Developing and unlocking the competency, capability and capacity of senior hospital managers in public hospitals in Nepal

By

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Dedication

To my respected father, Mr Tara Prasad Pokhrel, the foundation of my pursuit of knowledge. My research work stands as a tribute to his enduring legacy.

Thankful and grateful forever!

Acknowledgment

कर्मण्येवाधिकारस्ते मा फलेषु कदाचन।

मा कर्मफलहेतुर्भूर्मा ते सङ्गोऽस्त्वकर्मणि॥

You are empowered to act, to do your prescribed duty (selfless action). The outcomes – success, failure, praise or blame – aren't yours to claim or control. Don't let ego convince you that you produced the results and don't let fear of failure or desire for reward paralyse you.

Bhagwat Gita, Chapter 2, verse 47

I express my sincere gratitude to James Cook University for generously granting me a PhD tuition fee waiver to support my research endeavours. This support has enabled me to conduct an in-depth study of hospital management systems in Nepal. I thank CPHMVS and CHS for supporting me with my research activities. I am grateful to GRS for providing various professional development courses without fees. Any expression of gratefulness is beyond words for my dear husband, Rishi Ram Parajuli who not only supported me with living costs but stood as a rock and provided me all the emotional and mental support required throughout my research journey. Many times, I was hopeless during my research, but the love and support of my husband always strengthened me with positive vibes and pushed me towards the accomplishment. I am so thankful to my kind and adorable daughter, Priyanshi Parajuli, who surprisingly always understood my random working hours irrespective of her little age. Her bright smiley face always encouraged me to be a better mom and a better researcher.

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I am ever grateful to my dad, Mr Tara Prasad Pokhrel, who is always more than a superhero to me. For the past two decades he has been to a different world but has always been in my heart, thoughts and memory. I am grateful for him teaching me the importance of

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I express my gratitude to the senior hospital managers (SHMs) from the four participating central-level public hospitals: Sukraraj Tropical and Infectious Disease Hospital, Paropakar Maternity and Women's Hospital, Kanti Children's Hospital and Karnali Academy of Health Sciences in Nepal, for participating in the research and for providing responses which aided the completion of my thesis. I acknowledge the support of SHMs by sharing their work-related experiences and thoughts with me. I express my sincere gratitude and admiration to the policy makers from the Ministry of Health and Population and National Health Training Centre, who participated in the interview and focus group discussion despite their very busy schedules and shared valuable perspectives. Additionally, I am grateful to Chetan Nidhi Wagle, for coordinating and facilitating the focus group discussion in the National Health Training Centre [NHTC]. Also, I thank Dr Krishna Prasad Poudel, Dr Roshan Pokhrel, Dr Bhim Prasad Sapkota and Dr Dipendra Raman Singh from the Ministry of Health and Population, Nepal, for their crucial support. Without the valuable contribution of research participants my research would be incomplete and meaningless.

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Statement of contribution of others

I express my sincere gratitude for the invaluable support provided by individuals and organisations listed below who were instrumental in the successful completion of this thesis.

Nature of contribution	Name of contributors
Supervision	Associate Professor Anne Jones Dr Daniel Lowrie Dr Michael Crowe Associate Professor Hari Prasad Kaphle Associate Professor Zhanming Liang Dr Judy Taylor Dr Diana Mendez (Cohort Mentor)
Financial support	JCU PhD fee waiver CPHMVS HDRES Grant CHS Research Grant CHS Completion Grant (Editorial support)

Statement on the use of Generative AI

During the preparation of this thesis, I acknowledge the occasional use of Microsoft Copilot to assist the refinement of written expression for enhancing fluency and coherence. This assistance was limited to language-level improvements that did not influence the intellectual content, analytical rigour or originality of the research.

Abstract

Background: An efficient health service management workforce is vital to deliver comprehensive health care services and to improve the performance of health systems. Strengthening health workforce capacity aids therapeutic and community-based services and enhances national resilience and productivity. However, development initiatives undertaken by various countries have been inconsistent, resulting in significant disparities in capacity building and progress. Such inadequacies have been highly noticeable in under-resourced countries with social and economic challenges, such as Nepal. No documented evidence of competency-based development strategies has been identified for senior hospital managers in Nepal. This research addresses the conceptual gap in understanding how managerial competency, capability and capacity interact and develop among senior hospital managers working within a constrained health system, illustrated through the case of Nepal.

Method: This PhD research employs a sequential explanatory mixed-methods design situated within a pragmatism philosophy for complete understanding of the research aim. The first phase includes a scoping review of the literature to identify development strategies for the health management workforce within the Asia-Pacific region. The second phase involves a quantitative cross-sectional survey with senior hospital managers (SHMs) (n=50) leading to the third phase that includes qualitative interviews with SHMs (n=11). The fourth phase brings in qualitative interviews and focus group discussions with health policy makers (n=9). The fifth phase integrates the findings from the quantitative and qualitative phases. A mixed-methods design was necessary to first identify and quantify the pattern of competency gaps (Phase II) and then explain the underlying mechanisms shaping managerial capability and capacity of SHMs (Phase III & IV). Each phase contributed a distinct layer of explanation, enabling and contributing the development of an integrated, ECOS model.

Result: The scoping review highlights four different types of development strategies for the health management workforce (HMW) in the Asia-Pacific: *i) Organisational informal professional development programs; ii) competency assessment and identification of gaps in knowledge and skills of HMW; iii) confirming competencies and developing competency frameworks; and iv) formal education and training.* The quantitative cross-sectional survey highlights critical gaps in managerial competencies and informs the need for targeted development interventions with resource management identified as the area of lowest proficiency. The qualitative interviews with SHMs highlight the barriers and operational challenges faced by SHMs in their professional roles. The qualitative interviews and focus groups discussions with policy makers (PMs) identify four key configurational and operational

factors to influence the capability of SHMs in fulfilling their managerial roles and responsibilities. Combinedly, these themes illustrate how SHMs role is shaped by interacting structural, relational individual and organisational conditions, highlighting the multilevel nature of SHMs development through competency, capability and capacity development for accomplishing their managerial task effectively and efficiently. The integration of the qualitative and quantitative data highlights that the challenges faced by SHMs revolve around multiple facets, from personal limitations to broader systemic issues, which result in the creation of a cyclical model – "ECOS" – to advance understanding and conceptualisation of the interplay between competency, capability and capacity development of SHMs.

Conclusion: Within the financial constraints that limit the extent of investment in the health sector of Nepal, prioritising competency domains with the most critical gaps identified through this research enables a strategic allocation of limited resources. This phased and evidence-informed approach offers a pragmatic pathway to improving hospital management efficiency in a resource-sensitive manner. The developed "ECOS" model offers a strategic guide for addressing managerial competency gaps, while fostering organisational and system-level support mechanisms. The PMs and SHMs in similar socioeconomic and health system contexts may derive meaningful insights to inform systemic improvements in hospital management and health care delivery. This aids regional efforts in advancing health care management and enhancing system resilience and efficiency.

In this thesis, "unlocking" refers to enabling SHMs to enact or further develop existing or emerging capabilities that are otherwise constrained by structural or contextual factors.

Keywords

Hospital management

Health management workforce

Central level hospitals

Senior hospital managers

Policy makers

Nepal

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List of abbreviations

DHS	Department of Health Services
HMW	Health Management Workforce
HSM	Health Service Manager
HP	Health Post
IERC	Institutional ethics review committee
JCU HREC	James Cook University Human Research Ethics Committee
MoHP	Ministry of Health and Population
NDHS	Nepal Demographic Health Survey
NHP	National Health Policy
NHRC	National Health Research Council
NHSSP	Nepal Health Sector Strategic Plan
NHTC	National Health Training Centre
PHC	Primary Health Care
PHCC	Primary Health Care Clinic
PM	Policy Maker
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta Analysis
SDG	Sustainable Development Goals
SHM	Senior Hospital Manager
WHO	World Health Organization

Positioning the researcher

As a pharmacy officer in the district public health office of Rupandehi, Nepal, I have had an opportunity to attend an unplanned inspection by the former health minister of Nepal. During the inspection, I raised the pressing issues related to logistics and supply of drug and related commodities in the district. Specifically, I highlighted the deterioration of medicines caused by lack of appropriate cooling equipment in the drug-storage facility that led to compromised safety and efficacy of these medicines. Consequently, the public increasingly turned to private pharmacies rather than relying on the government's free essential medicines. Thus, I emphasised the urgent need for cooling infrastructure and to my surprise, just within a few days, appropriate cooling equipment was delivered to the facility for the first time in history. This experience showed me how much impact I could have in my role at work. My professional position afforded me the ability to communicate these challenges effectively to high-level officials, which stemmed from my role earned through academic qualifications.

This realisation reinforced my conviction to pursue research in hospital management. I had opportunities to observe the hospital management system in Nepal before and after federalisation. Nepal's hospital management systems remain underdeveloped and in need of substantial reform to ensure effective and efficient health care service delivery. Thus, through rigorous enquiries and evidence-based recommendations, I decided to contribute meaningfully to the transformation of Nepalese health system for optimum health delivery through strong and efficient hospital management system.

Thesis outline

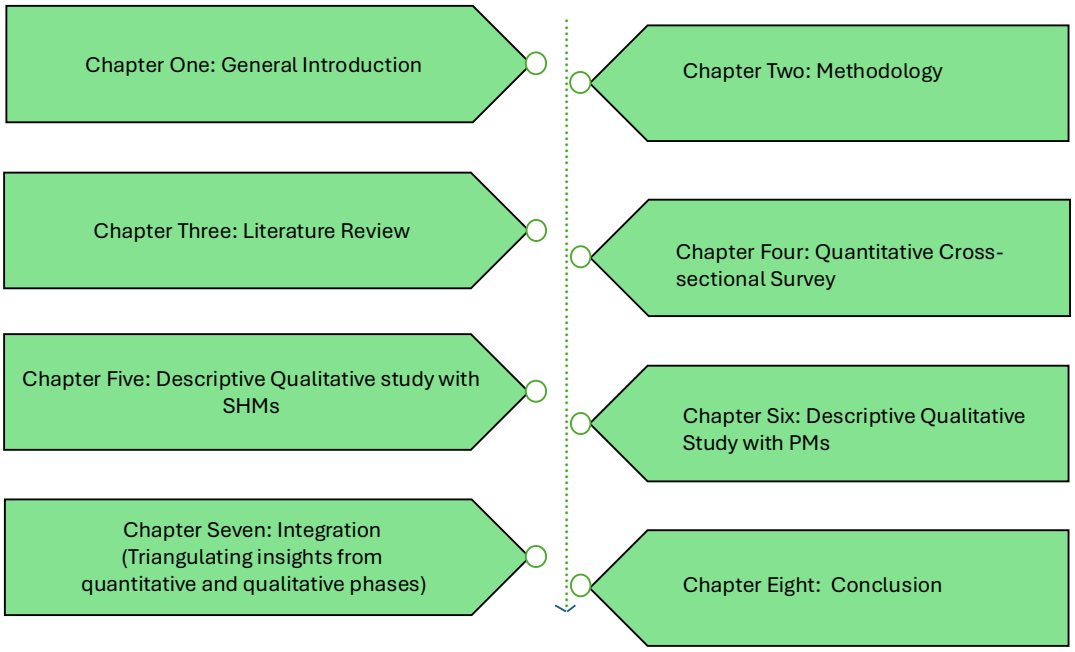

Figure 1: Outline of thesis

This doctoral thesis is systematically organised into eight chapters. Four of the eight chapters are presented in the form of stand-alone manuscripts intended for publication in peer-reviewed open-access journals. Figure 1 represents the overarching structure of the thesis, and it serves as a conceptual roadmap for the reader. Each chapter commences with a modified version of this outline figure, highlighting the chapter's specific location within the broader thesis framework to enhance the navigability and contextual understanding. To orient the reader along with reinforcing the thematic continuity of the research narrative, this iterative visual cue has been designed.

Furthermore, a detailed thesis structure is provided below (Table 1).

Table 1: Explanation of thesis contents

Chapter title	**Chapter description and publication status**	**Author contributions**
General introduction	As an introductory chapter this chapter highlights the entire thesis. It focuses on health management workforce in the Asia-Pacific, diving deeper towards the health system of Nepal, problem statement and introduction on key concepts of competency, capability and capacity development of SHMs and its importance. Publication status: Not applicable	PP wrote the introductory chapter. AJ reviewed each draft and AJ, DL, MC and HPK reviewed before approving the final version.
Methodology	This chapter outlines the detailed methodology underpinning the research study, including research design, data collection approaches and procedures, data analysis strategies and data management processes. Publication status: Not applicable	PP wrote the methodology chapter. AJ reviewed each draft and AJ, DL, MC and HPK reviewed before approving the final version.
Literature review: Efforts implemented for developing the health management workforce in the Asia-Pacific	Pokhrel, P., Liang, Z., Taylor, J. [2024]. Efforts implemented for developing a health management workforce in the Asia-Pacific: A scoping review. *Asia-Pacific Journal of Health Management*,19[2]. This manuscript was a scoping review of the efforts implemented for developing a health management workforce in the Asia-Pacific. Publication status: Published in *Asia-Pacific Journal of Health Management* [APJHM] DOI: https://doi.org/10.24083/apjhm.v19i2.2827 An updated literature search is also included from the period of last literature search until the present to bridge the gap in current knowledge	Conceptualisation: PP, ZL, and JD for published version; writing original draft preparation: PP; writing review and editing: PP, ZL, JD Conceptualisation: PP, AJ for updated literature search Supervision: ZL, JD, AJ, DL, MC, HPK. All authors have read and agreed to the published version and updated literature search.

Assessment of management competency among senior hospital managers in Nepalese public hospitals: a cross-sectional study	Pokhrel, P., Jones, A., Crowe, M., Kaphle, H.P., Liang, Z. [2025]. Assessment of management competency among senior hospital managers in Nepalese public hospitals: a cross-sectional study. *Asia-Pacific Journal of Health Management*,20[3]. This manuscript adopts a quantitative cross-sectional survey to identify the current competency level and existing competency gaps among SHMs in public hospitals in Nepal. Publication status: Published in *APJHM* DOI: https://doi.org/10.24083/apjhm.v20i3.4889	Conceptualisation: PP, AJ, ZL, MC; writing-original draft preparation: PP; writing review and editing: PP, AJ, DL, MC, HPK Supervision: AJ, MC, HPK, ZL. All authors have read and agreed to the final version.
Examining the perspectives of Nepalese senior public hospital managers on professional capability and capacity development: A descriptive qualitative study	Pokhrel, P., Jones, A., Crowe, M., Kaphle, H.P. Examining the Perspectives of Nepalese Senior Public Hospital Managers on Professional Capability and Capacity Development: A Descriptive Qualitative Study (under review). This manuscript adopts a descriptive qualitative study design to explore the perspectives of Nepalese SHMs in professional capability and capacity development. Publication status: Manuscript under review	Conceptualisation: PP, AJ, ZL, MC; writing-original draft preparation: PP; writing review and editing: PP, AJ, DL, MC, HPK Supervision: AJ, DL, MC, HPK. All authors have read and agreed to the final version.
Policy perspectives on strengthening senior hospital managers' capability and capacity in the Nepalese public hospital system	Pokhrel, P., Jones, A., Crowe, M., Kaphle, H.P. Policy perspectives on strengthening senior hospital managers' capability and capacity in the Nepalese public hospital system (under review). This manuscript adopts a descriptive qualitative study design to explore the perspectives of Nepalese health PMs on strategies to promote SHMs capability and capacity in Nepalese public hospital systems. Publication status: Manuscript under review	Conceptualisation: PP, AJ, ZL, MC; writing-original draft preparation: PP; writing review and editing: PP, AJ, DL, MC, HPK Supervision: AJ, DL, MC, HPK. All authors have read and agreed to the final version.
Triangulating insights from quantitative and qualitative phases: Integrating surveys, interviews and focus groups	The integration of findings from surveys, interviews and focus groups led to the identification of three different levels of difficulties faced by SHMs in public hospitals in Nepal: individual level, organisational level and system level and	Conceptualisation: PP, AJ, ZL, MC; writing-original draft preparation: PP; writing review and editing: PP, AJ, DL, MC, HPK Supervision: AJ, DL, MC, HPK.

	develops a cyclical model (“ECOS” model) to overcome these difficulties. The model suggests that nine key factors could be considered to support the competency, capability and capacity development of SHMs and are linked together. Publication status: Not applicable	All authors have read and agreed to the final version.
Conclusion	This chapter includes the summary of research findings, key discussion on each chapter, implications of research and the limitations. Publication status: Not applicable	PP wrote the discussion and conclusion chapter. AJ reviewed each draft and AJ, MC, DL and HPK reviewed before approving the final version.

Chapter 1: General introduction

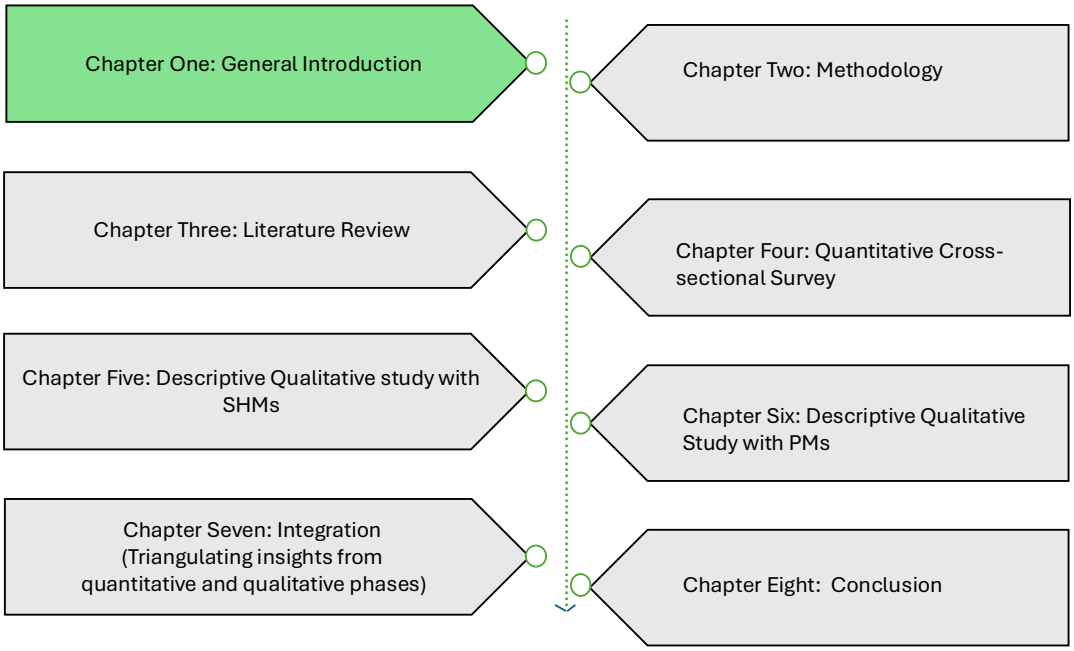

Figure 2: Site of chapter 1 in the whole document

1.1 Chapter overview

The introductory chapter situates this research and offers context for the research aims presented in the thesis. The chapter begins with the background and context including the health management workforce in the Asia-Pacific region, an overview of the health system in Nepal and the role of hospital managers in the Nepalese health system. The chapter then outlines the importance of managerial competency and capability as well as the lack of development strategies for managerial competencies. The chapter concludes by describing the significance of the research as well as the aims of the thesis.

1.2 Background

1.2.1 Health management workforce in the Asia-Pacific

An efficient health service management workforce (HMW) is vital to delivering comprehensive health care services and to improve the performance of health systems [1]. Well-functioning health systems are essential for enabling countries to provide the health care services that their people need [2]. Health care/ service managers (HSM) are responsible for converting health system inputs and resources such as finance, staff, supplies, equipment, and infrastructure, into effective services that maintain and improve health outcomes, thus, HSMs are essential at both the strategic and operational levels of health systems [3]. Research has

demonstrated that HSMs play a vital role in influencing clinical outcomes, patient safety and overall service performance [3,4,5]. It is recommended that all countries build the leadership and management capacity of health managers [1]. This is crucial for ensuring adequate numbers of managers with an appropriate degree of competency for creating better critical management support systems. According to the World Health Organization (WHO), the Asia-Pacific region includes 37 countries which are divided into two subregions: the Western Pacific consisting of 27 countries such as China, Japan and Australia; and South-East Asia, consisting of 10 countries such as India, Nepal and Thailand [6]. Empirical evidence from the Asia-Pacific region has demonstrated a link between the development of competency of health managers and better health management outcomes in many countries such as Cambodia [7], Indonesia [8], Vietnam [9], Bhutan [10], India [4,11], Korea [12] and Australia [13,14,15,16,17]. Developing health managers is essential to developing good management practices, since good management practices have been acknowledged as a way for hospitals to create value and improve health care outcomes [18].

