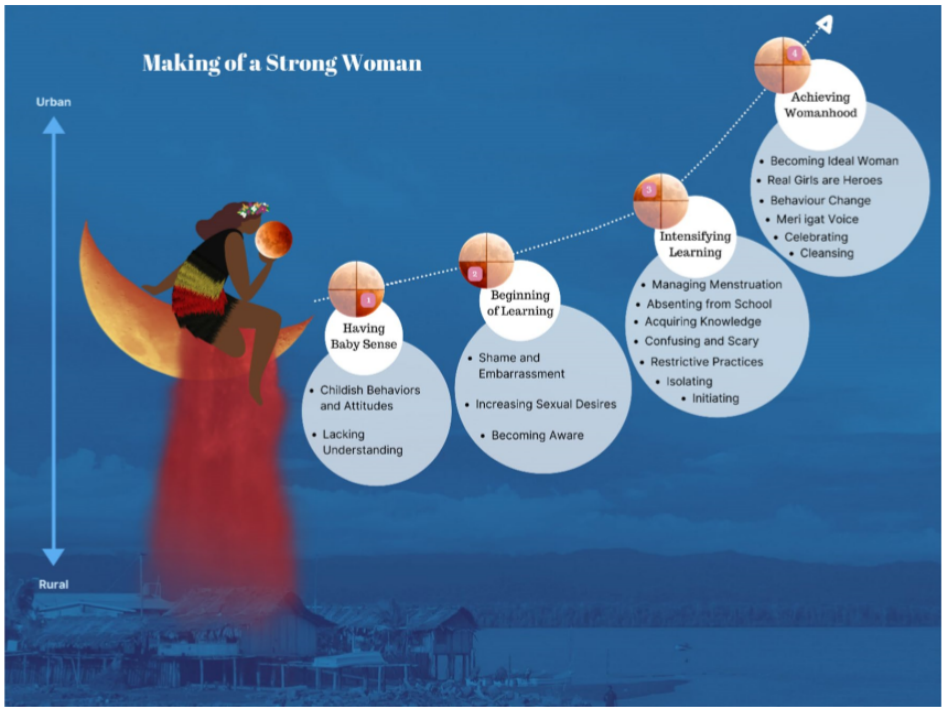

Fig. 3 Theoretical model of 'Making of a Strong Woman'

Woman' is to create awareness about their body changes and to acquire the status of womanhood in a complex physical and cultural environment they live in and where open communication about sexuality is shameful. "*…Em tambu ya…em samting blo sem,…em castom blo mipla* (it's not allowed…it's a shameful thing… it's our customs) [young woman, FGD-02, NCD]. Given this systematic lack of open communication, the society uses isolation, initiation and ritualized cleansing processes associated with cultural beliefs as a way of preparing girls for womanhood.

These processes are traditionally established, passed down through generations and are still active in many cultures [8]. The young naïve girls are put through a culturally rigorous process to cause them to become aware of their changing body, menarche and the womanhood obligation. "*…long strongim mipla, ol bai putim mipla long haus na toktok lo mipla….Na mipla bai kisim strong…olsem kamap mipla meri… na mipla bai kamap strong* (To make us strong, they will put us in the house and talk to us…. Then we will acquire the strength…and become aware of our womanhood… and we will become strong)" [Older woman, FGD-01, ESP]. Though isolation, initiation and cleansing processes can be associated with harmful practices, these practices are understood to provide a necessary learning opportunity for creating awareness for menarcheal girls about their body changes, menarche and the obligations for womanhood in cultures in which open discussion about sexual topics are restricted.

The process for 'Making of a Strong Woman' is entrenched in the cultural beliefs and practices around menstrual blood and its implications for men and food gardens, and cultural expectations of an ideal woman. Menstrual blood is perceived as harmful and bad, "*…sikmun em nogut…em posin…bai bagarapim ol man* (menstrual blood is bad…it's poison…it will destroy men)" [Young woman, FGD-02, ESP]. Thus the menstruating young women must be segregated to avoid contamination of male figures including food gardens and communal places. The restrictive practices are associated with the cultural perception of menstruation blood as polluting.

'Making of a Strong Woman' has two key concepts; "making" and "strong". Women referred to "making" as a process of creating (*wokim*) and "strong" as having power

to move heavy weights (*igat strong long karim heavy*) or perform other physically and emotionally demanding tasks (*wokim strongpla wok*). "*Taim ol wokim custom lo mipla em olsem…bai body b'long mipla kamap strong long wokim strongpla wok olsem garden* (When they do custom to us, it's like …our bodies will be strong enough to do tough jobs as gardening)" [Elderly woman, FGD-02, ESP]. The concepts of "making" and "strong" underpin the social and cultural processes practices for creating an ideal woman in PNG. An ideal woman is expected to possess qualities that are valued in woman by society.

'Making of a Strong Woman' is a collective process that involves extended family and community members. Isolation, initiation and cleansing ritualized practices provide an opportunity for focused teaching and preparation where immediate and extended female family members are involved. Men and women involved in the isolation and initiation process have distinct cultural roles and responsibilities. Grandmothers, aunties and in some situations, mothers, are typically involved in the teaching of and caring for menstruating girls, while fathers, uncles and grandfathers are responsible for decision making, building menstrual huts, toilets and initiation rituals.

Having Baby Sense

'Having Baby Sense', the first category of the grounded theory for 'Making of a Strong Woman', refers to the childhood stage. This stage is characterized with innocence, childish thoughts, behaviors and attitudes, childish activities, lack of abstract thinking and concrete ideas and observations.

Most women reported that, during childhood, they lacked knowledge and understanding about the meaning of body changes and menarche and the expectations that are associated with these changes. The girl child's lack of understanding was explained as them being too young to understand and make sense of what they saw, observed and heard. Furthermore, the women explained that, as children, they could not understand and grasp concrete ideas and knowledge because they had "*bebi sense* (baby sense)" which is an in-vivo code from this statement *"Mi bebi sens yet… nana blo mama yet na mi no save long wanpla samting yah* (I had baby's sense…my mother's little baby and I did not understand anything) [Young woman from settlement, FGD-02, NCD]. Similar statements were echoed by women throughout the study when discussing their childhood stage. An educated woman from one focus group discussion said, *"We could not really connect the information. Information was not clear"* [FGD-01, NCD]. Consequently, the girls were unable to understand and make sense of what was happening to their bodies. Some women recalled hearing and observing their mothers having menstruation, but did not understand. Some expressed feeling lost or confused. "*Ol tok sikmun na kain olsem, mi no bin save.* (They talked about menstruation and all that, but I had no idea)" [Young educated woman, FGD-03, ESP].

Lack of understanding amongst girls is linked to cultural secrecy, shame and taboo. Most women explained that open discussion about *sikmun* (menstruation) and private body parts is "*tambu*" (taboo) and a shameful thing to discuss with children. *"…we are not allowed to talk to our daughters about private body parts…it's a shameful thing…it's our culture)* [young educated woman, FGD-02, NCD]. Consequently, most women explained that mothers were unable to inform them about body changes and menarche while they were growing up.

'Having Baby Sense' is also characterized with childhood behaviours and attitudes that are expected to cease before the girl achieves womanhood. *"…we play a lot… when we are still baby…when we grow, our parents tell us to stop acting baby baby"* [Older woman, FGD-02, MBP). There is an expectation that a girl child is expected to change their childhood behavior and attitude when physical bodily changes happen. While growing up, girls are expected to help with domestic duties such as babysitting, collecting firewood, fetching water for family meals and doing dishes. These practices are aimed at instilling in the female children the expected duties of womanhood.

'Having Baby Sense' is conceptualized as an important cultural premise for 'Making of a Strong Woman' because of the girl child's lack of abstract and logical thinking at childhood, demonstrated in their inability to understand, comprehend and make sense of their body changes. Furthermore, cultural taboo, shame and secrecy about open communication on sexuality prevents girls from learning about their body changes in childhood. Moreover, traits typical of young girls such as 'not knowing' are culturally undesirable traits in a mature woman. The girls are expected to develop into mature and strong women who can perform social and cultural obligations. Therefore, cultural systems and processes are put in place to eliminate those childhood characteristics from 'having baby sense' and to prepare girls with the knowledge and skills needed to become strong women.

Beginning of Learning

'Beginning of Learning' is the second category of the constructivist grounded theory. Breast development is a physical marker that represents a stage of puberty and reproductive maturation. A girl's experience of breast development is characterized by lack of knowledge, feeling scared and embarrassed, indirect learning, family mobilizing support, increased sexual feeling and teasing and ridiculing. In PNG, breast development is

a social marker for maturation that causes families to increase protection of young girls and commence marriage preparation. *"Em wei blo mipla…taim susu kamap nau, ol mama papa i tok…yu kamap meri nau* (that's our way…when breast starts developing, parents say… you are becoming a woman now)*"* [Young woman, FGD-02, EHP]. Women also mentioned that breast development stage is when families start preparing for initiation practices at menarche.