Management competency assessments of HSMs conducted in Australia, Bhutan, China, Nepal, and India have suggested pressing needs for competency development among HSMs [10,19,20,21,22,23]. The formal and informal management training of health managers before commencing their management positions has been found to be inadequate [19,20,21,22]. For example, a study conducted of health managers in China identified that less than half of the health managers participated in management training either prior to, or after, taking up their management positions [22]. With continuous health care reform, health systems in the Asia-Pacific region are under pressure to improve cost efficiency while enhancing access and quality of care [13,24,25,26]. Competent managers are required to lead the improvement process as they possess required skills such as resource management and evidence-informed decision-making, thus enabling them to manage organisational change [21]. Hence, there is an urgent need in utilising various strategic approaches to equip health managers for working in a complex system with a higher level of awareness and required technical expertise for positive and measurable health outcomes [26,27].

The management competency studies of health service managers conducted in Australia [28] and China [22] confirmed that formal educatiosn as an important development strategy for health service managers. However, the above studies also confirmed that 50 per cent of health service managers in Australia did not possess formal management degrees prior to taking up management roles [21]. Similarly, in China 86 per cent of HSMs with a master's degree and 97.5 per cent of HSMs with a PhD have not received formal management training before taking

up management roles [22]. In addition, competency improvements are often not embedded in regular management performance appraisals which results in inadequate incentives for continuous, informal management training and development activities that are often expensive to organise and deliver. This also requires managers to spend considerable time away from their routine responsibilities [21,28]. Another challenge for development of the health management workforce (HMW) to meet the needs of the health system includes feasibility constraints for conducting managerial development programs in rural and remote areas [4], such as lack of professional support and access [14]. Health managers have been unable to attend and implement capacity-building programs due to work pressures compounded by lack of staff [4]. Without systematic reforms in health care organisations, for instance unstructured decentralisation, confusion has occurred in the working roles of health managers [4]. Budgetary constraints, technological requirements, and political instability have been hindering sustainability of development programs for the HMW [27,29].

Research has identified various challenges for the development of a competent HMW that contributes to meeting the growing and changing health care needs of the population. These include lack of understanding of the competency requirements for HSMs, a lack of competency-based approaches in guiding the design of training and education programs, and inadequate investment in the development of HSMs competence [21,28]. In some resource limited Asia-Pacific countries such as Nepal, Bhutan, Cambodia and Vietnam, there has been limited guidance in the design of formal and informal training and development programs for the HMW [7,9,10,20]. This is because the competency requirements for health managers have not been clearly established in these countries [7,9,10,20]. Although formal education is an important development strategy for a HMW, research from Australia has found that among the awarded postgraduate qualifications for HSMs, very few were management specific [21,28]. Such situations may challenge the HMW to achieve core foundational knowledge required for management positions. Research conducted in Vietnam reported that hospital managers have focused more on their clinical profession where they can easily foresee and earn pecuniary benefits rather than their leadership and managerial development where the benefits are not as immediate [9]. This suggests the requirement of personal will and desire for the development of managerial capability.

1.2.2 Health system overview of Nepal

The origin of the Nepalese health system traces back over centuries, being traditionally rooted in Ayurvedic texts, herbal medicines and faith-based healing practices [30]. These

indigenous modalities formed the backbone of community health care. Beginning with the ancient period [1-879AD] in Nepal, Ayurvedic medicine-based health facilities were established, and safe motherhood was introduced as a public-health policy intervention [31,32,33]. The medieval period [880-1765] witnessed various progress in the health system of Nepal such as accreditation of traditional birth attendants, public policy for providing this service without any partiality, a code of conduct issued for Ayurvedic practitioners along with the establishment of a state-funded Ayurvedic dispensary [30,33,34,35]. In the modern period [1766-1951], various health policies were initiated to strengthen the Nepalese health system. For instance, smallpox vaccination started as the first health intervention in 1850, and a dispensary was established in the same year that provided both Ayurvedic and allopathic services. Medical doctors (British resident doctors) started the medical service and a modern health care system was launched through the establishment of a 15-bed hospital in 1889 and several hospitals and dispensaries across the nation [33,36,37,38,39,40].

However, the health system began to formalise and diversify with successive political transformations, especially following the establishment of democracy in 1951 [30]. This political shift indicated a turning point that led to the establishment of the Ministry of Health and implementation of disease-control programs for diseases such as malaria and tuberculosis. Nepal's endorsement and adoption of the Alma-Ata declaration in 1978 reinforced the orientation of its health system towards primary health care (PHC) and expansion of health posts across the country, demonstrating a growing commitment to public health infrastructure [41]. The subsequent policy developments, mainly the National Health Policy in 1991 and the second long-term health plan in 1997, strove to institutionalise equity-focused and integrated PHC, expanding PHC services to rural and disadvantaged populations [42,43]. The government aimed to set up a health facility for every village development committee, and a PHC centre with a birthing facility for every electoral constituency. According to the data published by the Ministry of Health, this resulted in the infant mortality rate dropping from 108 deaths per 1000 live births in 1990 to 46 deaths per 1000 live births in 2013. The maternal mortality rate also dropped from 850 deaths per 100,000 live births to 170 deaths in 2013 [44].

The health system has a layered structure, designed to ensure that the majority of the public can access minor treatments and essential public health services locally and affordably. As per the organisational framework of the MoHP and Department of Health Services (DoHS), health posts function as the first institutional point of contact for basic health services [45]. Higher up the system, larger hospitals act to support peripheral facilities with logistical, supervisory, financial and technical assistance. Nepal has also witnessed an increase in private

health clinics, pharmacies and hospitals, particularly in urban and semi-urban areas. Though health centres are distributed geographically across the country, there exists disparities in service quality [46]. Many health posts in remote or mountainous regions struggle to deliver comprehensive care with patients in remote or mountainous regions often struggling to access timely and effective treatment [47,48].

In 2015, Nepal instituted a new constitution, with a major structural change that redefined the country as a federal republic with three tiers of governance: federal, provincial, and local government [49]. The seven provinces are subdivided into 753 local governments comprising six metropolitan cities, 11 sub-metropolis, 276 urban municipal councils and 460 rural municipalities [49]. The new constitution also embodied health as a fundamental right and guarantees free basic health services and emergency care for all Nepalese citizens [49]. However, the transition to a decentralised federal model from a centralised health system has created significant structural and operational challenges despite the progressive legal framework.

Figure 3: Map of Nepal with provinces

Source: Nations Online Project. (n.d.). *Map of Provinces of Nepal*. Retrieved January 2023, from https://www.nationsonline.org/oneworld/map/nepal-administrative-map.htm [50]

Based on the contextual norms of the federal system, it is the responsibility of the state to ensure access to quality health services for all citizens [51]. Several health plans and policies

have been drafted and institutionalised for better functioning of the health system. For instance, the Ministry of Health and Population (MoHP) with the joint commitment of Health Development Partners (HDP), initiated the Nepal Health Sector Strategic Plan (NHSSP) 2023-2030, as a framework for a sector-approach, translating constitutional health provisions into actionable steps and striving for universal health coverage in alignment with the World Health Organization's Sustainable Development Goals [52]. The first annual review report of NHSSP in the fiscal year 2023/2024 outlined key progress in enhancing efficiency and responsiveness of health system through skill-mixed human resources [53].

Similarly, the Health Service Act 2053 (1997) and the Public Health Service Regulation 2020, published by the Government of Nepal, provide the legal framework for managing health personnel, including provisions for transfer or rotation of staff across federal, provincial and local levels [54,55]. The Nepal Health Service Act 2053 (1997) states that employees shall be transferred or rotated across different settings such as the most remote, remote and non-remote areas to provide them with experience of different geographical regions of the country [54]. The Nepal Health Service Act 2053 (1997) also explicitly states that no employee shall be transferred or rotated until the employee completes at least one year in the case of most remote setting or at least two years in the case of remote setting. Additionally, the Act explains different circumstances of transfer prior to expiration of the required period, such as if the employee cannot work there because of their physical or mental health, or reduction in any position or departmental action to be taken against any employee. Furthermore, the Employee Adjustment Act, 2075 (2018) and the Ministry of Health and Population (MoHP) emphasise strategic staff rotations to address disparities in health care access, especially in rural and remote areas [56]. These policies aim to ensure equitable distribution of health services and streamline the transfer and adjustment process for health professionals. To address the existing discrepancy in health care access, a comprehensive method including both financial and non-financial incentives has been designed to attract health professionals to rural and isolated communities. These strategies encompass financial rewards, subsidised housing, opportunities for professional growth, and preferential deployment policies [57]. Making rural postings more attractive, the government seeks to enhance the retention rate of health professionals and improve service delivery in rural and remote areas. Moreover, the Labor Act, and accompanying employment regulations, specify a range of compulsory and additional benefits such as hardship allowances, paid leave, and social security entitlements to further motivate health workers to accept placements in geographically challenging locations [57].

Although the federal system paved a new pathway of opportunities for building a better health system, it must overcome numerous challenges such as:

1. geographical and economical barriers for people attending health centres [46]
2. inequitable distribution of tertiary health institutions where sophisticated care and treatment are provided in central level hospitals that are mostly located in the capital city and big cities [46, 58]
3. public health centres while being spread across the country, unfortunately, only a few have been able to provide quality services [58]
4. health facilities in the rural and geographically challenging areas lack access to advanced technologies and restrictions in the services they offer [20]
5. hospitals, primary health care centres, health posts, urban health centres, community health units and other health facilities are present across the country, but patients may need to travel abroad for disease specific treatment [59]
6. accountability, prioritisation, engagement, and investment in health programs at different levels due to a lack of clarity in the delineation of authority between jurisdictions in the different layers of government including unclear roles and responsibilities of local authorities [58]
7. weak patient referral mechanisms from primary level hospitals to secondary or tertiary-level hospitals [46]
8. Doctor-patient ratios and nurse patient ratios do not meet WHO standards [46]
9. inadequate numbers of clinical and supportive staff leading to incomplete and inaccurate recording and coding of patients' morbidity and mortality data [46]

The Ministry of Health and Population (MoHP) remain accountable for planning and forecasting the health workforce, but human resource management continues to be a critical bottleneck [60]. The decentralisation efforts have been obstructed by resistance from civil servants due to lack of clarity and unclear roles and responsibilities [48,60]. The health service delivery structure was originally designed for a population of 10 million, but today the system is under considerable strain with more than 30 million people and a health workforce of approximately 35,000 [61]. To address this issue, the government has been increasingly reliant on temporary recruitment of health staff, though this measure remains a stopgap solution [61]. Compounding these issues, before provincial structures were fully operational, the federal posts were reduced. For instance, in the MoHP, existing posts were reduced from 111 to 106, and the Department of Health Services (DoHS) from 196-121, where the system anticipated

transferring responsibilities to provincial units. However, without coherent a staffing model and the absence of functional analysis tailored with local needs, the constitutional aspiration of universal health coverage is undermined [62]. The premature downsizing has created a vacuum in technical leadership and coordination during the transition phase. Also, local-level health structures have been inadequately prepared for the transition. The dissolution of district health offices and the emergence of subnational entities at local levels have resulted in service outlets being staffed by paramedics lacking training in procurement, planning and management, further complicating the service continuity [61]. The health personnel deployed at the municipal level are often allied health workers primarily trained in clinical service provision and lacking competencies in planning, procurement and health system management. Nepal's constitution guarantees universal health coverage (UHC) which includes access to quality health services for all without financial hardship. However, without strategic staffing and localised planning, this goal becomes unachievable in practice [61]. To endorse the constitutional vision of UHC, Nepal must develop a contextually appropriate staff mix by investing in tailored health service delivery models. It is essential to include extensive capacity building in planning, monitoring, evaluation and governance to ensure decentralisation translates into effective and equitable health care for all.

1.2.3 Role of hospital managers

Hospital managers possess a central role in assuring the effective and efficient delivery of health services. Hospital managers hold both moral and legal obligations for aiding in delivering high-quality patient care and striving continuously for health care improvement [5]. These health care managers are uniquely empowered to shape institutional climates, embed quality and safety as core operational priorities, and demonstrate compliance and facilitate team adherence to systems and procedures. Health care managers serve as the backbone of the health system's success, driving continuous improvement and ensuring effective operation [3].

In practice, health practitioners who are experts in their clinical field are appointed to managerial roles. It is argued that many clinicians have become leaders by accident [63] as they have been promoted into managerial roles based on their career achievements rather than their managerial skills [20,64,65]. However, without formal management education and training, an expert clinician may not be able to competently perform managerial tasks [19,20]. Therefore, development of future health managers is essential.

Health care managers often encounter challenges associated with professional identity and role clarity especially in low- and middle-income countries (LMICs) [19,66]. Health care

management roles often lack a distinct title, structured pathway or clearly defined scope of responsibility and are mostly embedded within clinical or administrative functions. This ambiguity in role expectations can undermine the legitimacy of managerial authority.

Health care managers not only assume leadership roles with limited formal training; they may also face ongoing constraints in accessing continuous professional development opportunities related to management competency throughout their careers [67]. Like many industries, health care is in the midst of significant transformation, and to navigate accelerating health care reform, strong managerial leadership is needed [68]. It is argued that in future, more clinicians will be in a position to fill formal administrative leadership roles, to lead clinical and project teams, and to participate in a variety of clinical and non-clinical process improvement efforts [69]. Thus, managerial leadership needs to be emphasised such that strategic orientations and leadership competencies can be cultivated and sustained [70].

In the context of this research, the term “senior hospital managers” (SHMs) includes hospital directors and chiefs of various departments employed at Level 8 through to 11. These levels are distinct tiers within the government organisational hierarchy that classify employees’ relative rank, responsibilities and authority. Examples of SHMs include chief medical officer, chief finance officer, chief of administration services, head of gynaecology, chief hospital pharmacist, head of dentistry, head of radiology, head of paediatrics and the head of nursing (nursing manager).

1.2.4 Why competency and capability matter

Management competency is defined as “a descriptive tool that identifies the skills, knowledge, personal characteristics and behaviours needed to effectively perform a role in the organisation and help the business meet its strategic objectives” [71, p.5]. Each competency thus consists of a set of knowledge, skills and attitudes that are essential for performing each task satisfactorily [26]. According to Job Characteristics Theory, skill variety may be one of the significant factors in a manager’s feelings about his or her work and ultimately whether that work is essentially a meaningful occupation [72]. Thus, skills and knowledge are the job characteristics that foster people’s psychological states resulting in enhancing their internal work motivation and job performance. People with low knowledge and skills to accomplish their tasks satisfactorily tend to have negative feelings towards their job. Consequently, people with adequate knowledge and skills feel positive about their job performance. Proficiency in each of the work activities depends on the manager’s command of critical competencies at the skill and knowledge levels which enable a manager to contribute to organisational success [72].

Competency requirements across senior and mid-level health service managers vary both in the level of performance required and the exact nature of which competencies are needed. Understanding managerial competency is crucial as health service managers perform wide-ranging complex tasks including financial oversight, workforce management, and governance, which can impact on patient safety [28]. Developing the core competencies of health service managers is important for improving managerial performance [21,22,28,73]. Core competencies required for health service managers have been identified and confirmed in various countries such as Australia [19,26], Iran [64], Thailand [24], India [21], Bhutan [7], Indonesia [8], Vietnam [9] and China [20].

Competent HSMs can integrate clinical service, management and political domains using leadership, collaboration and teamwork skills, which are crucial for better health outcomes, quality health care and building management capacity [19,74]. The identification and confirmation of essential competencies for HSMs and determining competency requirements can guide management position recruitment and performance management [28]. Competency assessment involves assessing a person's attitude, knowledge and behaviour to understand their competency level and identifying possible competency gaps [21,75,76,77]. Competency assessment confirms gaps in knowledge and skills which aids the development programs [22,26,74]. For instance, the assessment of management competencies of primary health care managers in Timor-Leste provided useful information to policy makers and stakeholders, allowing development of strategies focusing on specific competencies of professionalism in the workplace, problem solving on financial management, knowing the organisation, and effective leadership [74]. Effective tools for assessing the competencies of health managers have been developed in various countries such as Australia [21] and Thailand [26] which also have implications for health service management workforce development.

A person's self-judgement of their own knowledge, skills and abilities positively relates to their ability to learn and improve competence [78]. Research reveals that such judgements provide managers with an opportunity to evaluate their strengths and weaknesses and plan training based on identified needs [79]. Thus, this is an important step for performance management [80].

Avery argues that capabilities are broader integrative constructs compared with competency since capability enables managers to adapt, innovate and lead in complex health environments [81]. Distinguishing capability from competency is crucial in the context of low- and middle-income country settings such as Nepal, where health managers need to operate beyond formally defined roles, often exercising judgements in unpredictable situations.

Capability refers to the freedom and opportunity shaping individual ability to achieve valued outcomes in contextually relevant ways [82]. The concept of capability extends beyond technical competence and expands to adaptive expertise and strategic leadership including ethical reasoning. Since capability involves deployment and application of competencies, capability development encompasses competency development together with support systems, financial resources and adaptive expertise. Hence, enabling environments are the key to making the transition from competent to capable. Capability development supports managers' ability to navigate and influence the complex multi-level systems within which they operate to promote health and sustainability. Dellve & Eriksson offer a systems-based framework that is ideal for anchoring capability as a dynamic and context-sensitive construct [83]. As a capability-oriented process, this framework conceptualises health-promoting managerial work, assisting managers to develop the adaptive skills, knowledge and agency for sustainable work practices required in routine operation as well as during organisational change. The framework emphasises sustainable work practices during change. The proposed leadership program by Dellve & Eriksson builds managers' capability through real-world problem solving and reflective practices employing experiential learning. Similarly, collaborative inquiry through peer learning and shared knowledge creation enables contextual adaptation utilising tailoring strategies to local organisational realities. All these principles align well with resource constraints LMIC settings such as in Nepal, where contextual responsiveness and systems navigation are critical.

Capacity refers to the capabilities that become institutionalised, scalable and sustainable, even during extreme situations such as policy changes, funding shifts and staff rotations. Supportive governance structure, policy and regulatory environments, strategic planning and adaptability mechanisms are essential for making the transition from capability development to capacity development [84,85]. Capacity development refers to the collective ability of systems, organisations, and networks to support and sustain effective performance [86]. Although capacity development is related to competency and capability development, it is conceptually distinct, since it focuses on system-level strengthening, enabling environments and organisational learning unlike individual-level transformation focused on competency/capability development [87]. Policy makers play a crucial role in developing the capacity of HSMs by formulating policies and strategies that prioritise system-level strengthening and create the enabling conditions for managerial task accomplishment.

In the context of this research, policy makers (PMs) are the government officials occupying strategic policy and governance roles within Ministry of Health and Population

Nepal. PMs are often the former SHMs or experienced health managers who have progressed into central government roles. They typically hold high-ranking civil service positions as they are responsible for shaping national health policy along with setting system wide priorities.

In this research, theoretical anchors such as capability approach, systems thinking and realist causation were applied in complementary ways. The capability approach guided the shift from viewing SHMs managerial performance as a matter of individual competency to understanding what SHMs are substantively able to be and do within their organisational and system constraints. Systems thinking informed the analysis of how SHMs managerial capability emerges from interactions between multiple system elements including structures, resources, relationships and feedback loops rather than individual competency attributes alone. Realist causation shaped the explanatory logic of the study by highlighting on the generative mechanisms that either enable or constrain capability under specific contextual conditions. Combinedly, these frameworks provided the basis for interpreting the findings across phases and for developing the ECOS model. Though not all elements were prespecified at the outset, the integration of results across quantitative and qualitative phases led to a retrospective strengthening of these theoretical anchors. This allowed the study to move beyond description and toward a coherent, mechanism-based theory of managerial capability and system capacity.

The extent of managerial tasks is broad; thus, the rapidly transforming health sector demands that future clinical leaders excel in management and clinical fields [64,88]. While it is clear that strengthening the competencies and capabilities of HSMs is essential for improving management outcomes and achieving positive health results, several challenges remain [28]. Efforts to develop skilled health managers have been insufficient, often lacking clear focus and strategic direction. This issue is particularly pronounced in resource-constrained countries such as Nepal, facing significant social and economic challenges. In these settings, management positions are frequently occupied by senior doctors with extensive clinical experience but lacking in formal management education [19,20].

1.3 Problem statement

Human resources are the cornerstone of quality health-service delivery. Recognising this, the Nepal National Health Policy 2019 highlights the need for robust quality assessment and regulation in the development of human personnel. However, hospital management roles in Nepal are unregulated, with no formal registration or credentialing requirements. Competency standards for hospital managers have yet to be clearly defined [19,20], resulting in limited guidance for designing both formal and informal training programs.

There is no documented evidence of competency-based development strategies for hospital managers in Nepal. A 2012 study identified the need for in-service management training for the HMW [18] and highlighted the absence of structured development strategies for managerial competencies – an issue that continues to limit effective and efficient hospital service delivery [19,20].