Women lacked knowledge about the significance of their body changes, including menarche, at breast development. As explained under the previous category ('Having Baby Sense'), lack of knowledge is also linked to cultural secrecy, shame and taboo that prevents open communication and support from many mothers. The culture of shame and secrecy was common in uneducated mothers from both urban and rural areas. However, education helps to increase a girl's awareness of her changing body, including menarche. Parents with a formal education were better positioned to advise young girls about the meaning of breast development and pre-menarche preparation, when compared to uneducated parents from both rural and urban areas. Women who received advice from their parents and family members, mostly had parents and family members who were educated, living in urban areas had some understanding about the biology of reproductive organs. Parents with formal education were in a better position compared to uneducated parents from both rural and urban areas, when advising the young girls about the meaning of breast development and pre-menarche preparation. A young woman from East Sepik Province said, *"…Mi, olsem* (Like, for me), *I was lucky because my sister who was a school teacher told me"* [Young woman, FGD-01, ESP]. Women also explained that some uneducated women from the village are unaware of the functions of the reproductive organs and therefore feel uncomfortable to engage in discussions about body changes and menarche with their daughters.

Women who attended schools expressed that formal education did not always result in girls knowing about body changes. This lack of knowledge contributed to a girls' lack of understanding of and unpreparedness for menarche. One young woman explained that, even if sexual and reproductive development was taught in schools, for many girls, this occurred after menarche. *"I was taught about anatomy and physiology… in Home Economics class but it was too late…I had menses already"* [Young working woman, FGD-02, NCD]. A woman from a focus group discussion in MBP heard about menarche and how to manage menstruation from the dormitory meetings in her high school boarding house, yet lacked confidence about how to manage menstruation.

Breast development is a stage when girls may undergo a period of emotional and psychological upheaval. Many women recalled feeling embarrassed, strange and scared, and withdrew themselves from family, friends and social activities when they became aware of *"susu sanap"* (breast development). *"I was surprised and felt ashamed because I did not understand"* [Young woman, individual interview (II)-02, ESP]. Women felt embarrassed due to teasing, staring and gossiping, commonly from males, friends, family members and other women. Although women from all study sites experienced shame and embarrassment, the women from NCD were worst affected by teasing, staring and stalking behaviors of others. Women also recalled that at this time, they started developing feelings and attraction towards males. Many women explained that they were scared and embarrassed about their breast development because they were unaware of when it would occur."*…Mi ino save tu (I did not know). When my breast developed I was shamed"* [Young woman, FGD-01, ESP]. Women also spoke about how being stalked by boys, especially after school, negatively affect their school attendances.

The breast development stage was characterized by indirect forms of communication and learning for most women in the study. Women began learning through indirect forms of communication due to cultural secrecy, including shame. Indirect forms of communication and learning happened through observation, stories and gossip, media, jokes and teasing, harsh words, scolding, myths, parables, metaphors and analogies, including extreme means of communication such as death threats. Women reported these modes of indirect communication and learning, although common, varied between each of the four provinces. Metaphors were commonly used in Eastern Highlands, and East Sepik Provinces; death threats were more commonly reported in NCD. Death threats were made to inform the girls that did not easily adhere to advice about the potential risks associated with sex and unplanned pregnancies that could potentially bring shame and embarrassment to the family. In Milne Bay Province, women learnt about their body changes through jokes by elderly women without formal education. Recalling her experience, a middle-aged woman from Milne Bay Province explained that, *"As for me, God was good to me. He gave me wisdom. There was no education. So I was learning through the jokes"* [FGD-02, MBP]. This method of communication and learning is unclear and often leads to confusion and shame.

Metaphors, slangs and analogies were commonly used in an effort to explain and inform the girls about body changes, including menarche. However, women

explained that the use of metaphors were usually vague, and too unclear to adequately understand. An example of metaphors from Eastern Highlands Province is: *"Kiau blo yu bai buruk* (Your egg will break)" [elderly woman, FGGD-01, EHP]. Metaphors and analogies are used to avoid direct communication about private body parts due to the culture of secrecy and shame. Some women also recalled learning from scolding and swear words such as 'cunt' or by teasingly describing breast changes by family members in an effort to make them realize that their bodies are changing.

Women learnt about their changing bodies through being teased and ridiculed, and commonly reported feelings of shame and embarrassment. Consequently, girls avoided participating in social activities, including school attendance, for fear of being teased and ridiculed. Most women recalled being teased after their breast buds started developing. Distressing and demeaning comments such as "tomato meat" were used to describe the young girls' developing breasts. Despite their distress, the girls developed some understanding about the sexual meaning of their body changes. A young women from ESP said, *"Ol boys, taim ol tisim you, ol bai kisim yu stret lo bun. (When boys tease you, they'll get you good and proper)"* [FGD-04, ESP]. This quote implies that teasing from boys often leaves the girls feeling very embarrassed but also more aware of bodily changes.

Sexual feelings by girls towards the opposite sex also increased at breast development and before menarche. Women from all provinces (ESP, EHP, MBP, and NCD) spoke a lot about the importance of family support towards them after their breast buds started developing. Women expressed that family support is increased to prevent girls from early or pre-marital exposure to sexual activity. However, communication taboo (discussed earlier) about sexuality prevents direct transfer of information about meaning of changing body including associated risks leaving many young girls vulnerable to sexual reproductive risks and consequences. Women from MBP spoke specifically about a cultural practice in Trobriand Island culture where girls are exposed to traditionally accepted practice of pre-menarche sexual initiation. This practice sometimes lead to stigma at the onset of menarche because of the false perception that a young woman's menarcheal state is due to early sexual intercourse related to that cultural practice. Women in NCD compared the sexual risks associated with breast development and expressed that young girls in their district are becoming vulnerable to early sexual exposure due to economic pressures. *"Ol meri blo nau ya,...taim susu kamap tasol...ol sanap pinis lo rot ...long kisim mani (Girls these days...when breasts starts developing...they are already on the road...to get money)"* [Older woman, FGD-03, NCD]. This quote refers to transactional sex: exchange sex for money or goods in order to survive.

Death threats, although uncommon, were reported by a few women from NCD. These threats are used in an attempt to prevent girls especially from risky sexual behaviors associated with selling or exchanging sex and teenage pregnancies. *"...If you make any silly mistakes and you become pregnant...they threaten us. They say, you don't stay in this house, we'll kill you"* [Older woman, FGD-03, NCD]. Although death threats are considered harsh, the girls are forced to learn to protect their bodies from pre-marital sexual exposure and teenage pregnancies.

Preparation for menarche by members of the girl's family commences at breast development in both urban and rural areas. Preparation usually includes making gardens, preparing food and finding the money to host the cultural practices, feasts and celebrations associated with *fes sikmun* (menarche). During this time, the girls are sometimes informed about body changes and menarche indirectly by family members. However, most times, women start to realize the significance of their changing body when their family members use their changing body as a cue to commence preparation of girls for menarche.

Intensifying learning

Intensifying learning is the third category of 'Making of a Strong Woman'. Intensifying learning is characterized by onset of *fes sikmun* (menarche), isolation and initiation rituals, focused and intensive learning. It was conceptualized from the study that, the three important processes of isolation (first step), initiation (second step) and cleansing (third step) were the essential traditionally-instituted learning processes for preparing young naïve girls for womanhood. Although these three cultural conceptual processes across all the study sites, the extent of their application greatly varied in the accounts of women from urban (NCD) and rural study locations (ESP, EHP and MBP). In Milne Bay Province, most women explained that they did not go through the full process of isolation, initiation and cleansing due to religious influences or that their culture did not have such practices.

Isolation happens immediately at the onset of menarche. In rural areas, isolation takes place in *haus-meri* (women's only house) typically built for menstruating women a few meters away from the family house. Because of the cultural significance of this house, different cultures have different names. Women from Maprik in East Sepik Province call this house *wa'nga nga, or simbai* [FGD-01, ESP]. Figure 4 shows a typical *haus-meri* in Maprik District, East Sepik Province. This is a special house accessed by older women, however women reported that young pre-menarcheal prepubescent girls

Fig. 4 *Haus-meri* (menstrual hut) in Maprik district, East Sepik Province, PNG

are also allowed. In other locations such as Russel Island in Milne Bay Province, the women explained that menstruating girls and women are sent to live in the bush until the menstrual flow ceases. A working woman from NCD reported that due to lack of family support and facilities, she was isolated in a bedroom inside the family home experiencing a limited application of cultural beliefs and practices. *"...I was isolated in the girl's bedroom...not like in full...like in village"* [FGD-02, NCD].

Immediate isolation is linked to cultural perceptions of menstrual blood as harmful, potentially bringing bad luck to men and destroying food gardens. Women were immediately isolated at menarche to avoid contamination, *"Blut ya...em nogut (menstrual blood is bad)"* and can *"daunim strong blong man* (reduce men's strength)" [Young women from NCD, FGD-02]. The practice of immediate isolation was traumatic for most women in the study. Many women spoke about feeling scared and embarrassed at the onset of *fes sikmun (menarche)* because they were unprepared. Many women felt scared and confused when they were immediately taken into isolation. *"First taim blo mi too na mi poret na faul ya,* (It was my first time. That's why I was scared and confused)" [Young woman ESP, II -03]. Several girls spoke about being prepared from observing the practice from their older siblings and other women, however, they still felt scared when they experienced menarche.

Women conceal their menstruation status due to shame from myths and rumors. Women in Milne Bay Province explained that young girls in Trobriand Islands culture (MBP) conceal their menstruation status at menarche from mothers due to myths and rumors that, the onset of menarche is a consequence of early sexual exposure during a cultural festival called '*Mila Mila*', and that this outcome would mean they would be scolded and stigmatized. The women explained that sex is 'free' during the '*Mila Mila*' festival where pubescent and pre-menarcheal girls are culturally encouraged to be participate as a socializing event to celebrate the yam harvest. *"...They wait for that event. They are free to just go and do anything. Do all the sex they need...before they are matured... say 10, 9 years old, they are already into this Mila Mala thing (referring to festival)"* [Older woman, MBP II-03]. Shame also causes young girls to conceal their menstrual status. Many women recalled their experiences and said, they did not tell their parents especially mothers when they had menarche because of shame.

Women spoke about various practices that happened in isolation, including cultural initiations and rituals. Types and scope of those initiation practices varied between the four study provinces. Cultural practices were common in the stories of women from Eastern Highlands and East Sepik Provinces compared to Milne Bay Province. Although women from NCD reported less involvement in cultural practices, two women reported undergoing intensive initiation and cleansing rituals. These two women described how and why the cultural practices happened. One woman from ESP who had her *fes sikmun* in an urban area said she underwent whipping and scarification initiation which was physically and psychologically traumatizing. However, her father believed that the practice was necessary to make her realize her body had changed into a woman and she should behave like a woman and not like baby anymore. Despite her initial resistance, the young woman later appreciated the cultural practice, because she understood that the initiation practice caused her to appreciate her new status and expectation that went with body changes and menarche; *"Em castom ya. Ol mekim disla ol samting lo mi na mi kamap meri. Strongpla meri (It's our custom, I underwent the initiation ritual, and that made me a strong woman)"* [FGD-03, ESP].

Preparing young girls for womanhood is a communal activity in the family where different members of immediate and extended families are involved. The grandmothers and aunties play significant role by supporting mothers to have direct communication with the menstruating young woman about the meaning of body changes, *fes sikmun*, sex and reproduction, childbearing, menstruation management and changing roles and responsibilities and expectations of womanhood. This conversation is commonly done in seclusion in the menstrual hut. Women also spoke about learning skills of making *bilums* (carry bag). *Bilums* are traditional bags used for domestic

purposes such as transporting food from food garden and rocking babies to sleep. Grandmothers and aunties are post-menarcheal women, who had previously gone through isolation and initiation practice, are respected by the family and community, and have cultural obligations to prepare the girls. While mothers are able to provide support, their involvement is often limited due to the shame. It has been conceptualized that, because of cultural shame, the responsibility of mothers in the preparation of their daughters for womanhood becomes a communal activity. Women explained, the aunties and grandmothers are able to talk to the menstruating girl because it was their cultural and family obligation. *"Mi salim pikinini meri go lo tumbuna… lo ples… ol bai toktok lo em (I sent my daughter to grandmother… to the village…they will talk to her)"* [FGD-02, NCD].

Certain restrictive practices were enforced on the menstruating young woman. During isolation and initiation process, food taboos, cooking restrictions, bathing restrictions and social isolation are enforced. Young menstruating women were not allowed outside of the house and could stay in isolation for as long as is decided by the father of the young woman. In terms of managing menstruation and keeping clean, women expressed that bathing restrictions prevented them from cleaning blood flow while in isolation. However, there were mixed perceptions and beliefs about bathing restrictions in urban areas. While some adhered to the bathing restrictions, others did not due to increasing level of awareness about the negative implications of poor personal hygiene on girl's health. One educated women from NCD said, *"…I was allowed to clean myself but not to expose myself but to only stay in my room."* [FGD-02, NCD]. The women who went to high school spoke about not having adequate water for cleaning themselves and difficulties of disposing soiled pads. Women spoke about feeling unclean and having a strong smell from blood but despite probing, they did not report (and maybe were not aware of or culturally unable to) developing infections such as rashes. Women appeared to feel shy and chose not to talk when direct questions were asked about private body parts.

Different methods are used to manage menstruation. Old cloths, towels, menstrual pads, traditional materials such as moss and leaves are utilized. In urban areas, women spoke about using modern commercially available menstrual pads but these are sometimes inaccessible due to cost and the shame of purchasing them in public. Some of these barriers are also experienced in the rural areas. Modern menstruation management materials such as sanitary pads are usually unavailable in rural areas. This may be due to a lack of supplies in local stores or that women lack access to money to buy the materials. Women further explained that, the menstrual pads are seldom available due to shame by the retailers or shop owners to sell these products. Women in some rural areas still use traditional materials to manage menstruation. Women from the EHP described making a soft traditional pad out of moss to absorb blood, and this method is still being used by some women in villages who do not have access to modern materials. Some women said, they did not use anything, which was always leaking and uncomfortable and can be embarrassing.

Disposing soiled menstrual management product is difficult because of the unavailability of sanitary facilities in both rural and urban areas. In urban areas, many women expressed that, they did not have the facility to dispose soiled sanitary pads. Putting soiled items in rubbish bin was the only option but are sometimes dug up by animals such as dogs. *"…ol dog save digim na rausim… sem ya* (…the dogs dig and remove them…it shameful)" [FGD-01, ESP]. Few women who boarded in high school burnt soiled pads at night when people were not watching because of unavailability of disposal facilities. In rural areas, women explained different ways of managing soiled materials. Private toilets are built for menstruating women. Others keep their soiled materials during the isolation period and are burnt after isolation process.

The isolation and initiation processes, as explained under this category, provides intensive and focused learning for young woman. After the cultural process of isolation and initiation, the young woman goes through a ritualized cleansing process to achieve womanhood.

Achieving womanhood

'Achieving womanhood' refers to the cleansing practice. Cleansing practice is the third phase of the cultural practice after isolation and initiation practice. At the cleansing phase, the menstruating girl undergoes a ritualized cleansing process to rid them from the status of being dirty and contaminated, in order to achieve womanhood status. The cleansing process signifies that, the young woman is now free from menstrual pollution. Women also explained that, after the cleansing ritual, they became fully aware of the meaning of their body changes and menarche, including the social and cultural expectation that is associated with the change in status from girlhood to womanhood. *"Em olsem custom em bikpla samting ya. Ol wokim disla na olsem yumi kamap olsem meri (The custom is a big thing. They did the custom and we able to become a woman)"* [Young woman, FGD-03, ESP]. Women who went through the cultural practices of isolation and initiation explained that they felt psychologically prepared to assume woman's role including marriage and childbirth.

At 'Achieving Womanhood', the young women are expected to change their attitudes and behaviors and

start performing new roles and responsibilities including domestic chores such as cooking, cleaning, fetching water, and gathering wood. The woman is now expected to be able to manage gardens independently from her parents. These are the roles and responsibilities, and cultural expectations in marriage, that are explained to the woman by the grandmothers and aunties while in isolation. 'Achieving womanhood' is usually marked with celebration that include feasting, singing, dancing, rituals and chanting, rewarding, giving gifts, traditional dressings and beautification. Celebration is a show of a family's happiness that their daughter has reached maturation and achieved womanhood. *"Ol sa hamamas lo pikinini meri grow up na kamap meri nau* (Celebration is a show of happiness that their daughter has become a woman)" [Individual Interview-03, ESP].

Cleansing practices vary according to different cultures within PNG. While water is commonly used to signify cleansing, the rituals are different according to different cultural context. For example, women from ESP spoke about being carried out of the house and into the river and washed. *"Ol wasim nau, em olsem mi klinim… Ol i bilip olsem taim mi kisim sikmun em mi kamap olsem dirty* (They washed me, then it is like, I'm clean. They believe that, when I have my menstruation, I became dirty…)" [ESP, FGD-01]. In the Eastern Highlands Province, girls jump over a deadwood and break sugar cane before being washed with warm water. After cleansing, the young woman is provided gifts followed by traditional dressing, singing, dancing, feasting which usually include extended family members. In NCD, women spoke about washing with water which was followed with celebration and gifts from families. In Milne Bay Province, women spoke about being cleansed using sea water followed by giving of gifts. *"She went straight into the sea, washed, came out and rinsed her body with warm water. And then they gave her buggies and dressed her up with buggies*[1] *and made a big feast"* [MBPFGD02].

Marriage is considered the ultimate reason for girl's initiation and preparation for womanhood. This perception was shared by most women from all four provinces. One women from Milne Bay Province expressed that *"real girls are heroes"* [Individual Interview-02, MBP] to describe the cultural perception of an ideal strong woman. The expression asserts competition between young women about who can remain unmarried and abstain from pre-marital sex until marriage. *"Sapos em stap longpla taim em trupla meri* (if she stays for long period of time, she's a real woman)*"* [MBP, Individual Interview-02]. Unmarried women without pre-marital sexual exposure are valued. Sex is only considered appropriate in marriage and sex outside of marriage is considered culturally inappropriate. Girls who engage in pre-marital sex outside of marriage and end up with teenage pregnancy outside of marriage is a taboo that can bring shame and disrepute the family. The girl can be stigmatized for unplanned teenage pregnancy outside of marriage. *"Igat bikpla tambu long karim bel nating (There's a big taboo with pregnancy outside of marriage)"* [ESP, FGD-04]. However, women also explained that, the perception about marriage being an ultimate rationale for initiation practice is changing with improved education and changing lifestyle. Not all women going through female initiation are prepared for marriage. Some parents allow their daughters to go through the female initiation process not only for marriage but to instill good and respectable characters and behaviours of being an ideal woman. *"…Ol wokim olsem bai mipla respectim ol bikpla ol lain, harem tok blo mama papa. Yu (mipla) mas noken sakim tok* (they do this to us so that we can learn to respect the elders and parents. Not to disobey them)" [young woman from ESP, FGD-03].