Although two studies have explored managerial competencies required for Nepal's hospital management workforce, their relevance is limited as they were conducted prior to the country's transition to a federal democratic republic [19,20]. Given recent reforms in the health system, it is critical to reassess workforce development needs within this new government framework. There is a pressing need to establish a comprehensive framework for developing the health management workforce including identification of key enablers and barriers in their growth, an essential step towards improving hospital service provision in Nepal.

Despite various policy efforts to enhance health care delivery, frequent transfers and mandatory rotations of the senior health management workforce have contributed to high turnover rates, particularly in remote areas. The Nepal National Human Resources for Health Strategy 2021-2030 identifies workforce maldistribution and recurrent transfers as major obstacles to service continuity and system efficiency [89]. Furthermore, the Nepal Health Workforce Management Information System Operational Guideline [2024] reveals that approximately 40 per cent of health personnel are concentrated in urban areas while urban residents constitute only 22% of the Nepal's national population. This results in a substantially higher per capita availability of health workers in urban areas whereas rural settings which is the home of 78% of population remains relatively underserved impeding equitable health care access [90,91].

Additional research by Adhikari underscores persistent challenges in both rural and urban areas including high turnover among nursing staff in urban hospitals and chronic understaffing in rural health facilities. These issues stem from inadequate incentive structures and inefficient retention strategies [92]. The preference for urban postings, combined with increasing interest in overseas employment, has exacerbated workforce instability and widened regional disparities.

Although the Nepal National Health Policy 2019 emphasises the importance of cultivating competent human resources across all levels of the health system [49], there remains a notable absence of targeted, customised frameworks for systematically developing the health management workforce, particularly in relation to the training and advancement of senior hospital managers (SHMs). To address this gap, a research study has been undertaken with the

specific aim of examining and enhancing the competencies, capabilities and overall capacity of SHMs working in central level public hospitals in Nepal.

1.4 Research aim

The overall research aim is to identify, characterise and understand the Nepalese SHMs' level of competency and ability to develop and demonstrate their managerial responsibilities, with the objective to inform the development of a policy framework aimed at guiding the development of Nepalese hospital management workforce's competencies, capabilities and capacities.

1. Phase I-Scoping review: To identify the various strategies/efforts implemented for developing the HMW in the Asia-Pacific.
2. Phase II: To characterise the levels and gaps in competency to fulfil the managerial responsibilities among Nepalese SHMs. (Cross-sectional study using a survey questionnaire aimed at Nepalese SHMs)
3. Phase III: To explore the perspectives of SHMs regarding their professional capacity development in the managerial roles (Descriptive qualitative study using semi-structure interviews with SHMs)
4. Phase IV: To explore the perspectives of policy makers (PMs) on strategies to promote SHMs capability and capacity within Nepalese public hospital systems (Descriptive qualitative study using semi-structure interviews with PMs).
5. Phase V: To triangulate the findings from quantitative and qualitative phases of the study and to develop a framework that guides developing and unlocking managerial competency, capability and capacity of SHMs.

1.5 Significance of the study

This research plays a critical role in enhancing the performance of SHMs in central-level public hospitals in Nepal by systematically identifying their current competency levels and thus potential professional development needs. In a health care environment shaped by limited resources and shifting service demands, strengthening the management capacity of the hospital management workforce is essential for improving the quality and efficiency of health service delivery nationwide. The study offers both practical and academic contributions. It provides evidence-based insights to inform professional development strategies and support the design of a targeted management competency framework for SHMs in Nepal's central level public hospitals. As a limited-resource country, Nepal continues to work towards strengthening its health system. Hospitals are a core component of this as health systems serve as hubs for

care delivery, coordination and integration. Achieving better hospital performance depends heavily on effective workforce management [63], an outcome closely tied to competent health managers.

The Nepalese public health system faces significant resource constraints that hinder the effective delivery of hospital services. Strengthening managerial competencies is crucial for optimising resource utilisation and improving institutional performance. This research addresses critical gaps in both the literature and practice by systematically assessing competency deficiencies among SHMs and proposing targeted development strategies.

Rather than assuming uniform deficits across all managerial domains, the study identifies context-specific competency gaps. This approach enables a more rational and needs-based allocation of limited health sector development funds. By prioritising the development of demonstrably lacking competencies, resources can be directed towards areas of highest potential impact, enhancing the effectiveness and efficiency of capacity building initiatives, and supporting strategic investment in SMH development.

The research also highlights an important distinction between competency possession and demonstration in practice. In cases where SHMs have the necessary skills but are unable to apply them due to contextual or systemic barriers, identifying these impediments becomes crucial. Understanding such challenges allows for the design of tailored interventions that address root causes. Conversely, mapping the enablers of competency and capability development offers actionable insights that foster managerial excellence.

A valuable contribution of this study is the documentation of strategies employed by SHMs to navigate complex managerial challenges. These insights serve as peer-to-peer learning tools, enabling other SHMs to adopt contextually relevant solutions before escalating issues to policy or system-levels. This bottom-up knowledge transfer strengthens the adaptive capacity of SHMs and promotes a culture of resilience and shared learning.

By bridging the experiential realities of SHMs with the strategic purview of PMs, this research supports a more grounded and responsive policy discourse. It draws attention to the disconnect between policy intent and operational feasibility, encouraging PMs to design institutional reforms and supportive frameworks that directly address the challenges SHM face on the ground.

This study culminates in the development of the ECOS model, a conceptual framework that integrates findings on competency gaps, barriers, enablers and strategic responses. This model serves as a guiding tool for national development strategies aimed at enhancing competency, capability and capacity of SHMs in Nepal’s central-level public hospitals.

Ultimately it contributes to the broader goal of improving hospital performance and strengthening the resilience of Nepal's health system.

1.6 Research delimitations

Within the broader context of health system strengthening in a low-resource setting, this research is situated with specific relevance to hospital management workforce development, policy formulation and hospital performance improvement in Nepal.

To retain feasibility and analytical clarity, this research is delimited in the following ways:

Geographical Focus: This research is limited to central-level public hospitals within Nepal. It excludes other hospitals such as provincial, primary, secondary, Ayurvedic or private health institutions in Nepal.

Participant profile: This research includes only senior level hospital managers at Level 9 or above, for instance hospital directors and department heads. Thus, it excludes mid-level or frontline health workers.

Within managerial scope: The study focuses only on managerial competencies and does not include clinical or other technical skills.

Persistent temporal boundaries: The quantitative cross-sectional data collection and analysis in this research is confined to one period and does not account for longitudinal changes in competency development of SHMs.

Policy Interface: Though the research aims to inform policy, this research has not conducted existing policy impact assessments.

ECOS model application: The ECOS model developed in this research is a conceptual model, thus its implementation and validation in practice are beyond the scope of this thesis.

1.7 Structure of the thesis

This thesis comprises eight chapters, each of which is strategically structured to address the research aims articulated in the introductory chapter.

Chapter 1 establishes the contextual foundation of the research. Starting with an overview of health management workforce challenges across the broader Asia-Pacific region, the study then narrows its focus to a review of the Nepalese health system, providing a national lens through which broader regional dynamics can be observed. It then proceeds to define key conceptual constructs, namely competency, capability and capacity which also serve as theoretical anchors for this study. These key concepts inform the articulation of the research

problem, and the formulation of research aims along with the delineation of the research's implications.

Chapter 2 outlines the methodological framework employed in this study. It begins with the philosophical assumptions and theoretical framework that guided the original research design and its implementation steps, including identified limitations and the rationale for methodological evolution. This chapter also includes a revised framework that includes mixed-methods triangulation and quality assurance mechanisms to enhance the validity of research and its applicability across diverse settings

Chapter 3 presents a published scoping review that has systematically examined the strategies/efforts undertaken to develop health management workforces across the Asia-Pacific region. The scoping review identifies four predominant strategic approaches employed within the region: *i) Organisational informal professional development programs; ii) Competency assessment and identification of gaps in knowledge and skills of HMWs; iii) Confirming competencies and developing competency framework; and iv) Formal education and training.* Chapter 3 thus offers a foundational understanding of existing interventions and professional development initiatives. It also incorporates an updated literature search covering the period from the original scoping review completion to the present. This additional/supplementary analysis bridges current gaps and captures the emerging evidence along with identifying any novel contribution to the field.

Chapter 4 presents findings from a quantitative cross-sectional survey including competency assessments conducted among senior hospital managers in central-level public hospitals in Nepal. The manuscript has been accepted for publication in the *Asia-Pacific Journal of Health Management*. This chapter also includes details of survey instruments and components and assesses multiple domains of SHMs' managerial competencies, including six core managerial competencies and 82 associated behavioural items. The survey component includes an open-ended answer section at the end of the questionnaire. Results reveal variable competency levels among SHMs and identify resource management as the area of lowest proficiency. The findings underscore critical gaps in managerial competencies and inform the need for targeted workforce development interventions in the Nepalese public hospital sector.

Chapter 5 presents a descriptive qualitative study that builds upon the preceding quantitative findings to explore the lived experiences of SHMs in central-level public hospitals in Nepal. The manuscript is under review. This chapter investigates the barriers and operational challenges faced by SHMs in their professional roles through semi-structured interviews. Thematic analysis reveals four themes that highlight structural and procedural factors that the

SHMs reported to influence their capacity to effectively fulfil their roles*: i) Stability, continuity and coherence; ii) Practical and logistical constraints; iii) Interference, conflict and control; and iv) Managing the mismatch between ability and expectations.* This chapter deepens the empirical understanding of SHMs' challenges and contributes to the development of responsive, grounded and real-world informed strategies for strengthening Nepalese SHMs.

Chapter 6 presents findings from a descriptive qualitative study that builds upon the preceding quantitative and qualitative findings to explore the perceptions of health PMs in Nepal regarding SHMs' capability and capacity development. The manuscript is under review. It identifies four key configurational and operational factors that PMs believe to influence the capability of SHMs in fulfilling their managerial roles and responsibilities: i) *Targeted and phased orientation, training and education; ii) Need to free job stability and promotional structures from political interference; iii) Improvements to the forms and chains of communication to increase connection and coherence; and iv) Adherence to policy as a means of promoting predictability and cohesion through ongoing change.* By integrating perspectives from real-world policy makers, this chapter offers essential insights into scalable strategies for strengthening SHMs' capability and capacity across diverse central level public hospitals in Nepal.

Chapter 7 highlights the synthesis of findings from data triangulation of the quantitative and two qualitative phases of the research. This chapter identifies various challenges faced by SHMs which revolve around multiple facets, from personal limitations to broader systemic issues, and is broadly classified into individual-level challenges, organisational-level challenges and system-level challenges. Furthermore, this research has developed a cyclical model, which we call "ECOS", through the integration of data from all phases of the research. The ECOS model advances understanding and conceptualisation of the interplay between competency, capability and capacity development of SHMs.

Chapter 8 is the final chapter of the thesis. This chapter summarises the key findings from the five phases of the research. The chapter also discusses the overall implications for developing and demonstrating managerial competency and capability of SHMs in the specific context of central-level public hospitals in Nepal and highlights practical examples to develop their management capacity. Furthermore, the chapter details the limitations of the different phases of the study and outlines future directions for research and policy development.

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Chapter 2: Methodology

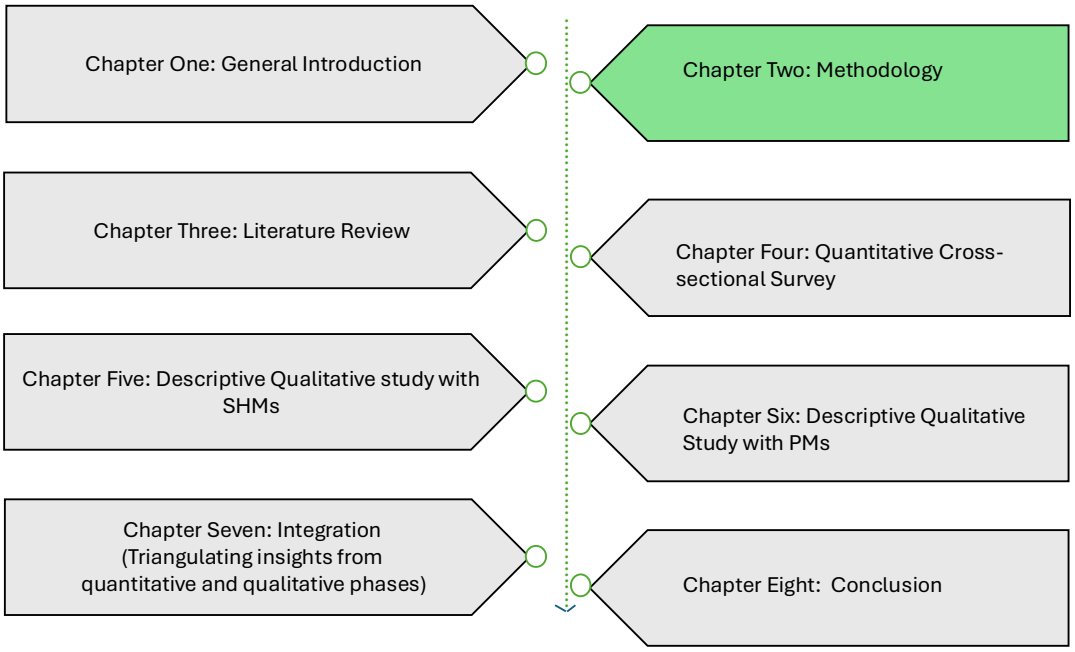

Figure 4: Site of chapter 2 in the whole document

2.1 Chapter overview

The chapter outlines the methodological framework employed in this study, incorporating the philosophical underpinnings and theoretical framework that guided the initial and subsequent study design. Along with the original research design and its implementation steps, the chapter presents identified limitations and the rationale for methodological evolution. Furthermore, the chapter highlights the revised framework that includes mixed-methods triangulation and quality assurance mechanisms to enhance the validity of research and its applicability across diverse settings.

2.2 Research philosophy and methodological approach

A research paradigm is a foundational framework that guides the set of values and assumptions, beliefs, knowledge and methodologies which support the investigation and interpretation of research [1]. It is crucial to understand research paradigms to develop a coherent and philosophically grounded research design that is methodologically sound, ethically informed and practically relevant [2]. Two prominent but divergent research paradigms, positivism and interpretivism, differ in their approaches to the nature of reality (ontology), and the nature of knowledge (epistemology) [2].

Positivism is a philosophical standpoint that contends the existence of an external, objective reality that can be observed and measured [3]. Positivism maintains that knowledge can be achieved through empirical observation or experiments and is associated with quantitative research methods that rely on numbers, statistics, and probabilistic analysis to investigate phenomena systematically [3]. Hypotheses are formulated and tested with conclusions derived from assessment of statistical significance [4]. The researcher remains neutral, avoiding personal bias, to ensure the results are reproducible.

In contrast, the interpretivist research paradigm positions reality as relative, subjective, and multiple with knowledge being co-constructed through human interactions and interpretations [5]. Research methodologies that align with interpretivism emphasise the importance of understanding human experiences, meaning making and social constructions of reality [5]. Hence, interpretivist, qualitative research methodologies employ methods such as interviews, case studies, ethnography, and thematic analysis to explore meanings and perceptions [5,6].

The seemingly irreconcilable paradigmatic differences between positivism and interpretivism has led, though various other philosophies of science, to the emergence of pragmatism as an alternative standpoint [7,8,9]. Pragmatists assert that truth is best understood as knowledge and ideas that contribute to useful forms of problem-solving and associated successful outcomes. As such, pragmatists recognise the strengths of research methods drawing on positivist philosophical traditions as well as those that are rooted in interpretivist ontological and epistemological standpoints, arguing that each of these offer useful, albeit different forms of knowledge [10].

Mixed-methods research is typically aligned with philosophical pragmatism due to its flexible and considered adoption of both quantitative and qualitative methods, allowing for a more comprehensive understanding of complex phenomena. Mixed-methods research, drawing on the strengths of both positivist and interpretivist paradigms, is frequently used to examine complex health care issues and has gained significant prominence in health sector research [11]. The philosophical foundations of mixed-methods research started to develop well before its formal acknowledgment as a discrete research approach during the late 1980s. [10,12]. The inception of mixed-methods research was driven by the increasing complexity of research questions, that demanded more than purely numerical (quantitative) or descriptive (qualitative) responses. Researchers recognised that such multifaceted issues could not be adequately addressed by either of the distinct methods alone, resulting in the incorporation of qualitative insights to complement and contextualise numerical data and vice versa. This evolution marked

a pivotal shift towards methodological pluralism and the integration of diverse forms of evidence to better reflect complex phenomena [10,12]. This analysis aligns with the study's pragmatic philosophical stance, as outlined in the abstract as well as detailed in this section.

In keeping with the philosophical positioning of pragmatism, I position myself as a health management researcher in the middle ground between two opposing paradigms, recognising the strengths and weaknesses of both. Hence, this study has adopted a mixed-methods orientation to guide the integration of quantitative and qualitative data [10]. This approach facilitates a deeper understanding of the findings by triangulating results from both methods to generate rounded and comprehensive explanations for the observed phenomena and generate holistic findings that are both scientifically robust and socially meaningful [10].

2.3 Theoretical framework

The theoretical framework underpinning this research was informed by a preliminary scoping review (Phase I) to identify the existing development efforts for health managers across the Asia-Pacific region. Phase I was essential to establish conceptual and empirical grounding for the study's overarching research aims. The review was thought to serve a dual purpose: first, to map and synthesise the prevailing strategies and conceptual approaches that existed across diverse health systems in the region; and second, to establish commonalities, opportunities and gaps in managerial competency development for health managers. The review was sought to provide a structured starting point for theory selection and methodological framework construction through systematic examination of literature, thus also ensuring that subsequent analysis was grounded in strategic relevance as well as empirical precedent. Without this foundational mapping, the study risked proceeding without clarity on prevailing paradigms and limiting its capacity to generate actionable insights.

Phase II of the sequential mixed-methods research adapted the managerial competency assessment partnership (MCAP) framework. The MCAP was adopted as a methodological anchor because of its robust alignment with the research aims of identifying the managerial competency gaps and development needs for SHMs in central-level public hospitals in Nepal. Since, MCAP is designed specifically for health service managers, it offers a validated framework that operationalises managerial competencies across six key domains including leadership, resource management and communication. The structured approach of MCAP enables both diagnostic and developmental applications, thus making it suitable for research focused on competency development and health management workforce development. MCAP is underpinned by Competency-Based Theory, which posits that the effective performance of

health managers arises from demonstrable skills, knowledge and attitudes that are aligned with role expectations. Methodologically, the MCAP framework supports this research by providing a standardised assessment tool for evaluating existing managerial competency of health managers, along with offering a developmental lens by identifying the gaps and informing targeted interventions. MCAP also enables comparative analysis across settings and systems. The framework was originally developed in Australia and is widely used in the Asia-Pacific region to guide competency-based education and professional development [15,16,17,18,]. The MCAP framework and tool was utilised for measuring competency level and identifying the competency gaps and competency development needs for SHMs in central level public hospitals in Nepal.

While the quantitative strand of this study was underpinned by MCAP framework, the subsequent qualitative phases were intentionally designed without prior theoretical imposition. This enabled the emergence of grounded, context-specific insights. Through iterative coding, comparative phase analysis and triangulation, a theoretical understanding was retrospectively established. The evolving patterns led to a multi-theoretical model wherein each theory was mapped to a specific, clearly defined area of relevance, reflecting the layered realities encountered across the phases.

Although the descriptive qualitative study was not anchored in a specific theoretical framework at their inception, patterns and constructs began to surface during data collection and analysis. Through an iterative process of coding, thematic clustering and comparison with existing literature, theoretical understanding emerged organically. Thus, the emergent theoretical framework (conceptual model) gradually took shape through the research process where the structure and domains were derived from patterns observed in the data, rather than being imposed by existing frameworks alone. This inductive trajectory reflects the study's pragmatic orientation, allowing theory to be constructed through engagement with empirical realities (observed patterns from the data) rather than imposed *a priori*.

Theoretical understanding evolved progressively during the comparative phase analysis, facilitated through a process of data triangulation across qualitative and quantitative sources. As patterns crystallised across data sets, interpretive coherence with established literature became apparent. This evolving conceptual clarity supported the adoption of a multi-theoretical framework, wherein three distinct theoretical perspectives: competency development [19], capability development [20] and capacity development [21], which were mapped to address different analytical dimensions of the study. Each theory corresponded to a nested domain of practice, progressively expanding from individual to broader systemic

approaches. Theory 1: competency development has been described earlier. Theory 2: capability development corresponds to institutional capacity and culture. And Theory 3: capacity development corresponds to the governance and policy practice, thereby enhancing the explanatory depth and contextual responsiveness of the emergent multi-theoretical framework. The evolved multi-theoretical framework is context-responsive, as it reflects the conditions, challenges and adaptive practices experienced by SHMs within the central-level public hospitals in Nepal. Details on capability and capacity development are included in Chapters 1 and 7.