Characteristics of strong women are culturally defined. The common characteristics of a strong or good woman include a fat and shiny body, non-participant in pre-marital sex, physical fitness and respect for elders and men. *"Mipla mas respectim ol bikpla ol lain, haren tok-tok na halivim papamama…bodi blo mipla mas kamap shine* (We must respect the elders, be obedient and help our parents…our bodies must shine)" [FGD-03, ESP]. In Eastern Highlands Province, girls are told to change their attitude and behaviors, and are encouraged to gain weight while they are in isolation to reach the desired body form before "graduating" as a woman.

Women also spoke about the risks of not being effectively prepared to become a woman. Some women explained that girls who grow up in urban centers, without traditional support systems for preparing girls for womanhood will likely be vulnerable to risky sexual behaviors. One woman from NCD explained that, because the urban environment was not conducive to preparing her daughter for womanhood, she sent her daughter back to the village in the province to live with her maternal grandmother and uncle so that they will prepare her for menarche. Several young women from settlements in NCD reported they were unprepared at menarche because their parents were disconnected from their traditional cultures from being away from their villages for many years. A girl from Eastern Highlands Province living in Port Moresby, was saddened over the death of her mother because she had not been around to guide and support her at menarche. This young woman could not access her closest aunties and grandparents

[1] Buggies are necklaces made out of shells and have monetary value. They are commonly used in Milne Bay Province.

who were in the village for support and advice when she had menarche.

Women from East Sepik and Eastern Highlands Provinces spoke about the significance of the cultural roles played by relatives to prepare girls for womanhood. The women explained that the older women (grandmothers, aunties and other older women) who are involved in providing support to the girls in isolation are rewarded with money and in kind for their involvement. Men are also rewarded for providing support, which although not directly involved in talking to the girls, they are involved in decision making and organizing rituals, initiations and feasts.

Discussion

This Constructivist Grounded Theory study found the experiences of young girls at menarche are underpinned by social and cultural processes that enable the 'Making of a Strong Woman.' Young women's experiences at menarche in PNG are linked to social and cultural beliefs, perceptions and practices around menstrual blood, culture of secrecy and shame, and the value placed on girl children for marriage and childbirth.

The explanatory power of this grounded theory is enhanced by the use of the theoretical code [30], Social Determinants of Health (SDH) [37, 38]. A theoretical code helps to integrate the grounded theory into the literature [30, 63]. The theoretical code of SDH expands an understanding of processes described in the Making of a Strong Woman theory by examining determinants including social gradient, stress, early life, and social support impacts on health outcomes. This grounded theory explains that location (rural or urban) and social status of girls results in a different experience of menarche. Extending this theoretical code, the theories of sexual and reproductive health rights [40] and gender inequity [38, 46] have also been explored and applied. Culture, as a source of strength, is centralized within the Indigenous People's Health Rights framework [39] and highlights the importance of traditional cultural processes consistent with the findings of this study.

This study found that, menarche represents transition from childhood to womanhood, and readiness for childbirth. Menarche, a key function of the female's reproductive system, is fundamental to sexual reproductive health [40]. To attain menstrual health and hygiene, as is every girl's right, access to appropriate pre-menarche information, menstruation management facilities and materials is required [6, 29, 40, 43]. This study found the many girls did not have access to these types of support. Most women lacked knowledge about their changing body at childhood until puberty. This finding is consistent with a number of other studies, including from LMICs. For example, a study by Manoshi and Shantri in Bengaluru urban district, India, found that adolescent girls without prior information about menstruation felt helpless and confused about menarche which impacted upon their ability to manage menstruation hygienically [44]. These experiences, underpinned by the scarcity, stigma and lack of affordability of safe menstruation management materials are also similar to findings reported from Nepal and Bangladesh [50, 51].

Cultural processes of "Making of a Strong Woman" were found to have both positive and negative impacts on a young woman's physical, social, emotional and psychological wellbeing, including school attendance. The negative implications resulted from lack of pre-menarche awareness and preparation for menarche, social isolation and initiation practices, and restrictive beliefs and practices imposed on young girls because of her menstruation status. Feelings of shame and embassment at menarche have been reported in other studies conducted in PNG [5], Malawi in Africa [44], Bangladesh [50] and Nepal [46]. Cultural beliefs and initiation practices described in these studies are informed by a belief that menstrual blood is harmful [5, 27]. These beliefs are perpetuated by men who believe menstrual blood can reduce men's strength, wellbeing and harm food gardens. These findings are consistent with undertaken in the PNG [5, 8, 10, 27] and other LMICs, documenting socio-cultural perceptions of menstrual blood and restrictive practices [2, 47–50].

The limited cultural practices at menarche in urban areas were linked to increased sexual risk-taking behaviours and consequences such as selling of sex and teenage pregnancies. These consequences were commonly reported by women from urban areas either as observations, or as women who had themselves experienced these consequences. This finding is similar to a study conducted in the Highlands of Papua, Indonesia [54], where unplanned pregnancy was linked to breakdown in traditional practice of preparing a girl child to manage her sexuality, pregnancy and childbirth.

Despite the sometimes negative experiences of girls at menarche, this study found that 'Making of a Strong Woman' is an important traditional social and cultural premise of preparing girls for womanhood. Characteristics of traditional cultural processes of isolation, initiation and cleansing for 'Making of a Strong Woman' resembles the process of rite of passage (rite of separation, rite of transition and rite of incorporation) initially described by Arnold van Gennep in 1960 [56]. The concept and the principle of the rite of passage are widely used in the development of various educational programs to facilitate adolescents' transition to adulthood [57–59]. The conduct of such rites of passage for girls at menarche

should be preserved, as they have been reported as beneficial for preparing girls for womanhood [68–72]. However, harmful elements should be replaced, upholding a girl's human rights. This traditional learning model is an ideal practice to encourage social order, nurturing and instilling in girls an understanding of their body changes and menarche, menstrual health management and the expectations for womanhood. Western influences in PNG have seen the disintegration of such valuable practices [8, 27], which has been linked to increased rates of sexual and reproductive health issues among adolescents. In a study conducted by Jenkins in PNG, it was shown that initiation rites are important cultural institutions that provide a venue for adults' to control the information flow to adolescents about sexuality, pregnancy and childbirth [27]. Initiation rites are used as traditional ways of learning in PNG. This approach to learning is based on traditional value systems of communalism and collectivism that is centered on reciprocal relationships—integral to Pacific cultures [66]. Westernized ways of learning are often formal, structured and hierarchical, for example as shown in Bloom's taxonomy levels of learning [65]. Lack of attention to or maintenance of these important cultural determinants of health are contributing to the increasing SRH issues affecting the adolescents' in Papua New Guinea today [27, 61].

Implications for action

Findings from this constructivist grounded theory have implications for sexual and reproductive health education programs in the following areas to improve girls' experience at menarche in PNG. The study found that, young girls lack awareness about the significance of their body changes and menarche, partly due to parent's (especially mothers) inability to discuss sexuality education with their daughters due to shame and secrecy. Various educational opportunities such as early childhood learning programs or school health programs in PNG can be used to increase awareness of young pre-menarche girls about the significance of their body changes, menstrual health and hygiene and sexuality. Mothers should also be supported to have the ability to provide support to their daughters through various available educational opportunities including women's networks or via the informal education sector.

Although fathers and other important male figures may not have direct role in providing awareness to the girls about body changes and menarche, they play a significant role in decision making. Fathers, men and boys should be provided education about the significance of body changes and menarche of females for them to understand and make relevant critical decisions regarding harmful cultural practices. Fathers, men and boys would then be able to support the young woman's transit through menarche with dignity.

Cultural perceptions of menstrual blood as harmful is a discriminatory gendered belief that harms girls who are undergoing normal biological changes. The practice of isolation and initiation that stems from this cultural perception affects girls' attendance at school, communal social activities, menstrual health management practices and nutrition. Despite the negative consequences of some of these cultural practices, the isolation and initiation process at menarche does provides an ideal space for intensified learning using menarche as the concrete subject for direct communication to girls. Women specifically suggested that the "*haus-meri*" concept be promoted and incorporated into positive intervention programs. The "*haus-meri*" concept requires further research as a strategic, health-promoting space for preparing young girls for womanhood in the contemporary PNG society.

Limitations

This doctoral research was conducted with women from four different PNG provinces while they were living in Port Moresby in the National Capital District. This was due to the study being time bound and resource limited. This constraint was ameliorated by constant support from PhD advisors and in-country (PNG) research collaborators. Given the diversity of cultural and language groups in the 22 provinces of PNG, some of the study findings maybe not be relevant in different cultural contexts. Culturally-specific studies are required to understand the experiences of girls from different cultural contexts. Furthermore, this study did not included male's perspective on girls' experiences at menarche. Male perspectives are necessary to have an understanding of how males perceive menstruation in PNG and to determine action for positive change.

Conclusion

The grounded theory of 'Making of a Strong Woman' explain processes as girls move from pre-menarche to womanhood in PNG. In PNG, many girls are unprepared for menarche. A lack of knowledge and understanding of body changes is due to cultural shame and secrecy surrounding open discussion about private body parts. Taboos around menstrual blood, which is considered harmful to men, causes stigma and discrimination. However, the traditional cultural processes of isolation and initiation do provide an opportunity to develop culturally appropriate intervention programs to address menstrual health needs of young girls in PNG. Cultural ways of knowing, being and doing are constantly adapting, and can be adapted in these circumstances to promote

knowledge and understanding of menarche for young women in PNG.

The positive aspects of the traditional menarcheal rites can be used as a cultural strength to re-strategize the sexual reproductive health communication strategy. For example, mothers and the older female relatives of pre-menarcheal girls can be taught about menstrual health and hygiene to teach pre-menarche girls. Secondly, the positive elements of the three-stage process of isolation, initiation and cleansing can be used as a space to teach young girls about the meaning of changing body and menarche including other aspects of sexual reproductive health.

Discriminatory beliefs and practices should be addressed through improved and expanded sexual and reproductive health educational programs and policies. Because of the diversity in cultural and language groups in PNG, this study recommends that community leaders (including men), women and girls be involved in developing any intervention programs. Programs aimed at improving women and young girls' sexual and reproductive health should include menstrual health and hygiene and take into consideration the social and cultural beliefs and practices around menarche.

Abbreviations

MHH: Menstrual Health and Hygiene; LMIC: Low to Middle Income Countries; PNG: Papua New Guinea; EHP: Eastern Highlands Province; ESP: East Sepik Province; MBP: Milne Bay Province; NCD: National Capital District; SDH: Social Determinant of Health; FGD: Focus Group Discussion; II: Individual Interview.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12905-021-01229-0.

Additional file 1. Interview guide.

Acknowledgements

We acknowledge the support from James Cook University in Australia, PNG World Vision, National Capital District Commission of PNG, PNG Anglicare and National Department of Health of PNG for supporting the study, the research participants for sharing your stories, research assistants Lisa Wainama and Rex Buka from National Capital District Commission Youth Office for organizing interviews, Stella Susuve-Rumbam, Jeanette Selep and Agnes Tal from PNG World Vision, Heni Meke from PNG Anglicare for organizing interviews, and Jeanette Selep for assisting to transcribe the interview data. Thanks also go to Dr Karen Cheer for her editorial support, Talah Laurie for the design and art work of the theoretical model (Fig. 3) and Gabbie Felix for the photo (Fig. 4).

Authors' contributions

EG, PhD scholar and the lead author, designed the study, collected, analyzed, and interpreted the data, and drafted and revised the manuscript. MRM, Primary Advisor, contributed by guiding EG in the application of Constructivist Grounded method, data analysis, interpretation of data, and reviewed the manuscript. RG and SL, the Secondary Advisors, and GR, External Advisor provided support in the study design, data analysis, data interpretation, and provided feedback on the manuscript. MW supported by data interpretation, reviewing and provided feedback on manuscript. All authors have read and approved the manuscript with specific roles in the development of this manuscript.

Funding

We acknowledge the funding support from; Australian Department of Foreign Affairs and Trade (DFAT) for Australian Development Scholarship (Scholar ID 9524) for lead researcher. This scholarship covered tuition fee, living expense and research activities from 2013 to 2016, James Cook University, Australia, for tuition free scholarship for lead researcher from 2017 to 2020, and Research Training Program (RTP) Grant from College of Medicine and Dentistry, James Cook University, Australia to directly fund expenses related to this research.

Availability of data and materials

All data used in this article are generated and analyzed from this study. All electronic data generated during this study is stored on a password protected drive at James Cook University, with hard copies of data stored at James Cook University, Cairns campus in a locked cupboard in accordance with the University's data storage policies. Due to sensitivity of identifying the nature of the data, it is not in publicly available repositories but are available at James Cook University. Researchers wishing to gain access to the data may contact the corresponding author or College of Medicine and Dentistry, James Cook University, Australia.

Ethics approval and consent to participate

Ethical approval for this study was obtained from the Papua New Guinea Medical Research and Advisory Council (reference number: MRAC13.40) of National Department of Health, Papua New Guinea and the Human Research Ethics Committee (reference: H5317) of James Cook University, Australia. All participants gave consent before participating in the study. Written consents were obtained from those able to read and write. Women unable to sign (illiterate and old women) gave their fingerprints as a consent for study (as approved by ethics committee). Parental consent was obtained for participants under the age of 18 years as per the approved ethics process. Written information sheet and consent forms were sent to each participant before the study to read, understand and make an informed decision to participate in the study.

Consent for publication

Talah Laurie consented for her artwork and design (Fig. 3) and Gabbie Felix consented for his photo (Fig. 4) to be used in this manuscript.

Competing interests

The authors declare that they have no competing interests.

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Received: 7 July 2020 Accepted: 17 February 2021
Published online: 08 April 2021

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Publisher's Note

Appendix 2: Interview guide [Sample]

INTERVIEW GUIDE

INTRODUCTION:

Hello, my name is (Elizabeth Gumbaketi) from James Cook University in Australia.
Thank you for taking time to participate in this Interview. This interview is part of the **group and individual interviews** that are being conducted in **(names of Province**) to learn about your experiences of having 1st menstruation and what it means to **grow up and changing from being a girl to womanhood** in your local community in (**name of Province).**

Growing up into a young girl, having your 1st period and experiencing bodily change are generally challenging for many young girls. Therefore, we want to understand how you personally felt when you had your first **menstruation.** This understanding will help us to work with respective government organisations to improve health services for young girls in Papua New Guinea.

You **(in FGD- are a group of young girls and women who)** have been purposefully selected in the village because you have the "lived" experience to be able to share your full experiences and stories of how it felt when you grew up from being a girl to being a woman in your local village or community in the **(name of Province).**

During this discussion, I **(name)** will ask questions and facilitate the conversation. Please keep in mind that there are no right or wrong answers to any questions that will be asked. The purpose is to stimulate conversation and to hear experiences of everyone in the room. There is no need to feel shame. I hope you will be comfortable to speak honestly, openly and share your experiences with us.

Please note that this session will be recorded **(and *(name)* will be taking notes)** to ensure we adequately capture your ideas and opinions during the conversation. Your name and comments from individual interviews can be kept confidential however, there is no guarantee that your name and comments from the focus group will remain confidential. Your name will not be attached to any comments you make. Furthermore, each of you are requested to respect each other's opinion. Anything that is discussed in this room should remain confidential and not discussed outside of this building. Do you have any questions before we begin?

(A): QUESTIONS

1. Let's do a quick round of introductions. Can each of you tell the group your name, where you come from, where you grew up?

2. **Tell me about the day when you had your first menstruation/period**.
    a. **Probe**: What did you think?
    b. **Probe**: Where were you when it happened?
    c. **Probe**: That sounds interesting, please tell us more?
    d. **Probe**: What happened?
    e. **Probe**: How did you feel?
    f. **Probe**: How did you manage menstrual flow?
    g. **Probe:** Did it mean anything to you?

3. **Tell me about the day when you noticed physical changes in your body (Breast development, public hair, etc)?**
    a. **Probe:** What did you think?
    b. **Probe:** What happened?
    c. **Probe:** That sounds interesting, please tell me more?
    d. **Probe:** How did your parents, relative react?

4. **Who was the first person you told when you had your first period?**
    a. **Probe**: How did he or she react?
    b. **Probe**: What did that they say?

5. **Tell me about some of the cultural beliefs and practices around menstruation?**
    a. **Probe:** What are your thoughts?
    b. **Probe:** Did these beliefs and practices apply to you?. If so how did you feel about it?

6. **What other changes did you notice in your body when growing up?**
    a. **Probe**: What were your thoughts?
    b. **Probe**: How did you feel?
    c. **Probe**: What was your parent's reaction?
    d. **Probe**: How did your relatives react?

7. **Have you ever been informed about menstruation and body changes before reaching your first menstruation?**
    a. **Probe**: Where did you learn about it?
    b. **Probe**: What did they say/tell you?
    c. **Probe**: When did you start thinking about opposite sex?
8. **What is some advice you might like to give young girls to prepare them for their periods?**
9. **Do you have further questions or comments?**

CONCLUSION AND CLOSURE:

We have now come to the end of our discussion. I would like to sincerely thank you for your participation and contribution. Be reminded again that your comments will remain confidential and your name will not be attached to any comments you have made.

Thank you.

Appendix 3: Participant's information sheet [Sample]

INFORMATION SHEET

PROJECT TITLE

Experiences of girls and women of having first menstruation and body changes in Papua New Guinea.

1. **INVITATION**

You are invited to take part in a research study that aims to understand how you felt about growing up and changing from being a girl to woman in **Eastern Highlands Province**.