2.4 Research methodology

The research originally aimed to develop the managerial competencies of SHMs in central-level public hospitals in Nepal. However, as the study unfolded, the focus shifted away from an exclusive emphasis on the managerial competencies. The reason was that the findings from the scoping review and open-ended survey responses indicated that factors influencing SHM managerial performance extended beyond individual competencies and into organisational, systemic and contextual problems in the Nepalese public health sector.

2.4.1. Phase I scoping review

Learning from past experience is necessary to maximise efforts in assisting health service management workforce development. Thus, understanding current health service management workforce development strategies is one of the key steps. Since no integrated review on the development efforts for HMW in the Asia-Pacific region was identified, a scoping review of the literature was conducted to identify and confirm the key strategies that have been used in developing the health management workforce in the Asia-Pacific region. Details on how the scoping review was conducted are presented in Chapter 3.

2.4.2 Phase II Cross-sectional survey

Phase II was an assessment of the management competencies of SHMs working in Nepalese central-level public hospitals. Research evidence suggests that a person's self-judgement of their own knowledge, skills and abilities positively relates to their ability to learn and improve competence [15]. This was important since management competency assessment is an essential step for performance management that helps to understand the existing competency levels and identify competency gaps. Additionally, the exploration of development needs for specific managerial domains is useful in the resource-poor setting of Nepal because this helps in logical utilisation of scarce resources for SHMs to accomplish their managerial

tasks effectively and efficiently. Phase II utilised the validated survey MCAP questionnaire [15]. Details on the methods of this phase are included in the Chapter 4.

Neither phase II nor other qualitative phases (phase III & IV) distinguished between clinical and nonclinical SHMs because the comparison was not part of the research. The purpose was to understand the shared managerial task that is comparable rather than to analyse differences between clinical and non-clinical pathways. Introducing the distinction between clinical and non-clinical SHMs would have shifted the research question and potentially fragmented the analysis.

2.4.3 The methodology changed because of Phase I and II

A particularly noteworthy aspect of the findings in Phase II indicated that, while individual competencies remain important, organisational factors also play a critical role in shaping the effectiveness of health management. These insights suggested that, for this research to be truly impactful, its scope must extend beyond a narrow focus on competency to include the broader organisational context within which SHMs operate. Although the quantitative phase provided understanding on SHMs competency levels and competency gaps, it did not uncover specific factors that influenced their competency ratings, experiences, motivations or contextual factors influencing competency development and demonstration. This shifted the research trajectory beyond managerial competencies, redirecting the attention towards a more comprehensive approach to SHMs' managerial performance. Thus, to capture richer insights into SHMs experiences and the environment in which they operate, policy makers' perceptions of this topic were also needed. Descriptive qualitative studies were planned to move away from developing managerial competencies.

2.4.4 New research methodology

The revised research direction expanded the inquiry to include the perspectives of SHMs and PMs with the aim of understanding not only the barriers to competency utilisation but also identifying actionable solutions. Thus, the subsequent Phases III and IV aimed to critically examine the competency development needs of SHMs within the Nepalese central-level public hospital system with a particular focus on understanding both SHMs' experiences and the strategic perspectives of PMs in relation to enhance and strengthen the professional performance of SHMs.

As a result of these changes, the research employed a sequential explanatory mixed-method design to support a more complete understanding of the research problem identified

[10]. A diagrammatic representation of the sequential explanatory mixed-method study design is presented in Figure 4.

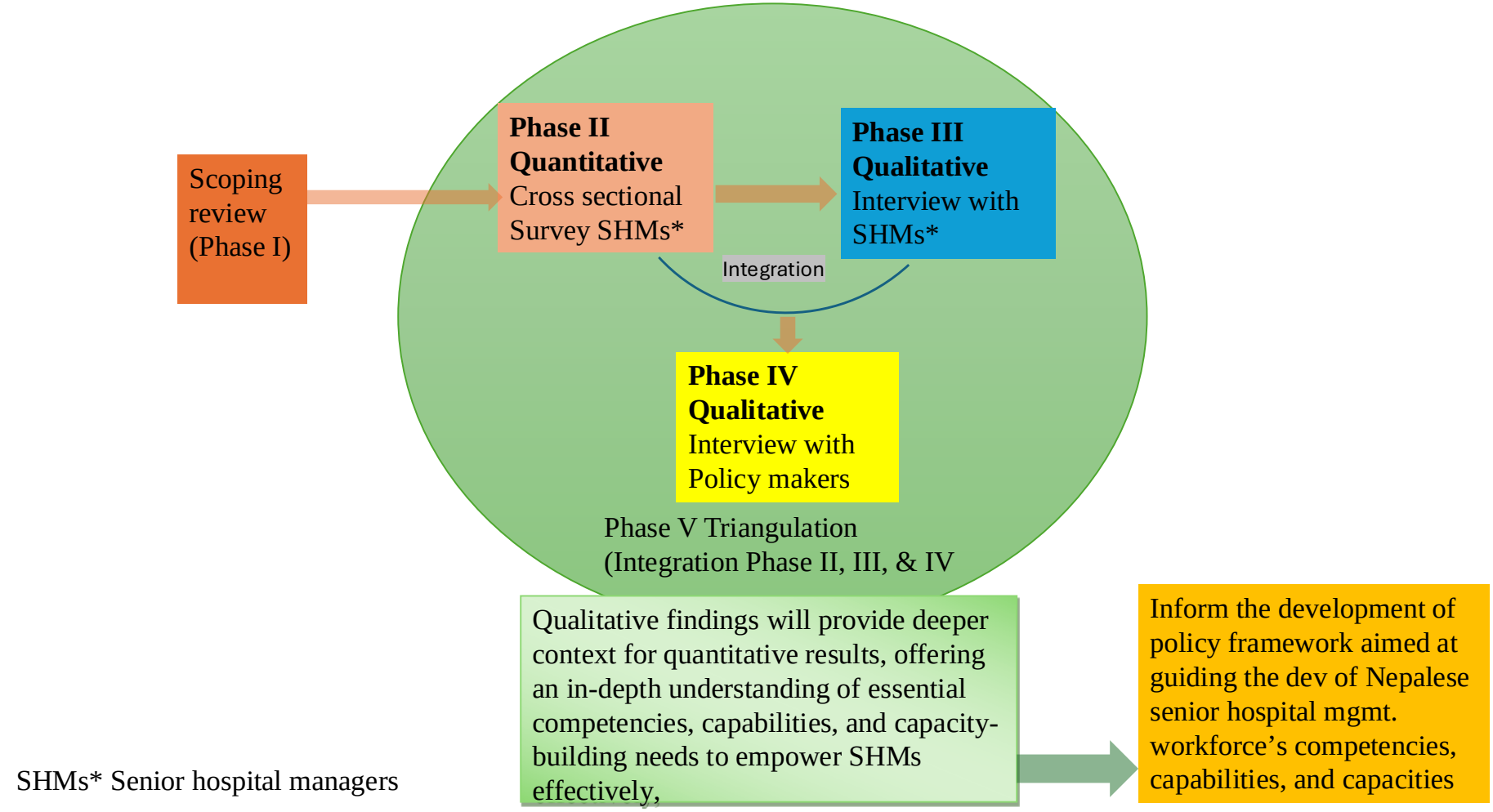

Figure 5: Sequential explanatory mixed- method study design (author developed)

2.4.4.1 Phase III Descriptive qualitative interviews with SHMs

Informed by the findings of Phase II, follow-up interviews with SHMs who participated in the survey were undertaken to further develop an understanding of how SHMs interpret and navigate organisational mechanisms that may either support or impede their professional capacity to undertake their managerial roles. This qualitative phase was designed for depth and explanatory insight but not for the representativeness. The semi-structured interview guide for this phase was developed based on analysis of the quantitative findings. This also ensured that Phase III directly addressed unexplained patterns identified in Phase II. For example, in Phase II (open-ended questions), SHMs highlighted a broader range of systemic and contextual barriers that appeared to hinder the translation of individual competencies into effective practice. Details on the methods of Phase III are included in Chapter 5.

2.4.4.2 Phase IV Interviews with policy makers

Phase IV, a second descriptive qualitative study, included semi-structured interviews and focus group discussion as preferred by PMs for a deeper insight into configurational and operational factors influencing capability and capacity development of SHMs. The policy makers are responsible for making amendments at system level and introducing new policies for SHMs. Interviews and focus group discussion with PMs were crucial in understanding scalable strategies or approaches that could be adapted and implemented across different central-level hospital contexts. The inclusion of PMs' perspectives also ensured that recommendations were not only theoretically sound, but also feasible, grounded in real-world policymaking and aligned with the long-term sustainability goals of the health sector.

The semi-structured interview and focus group discussion guide for Phase IV was refined based on integration of data from Phase II and Phase III findings which ensured that Phase IV included a deeper exploration of aspects from Phase II and Phase III. Details on the methods of Phase IV are included in Chapter 6.

2.4.4.3 Phase V triangulation

The triangulation of data through comparing and synthesising findings across quantitative and qualitative phases provides a better understanding of complex phenomena under investigation. By merging the quantitative and qualitative datasets (Phase II, Phase III and Phase IV), triangulation (Phase V) achieved a more holistic and nuanced understanding for development and unlocking managerial competencies, capabilities and capacities of SHMs in Nepalese central-level public hospitals. The integration of quantitative and qualitative data strengthened the depth and clarity of findings by allowing comparison analysis, ensuring that

similarities and differences have been meaningfully interpreted. This approach also assured that the findings are both evidence-based and socially meaningful, making the research more impactful and applicable [13]. Details on triangulation of the data are presented in Chapter 7.

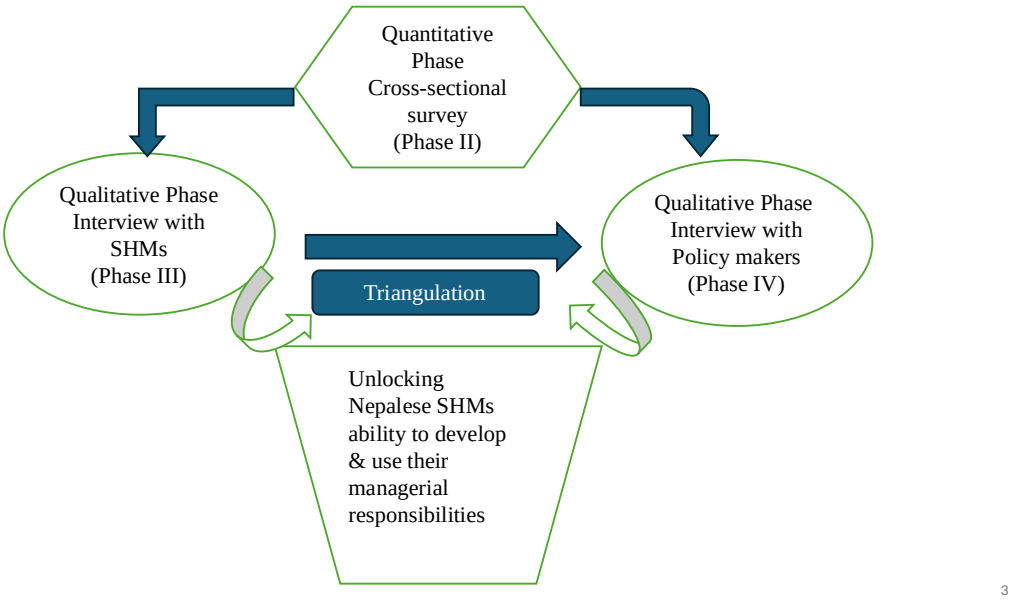

Figure 6: Triangulation (author developed))

2.5 Quality assurance

Multiple quality-assurance strategies were employed to ensure methodological integrity across the quantitative and qualitative phases of this research. In Phase II, the cross-sectional survey, a validated research instrument (MCAP tool) was used to guide data collection. A pilot test was conducted prior to full deployment of the survey questionnaire to assess the clarity and contextual relevance. As a result, among the seven scales included in the competency level of original MCAP survey questionnaire, one scale was excluded. From the results of the survey the psychometric qualities of the MCAP tool were also tested. Details on how these processes were undertaken are in Chapter 4.

The data collection in Phases III and IV continued until thematic saturation was considered to be achieved. Ethical and cultural factors were considered in this research which included cross-checking for any assumptions, reviewing the translation by two people, flexibility for focus group or interviews and locations based on participants preference. The study also adopted the evaluative criteria proposed by Lincoln and Guba to uphold the trustworthiness of the qualitative components [22]. The four evaluative criteria of credibility, dependability, confirmability and transferability provided a robust framework for assessing the

rigour of qualitative phases. These strategies collectively ensured that the research was ethically and contextually responsive and methodologically sound.

Credibility: The purpose of credibility is to assure confidence in the truth of research findings and from the participants' viewpoint [22]. When undertaking this study, various strategies were applied to achieve credibility which included prolonged engagement (separate interviews with SHMs and PMs for building layered understanding across operational and strategic levels), reflexive awareness of researcher's interpretive roles, and triangulation of data sources and methods.

Dependability: The concept of dependability aligns with assurances concerning the consistency and stability of a research process over time [22]. Strategies applied to achieve dependability included maintenance of an audit trail (with records kept concerning research design rationale and changes over time, data collection protocols, coding frameworks and thematic development steps); use of a research diary with memos and reflections; and transparent documentation of translation assessments. Translated interview transcripts were reviewed and linguistically validated by an external supervisor fluent in both English and Nepali. As a senior health systems academic based in Nepal, his expertise ensured accurate translation of culturally embedded terminology and professional discourse. This enhanced semantic fidelity and contextual relevance, thereby strengthening the dependability of the subsequent thematic analysis.

Confirmability: Confirmability relates to the confidence that research findings are shaped by study participants rather than researcher bias [22]. Various strategies were employed to achieve confirmability in this study, including reflexive journaling and memoing, cross checking for any assumptions, translation accuracy checks, non-disclosure of participant locations and identifiers, and the use of a research diary promoting analytic transparency.

Transferability: Transferability refers to the extent to which the research findings can be generalised/transferred or can be applied to other contexts [22]. The strategies applied to achieve transferability in this research included thick description of participant characteristics and study context, purposeful sampling strategy, clear articulation of recruitment rationale and boundary conditions.

2.6 Data management

The data from the survey was collected in hard copy and was stored in the investigator's secured cabinet with lock and key at JCU. The data from online interviews were collected in electronic form as Zoom recordings. After the transcription process, only the audio recordings

were stored securely on the investigator's JCU OneDrive account. All data from the study were aggregated to report findings without disclosure of any personal identification. Any personal information recorded in the investigation remained confidential and no information that identified participants was made publicly available. Upon completion of the study, all data from this study will be managed as per JCU guidelines.

Contribution of Chapter 2 to thesis

Chapter 2 meaningfully contributes to the overall thesis by articulating the methodological framework underpinning the research, incorporating the philosophical stance and theoretical constructs that guided both the original and revised study design. This chapter critically examines the limitations encountered and provides a rationale for the methodological evolution undertaken thus, demonstrating reflexibility as well as responsiveness to the contextual complexity of Nepalese public hospital within which SHMs operate. Incorporating mixed-method triangulation and quality assurance mechanisms, the chapter further delineates the revised framework which collectively enhances the study's validity, reliability, and applicability to SHMs development in similar low- and middle-income countries (LMIC) contexts.

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Chapter 3: Efforts implemented for developing a health management workforce in the Asia-Pacific: A scoping review

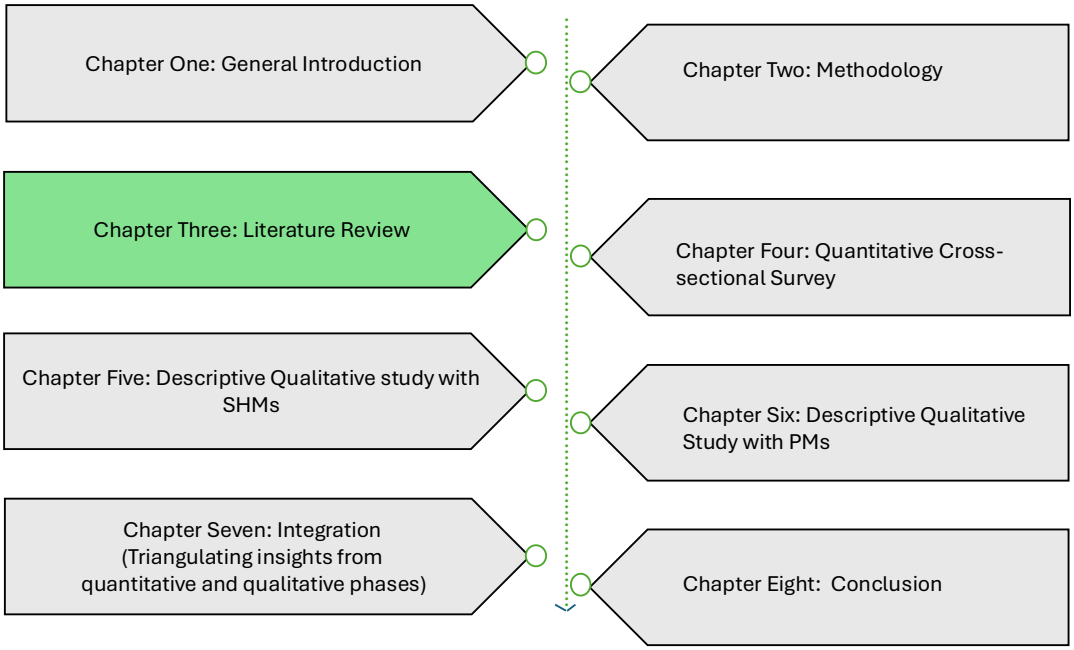

Figure 7: Site of chapter 3 in the whole document

3.1 Chapter overview

This chapter presents a literature review, incorporating a published scoping review of efforts that have been used to strengthen the health management workforce across the Asia-Pacific region. It outlines the methodology based on PRISMA guidelines, details the data collection process, and discusses key findings, conclusions, and noted limitations of the current evidence. Additionally, this chapter includes the updated literature search following the same protocol as the original search for bridging the gap and ensuring that the scoping review reflects the most current evidence on development efforts implemented for HMW across the Asia-Pacific. The published scoping review Pokhrel, P, Liang, Z and Taylor, J [2024]. Efforts implemented for developing health management workforce in the Asia Pacific: a scoping review.

Asia Pacific Journal of Health Management 19[2]. doi.org/10.24083/apjhm.v19i2.2827 can be found in Appendix D.

3.2 Introduction

A competent health management workforce (HMW) is important for the effective functioning of the health care system and improved health care outcomes of the population by emphasising safe, high quality, and compassionate care as a top priority [1,2,3]. Developmental activities need to be planned and implemented to build the competency and capability of HMW. It is crucial to develop an understanding of the current strategies and actions prior to investing in new activities. An initial search of literature did not identify review articles that present evidence of the collective efforts implemented to develop health service managers (HSM)/HMW in the Asia-Pacific region. According to the WHO, the Asia-Pacific region includes 37 countries which are divided into two subregions: the western Pacific, consisting of 27 countries such as China, Japan and Australia; and South-East Asia, consisting of 10 countries such as India, Nepal, and Thailand [4].

While it is clear that the development of HSMs' competencies and capabilities are crucial for achieving better management outcomes and ultimately positive health results, various challenges need to be addressed [1]. Using Nepal as an example, management positions are generally occupied by senior doctors with extensive clinical experience without formal management education [5,6]. There is no documented evidence of competency-based development strategies being implemented for hospital managers. Only one study conducted in 2012 was identified which confirmed the need for in-service management training for a HMW [6] to develop managerial competencies in Nepal. This lack of development of managerial competencies was one of the factors thought to limit effective and efficient hospital service provision in Nepal [5,6].

3.2.1 Challenges faced in developing a health management workforce that can meet the needs of the health system

The literature provides discussion of the various challenges facing the development of a competent health management workforce that contributes to meeting the growing and changing health care needs of the population. Evidence has been reported on the lack of understanding on competency requirements for HSMs; on the lack of competency-based approaches in guiding the design of training and education programs; and how the inadequate investment in the development of competencies of HSMs may be challenging for HMW development [1,7]. Other challenges facing the HSM workforce include work pressures, budgetary factors, advanced technological requirements, lack of personal will, rural/remote settings, and political instability hindering sustainability of development programs [6,8,9,10,11,12,13,14,15].

In some developing Asia-Pacific countries, there has been limited guidance in the design of formal and informal training and development programs for HMWs [1,12]. This is because the competency requirements for health managers have not been clearly established in these countries [6,12,13] and the management competency improvements are often not embedded in regular management performance appraisals in health care organisations [1]. This provides inadequate incentives for investing in continuous, informal management development program for HMW [1,7].