We want to hear about;

- *How you felt when you had your first menstruation and started seeing bodily changes.*
- *Your understanding on what the first menstruation meant to you, your family and your community.*
- *What the social and cultural beliefs, rules and practices around the first menstruation. If those beliefs and practices were observed when you had your first menstruation and how did you feel about it all.*

Result from this study will help us to better understand how young girls feel about growing up from being a girl, going through bodily changes and having first menstruation and becoming a women in the social and cultural environment of **Western Highlands**. This understanding will help us work with health and education authorities to improve health and education programs for young girls in Papua New Guinea.

The study has been approved by Medical Research Advisory Committee of Department of Health in Papua New Guinea and Human Research Ethics Committee (HREC) of James cook University.

The study will be conducted by Elizabeth Gumbaketi (Principal Investigator) that will contribute towards her PhD. She will be supervised by Associate Professor Ronny Gunnarsson of James Cook University, Associate Professor Sarah Larkins of James Cook University, Professor David Plummer, Professor at James Cook University and Queensland Health and Dr. Gun Rembeck (PhD) from Primary Health Care in Sweden.

2. **WHAT WILL HAPPEN**

If you agree to be involved in the study, you will be invited to join a group of 8-10 other girls to be interviewed. You will be asked few key questions related to the aim of the study and you including the members in your group will be asked to respond. For some of you, discussing personnel experiences in group may be a little distressing. If you have a personnel experience or observations to share and are not comfortable to share your experience in the group discussion, a separate meeting can be organised with you. Kindly liase with the member of the reference group or provincial research coordinator on phone: …… and advise.

In the group discussion, the interviewer will lead and guide the discussion. The interview will be audio-taped with your consent. The interview will be conducted at:

Venue:_____

Date: _____

Time: _____

3. **PARTICIPANTS' RIGHTS**

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice. You have the right to:

- Omit or refuse to answer or respond to any question that is asked of you.
- Have your questions about the procedures answered (unless answering these questions would interfere with the study's outcome).

If you have any questions as a result of reading this information sheet, you should ask the researcher before the

study begins.

4. **TIME COMMITMENT**

The interview should only take approximately 1 hour of your time

5. **CONFIDENTIALITY/ANONYMITY**

Because of the nature of **Focus Group Discussion**, there is no guarantee that your response and personal details will be confidential however; your responses and personnel details in **Individual Interviews** will be strictly confidential. The data from the study will be used in research publications. Final study report will be sent to the **Western Highlands** Provincial Administration and National Health Department of PNG. You will not be identified in any way in these publications.

6. **FOR FURTHER INFORMATION**

If you have any questions about the study, please contact the following:

Principal Investigator: Elizabeth Gumbaketi
School of Medicine and Dentistry
James Cook University, Cairns,
Australia.
Phone:
Mobile:
Email: elizabeth.gumbaketi@my.jcu.edu.au

Co-Investigator : Ronny Gunnarsson (Associate Professor)
School of Medicine and Dentistry
James Cook University, Cairns,
Australia.
Phone:
Mobile:
Email: ronny.gunnarsson@jcu.edu.au

If you have any concerns regarding the ethical conduct of the study, please contact:

Human Ethics, Research Office (HREC),
James Cook University, Townsville, Qld, 4811
Phone: (07) 4781 5011 (ethics@jcu.edu.au)

Appendix 4: Participant's consent form [Sample]

This administrative form has been removed

Appendix 5: Participant's recruitment checklist [Sample]

JAMES COOK UNIVERSITY AUSTRALIA

PARTICIPANT'S RECRUITMENT CHECKLIST

Eastern Highlands Province; East Sepik Province; Milne Bay Province

Name: Sex: Age: Province of Origin:

Young women (18-24 years)		Older women (25 -45 years)	
Criteria	**Yes/No (Tick)**	**Criteria**	**Yes/No (Tick)**
Young women (18-24years)		Older women	
Born in villages of EHP		Born in villages of EHP	
Raised in villages of EHP		Raised in villages of EHP	
Had first menstruation in villages of EHP		Had first menstruation in villages of EHP	
Lived in village or suburbs of EHP		Lived in village or suburbs of EHP	
Healthy (not sick)		Healthy (not sick)	

Appendix 6: Audit trail

Appendix 11 – AUDIT TRAIL

Audit Trail of Data Collection, Analysis and decision making process on 'Making of a Strong Woman'

The statements in this audit trail is a personal reflection on the processes leading to construction of the grounded theory of 'Making of a Strong Woman'. The table below highlight the main trigger points to show how, when and why important decision were made leading up to the construction of the grounded theory.

Date/year	Trigger point (s)	Data Source	Action taken	Results/Observations	Next steps	Notes
April, 2013 (before data collection) including July, 2020 (after data analysis)	Meeting requirements for a PhD academic program	SSR	I conducted SSR for the purpose of confirmation of candidature for PhD. I had read evidence from anthropological studies (*Lutkehaus & Roscoe, 1995; Jenkins, 1994, Malinowski, 1929*) about menarche, different puberty and menarche rites in different cultures. These readings had increased my theoretical knowledge about menarche in PNG and in the PICTS in general.	I started becoming theoretically sensitive to key concepts around the substantive are of the study. Experiences of menarche is intrinsically imbedded in socio-cultural norms beliefs and practices globally, regionally (PICTs) and locally in PNG. Experiences were contextual and different. Cultures of PNG had interesting menarche rites and norms around puberty and sexuality.		Started acquire theoretical sensitivity to key concepts relating to substantive area of study at inception phase of this study. Review helped to develop research questions.
13th May, 2013	Reflection on how menarche is experienced in PNG.	Memo dated 13th May, 2013	I had written a memo on my personal reflection of how menarche is generally experienced in PNG.	As a PNG woman and one who had menarche in the village setting in rural context of PNG and being a health worker, I was	Deciding on the research methodology to collect data?	As a local women I knew that these cultural norms and practices were significant but how do I tell that story?.

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JAMES COOK UNIVERSITY AUSTRALIA
ISTAR
Individual Self-esteem and Transition to Adulthood with Respect

MEMO

Memo No: 09
Title/Heading: Personal reflection| Menarche (2)
Date: 13th May| 2013
Time: 12.30pm| Cairns JCU

I am a local PNG woman from Kwimbu village, Maprik district in East Sepik Province (ESP). Defined by my ethnic and cultural identity and connectedness through my birth parents, language and village community, I can attest that menstruation is a taboo in my community. I have observed menarche rites and can attest that that menstruation is a taboo and is associated with isolation, food taboos and restrictive practices. Menstrual blood is believed to be dirty and harmful to men's health and wellbeing. Menstruating women are isolated from social activities and prevented from accessing food gardens, accessing common water holes for bathing and cleaning while menstruating, cooking and feeding members of her family in particular the males. Menarche (first menstruation) is an important event that prepares girls for womanhood. The young menstruating girls undergoes isolation, initiation and cleansing stage before being recognised as a woman-ready for marriage and childbearing. The new woman is expected to be strong to perform womanhood roles and responsibilities and the knowledge she acquires during the initiation phase is supposed to equip her perform womanhood responsibilities.

However, would this observation be my own perception?, What is the experience of girls in neighbouring village?, How do I find out?, What method do I use to collect evidence so that women do not feel threatened but empowered to freely share their story?.
</td>
<td>becoming conscious of: menarche and/or menstruation is taboo. Not openly talked about. Menstruation blood is harmful and can impact men's health and luck.

It started dawning on me that, the reason for menarche rites were to prepare girls for womanhood. Girls undergo process of isolation, initiation and cleansing rituals associated with celebration before becoming recognized as a woman.</td>
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<td>2013</td>
<td>I am a PNG woman. But would my perception be my own? Would I be wrong in saying the same norms and practices apply</td>
<td>Memo dated 13th May, 2013.