Although formal education is an important development strategy for HMWs, research from Australia has been reported that among the awarded postgraduate qualifications for HSMs, very few were management specific [1,7]. Such situations may challenge the HMW to achieve the core foundational knowledge required for management position. Research conducted in Vietnam reported that hospital managers have focused more on their clinical profession where they can easily foresee and earn pecuniary benefits rather than their leadership and managerial development where the benefits are not as immediate [9]. This suggests the requirement of personal will and desire for the development of managerial capability.

3.2.2 The pressing needs of developing the health management workforce in the Asia-Pacific region

Management competency assessments on health-service managers conducted in Australia, Bhutan, China, Nepal, and India have suggested there are pressing needs for competency development among HSMs [5,6,7,12,16,17]. The formal and informal management training among health managers before commencing their management positions has been found to be inadequate [5,6,7,16]. For example, a study conducted among health managers in China identified that fewer than half of the health managers participated in management training, either prior to or after taking up their management positions [16]. With continuous health care reform, health systems in the Asia-Pacific region are under pressure to improve cost efficiency while enhancing access and quality of care [13,19,20, 21]. Competent managers are required to lead the improvement process. However, formal and informal management training among health managers before commencing their management positions has been found to be inadequate [5,6,7,16]. Hence, there is an urgent need for utilising various strategic approaches to equip health managers in working in a complex system with a higher level of awareness and required technical expertise for positive and measurable health outcomes [21,22].

To maximise efforts in assisting HSM development, learning from past experience is necessary. Thus, a scoping review was conducted to identify and learn from the development strategies for HMW in Asia-Pacific countries. This chapter aims to present and discuss the key strategies that have been implemented in developing the health management workforce in the Asia-Pacific region. In this scoping review, HMW development efforts refer to policy and strategies that focus on building management capacity and developing capable health service managers, including identifying competency gaps and management development needs.

3.3 Methodology

The scoping review was guided by PRISMA-ScR [23].

Original review (May 2022 - August 2022)

The literature search was performed from May 2022 to August 2022 to retrieve original articles on the efforts for developing HMW across the globe.

Updated review (September 2022 - August 2025)

An updated literature search was conducted covering the period from the original scoping review completion in 2022 to submission in August 2025. The updated review replicated the original search strategy using the same databases (Emcare, Medline, Scopus, Cinahl and Web of Science) as well as key words search as of the original scoping review.

Key terms

Various synonyms or keywords were used in the search strategy to expand the search term. Key words and key concepts for the data search are presented in Table 2. The term “Asia-Pacific” was precluded from the search term to avoid the potential exclusion of eligible articles reporting research conducted in Asia-Pacific.

Table 2: Key words for data search

Management/ Manager	**Competency**	**Competency development/Efforts/ Strategies**	**Health**
Administrator*	Aptitude	Trainings	Hospital
Coordinator*	Achievement	Professional development	Health care
Managers*	Capacity	Upskilling, Capacity building	Health care system
“Department Head”	Proficiency	Staff development	Health sector
Team Leader	Skill	Strategy, Regulations	Health care services
Health Administrator	Competency	Mentoring	Primary Health care
Executives	Professionalism	Facility	Health facilities
		Policy, Ethics	Health service,

			Health system

A reference search was conducted from the eligible research studies to identify any other relevant studies.

Inclusion criteria:

The scoping review included research articles that presented empirical studies and are published in English, in or after 2000 and in peer-reviewed journals.

Exclusion criteria:

The review excluded the following: all types of review articles such as scoping reviews, systematic reviews, rapid reviews, non-research articles, opinion pieces or commentaries, published in languages other than English.

Database searching: Initially the literature search focused on subject-heading databases. This allowed the maximum inclusion of all related articles from these databases. It also helped to find other synonyms of key words from related searches. The keyword database was explored to narrow the literature search.

Subject heading databases:

1. Medline
2. CINAHL Complete
3. Emcare on Ovid

Keyword Databases

1. Scopus
2. Web of Science

During the database search, each of the four key words was searched individually along with identified synonyms e.g.: management/manager search included all synonyms such as administrator or coordinator or managers or department head or team leader or health administrator or executives or management. After completion of the search for individual key words along with their synonym, a final search was conducted among identified research studies which included search using “and” for a common search between the identified research. For instance, identifying common research studies between 1 and 2 and 3 and 4. For the Scopus database, the * sign was used during keyword search to eliminate the chance of missing any relevant research studies.

Original search

Screening of retrieved studies: The identified research studies were exported to *EndNote* and 120 duplicate articles were removed. The remaining 3761 studies were exported to covidence.com, a systematic review production tool for title, abstract and full text screening.

Title screening was conducted initially by the principal author (PP). As a result, 3145 articles were deemed irrelevant which were not included in further screening. Then abstract screening of 508 articles was conducted independently by two authors (PP and ZL) with each of the articles given either a “yes”, “no” or “maybe” on covidence.com. Disagreement on whether the articles should be included or excluded was resolved by discussion between PP and ZL, who performed full-text screening on 117 articles. Based on the inclusion and exclusion criteria, 22 articles moved on to the data extraction phase.

Selection and extraction of data: These 22 research articles were found to be eligible for data extraction in order to meet the research objectives. The types of data extracted were study setting, target group/size, study type, study design, aims/objectives, sampling technique and efforts/strategies in HSM workforce development from each study.

Data analysis: The data analysis has identified four different types of efforts that has been put in place for development of HMWs in the Asia-Pacific: i. Formal education and training; ii. Organisational informal professional development programs; iii. Research process confirming competencies and developing competency frameworks; and iv. Embedded competency assessment.

The review author (PP) synthesised the data from the 22 research articles that best met the topic requirements which was finalised by the review author (ZL). The included studies were evaluated based on type of efforts implemented to develop HMWs in the Asia-Pacific. The first step included an overview of the 22 research studies and identifying the findings in each study. The second step led to condensing and summarising these findings which was followed by the third step i.e., grouping the findings thematically into four different categories.

Updated search: The updated search identified 204 additional publications. Following the same eligibility criteria and screening process being undertaken by the principal author (PP), four new articles remained.

3.4 **Results**

Original review

The 22 articles that presented studies in Asia-Pacific countries were included in the scoping review. This PRISMA flow chart shows key steps and results of the review process (Figure 8 & 9).

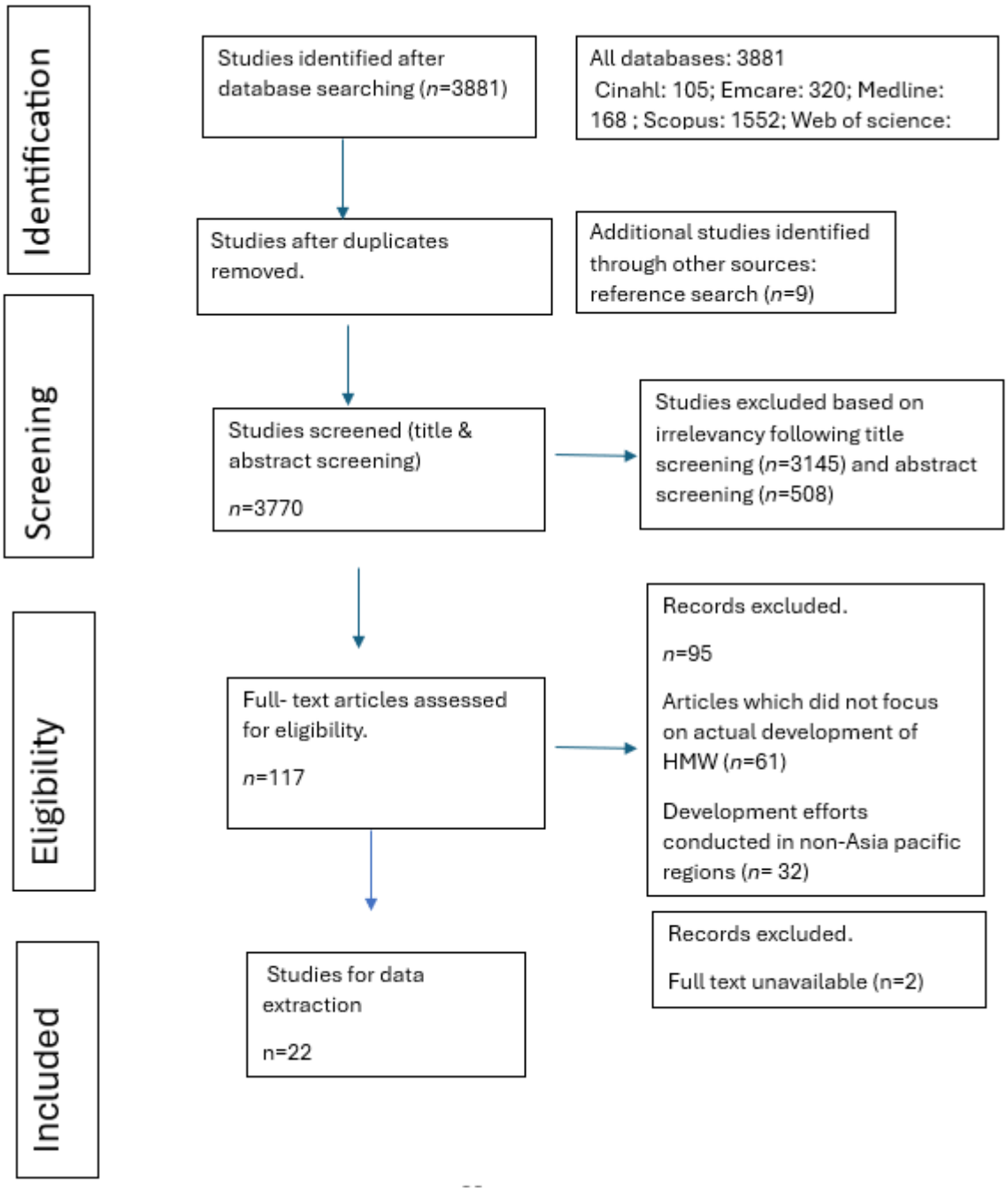

Figure 8: Scoping Review PRISMA Flow Diagram [23]

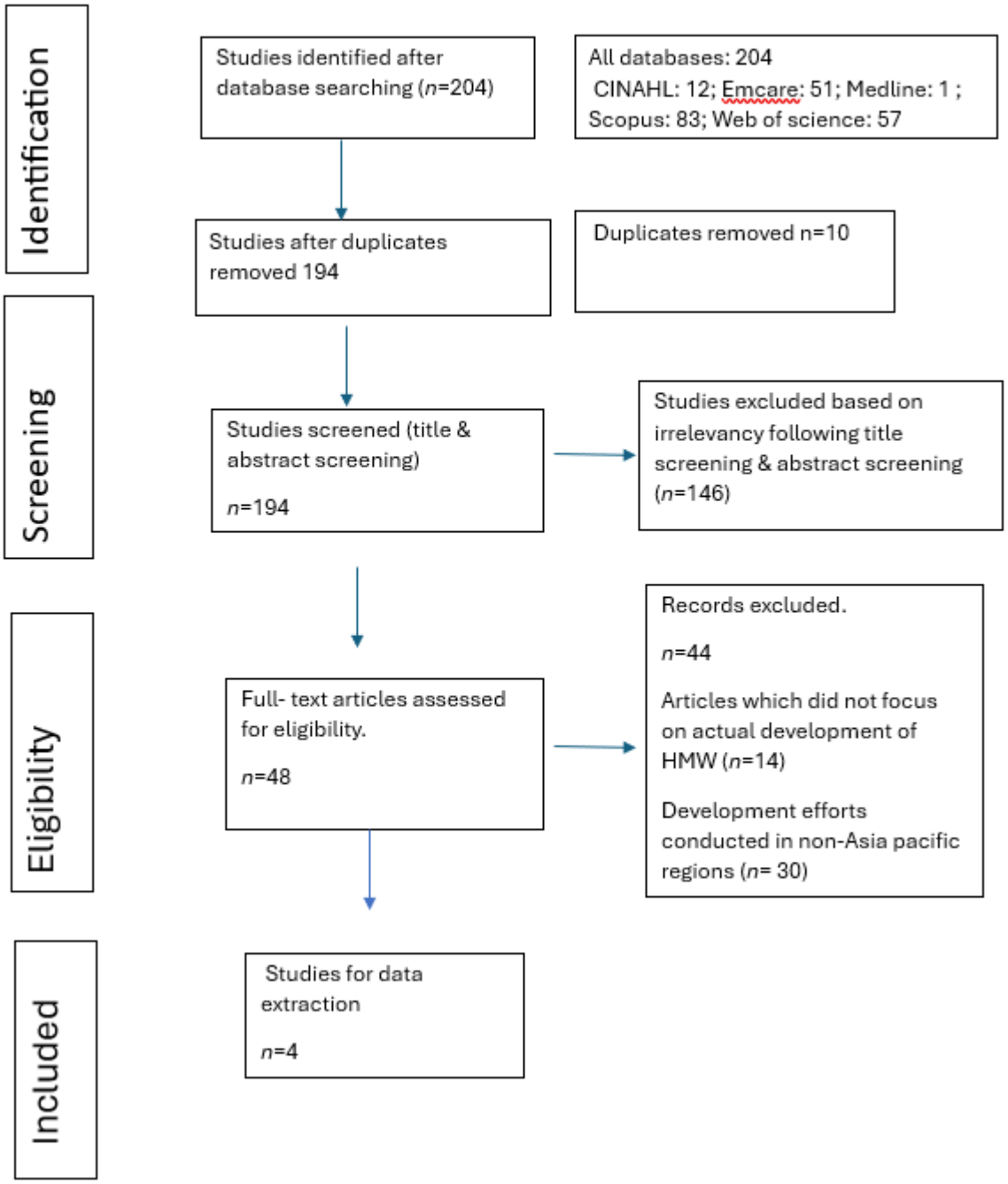

Figure 9: Updated Scoping Review PRISMA Flow Diagram [23]

Table 3: Characteristics of development efforts for HMW in Asia- Pacific (Original review)

Reference	Study Setting	Target Group/Size	Study Type	Study Design	Aims/Objective	Sampling Technique	Summary of Findings
Cashin et al.	Australia: New South Wales	9 health managers	Mixed-method	Maslach Burnout Inventory General Survey	Evaluated the introduction of a 12-month health manager mentoring program within a correctional facility in New South Wales, Australia.	Non-sampling (Volunteer participants)	A positive change was observed in the participants based on self-appraisal and peer appraisal. Supervisees reported negative change on the same tool over the same period. Job satisfaction of the participants decreased, and job stress increased over the period in which the mentoring program was conducted but not to a statistically significant level.
Chadwell et al.	Nepal	103 hospital managers	Quantitative	Survey	Demonstrated the management training needs for hospital managers in Nepal.	Purposive sampling	In most hospitals, overall management was provided by doctors. The need for a separate cadre of managers was supported by respondents but most doctors felt the best people to manage hospitals were doctors. Few managers had undergone training to take on management responsibilities. All types of managers, regardless of profession or type of hospital reported a competence gap.
Clarke et al.	Australia: NSW	17 nursing/ midwifery	Qualitative	Not stated	Evaluated the effect of ‘take the lead’ (‘ttl’) program on	Purposive sampling	After the ‘ttl’ program N/MUM felt more valued, empowered,

		unit managers(N/MUM)			17 N/MUM on their professional development components.		increment in leadership standards and increased networking opportunities.
Dorji et al.	Bhutan	339 PHC managers	Quantitative	Cross-sectional	Identified the required management competencies, current competency levels and strategies for improving the management competencies of Bhutanese PHC managers.	Random sampling	Agencies responsible for health system need to focus more on the competencies defined by the study to positively influence health leadership and management development interventions.
Duffield et al.	Australia: NSW	18 Nurse unit managers	Qualitative	Delphi Survey	Studied on a master class leadership course for nursing unit managers.	Purposive sampling	The program was able to enhance participants' aspects in terms of allowing the expression of opinions, networking, stretching their minds and time to reflect on their own experiences.
Gunawan et al.	Indonesia	300 First-line nurse managers (FLNMs)	Qualitative	Not mentioned	Developed the managerial competence scale and psychometrically tested for first-line nurse managers of Indonesia.	Random sampling	The findings of the study demonstrated that the managerial competence scale is valid and reliable as a vehicle for assessment of competence for FLNMs.
Horvath C et al.	Cambodia	20 health managers	Mixed-method	Not mentioned	Evaluated the IMPACT Cambodia program and determined the extent to which the program reached its intended outcome of increase management competence of participants.	Purposive sampling	Participants' competency in all management areas was increased. Improvement was observed in leadership and governance.
Howard et al.	Australia	117 senior and middle HSMs	Mixed-method	Not mentioned	Validated the management competency assessment tool for HSMs which resulted from the development and	Purposive sampling	Both validity and reliability of management competency assessment tool were demonstrated.

					validation of the framework, addressed by a previous paper.		
Jeon et al.	S. Korea: University Hospital, Seoul	44 Nurse Unit Managers (NUM)	Quantitative	Quasi experi-mental	Evaluated the ethical leadership, organisational citizenship behaviour and job outcomes of NUM.	Non-sampling (Volunteer participants)	There was improvement in competencies related to ethical leadership of nursing unit managers after the six-month leadership program.
Khadka et al.	Nepal	51 hospital manager/ admin-istrator	Mixed-method	Cross-sectional	Assessed the managerial competencies of hospital managers of Kathmandu, Nepal.	Purposive sampling	There is enormous need for development of lacking managerial competencies among hospital managers/administrators.
Kitreeraw utiwong et al.	Thailand	487 primary care managers	Mixed-method	Instrument development model	Developed and examined the psychometric properties of a competency scale for primary care managers in Thailand.	Simple random sampling	The developed instrument demonstrated sound psychometric properties and therefore is considered an effective tool for assessment of the primary care manager competencies.
Liang et al.	China	498 senior hospital Executive	Mixed-method	Cross-sectional, descriptive survey	Developed an understanding of the characteristics and training experience of hospital managers in one major Chinese city.	Purposive sampling	The survey confirmed that formal and informal management training among participants before commencing their management positions was inadequate.
Liang et al.	Australia	93 mid-level HSM (319 colleagues participated in the 360^0 assessment)	Mixed-method	Cross-sectional, descriptive survey	Conducted a 360^0 assessment of the competence of Australian HSMs to identify managerial competence levels and training and development needs.	Non-sampling (Volunteer participants)	The study confirmed managerial competence for most of the middle-level HSMs from hospitals and CHS but found competency gaps.
Liang et al.	Australia	64 managers	Mixed-method	Not mentioned	Introduced a validated process in management	Purposive sampling	The framework developed is considered reliable and valid for

					competency identification and development applied in Australia.		developing a management competency assessment tool.
Liang et al.	Australia	74 Hospital managers	Mixed-method	Exploratory	Confirmed the core competencies required for middle to senior level managers in Victorian public hospitals in both metropolitan and regional/rural areas.	Purposive sampling	The study supports the use of a competency-based educational approach to train and prepare current and future health care managers for their roles.
Lopes et al.	Timor-Leste	183 Primary Health Care Managers	Quantitative	Cross-sectional survey	Assessed the levels of management competencies of primary health care managers.	Stratified random sampling	PHC managers required more professional development programs/trainings in different domains which needs to be in line with health system goals and reinforced by a positive environment.
Prashanth et al.	Tumkur district, southern India	21 Health Manager	Mixed-method (Qualitative and Quantitative)	Not mentioned	Assessed the performance of health managers after periodic contact classes, mentoring visits and assignments to help practical application of knowledge and skills discussed in classroom.	Purposive sampling	A positive change was found after training program in facility near to district headquarters while low performance was observed in remote area far from headquarters.
Sandhu & Liang	India	7 senior managers	Mixed-method	Exploratory case study	Assessed the managerial competencies of project managers of a National NGO in India for developing, implementing and evaluating a new service model effectively.	Purposive sampling	Senior managers clearly demonstrated their understanding of a project's life cycle and were able to detail the key activities and procedures they developed under each phase of the project life cycle. However, they do need training to

							improve their competency to allow more effective project planning, design and implementation.
Schultz et al.	Australia: Adelaide Hospital	160 Health care middle managers (HCMM)	Mixed-method	Uncontrolled pre-post study design	Evaluated a change leadership development program (leading 4 change) to support HCMM.	Non-sampling (Volunteer participants)	Health care middle managers developed leadership capacity for going through period of significant organisational change and enhanced workplace resilience.
Tiwari et al.	India: Madhya pradesh	114 Health manager	Quantitative	Not mentioned	Assessed the Post Graduate Diploma in Public Health Management (PGDPHM) program to bridge the gap in public health managerial capacity among health professionals.	Purposive sampling	This partnership between academic institutions and health system strengthened the capacities of partner institutions and networks of professionals to take the lead in designing, adapting and sustaining innovative capacity building measures.
Tuong et al.	Vietnam	891 Hospital managers	Mixed-method	Exploratory factor analysis	Developed a leadership and managerial competency framework for public hospital managers in Vietnam.	Non-sampling (Volunteer participants)	The 81 items of leadership and managerial competencies were identified for public hospital managers.
Waters et al.	Australia	Nurse manager (NM)	Mixed-method	Descriptive	Determined the participant expectations on mentoring program and outcomes of the pilot program.	Non-sampling (Volunteer participants)	The pilot mentoring program was highly successful to identify and address the needs of NM in professionally or geographically isolated areas.