Consulted: Cresswell,2009 Liamputong,2013</td>
<td></td>
<td></td>
<td></td>
<td>I had settled towards a qualitative methodology that would help me as a PNG women to acquire women's stories and use my voice to explain their (women's)</td>
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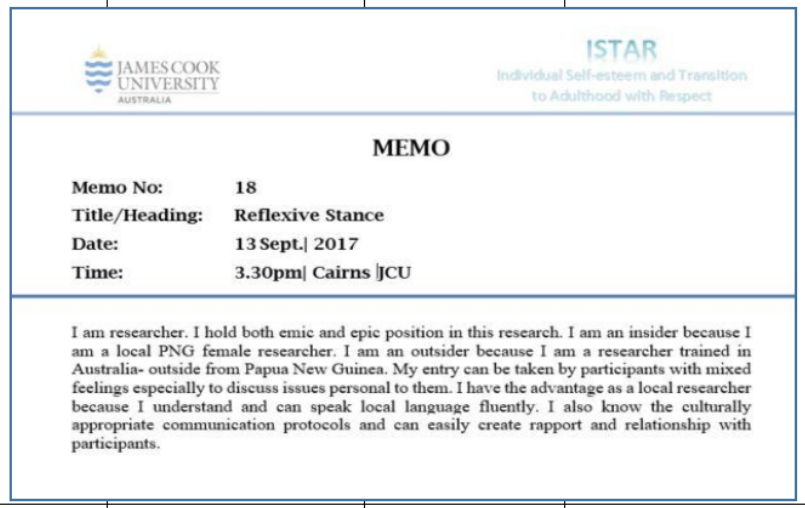
	across PNG. How do I investigate? What method do I use to gather data because menarche is secret and taboo topic?					experiences and why these experiences occur in their socio-cultural society.
November, 2013	I need to get a started. But, how do I start collecting my data? What method do I use to explore? How do I start understanding key concepts? I needed to fix my interview guide before the full interviews.	Data from ESP FGD (Pre-test)	<u>Phase 1-Field Entry</u> Used *purposive* sampling of 5 participants to recruit women from ESP for FGD in NCD; Initial open coding	I have started to understand from stories menstruation is also a taboo and shameful in other parts of ESP. It is also associated with restrictive practices which prevents MHH practices. Menstrual blood being dirty, polluting and harmful to men food gardens. Women also spoke a lot about impact on the restrictive practices.	Needed to understand experiences from different cultural and environment context	First phase field entry. First interview started increasing my theoretical sensitivity to key concepts
February to April, 2014	Provinces had interesting menarche rites and cultural norms around puberty and sexuality from SSR.	**<u>ESP</u>**: FGD (3) II (3) **<u>EHP:</u>** FGD (1) II (0) **<u>MBP:</u>** FGD (2) II (3) **<u>NCD:</u>** FGD (3) II (0)	<u>Phase 2-Field Entry</u> *Theoretical* sampled participants and conducted interviewed 15 interviews with total participants (n= 93).	Stories were broadly similar but specific social norms and practices were different among different provinces and between rural and urban context. Common from the stories were menstrual taboos, and restrictive practices, different menarche rites beliefs and practices, implication on MHH including emotional and psychological stress and in some cases physical pain.	I was becoming aware of the descriptive nature of the women's menarche experiences. But I was needed to connect properties and emerging categories to understand why the girls were put through the menarche rites.	Completed all interviews and returned Cairns.

				Women from EHP, ESP and MBP expressed strongly that menarche rites were good because it prepared young girls for womanhood.		
21st /09/2017 (12.30pm) Cairns	Can I use my position, my experience and local knowledge to interpret the data? What is my position in this research?		Again in 2017-I had re-evaluated my reflexive stance based on my axiological, ontological and epistemological position within this research.	I'm an indigenous female researcher from PNG with both 'epic' and 'emic' position. I wrote a memo about my historical background and personal experience of having menarche in the rural village setting in PNG.		Reflecting on issues/challenges from my experiences helped me construct some key concepts. I also embraced my unique position in this research to explain the theory that underpinned women's experiences at menarche.
October-December, 2017	I had coded the data and started categorizing them but what was the data telling me?. I was	Reflection and making sense of initial coded data	I went over and again the coded data between			



JAMES COOK UNIVERSITY AUSTRALIA

ISTAR
Individual Self-esteem and Transition to Adulthood with Respect

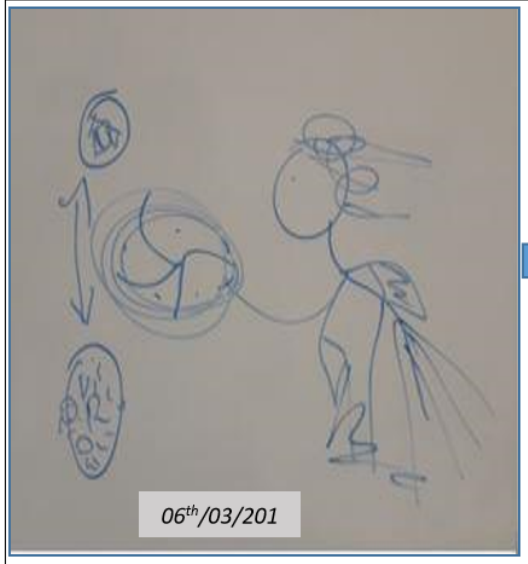
MEMO

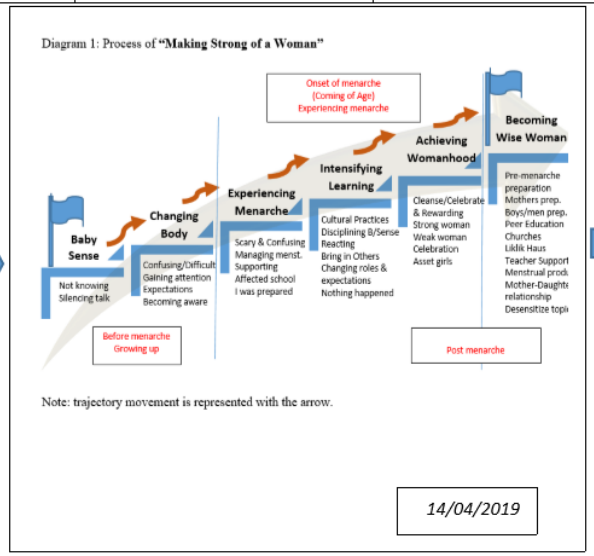
Memo No: 18
Title/Heading: Reflexive Stance
Date: 13 Sept.| 2017
Time: 3.30pm| Cairns |JCU

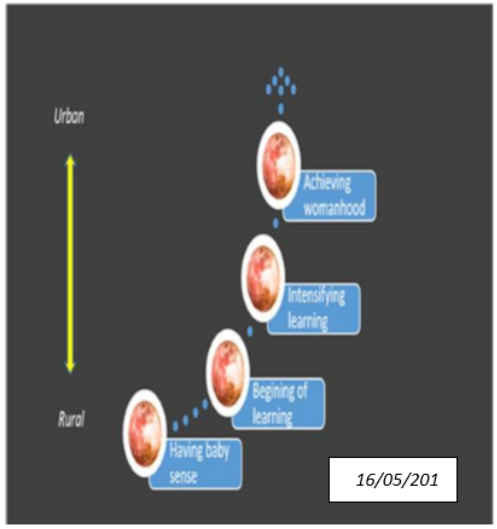
I am researcher. I hold both emic and epic position in this research. I am an insider because I am a local PNG female researcher. I am an outsider because I am a researcher trained in Australia- outside from Papua New Guinea. My entry can be taken by participants with mixed feelings especially to discuss issues personal to them. I have the advantage as a local researcher because I understand and can speak local language fluently. I also know the culturally appropriate communication protocols and can easily create rapport and relationship with participants.

15-20th January, 2018	Theoretical sampling of existing data from FGD and interviews.	Interview data	After first attempt of coding data,			
12th February, 2018	Pull things together. My first attempt at making connections and linkages to understand what was going on in the data was difficult. I had narrative paralysis.	Interview data	I was advised to write a storyline. In writing the story line, I had reflected on some in-vivo codes, coded codes and categories. I attempted to make connections of the flow of discussion of the stories I heard and of the codes and categories that were emerging from the data while writing storyline to explain to my advisor to see if the theoretical codes were making sense.	The code that stood out to me were from the women from ESP and EHP. They spoke about the rationale for menarche rites and the associated socio-cultural norms and practices. Few in-vivo codes were directly about making young girls strong for roles and responsibilities of womanhood. In-vivo code is shown below.		As a local woman, I thought-this in-vivo code is making some sense. But I need to build a case to support my thought process.
• In-vivo Code (Tok Pisin) "**Long strongim mipla (mi-singular)**, bihain ol bai paitim stick, long wanem-mipla strong lo karim hevipla bilum, mipla bai igo wok gaden, mipla ino inap poret long sun. Mipla bai stap strongpla meri. Mipla bai stap. Olsem na ol i paitim stick long mipla long strongim mipla long strongim bodi blong mipla. Mipla ino inap les long wok gaden, mipla ino inap les long karim hevipla ol bilum. Olsem na oli paitim stick long mipla. Taim ol katim skin blong mipla, em olsem ol i rausim olpela blut... (confirming her statement by nodding and saying yes). Olsem na ol katim skin blo mipla ... mipla bai kisim strong (placing emphasis in her statement). Rausim olpla blood. Mipla kisim nupla blood nau bai mipla save…" (Older woman, ESP, FGD 2) • Translation (English) "**To make us (me-singular) strong**, later they will beat us with sticks so that we can carry heavy bilums, so we can work in the gardens, we will not be scared of the sun. We will become strong women and stay strong. That is why they beat us with sticks to make our body strong. So that we will not be lazy to work in the garden or become lazy to carry heavy bilums. That is why they had to beat us. When they cut (incise) our skin, we will acquire the strength. Old blood will be removed and we will get new blood, then we will know (implying that -they will come to realise…)" (Older woman, ESP, FGD 2)						
6th March, 2019	**<u>Developing the theoretical model:</u>** **Connecting dots and creating relationships**	Theoretical data sampling on existing data	I had examined and recoded existing data to create relevant properties to categories, and categories to other categories to build	Number of categories started emerging and when connected could sequentially and logically explain the theory.		The schematic diagram is showing trajectory because the stories of women reflected childhood behaviours and attitudes that

	What codes and categories will help to build a case to support the theory for making of a Strong Woman? Will it make sense to start talking about their childhood experiences because they (participants) started talking about their childhood experiences as soon as they were asked the questions?		up the explanation for Making of a Strong Woman. I also drew numerous schematic theoretical diagrams and had many attempts at connecting categories and core categories while discussing with Principle Advisor Michelle Redman MacLaren and full advisory team.	Diagram below is a draft of how the theoretical diagram was in 2019-2020. Initial and focused codes can be seen in **appendix 7**		underpinned some of the cultural norms and practices associated with menarche. Concept started turning into various theoretical models while discussing with Principle Advisor (Michelle Redman-MacLaren







06th March, 2020	Reflection on positive aspect of menarche rites	Data and Memo	I had theoretically sampled existing data, discussed with advisors and read relevant references on culture as determinant of health and as a source of strength (Chandler, 2014; Auger, 2016; Freeman et.al, 2014; Wiessner, 2011; UN, 2011 etc.).	Culture is as source of strength for indigenous people and has a framework in place (UN, 2011) with research evidence showing cultural strategies making positive changes (Brown et.al, 2016).		Below is a copy of a memo written on the 06th of March, 2020 about positive aspect of menarche rites in PNG.