Table 4: Characteristics of development efforts for HMW in Asia- Pacific (Updated review)

Reference	Study Setting	Target Group/Size	Study Type	Study Design	Aims/Objective	Sampling Technique	Summary of Findings
Zhang et al.	Tertiary hospital, China	14 New nurse managers	Semi-structured interviews	Phenomenological qualitative study	Investigated the challenges and needs of new nurse managers transitioning from staff nurses to nurse manager roles	Purposive sampling	The study highlighted that new nurse managers experience significant obstacles during their transition to new roles. The study advocated for comprehensive support through health care organisations by facilitating role adaptation and talent development. Also, health care organisation need to develop strategies based on identified transition challenges.
Hu et al.	China	160 nurse leaders	Individually randomised, two arm parallel group	(Quanti-tative) Controlled trial design	Evaluated the feasibility of an online evidence-based leadership training program for nurse leaders and its potential effectiveness in improving nurse leaders evidence-based leadership competencies	Random sampling among eligible participants	The study highlighted that the intervention was feasible and demonstrated it was potentially effective to some degree. The findings revealed that the rise in participation may have occurred because of content and learning material including power points with voice-over which promoted understanding of the evidence-based leadership process. Also, other strengths of the program included availability of tutors for discussions and peer support activities for participants.

Jin et al.	China	60 Nurse leaders	Single centred retrospective study	Quantitative	Evaluated the effectiveness of a comprehensive goal assessment system for nurse leaders (CGASNL) in improving nursing quality and management outcomes		The study found that the CGASNL program for nurse leaders was rigorous and aligned with policy, as well as effectively reflecting the functional needs of nurse leaders. The study also highlighted significant improvements in areas such as nursing qualifications, decreases in adverse events and patient complaints.
Jun et al.	Korea	Nurse managers (122 frontline and 65 middle-level nurse managers and chief nurse executives from 21 small and medium sized hospitals)	Cross-sectional survey	Quantitative	Explored the training priority of managerial competence for nurse manages in small and medium sized hospitals based on their management level	Con-venience sampling method	The study revealed that the training priorities on managerial competence for nurse managers needed to focus on control domain as well as staff management and communication. For frontline managers priority needed to focus on the motivation domain while for middle-level managers and chief nurse executives, training on human resource development needed to be prioritised.

HMW development efforts implemented in the Asia-Pacific (Original review)

Based on the development efforts in the 22 identified articles, four categories of HMW development efforts have emerged. All efforts identified have been grouped into these four different categories thematically as follows.

Formal education and training

Two research studies, one each from Cambodia and India, focused on formal education as the developmental efforts for HMW [11,24]. In Cambodia, formal education was provided through a competency-driven curriculum which positively contributed to building leadership and governance of a HMW. This also resulted in better health information and human resource systems in Cambodia [24]. In India, health managers were provided with the opportunity to pursue post-graduate diplomas in a public health management program. The study reported the improved competencies of managers after completing the post-graduate diploma in public health management program [11].

Organisational informal professional development programs

Seven research studies focused on organisational informal professional development training for HMW [10,19,25,26,27,28,29]. These programs included contents such as development of ethical leadership, workplace resilience and stress management, communication, and relationship management and leading and managing change. The study was conducted in Australia on a change leadership development program and was designed to support health care middle managers through a period of significant organisational change. It reported that the training participants felt being valued and empowered after participating in the development program [19]. The participants were also motivated to perform their tasks most effectively. Some of these studies also reported positive outcomes of the informal training programs [19,25,26,27,29]. For instance, in South Korea, the ethical leadership program developed for nurse-unit managers has improved their understanding of ethical leadership and creating ethical environment and cultures in hospital [25]. The study also found that the same development program may generate differing outcomes in different settings. For instance, the management development program conducted in the Tumkur district in India was not equally effective in urban and rural settings [10].

Research process confirming competencies and developing competency framework

Six research studies focused on competency framework development for HMWs [1,2,9,21,30,31]. These studies confirmed competencies required for HMWs and developed frameworks that guided the development of short-term and long-term strategies. For instance, the management competencies identified for HSMs in the validated MCAP tool included:

operations, administration and resource management, evidence-informed decision-making, demonstrated knowledge of health care environment and organisation, interpersonal communication qualities and relationship management, leading people, and enabling and managing change [2]. Another study in Vietnam identified and validated 14 essential competencies for hospital managers in Vietnam [9]. The identified essential competencies in Vietnam had seven different competencies as compared to the competencies in MCAP, i.e., policy development and implementation, strategy development and orientation, plan making, risk and disaster management, quality management, investigation and self-management. The remaining seven competencies were similar to MCAP's six competencies. Another study in Indonesia constructed seven essential competencies for nurse managers [30]. Four of the identified competencies were different from the competencies listed in MCAP, i.e., facilitating spiritual nursing care, self-management, utilising informatics and applying quality care improvement. Three of the identified competencies in Indonesia were similar to MCAP [2,30]. Similarly, five of the identified competencies in Indonesia were similar to those identified in Vietnam [9,30].

Embedded competency assessment

Seven research studies focused on presenting findings of management competency assessment of HMWs [5,6,7,12,15,16,17] that identified competency gaps and identified the competency development needs that guided the design of targeted development programs. Competency assessment was conducted via either self-assessment only [5,6,12,15,16,17],] or 360-degree process [7]. The findings of competency assessment of health managers in the Asia-Pacific are consistent with the findings of other studies and suggests the competency development needs of these health managers [6,12,15,16,17]. However, competency assessment conducted in Australia confirmed managerial competence for the majority of health managers but identified competency gaps [7] and it was confirmed that managerial strengths and weakness varied across management groups in different organisations [7]. The findings also suggested the need of multifaceted development strategies for strengthening the HMW [7].

Government collaboration with another organisation

Government collaboration between government and another education, research and health care organisations has been an important system-level strategy for HMW development. Such collaborations have led to design and development of various formal and informal management development programs for HMWs. For instance, in Cambodia, the National Institute of Public health (NIPH), with the approval of the Cambodia Ministry of Health,

formed a technical working group including the US Centre for Disease Control and Prevention and the Korea International Cooperation Agency. The working group developed and implemented a six-month management and leadership capacity building program which resulted in improved management competency among health managers [24]. The state government of Karnataka, India, and a consortium of five non-governmental organisations organised a capacity building program for health managers in the district. The program focused on improving the performance of health managers with respect to planning and supervision of health services [10].

Updated review

The updated scoping review yielded four additional publications that align with the scope of the study. All four identified articles reinforce the initial thematic area: organisational informal professional development programs, from the original scoping review. One of the studies specifically examined the organisational support mechanisms essential for newly appointed health care managers [32]. Furthermore, the study highlighted the importance of structured transitional assistance in mitigating role adjustment challenges specially in the transition phase. The remaining three articles concentrated on the specific design, delivery and effectiveness of such training programs for health care managers [33,34,35]. Additionally, one of these studies highlighted the importance of tailoring training content to the hierarchical level of managers [35]. The study suggests that the one-size-fits-all approach to managerial training may be insufficient and advocated for divergent developmental needs depending on distinct managerial cohorts, ranging from frontline managers to mid-level and senior managers. Reflecting the complexity and stratification of health care managerial and leadership positions and roles, this differentiation reinforces the imperative for context-sensitive professional capability building strategies as essential for health care managers.

Distribution of Reviewed Research Articles (Original review)

Nine of the research articles originated from Australia while three research articles were from India and two from Nepal. China, South Korea, Thailand, Cambodia, Bhutan, Vietnam, Indonesia and Timor-Leste each generated one research article.

Figure 10: Map of Asia-Pacific region displaying the number of studies originating from various countries taken from English blogs. Accessed: 19 October 2022.

Distribution of Reviewed Research Articles (Updated review)

Three of the research articles originated from China while one research article was from Korea.

Characteristics of review articles (Original review)

Characteristics of the review articles are presented in Table 3. Sample size varied with quantitative studies ranging from 44 to 339 participants while qualitative studies sample size ranged from 17 to 300 participants and mixed-method sample size ranged from 7 to 891 participants.

Characteristics of review articles (Updated review)

Characteristics of review articles are presented in Table 4. Sample size varied with quantitative studies ranging from 6-160 participants while qualitative studies sample size included 14 participants.

3.5 Discussion

Seven out of nine studies included in the original review discussed the positive outcomes of the training and development programs [11,19,24,25,27,28,29] and two out of four reviewed in the updated review outlined the effectiveness of development programs [3,34] indicating the necessity for investing in professional development of HSMs. There is evidence of participatory action research approach (PAR) been successful in building local capacity and enhancing the continuity of interventions [36,37]. This approach may be adapted in the Asia-Pacific for long-term and sustainable improvements in program delivery. Only a small number of management-related research studies has been conducted in the Asia-Pacific as only 22 studies were identified during the data extraction process.

The management development program should be developed and implemented in consideration with the organisational context [10,26,35]. There is evidence where management development program has not produced the same results in different settings or even within the same settings at two different hospitals because of differences in working environments, governance, management structure, and sometime due to geographical conditions such as rural settings [10,26].

This supports the pre-existing evidence of other literature that the capacity and management competency building interventions are influenced by contextual factors such as organisation culture, geographical locations and working environment at organisation [1,7]. This also suggests the importance of an enabling environment and adequate incentives from the state health systems. Thus, to develop the competence of HMWs, it is critical to provide multilevel commitment from both the system and organisational levels to identify and address the bottlenecks related to organisation and other contextual factors.

Evidence has emerged discussing the importance of embedding management competency assessment into the annual performance review process, providing evidence on the strengths and weaknesses of the managers that can guide setting professional development focus for health managers [12,16,17]. Importantly, management competency assessment needs to be embedded across all hierarchical levels, so the system can be self-correcting rather than hierarchal and static. All the seven competency assessment studies confirmed the existence of

competency gaps that must be addressed. Considering the lack of formal and informal training broadly available and provided to HSMs, improved investment is needed in developing the capability of health managers in the system and organisational levels. Such investment may not be just in the form of professional development programs; it may also include confirming competency requirements and developing competency frameworks for HMW. It is essential for establishing clear management competency requirements to guide management positions, recruitment, development, and performance management of health managers [16]. The managerial strengths and weakness vary across health service management groups; hence specific and targeted development strategies must be developed [2].

In addition, strengthening the partnership between government, health care and professional organisations should be strengthened, maximising the efforts in HSMs' development [10,11,24]. Evidence suggests the importance of partnerships in attaining the common goals for building capacity of HMWs [10,11,24]. An academic partnership is an example of the interface between academia and the health system, where the common goal for building capacity of health professionals may be achieved. An example of collaborative partnerships between academic institutions and the Government could be jointly designing and providing educational degree programs for health managers aiming to develop managerial capacities and competencies [11]. Also, collaborations between government and other organisations such as non-government organisations and international organisations may be able to achieve the intended outcome of building capacity of HMWs. For instance, in Cambodia, the NIPH collaborated with the US CDCP to provide management and leadership training to health managers [24]. Improvement in leadership and governance was observed among the participants after the training [24]. Such collaboration may also help to form a technical working group of expertise from diverse region and knowledge sharing to develop management and leadership capacity building program for HMWs.

Health care is operating in a resource-constrained environment; benefits of any investment should be well demonstrated. Therefore, it is important to incorporate a valid evaluation process in management development programs so that benefits of the programs can be well demonstrated [29]. This will also allow effective learnings for future program improvement. The evaluation needs to be conducted following standard protocols and suitable validated tools [26].

3.6 Strengths and limitations of the method

This review relied upon reported development programs to highlight the development strategies within Asia-Pacific nations. To the best of our knowledge, this is the first study to explore development efforts for HMWs in Asia-Pacific nations overall. This scoping review provides useful information about existing development strategies for health managers throughout the Asia-Pacific along with the type of development program in the specific country. However, the included studies were not evenly distributed as most of the studies were from Australia [1,2,7,19,26,27,28,29,31] and the number of available articles was relatively small in comparison with the number of countries included in the region. The exclusion of grey literature and articles not written in English created possible grounds for oversight.

3.7 Conclusions

The scoping review confirmed four different categories of existing development strategies for HMWs in Asia-Pacific nations: organisational informal professional development programs; competency assessment to identify management competency gaps; research processes confirming competencies and developing competency framework; and formal education, and training. Managerial strength and weakness varies across health service management groups thus specific development programs must be designed to meet the differing competency development needs of health managers. The study reinforces the importance of evaluating the benefits of management development programs to maximise learning and allow improvements. Governments should play a key role in supporting the HSM workforce development by setting clear policy direction and strengthening collaboration with health care organisations and professional institutions.

Contributions of Chapter 3 to thesis

The scoping review identified different types of development efforts that have been implemented for health management workforce across the Asia-Pacific.

Findings from this review revealed that competency assessment has been an important step in the capacity and competency development of health management workforce. The two studies conducted in Nepal provide important information but are limited in that these were conducted a decade before and importantly before federalisation. Also, these studies did not specify the type of hospitals or the level of hospital managers. This is thought to be essential for planning the development activities since competency requirements differ with respect to the type of organisation and level of managers. This necessitates a requirement for conduction

of current competency studies in Nepalese hospitals for planning the capacity and competency development of SHMs.

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Chapter 4: Assessment of management competency among senior hospital managers in Nepalese public hospitals: a cross-sectional study

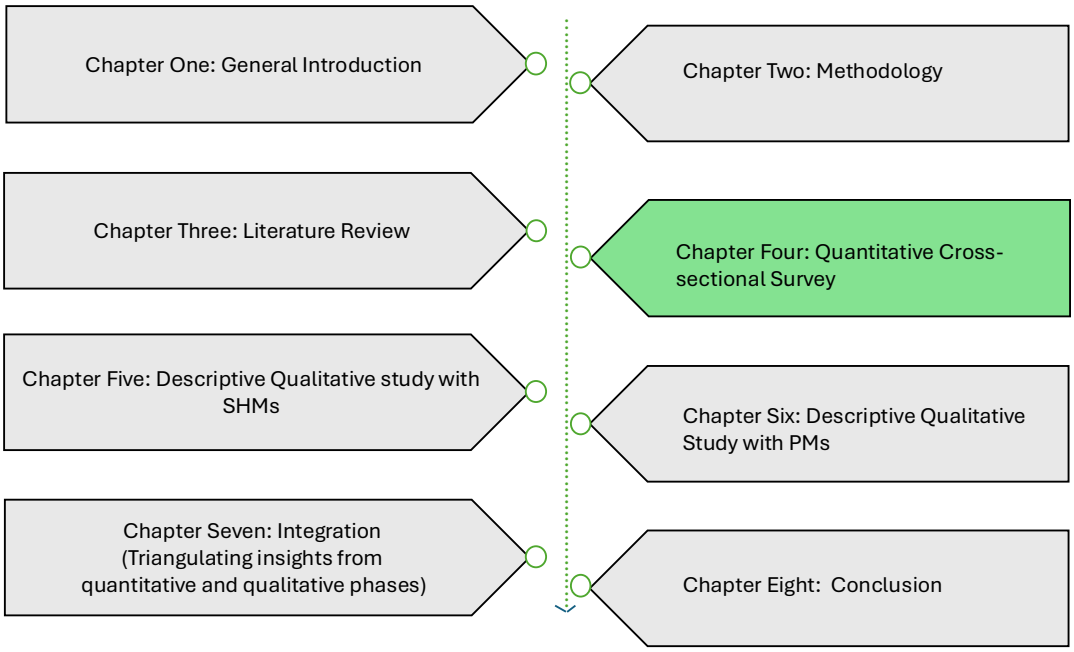

Figure 11: Site of chapter 4 in the whole document

4.1 Chapter overview:

Chapter 4 comprehensively presents details on a quantitative cross-sectional survey conducted to assess management competencies among SHMs in central-level public hospitals in Nepal. The chapter begins with a contextual background and conceptual introduction to management competency, followed by detailed methodology covering ethical approvals, survey instrument adaptation, data collection and analytical strategies. The results highlight strengths and gaps across management competency domains with discussion linking findings to SHMs managerial competency development needs and policy implications. Limitations are acknowledged and directions for future research are proposed. The chapter concludes by emphasising the relevance of competency-based approaches to strengthening the health system in Nepal and similar LMIC contexts in Asia-Pacific region. The published manuscript can be found in Appendix D: Pokhrel, P, Jones, A, Crowe, M, Kaphle, HP, Liang Z [2025]. Assessment of management competency among senior hospital managers in Nepalese Public hospitals: a cross-sectional study. *Asia-Pacific Journal of Health Management*.

4.2 Background

When clinicians such as doctors, nurses and allied health professionals move into management roles, it is important for them to apply foundational leadership and management

competencies to effectively perform the tasks and fulfil the responsibilities of leading hospitals and deliver quality health services [1]. Health managers often assume leadership roles with limited formal training, and many face ongoing constraints in accessing continuous professional development opportunities related to management competency throughout their careers [2]. Management competency is defined as "the skills, knowledge, personal characteristics and behaviours needed to effectively perform a role in the organisation and help the business meet its strategic objectives" [3, p. 5]. The management competency of senior and mid-level health service managers is crucial since they perform wide-ranging complex tasks including financial oversight, workforce management, and governance for patient safety [4]. Mid-level managers typically occupy middle tiers in the organisational hierarchy, senior managers with clinical or professional responsibilities, supervision of front-line staff, and reporting to senior managers. In some health systems, e.g. Australia, senior-level managers hold top-tier leadership positions within hospitals which include roles such as hospital directors and chief operating officers. They oversee strategic planning, financial governance, workforce management and patient safety systems, often shape organisational culture, and liaise with external stakeholders and policymakers [5,6]. Competent senior health service managers need the capacity to satisfactorily integrate clinical services, management and political domains using leadership, collaboration and team-based competencies which are crucial for better health outcomes and quality health care [7,8,9].

The World Health Organization recommends all countries build leadership and management capacity, ensuring adequate numbers of competent managers who provide critical management support systems and an enabling working environment [10]. A study in Kenya demonstrated increased coverage of child and maternal health services after piloting a six-month leadership program for management teams [11]. A significant increase in the number of client visits was observed at the facility level in the intervention group versus comparison facilities. The leadership program contributed to improved health service delivery outcomes and the improvements were sustained for at least for six months. The performance of health managers thus can be improved by improving their managerial competency [7]. However, it is essential to identify and assess health managers' current competency levels to understand the development needs and plans for both organisational and system level capacity building strategies.

4.2.1 Management competency assessment

Management competency assessment is an important step in performance management [12]. Competency assessment can identify gaps in knowledge and skills which, in turn, may be used to design development programs that address these gaps and consequently maintain organisational competitiveness and resilience [13]. This also ensures employee competencies are in sync with the evolving needs and objectives of the organisation [14,15]. Research evidence suggests that a person's self-judgement of their own knowledge, skills and abilities positively relates to their ability to improve current, and learn new, competencies [16]. Research studies also reveal that such judgements provide managers with an opportunity to evaluate their strengths and weaknesses, and plan training based on their identified needs [17]. Therefore, effective tools for assessing management competency of health managers have implications for health service management workforce development.

Management competency assessment tools are important in identifying health care management strengths and weaknesses, enhancing managerial development, leadership, decision-making, succession planning and talent management, and ultimately ensuring compliance and quality [18,19]. In the health care context, three major types of management competency assessment are used: 360-degree feedback, competency-based interviews, and self-assessment [20,21,22,23]. The 360-degree feedback process provides a holistic assessment of a manager's competency-based on feedback from subordinates, peers and supervisors. This offers a comprehensive view of a health care manager's strengths and development areas and helps to identify blind spots and further enhancing leadership effectiveness [20, 21]. The feedback coming from multiple perspectives offers a broader, unbiased evaluation of managerial strengths and weaknesses. However, a key disadvantage of 360-degree feedback is its complexity: it needs well-designed processes and implementation, while poor execution may lead to confusion and resistance among staff [21].

Competency-based interviews involve structured interviews that assess managerial competency through behavioural questions, allowing organisations to evaluate leadership skills based on real-world decision-making [22]. Competency-based interviews evaluate past behaviours to predict future job performance and are often used in the hiring processes but not as much in assessing ongoing management competency [23].

Self-assessment competency tools offer advantages such as personal reflection which fosters self-awareness, insights into areas for development, and requires health managers to evaluate their competency across different management domains [19]. Unlike 360-degree feedback, which includes external opinions, self-assessments produce unfiltered introspection

without external biases. Although self-assessment can be limited by individual biases and might lack the comprehensive perspective offered by 360-degree feedback, other factors such as convenience, accessibility, cost-effectiveness, immediate insights and privacy can make self-assessment more suitable than other competency assessment tools. Self-assessment is a culturally adaptable and reliable tool which makes it especially valuable in contexts where other forms of competency evaluation may be impractical or counterproductive [24].

Given the context of this research, as outlined below, it was decided that a self-assessment competency tool was most appropriate. The Management Competency Assessment Partnership (MCAP) self-assessment tool was chosen because it identified globally recognised core competencies for health managers through a systematic review and best-fit framework synthesis of studies over a two-decade period up to 2019 [25]. Although the MCAP was originally developed and validated in Australia [26,27], it has been applied internationally in China [28, 29], India [30], Iran [31] and Finland [32] health care contexts, demonstrating its cross-cultural relevance and adaptability.

4.2.3 Context

Nepal moved from a central, unitary system of government to the Federal Democratic Republic system consisting of seven self-governing provinces in September 2015 [33]. Although the federal system paved a new pathway for opportunities in building a better health system, the health system itself has many challenges including inefficient hospital management systems, hospital service provision, and coordination across government tiers [34].

Hospitals that are equipped with sophisticated facilities and provide speciality services are managed at the federal government level and are designated as central-level hospitals [35]. There are 15 central-level hospitals in three provinces, with 13 in Province No. 3 (Bagmati), and one each in Province No. 1 (Koshi) and Province No. 6 (Karnali). Central-level hospitals provide complex care and the highest level of treatment services to public patients [36]. These hospitals are broadly accessible to the public because they have minimum fees, whereas private hospitals are costly and are for those who are from social and economically advantaged backgrounds.

Figure 12: Map of Nepal showing the provinces with central level hospitals

Source: Nations Online Project. [n.d.]. *Map of Provinces of Nepal*. Retrieved January 2023, from https://www.nationsonline.org/oneworld/map/nepal-administrative-map.htm

Senior hospital manager (SHM) positions in central-level hospitals are generally occupied by senior doctors with extensive clinical experience but without formal management education [8,37]. These positions encompass both clinical and non-clinical SHMs, reflecting the multidimensional leadership structure within hospitals. These professionals hold critical responsibilities, such as overseeing clinical service delivery, managing hospital resources and coordinating operational activities to ensure consistent and effective health service provision. A review of literature revealed a lack of studies specifically focused on assessing the competency of SHMs in central-level public hospitals in Nepal. While two studies were identified that examined managerial competency, the scope was limited to general hospital managers across all types of hospitals, without distinguishing senior leadership roles or central-level hospitals [8,37]. These two studies, in 2012 and 2014, identified the need for in-service management training for SHMs and a lack of development strategies for managerial competency, one of the factors that limits effective and efficient hospital service provision [8,37]. The two studies provided useful information but are limited because they were conducted prior to the federal democratic republic system. With subsequent changes in the Nepalese health system, it is important to understand what the current level of management competency is for SHMs in Nepal.

Therefore, the aim of this study is to identify the current management competency level of SHMs in central level public hospitals in Nepal.

4.3 Methods

This study utilises quantitative cross-sectional survey design as the first part of a larger mixed-methods research project. Data was collected from October-December 2023 using a paper-based questionnaire.

4.3.1 Target population

The target population was SHMs in the 15 central-level public hospitals in Nepal. SHMs are hospital directors and chiefs of various departments employed at Level 8-11. These levels are distinct tiers within the government organisational hierarchy that classify employees' relative rank, responsibilities and authority. Examples of SHMs include chief medical officer, chief finance officer, chief of administration services, head of gynaecology, chief hospital pharmacist, head of dentistry, head of radiology, head of paediatrics and the head of nursing.

The decision to include only public hospitals in this study was guided by the policy framework set out by the MoHP of Nepal, which holds primary responsibility for developing strategies, guidelines, and standards for public hospitals and health services [38]. Since MoHP does not extend regulatory authority or strategic development to private health care institutions, focusing on public hospitals ensures alignment with national health policy directives and allows the research to generate findings that are directly relevant to government-led health system improvements.

On review of the 13 central-level hospitals in Bagmati Province, three were excluded because one was run by the army, one was run by the police, and one was an Ayurveda hospital providing a holistic medical system utilising herbal medicine, diet, nutrition, detoxification, yoga and meditation. Ayurveda emphasises balance between body, mind and spirit to heal imbalances of three doshas that represent biological energies governing physical and mental functions – Vata (air and space), Pitta (fire and water) and Kapha (earth and water) – and thus are different from other hospitals run by the Ministry of Health and Population. Contact information could only be obtained for six of the remaining 10 central-level public hospitals in Bagmati Province. Thus, a total of eight central-level hospitals were invited to participate in the survey. However, the central-level hospital in Koshi province and three central-level hospitals in Bagmati Province did not respond to the request for participation in the study. The four-remaining central-level public hospitals that provided letters of acceptance to participate were:

1. Paropakar Maternity & Women's Hospital (PMWH) Kathmandu, Bagmati Province (Province No. 3)

2. Kanti Children Hospital (KCH), Kathmandu, Bagmati Province (Province No. 3)

3. Sukraraj Tropical and Infectious Disease Hospital (STIDH), Kathmandu, Bagmati Province (Province No. 3)

4. Karnali Academy of Health Sciences (KAHS), Jumla, Karnali Province (Province No. 6).

All the estimated 59 SHMs from the participating hospitals were invited to take part in the survey.

4.3.2 Ethics approval

Ethics approvals were obtained from both Nepal Health Research Council (NHRC-545/2023) and James Cook University Australia Human Ethics Research Committee (H9203). Also, where applicable, hospital institutional ethics review committee (IERC) approval was obtained from the participating hospitals prior to data collection.

4.3.3 Measurement tool

The study utilised the MCAP self-assessment tool for measuring the competency level and identifying the competency gaps of SHMs [26,27]. The MCAP tool assesses six core management competencies including evidence-informed decision-making, operational administration and resource management, demonstrated knowledge of health care environments and the organisation, interpersonal communication qualities and relationship management, leading people and organisations, and enabling and managing change (Table 5) by measuring 82 behavioural items overall.

Prior to data collection, the MCAP was translated into Nepali by an official translator. To access cultural and contextual appropriateness, the MCAP survey instrument translated into Nepali was pilot tested with five participants from the province one central level public hospital which could not participate in main study due to hospital's internal constraints. This pilot test functioned as a cognitive interviewing process, where the participated SHMs were asked to comment on item clarity, cultural relevance and alignment with their working roles and responsibility. All participants reported that the survey instrument items were clear and directly related to their professional roles, providing preliminary evidence of face validity. Furthermore, the participants identified that response options 6 (*always apply in my role with extensive experience*) and 7 (*always apply appropriately in my role, with extensive experience gained from diverse management roles at executive level)* on the original MCAP Likert scale were interpreted as indistinguishable to their organisational context, which risked confusion. Based

on this feedback and consultation with the MCAP tool creator, the response scale was refined to a 6-point format for the main survey. While formal back-translation, a content validity panel and measurement-variance testing were beyond the scope of this feasibility study, the pilot testing provided culturally grounded evidence of item comprehensibility along with response-format suitability.

It was decided to use a six-level competency assessment descriptive scale and six-point Likert scale (Table 6.A), knowing that this would make direct comparisons more difficult with other versions of the MCAP. Further work namely factor structure and invariance testing would be required to establish construct equivalence. Due to small-scale and context-specific nature of research, formal measurement invariance testing/full validation study could not be conducted. However, within the scope of the study, the priority was cultural clarity and usability, and the reliability results illustrates that the adapted items functioned coherently for SHMs. The Nepali version used the existing five-point scale to assess the level of importance of competencies (Table 6.B). Lastly, the Nepali version did not include participant names, to help maintain confidentiality.

Table 5: MCAP core competencies

Abbreviation	Core competency
C1	Evidence-informed decision-making
C2	Operation, administration and resource management
C3	Demonstrated knowledge of health care environment and the organisation
C4	Interpersonal communication qualities and relationship management
C5	Leading people and organisations
C6	Enabling and managing change

Table 6: MCAP scales to measure levels of competency and importance

A. Competency assessment descriptive scale (level of competency)	
1	May be capable of demonstrating minor aspects in my role
2	May be capable of demonstrating in my role but not in all required aspects
3	Can fully demonstrate in my roles with regular guidance
4	Can generally demonstrate in my role but guidance is needed occasionally
5	Can demonstrate in my role independently without guidance
6	Always appropriately apply in my role with extensive experience
B. The level of importance to the management role	
1	Very unimportant
2	Not so important
3	Unsure whether it is important
4	Somewhat important
5	Very Important

4.3.4 Data collection

A paper-based participant information sheet, consent form, and questionnaire (including the Nepali version of the MCAP, demographic questions and three open-ended questions) was supplied to each appropriate hospital administrator for approval and distribution to the SHMs in their hospital. An internal letter from the hospital administrator was also distributed inviting their SHMs to participate in the survey. Participants were asked to return the questionnaire to a dedicated collection area within the administrative department. Hospitals were requested to send reminder emails to potential participants at the end of the first week and the end of the second week to return the questionnaire. Participants were ensured of confidentiality since the questionnaire was returned in an enclosed envelope and only the researcher had access to the dedicated collection box.

4.3.5 Data analysis

Upon receipt of the returned and completed questionnaires, the data were manually entered into Qualtrics, where a matching English version of the questionnaire was set up. The data were also directly entered to an Excel spreadsheet. Data was then downloaded from Qualtrics to check for accuracy against the Excel spreadsheet. This was effective in identifying and solving data entry errors. The data were analysed with RStudio (R 4.3.3) and SPSS (version 29 for Windows). Percentages of responses for level of importance and level of competency were calculated. Kruskal-Wallis test and Fisher's test were conducted to test the association between variables and competency.

4.4 Results

Of the 59 SHMs invited to participate, 50 completed the survey, resulting in a response rate of 85 per cent and a maximum margin of error of 5.5 per cent.

4.4.1 Management experience

The average experience of SHMs in their current management position was 4.8 years while the average years of experience in management roles overall, including their current position, was 8 years (Table 7). In their current position, 56 per cent of SHMs (n = 28) had fewer than five years' experience, while 68 per cent of SHMs (n = 34) had greater than five years' total experience in management roles (Table 8).

Table 7: Work experience of SHMs

No. years	Current position	Management overall
Mean	4.8	8.0
Median	3.5	7.0
Minimum	1.0	1.0

Maximum	36.0	36.0

Table 8: Years experience in current position and overall

Experience	Current (%)	Overall (%)
<5 years	28 (56)	16 (32)
5-10 years	18 (36)	21 (42)
10-20 years	3 (6)	10 (20)
>20 years	1 (2)	3 (6)

4.4.2 Qualifications of SHMs

The majority of SHMs (*n*= 41, 82 per cent) possessed a postgraduate qualification with 80 per cent (*n* = 40) having a master's degree and one person had a PhD (Table 9). The disciplines of these degrees are detailed in Table 5.

Table 9: Qualifications of SHMs

Qualification	N (%)	Description
Bachelor	9 (18)	Bachelor of Medicine and Bachelor of Surgery (MBBS), Bachelor of Hospital Nursing/Bachelor of Nursing (BN), Bachelor of Science Medical Laboratory Technology (BSCMLT)
Master	40 (80)	Doctor of Medicine (MD), Master of Nursing (MN), Master of Business Administration (MBA), Master of Orthopaedic Surgery (MS), Master of Dermatology (MD), Master of Business Studies (MBS), Master of Rural development (RD), Master of Mathematics, Master of Child Development, Master of Public Health (MPH), Master of Clinical Pathology
PhD	1 (2)	Global Health

In addition, 10 per cent of SHMs (*n* = 5) were currently enrolled in a degree which included Master of Public Administration, Master of Business Administration, Master of Public Health and PhD Global Health.

Participants were asked whether they had participated in any training (non-degree program) for more than 10 hours per year in the past three years (Table 10). Thirty-eight per cent (*n* = 19) were engaged in management training or self-study on management-related topics. Sixty-two per cent of SHMs (*n* = 31) had not participated in any type of training.

Table 10: Training participation for more than 10 hours per year in the past 3 years

Training type	N (%)
Non-management	5 (10)
Management	10 (20)
Self-study, management-related	9 (18)
None of above	31 (62)

4.4.3 Difficulties encountered by SHMs

SHMs were asked to indicate the three most common management difficulties they had encountered in the past three years in their management roles from a list of 14 provided in the MCAP tool (Table 11). The three most encountered difficulties were high staff turnover (21, 42 per cent), changing team skill requirements (16, 32 per cent), and losing a high potential

employees (15, 30 per cent). Other difficulties faced included: Confronting an employee performance problem, ranked 4, $n = 13$, 26 per cent; Peer conflict; Making right hiring decisions, and Confronting higher management level, each ranked 5, $n = 12$, 24 per cent.

Table 11: Difficulties encountered by SHMs

Rank	Difficulty	N (%)
1	High staff turnover	21 (42)
2	Changing team skill requirements	16 (32)
3	Losing a high potential employee	15 (30)
4	Confronting an employee performance problem	13 (26)
5	Peer conflict	12 (24)
6	Making right hiring decisions	12 (24)
7	Confronting higher management level	12 (24)
8	Having to learn something new such as information or medical technology	9 (18)
9	Employee engagement in decision-making and implementation of change	8 (16)
10	Team conflict	7 (14)
11	Conflicts with patients	7 (14)
12	Creating an innovative team	6 (12)
13	Doing something unethical or wrong	5 (10)
14	Other	3 (6)

4.4.4 Insights from open-ended responses

At the end of the questionnaire, participants were provided with open-ended questions to outline in their own words the difficulties they encountered in organisational management. Only five participants responded to the open-ended questions, which was focused on exploring the challenges faced by SHMs in their roles, the underlying causes and potential organisational-level solutions, as well as their aspirations for career development. Participants primarily shared insights on the challenges faced by SHMs. A recurring theme was the prevalence of political issues in the workplace, such as political pressure, high-level interference and personnel promotions influenced by favouritism and political connections. These dynamics often undermined merit-based progression and created a demotivating work environment. SHMs also reported facing resistance from subordinates, particularly in relation to the implementation of organisational changes. This resistance hindered smooth transitions and innovation. A particularly concerning issue raised by one SHM was the exposure to violence and abuse from patients or their families. This not only compromised the safety and wellbeing of SHMs but also contributed to their reluctance to continue in their current positions. Among the challenges identified, resistance to change aligned with difficulties outlined in the MCAP tool, whereas the other four types of difficulties (political interference and political pressure, promotions based on favouritism, inadequate benefits and poor work facilities, and instances of violence or abuse from patients and their families) emerged as additional concerns not previously captured in the MCAP tool's predefined options.

4.4.5 Management preparedness, competency and importance

4.4.5.1 MCAP internal consistency

The number of respondents was larger than the sample size required for Cronbach's alpha of n = 38 (where, $\alpha = 0.05$, precision $w = 0.1$, previous reliability $r = 0.9$, and the lowest number of items in C6 $q = 9$) [39]. Cronbach's alpha for the respondents' level of competency and level of importance exceeded 0.90 for each core competency (Table 12). This showed a that the MCAP scale had very good internal consistency for the Nepali version.

Table 12: MCAP internal consistency (Cronbach's alpha)

Level of competency		**Level of importance**	
Competency*	**alpha (95% CI)**	**Competency***	**alpha (95% CI)**
CI	0.95 (0.94, 0.96)	CI	0.92 (0.91, 0.94)
C2	0.96 (0.95, 0.96)	C2	0.90 (0.88, 0.92)
C3	0.96 (0.95, 0.96)	C3	0.92 (0.90, 0.94)
C4	0.97 (0.97, 0.98)	C4	0.94 (0.93, 0.95)
C5	0.96 (0.96, 0.97)	C5	0.91 (0.89, 0.93)
C6	0.96 (0.95, 0.97)	C6	0.90 (0.88, 0.92)

* See Table 6 for core competency abbreviations

4.4.5.2 Management competency before taking up the current management role

Participants were asked to indicate the extent to which competencies were acquired before taking up their current management role (Table 13). Overall, 40-50 per cent of SHMs indicated that they were competent in the six core competencies prior to taking up their current management position. Prior to taking the current management role, the highest number of SHMs, 50 per cent ($n = 25$), self-assessed themselves as competent in C1 *Evidence-informed decision-making*. This was followed by C2 *Operation, administration and resource management* and C5 *Leading people and organisations*, both at 48 per cent ($n = 24$), while 32-42 per cent of SHMs ($n = 16$-21) self-assessed as requiring occasional guidance before undertaking their current role for the six core competencies.

Table 13: Competency prior to current role

Competency* N (%)	**Not yet competent (1-3)**	**Occasional guidance (4)**	**Competent (5)**	**Expert (6)**
C1	6 (12)	19 (38)	25 (50)	0
C2	5 (10)	21 (42)	24 (48)	0
C3	10 (20)	20 (40)	20 (40)	0
C4	9 (18)	18 (36)	23 (46)	0
C5	10 (20)	16 (32)	24 (48)	0
C6	8 (16)	21 (42)	21 (42)	0

* See Table 6 for core competency abbreviations

4.4.5.3 Perceived importance of management competencies

The majority of the SHMs (96-100%, *n* = 48-50) perceived the six core competencies as somewhat or very important to their current management role (Table 14), while 4 per cent (*n* = 2) indicated C3 *Demonstrated knowledge of health care environment and the organisation* was not so import or were unsure, and 2 per cent each (*n* = 1) were unsure about the importance of C4 *Interpersonal communication qualities and relationship management* and C5 *Leading people and organisations*.

Table 14: SHMs perceived importance of management competencies

Competency* N (%)	Very unimportant	Not so important	Unsure	Somewhat important	Very important
C1	–	–	–	10 (20)	40 (80)
C2	–	–	–	17 (34)	33 (66)
C3	–	1 (2)	1 (2)	18 (36)	30 (60)
C4	–	–	1 (2)	12 (24)	37 (74)
C5	–	–	1 (2)	7 (14)	42 (84)
C6	–	–	–	13 (26)	37 (74)

* See Table 6 for core competency abbreviations

4.4.5.4 Self-assessed competency

Overall, 56-72% of SHMs (*n* = 28-36) indicated that they were currently competent or expert in the six core competencies (Table 15). The highest percentage of SHMs who self-assessed as competent or expert was for C5 *Leading people and organisations* (72 per cent, *n* = 36) followed by C4 *Interpersonal communication qualities and relationship management* (70 per cent, *n* = 35), and the least was C2 *Operation, administration and resource management* (56 per cent, *n* = 28) followed by C3 *Demonstrated knowledge of health care environment and the organisation* (62 per cent, *n* = 31) and *C1 Evidence-informed decision-making* (64 per cent, *n* = 32). Also, the occasional guidance necessary were highest for C2 *Operation, administration and resource management* (30 per cent, *n* = 15) followed by C1 *Evidence-informed decision-making* (24 per cent, *n* = 12) and C3 *Demonstrated knowledge of health care environment and the organisation* (18 per cent, *n* = 9).

Table 15: SHMs self-assessed level of competency

Competency* N (%)	Not yet competent (1-3)	Occasional guidance (4)	Competent (5)	Expert (6)	Competent/ Expert (5-6)
C1	6 (12)	12 (24)	18 (36)	14 (28)	32 (64)
C2	7 (14)	15 (30)	18 (36)	10 (20)	28 (56)
C3	9 (18)	9 (18)	25 (50)	6 (12)	31 (62)
C4	4 (8)	11 (22)	18 (36)	17 (34)	35 (70)
C5	7 (14)	7 (14)	16 (32)	20 (40)	36 (72)
C6	8 (16)	9 (18)	17 (34)	16 (32)	33 (66)

* See Table 6 for core competency abbreviations

4.4.5.5 Competency for individual behavioural items

The highest percentage of SHMs that self-assessed as competent or expert for individual behavioural items of each competency were: C1.13 *Commit to ongoing personal and professional development* (70 per cent, *n* = 35), C2.1 *Complete necessary workforce records e.g. overtime, leave, rosters, attendance, absence to inform the payroll process* (72 per cent, *n* = 36), C3.11 *Effectively navigate organisational structures, roles and relationships in order to achieve work goals* (60 per cent, *n* = 30), C4.3 *Listen and empathise with others* (80 per cent, *n* = 40), C5.10 *Persevere to achieve goals* (78 per cent, *n* = 39) and C6.3 *Act accountably and accept personal responsibility* (72 per cent, *n* = 36).