Date: 06/03/20
Title: Refection on Positive Aspect of menarche rites (Isolation, Initiation and Cleansing process
Location: JCU, Cairns, Australia

Description:
It dawned on me today while having a discussion with my supervisor about the isolation and initiation process that when I started this PhD journey, I did not understand and more so, realize that there is a lot of positivity around the traditional *isolation and initiation and cleansing* process or the rite of passage for females in PNG. I had thought it was a negative thing because I saw it from the **modern and western view** and perceived that, the initiation, isolation and cleansing process was bad but it's was actually not. It is a traditional process aimed to prepare the girls for womanhood in a culture of *secrecy, shame and taboo of discussion about sexuality*. During my interview many women appreciated undergoing the isolation and initiation process because the practice and rituals cause them to realize that they are now transiting from girlhood to womanhood.

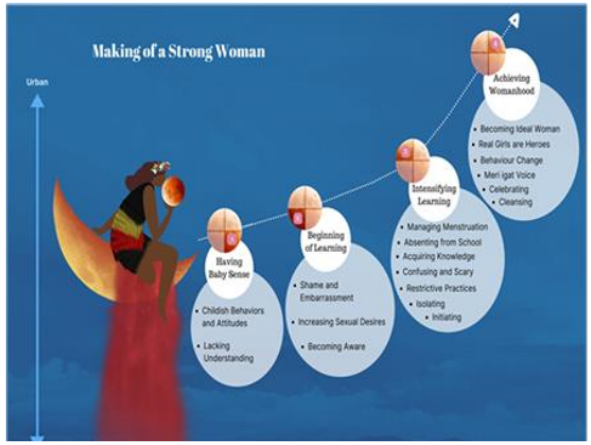
The initiation process though was a practice based on the patriarchal perception of menstrual blood as being unclean and dirt which caused the segregates the girls from, which practice that is associated with menarche (for adolescent girls) actually gave provided a window of opportunity for the preparation of girls for womanhood. Menstruation status of the girl was used as a concrete substance to have a direct communication with the girl (in privacy) about the changing body and the reality about what her body is now capable of (reproduction-childbearing), how to weave bilums (carry bags), respectful behavior, avoid sex until marriage, help parents with domestic chores, marriage, pregnancies and children.

The practice is necessary in a culture that promoted secrecy about discussing menstruation, this process became an important avenue to a more focused, one on one direct communication. In many cultures in the four study sites, many women explained that mothers were rarely involved because of shame (but can be supported to provide this support to the daughters). Grandmothers and aunties where the female figures involved in the preparation of girls. But this preference varies between different cultures which needs to be further explored in different study.

The restrictive practices such as food taboos, washing and etc. are linked to the male perception of menstrual blood, Even the mothers shame and culture of secrecy is linked to the perception of menstrual blood. Its their culture, their way of life.

The isolation, initiation and cleansing process, was the traditional cultural process passed down through generations and is still being practiced in both urban and rural areas. Although, in a more altered fashion than the traditional fashion. In urban areas, women who grew up there explained that the practices that happens in the urban setting is less intense compared to those done in the rural setting. The main explanation for that was, the urban areas lacked the support system (family support, structures-house, elders) compared to rural setting. Some women who had daughters in urban areas had to send their daughters home to undergo this ritualized practice because they believed that the traditional practices help develop the girl well for the womanhood stage because she is conditioned to have the appropriate womanhood characteristics that can prevent and protect her from the sexual and reproductive health risks and consequences such as pregnancies and STI/HIV.

13th March, 2020	What are the intervening conditions of the grounded theory? Could *norms of secrecy* and shame be the key intervening condition for my grounded theory?. Could culture be the intervening condition?	Revisited the coded data	Explained the difference in experiences of women to my principle advisor. Two outstanding markers that caused differences in	Intervention conditions were conditions that caused different experiences in young girls at menarche. Informed by data that intervening condition are *urban and rural*. Because, the difference in the cultural practices occur between these two environments.		
10th July, 2019	Is theoretical model representing the experiences at menarche in PNG? Is the core category of "Making of a Strong Woman" capturing the social and cultural norms and perceptions?	Presentation of theoretical model and core category	I presented the storyline to all the advisors to read and understand if my suggestions of the theoretical model before the full team advisory meeting. Presented the constructed grounded theory and theoretical model at Cairns Institute at the JCU's SDG Seminar before numerous PNG women living in Cairns Also did member-checking with women that met recruitment criteria at the Pacific Sexual Reproductive Health Conference in PNG in 2019.	The meeting decided that the title of the grounded theory be changed to 'Making of a Strong Woman'. The reason being that, the story is about making strong woman out of the young naïve girls. This new name explains the experiences of women well in PNG. Women at JCU seminar and PNG conference agreed and stated the model represented the experiences of women at menarche. Memo can be seen in discussion chapter (page 276)		These two conferences confirmed the final theoretical model shown below. This model was designed by Talah Laurie who also gave permission to used for the purpose of this research. This model can be found in page 175.



Format source-adopted from Redman-MacLaren's PhD thesis (Redman-MacLaren, 2015).

References:

Redman-MacLaren, M. (2015). *The implications of male circumcision practices for women in Papua New Guinea, including for HIC prevention.* (Doctor of Philosophy). James Cook University, Australia

Appendix 7: Initial and focused codes [Example]

(a): Early initial codes (Example)

- Advising about attitudes change
- Advising about behaviour change
- Advising about respectful
- Advising about sexual risk
- Advising against pre-marital pregnancies
- Advising to avoid men/boys
- Affecting education
- Appreciating initiation practices because it made them realise change and being strong
- Assuming new responsibilities
- Being unaware about changing body
- Celebrating and feasting with family
- Change you behaviour
- Changing body as embarrassing
- Cleaning menstrual pollution with water
- Confiding with older sibling and peers
- Developing breast is embarrassing
- Feeling confused
- Feeling scared
- Grandmother and aunties becoming alternate source of support
- Having mother-daughter talk
- Having no prior knowledge
- Hesitating to tell us about body change and menstruating
- I did not know because it was my first
- Initiating and practising custom
- Initiating to be responsible
- Initiating to change behaviours and attitude
- Initiating to change behaviours, attitude
- Initiating to learn womanhood roles and responsibilities
- Isolating from people-especially men
- Isolating girls in bedroom in town
- Isolating in bush
- Isolating in haus-meri
- Isolating in house
- It is out custom
- It is secret
- It is taboo
- Its natural you have to learn it yourself
- Keeping away from men
- Lacking skills of managing menstruation
- Learn from school teaching
- Making custom to make you strong woman
- Making us strong
- Making woman out of girls
- Menstrual blood being dirty and harmful and dangerous to men

- Mother ashamed to talk about it.
- Mother keeping it secret

(b): Early focused codes (Examples)

Baby sense
- Being just a child
- I was my mother's child
- I did not know
- Learning from observing and doing

Changing body
- We did not know
- Menstruation is a taboo and secret-mothers don't talk about it
- Shameful to talk about menstruation
- It's our custom. We don't talk about it
- Teasing and ridiculing
- Embarrassing
- Increasing sexual desires and feelings for males
- Family support increasing

Becoming aware
- Mother-daughter talk
- Learning from observation and peers
- Learning from grandmothers and aunties
- Teasing and ridiculing
- Metaphors and parables
- Learning from school

Reacting towards menarche
- Negative reactions
- Positive reactions
- Mixed feeling
- Feeling surprised, scared, confused and embarrassed

Making strong woman
- Isolating and initiating practices
- Teaching and preparing for womanhood
- Restrictive practices
- Increasing family communal support

Managing menstruation
- Lack of MHH products and supplies
- Issues with water and toilets
- Affecting schools attendances

Becoming a woman

- Cleansing from menstrual pollution
- Feasting and celebrating womanhood
- Giving of gifts.

Appendix 8: Ethical Approval—Papua New Guinea Medical Research Advisory Committee of National Department of Health (ref.: MRAC # 13.40)

This administrative form has been removed

Appendix 9: Ethical Approval from Human Research Ethical Committee of James Cook University, Queensland, Australia (ref.: H5317)

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Appendix 10: Approval letters from institutional heads

National Capital District

East Sepik Province

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Eastern Highlands Province

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Anglicare PNG Inc.

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