Among the behavioural items the lowest percentages for competent or expert were: C1.4 *Critically appraise the validity and relevance of evidence* (52 per cent, *n* = 26), C2.5 *Develop budgets in accordance with organisational objectives*, and C2.7 *Anticipate and plan for changes in policies affecting funding to the organisation/unit* (42 per cent, *n* = 21), C3.2 *Demonstrate understanding of political, social, technical and economic factors and their impact on the organisation* (50 per cent, *n* = 25), C4.12 *Consider and act with sensitivity to the politics of any given situation* (48 per cent, *n* = 24), C5.9 *Establish and maintain a personal and professional support network* (56 per cent, *n* = 28), and C6.7 *Implement change and effectively manage the transition process* (52 per cent, *n* = 26).

4.4.5.6 Individual scores within each core competency

A Kruskal-Wallis test was performed to examine associations between individual scores for level of competency (C1.1, C1.2,…. etc.) within each core competency (C1-C6). The results indicated a statistically significant difference between individual scores for level of competency within C2 *Operation, administration and resource management* ($\chi^2(16) = 30.2$, p = 0.0169) and C4 *Interpersonal communication qualities and relationship management* ($\chi^2(18) = 34.1$, p = 0.0124). No statistically significant differences were observed among the remaining groups (C1 *Evidence-informed decision-making* $\chi^2(12) = 6.97$, p = 0.8597; C3 *Demonstrated knowledge of health care environment and the organisation* $\chi^2(10) = 1.97$, p = 0.9966; C5 *Leading people and organisations* $\chi^2(12) = 17.2$, p = 0.1409; C6 *Enabling and managing change* $\chi^2(8) = 5.03$, p = 0.7540).

Table 16: MCAP behavioural items (competency and importance)

Behavioural item	Level of competency (%)						Level of importance (%)				
	1	2	3	4	5	6	1	2	3	4	5
C1. Evidence-informed decision-making											
1. Use timely and appropriate questioning/investigation to identify the nature of a problem, issue or opportunity	0	0	14	18	34	34	0	0	0	20	80
2. Seek appropriate evidence from multiple organisational sources to guide the identification of solutions	0	0	14	26	36	24	0	0	4	22	74
3. Seek appropriate (qualitative/quantitative) evidence from multiple external sources to guide the identification of solutions	0	2	10	24	40	24	0	0	6	32	62
4. Critically appraise the validity and relevance of evidence	2	4	20	22	30	22	2	2	2	36	58
5. Assess and prioritise the relevance of evidence to the question (s)	0	2	14	24	34	26	0	0	4	36	60
6. Use evidence to question and improve existing practice and processes	2	2	14	20	28	34	0	0	4	28	68
7. Apply the best form(s) of evidence to guide management decision-making	2	0	12	26	34	26	0	0	6	28	66
8. Evaluate the process of seeking and applying evidence to management decision-making	0	0	14	30	24	30	0	0	6	38	65
9. Anticipate decision implementation problems/ impacts and develops and communicate appropriate contingency plans	2	2	14	22	34	26	0	2	2	34	62
10. Set and use measures to evaluate decision outcomes	2	2	18	20	34	24	0	2	4	38	65
11. Support and encourage colleagues and subordinates to use evidence to guide decision-making	2	0	14	24	28	32	0	0	2	32	66
12. Anticipate and prepare for the future by staying abreast of best practice and emerging trends that will have an impact on health outcomes	2	2	16	22	28	30	0	0	0	14	86
13. Commit to ongoing personal and professional development	2	0	8	20	36	34	0	0	4	26	70
C2. Operation administration and resource management											
1. Complete necessary workforce records (e.g. overtime, leave, rosters, attendance, absence) to inform the payroll process	0	4	8	16	40	32	0	0	6	34	60
2. Balance the needs of organisation and of staff through effective planning and management of staff roster and work coverage	0	2	8	26	40	24	0	0	4	42	54
3. Interpret basic financial statements	4	16	14	20	26	28	4	0	12	30	54
4. Monitor financial performance by analysing a variety of financial data	4	16	20	18	24	26	4	2	4	34	56
5. Develop budgets in accordance with organisational objectives	4	14	20	20	24	18	4	0	8	32	56
6. Manage budgets in accordance with organisational objectives	4	10	20	20	28	18	4	0	6	26	64
7. Anticipate and plan for changes in policies affecting funding to the organisation/unit	0	16	26	16	24	18	0	4	8	36	52
8. Design and develop appropriate roles and reporting structure (across a range of areas) in accordance with organisational objectives	0	6	30	16	24	22	0	2	8	36	54
9. Effectively manage recruitment, selection and appointment of sufficient, suitably skilled staff	0	6	22	14	24	34	0	0	8	32	60
10. Effectively manage staff turnover and retention	2	2	14	22	30	30	2	0	2	38	58
11. Manage staff in accordance with human resource policy and procedure	0	2	18	16	30	34	0	0	2	40	58
12. Establish and maintain the organisation's insurance contracts and financial relationships	2	12	16	24	26	20	0	4	12	28	56
13. Conduct regular two-way performance review & development discussions to support staff development	0	6	14	16	40	24	0	0	4	38	58
14. Recognise and develop the performance of others by providing timely and appropriate feedback	4	2	16	18	32	28	2	0	6	34	58
15. Contribute to continuous improvement of organisational processes, including quality and safety	4	2	16	26	26	26	2	0	2	32	64
16. Use performance measures and industry benchmarks to inform continuous performance improvement	2	6	20	22	36	14	2	2	4	36	56
17. Plan, execute and evaluate projects with significant scope and impact	2	8	12	24	28	26	2	0	6	34	58

Behavioural item	Level of competency (%)						Level of importance (%)				
	1	2	3	4	5	6	1	2	3	4	5
C3. Demonstrated knowledge of health care environment and the organisation											
1. Demonstrate understanding of the health care industry and its impact on health care organisations	0	4	18	26	34	18	0	0	10	44	46
2. Demonstrate understanding of political, social, technical and economic factors and their impact on the organisation	0	10	26	14	30	20	0	4	12	40	44
3. Demonstrate understanding of the roles of key stakeholders in health and how they interact	2	4	22	14	34	24	0	0	14	36	50
4. Demonstrate understanding of the highly professionalised health workforce	4	6	16	16	46	12	0	0	10	40	50
5. Apply relevant legislation and accountability frameworks specific to health care settings	2	2	24	20	28	24	0	0	8	32	60
6. Demonstrate awareness of clinical and non-clinical risks specific to health care organisations	2	2	26	16	24	30	0	0	12	42	46
7. Apply quality indices and benchmarks to identify opportunities, set performance standards and improve quality	2	2	22	22	34	18	0	0	6	44	50
8. Apply risk management concepts and techniques in their work	2	6	22	18	32	20	0	4	8	26	62
9. Demonstrate understanding of the diversity of health care needs	2	4	20	22	30	22	0	0	8	38	54
10. Demonstrate awareness of the organisational history, culture and development	2	2	24	18	32	22	0	0	6	46	48
11. Effectively navigate organisational structures, roles and relationships in order to achieve work goals	2	6	16	16	38	22	0	0	10	30	60
C4. Interpersonal, communication qualities and relationship management											
1. Show trust and respect for others in their actions	2	2	2	22	26	46	0	0	4	18	78
2. Provide appropriate support to others in the workplace	2	2	6	16	26	48	0	0	0	24	76
3. Listen and empathise with others	2	0	6	12	38	42	0	2	0	18	80
4. Engage confidently and constructively in verbal and non-verbal interactions with others	2	0	6	16	46	30	0	2	2	26	70
5. Communicate verbally in a clear, logical and grammatically correct manner in both formal and informal situations	2	2	6	16	38	36	0	0	2	36	62
6. Produce written reports/materials which are appropriate for both audience and purpose	2	2	8	26	40	22	0	0	6	36	56
7. Invest time and effort in working and engaging with stakeholders	2	2	4	28	38	26	0	0	8	32	60
8. Actively question, listen, respond and provide feedback as a basis for effective communication	2	0	8	30	36	24	0	0	4	42	54
9. Function effectively in a team by developing and maintaining professional relationships with people from a wide range of backgrounds	2	2	10	24	34	28	0	2	8	32	58
10. Build collaborative internal and external relationships	2	4	8	26	36	24	0	0	4	40	56
11. Adopt a flexible, client-oriented approach that is sensitive to diverse needs	2	6	8	22	34	28	0	0	6	40	54
12. Consider and act with sensitivity to the politics of any given situation	2	4	20	24	24	24	2	2	10	42	44
13. Work through conflict (and with diverse views) by initiating and engaging in robust conversations	2	2	18	26	32	20	0	4	10	42	44
14. Demonstrate awareness of own emotions and their impact on others	2	4	6	24	40	24	0	0	8	44	48
15. Show self-control over disruptive emotions and impulses	2	0	6	28	36	28	0	0	4	36	60
16. Maintain focus, set realistic goals and are not easily distracted	2	0	16	22	32	28	0	0	6	30	64
17. Show awareness of, and sensitivity to, the feelings of others	2	0	12	16	36	34	0	0	8	24	68
18. Invest time in self-care and personal support mechanisms, especially during stressful times	2	0	12	18	38	30	0	0	4	32	64
19. Promote and adhere to high standards for personal and organisational integrity, honesty, transparency and respect for people	0	2	6	18	36	38	0	0	4	26	70

Behavioural item	Level of competency (%)						Level of importance (%)				
	1	2	3	4	5	6	1	2	3	4	5
C5. Leading people and organisations											
1. Develop and/or implement a shared vision to achieve organisational goals	0	0	16	22	36	26	0	0	6	32	62
2. Manage with reference to the broader organisational context	0	2	14	22	36	26	0	0	2	46	52
3. Engage effectively in organisational decision-making	0	2	10	24	38	26	0	0	4	36	60
4. Inform and educate influential decision makers	2	2	6	24	40	24	0	0	6	36	58
5. Balance the values and priorities of both organisation and profession(s)	2	0	12	24	40	22	0	0	4	38	58
6. Lead, develop and evaluate performance to build an effective team	2	2	12	26	48	10	0	0	2	40	58
7. Empower others to achieve goals	0	4	12	20	42	22	0	0	4	28	68
8. Adapt leadership style to suit the situation	0	2	14	22	44	18	0	0	6	30	64
9. Establish and maintain a personal and professional support network	2	0	18	24	32	24	0	0	10	36	54
10. Persevere to achieve goals	2	0	8	12	32	46	0	0	4	20	76
11. Demonstrate energy, commitment and enthusiasm	2	0	6	24	34	34	0	2	4	22	72
12. Encourage ideas and identify opportunities	2	0	8	20	42	28	0	0	2	26	72
13. Remain calm while under pressure	2	8	8	22	38	22	0	4	4	28	64
C6. Enabling and managing change											
1. Explain the need for change in an effective way	2	0	14	24	42	18	0	0	2	44	54
2. Assess readiness for change and plans accordingly	2	0	16	22	48	12	0	0	2	38	60
3. Act accountably and accept personal responsibility	0	2	10	16	50	22	0	0	2	30	68
4. Effectively balance consultation and decisiveness in decision-making	0	2	20	10	48	20	0	0	2	38	60
5. Use available evidence to appraise options	0	4	18	14	42	22	0	0	6	36	58
6. Anticipate and appreciate the impact of change and plans accordingly	2	6	12	22	32	26	0	0	4	40	56
7. Implement change and effectively manage the transition process	2	2	20	24	34	18	0	0	4	44	52
8. Evaluate the processes and outcomes of change	2	4	14	26	38	16	0	0	4	44	52
9. Recognise and tolerate ambiguity	2	4	12	16	44	22	0	0	4	40	56

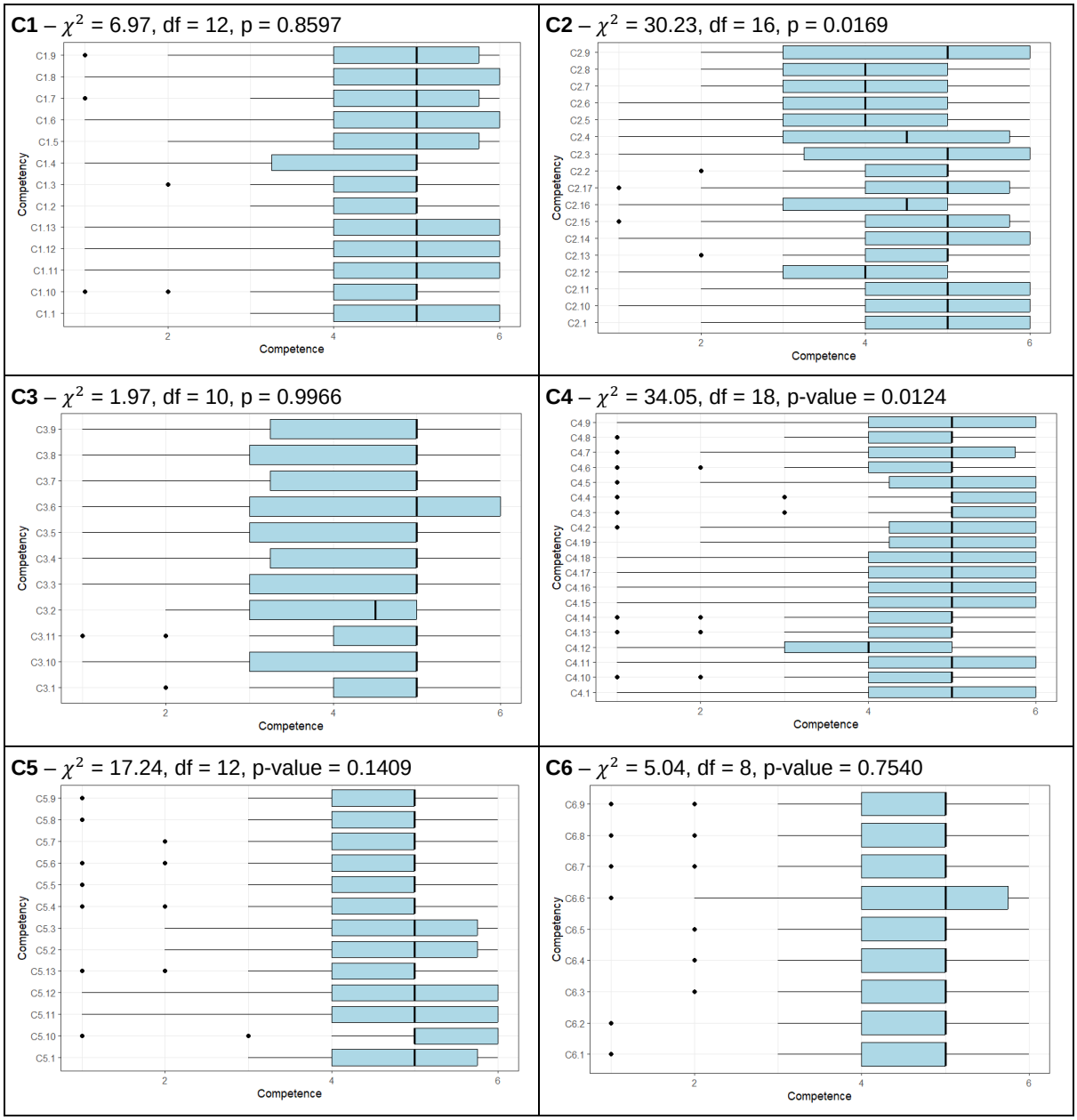

Figure 13: Kruskal- Wallis rank sum test by core competency

4.4.5.7 Association between training and competencies

Kruskal-Walli's rank sum test suggested a positive association between management training and self-assessed competency but the association did not achieve statistical significance (p=0.6376).

4.4.5.8 Association between experience and competencies

The Fisher's test indicated no significant difference in the proportion of SHMs with high competency (scoring a level of competency 5 or 6) and their level of experience categorised as low being (<3 years) or high (>3 years) of experience (p = 0.27).

4.5 Discussion

This study has shown that 96-100 per cent of SHMs scored the six core management competencies from the MCAP tool as either important or very important, reinforcing the suitability of the MCAP tool to the international context [28,29,30,31,32] including Nepalese senior hospital managers.

The self-assessment data presents a revealing picture of current levels of competency among Nepalese SHMs across the six core domains. Most SHMs reported competency expertise in leading people and organisations, closely followed by strengths in communication and relationship management. By comparison, findings from studies in China and Iran which used the MCAP tool highlighted that hospital executives rated themselves significantly lower in leadership competency [28,31]. In contrast, the findings from this study suggest a strong foundation in leadership and interpersonal skills, both critical for influencing teams and driving organisational goals.

However, not all SHMs are fully proficient in the core competencies since levels of competency for SHMs across the domains ranged between 56-72 per cent, suggesting a need for targeted professional development strategies. In particular, areas such as resource management, knowledge of the health care environment, and evidence-informed decision-making were the least developed competencies indicated by SHMs. This aligns with findings from India, where project managers considered themselves as least competent for evidence-informed decision-making and knowledge on health care organisation [30]. The lowest levels of competency were in SHMs developing budgets aligned with organisational goals, which signals either a skills gap or a lack of adequate support structures in financial planning. Additionally, the open-ended questions identified SHMs' lower level of confidence in political acumen and managing the change. These findings highlight a critical need for targeted competency-building in three core competencies along with additional support on strengthening working politics and change management for effective and efficient hospital management and service provision in central-level public hospitals in Nepal.

The primary focus needs to be on resource management including financial insights and budgets to bridge the competency gaps of SHMs. This is further supported by broader literature such as Ziv et al. who identified that resource management training programs have good outcomes for fillings competency gaps in health managers specifically for the well-organised use of resources [40]. Additionally, research evidence shows that simulation- and scenario-based learning is a cost-effective positive method for improving performance of health executives, which supports the acquisition of critical management skills and confidence

while incubating a culture of safety [41,42]. Likewise, cross-functional mentorship programs can be utilised for aiding SHMs to improve their management performance in areas like accounting, Human Resources (HR), monitoring, and evaluation [43], in addition to better team dynamics [44].

The second priority is to deepen SHMs' understanding of health care environments. This requires increased comprehension of hospital systems and organisational structures including system-wide functions, policy and governance. Workshops and collaborative learning initiatives involving system experts may be included to facilitate the contextualised learning for SHMs, thereby enhancing their understanding of organisational structures within specific health care settings [45]. It has been acknowledged that such collaboration fosters deeper insights into governance, policy and operational frameworks, promotes cross-level dialogue and strengthens resilience and adaptability through shared problem-sharing [45]. As a potential strategy, the learning health systems (LHS) framework, which aligns people, data and organisational culture to enable ongoing learning and innovation, may be employed to foster continuous, context-sensitive improvement [46]. The LHS framework uses real-time evidence from clinical practice to inform decisions, ensuring that new knowledge is rapidly translated into better care. By promoting shared understanding across all levels of the health system, the framework may be utilised to facilitate sustained transformation [46].

The third priority is SHMs' knowledge of evidence-based decision-making which includes development of skills to access, interpret and apply research and data in policy and practice. The integration of case-based learning and analytics training may present a valuable approach for developing managerial competency and capabilities of SHMs. By embedding case-based learning within the professional development programs, SHMs can engage in contextualised, experiential learning that deepens their understanding of evidence-based decision-making frameworks [47,48]. This teaching method is effective in cultivating critical thinking, collaborative problem-solving and systems-level reasoning that is important for negotiating complex areas such as governance, policy and operational challenges in health care settings [47,48].

The fourth priority this study identified was a lack of confidence among SHMs in overseeing politically delicate circumstances. This suggests an inadequate exposure to political acumen training along with insufficient assistance during professional development for SHMs and reflects the importance of targeted capacity building initiatives in political literacy and policy navigation. This sentiment is echoed on study by Waring et al. who emphasise the implementation of targeted capacity-building initiatives such as leadership development

programs incorporating political education, stakeholder engagement, and policy navigation [49]. Therefore, this study underscores the importance of embedding these components into both pre-service education and ongoing professional development program for SHMs to foster greater preparedness and competency in navigating complex political environments within Nepalese public hospital settings.

The final priority is the competency gap in implementing and managing change processes effectively, which suggests a need for professional development strategies for SHMs focusing on change management approach. A study by Le-Dao notes that addressing shortfalls in change management may include introduction of targeted professional development initiatives on change leadership and transition management underlying stakeholder management, resilience, and strategic alliance for uplifting transition management competencies [50]. These findings collectively underscore the importance of planned and structured development approaches as a foundational support to boost SHMs' performance in attaining organisational persuasiveness, and system sustainability. Together with the development of SHMs' resilience and adaptability, the structured and targeted approaches for competency development ensure that SHMs are well-equipped to navigate the complexities of modern public hospital management in Nepal with competence and conviction.

These findings, along with highlighting a critical need to support Nepalese SHMs in developing their core managerial competencies, are relevant across the broader Asia-Pacific region, principally in developing countries where health system strengthening remains uneven. As highlighted in several analyses, discrepancies in management and leadership development have obstructed steady progress in health care delivery [25,37,51]. By incorporating the competency development needs identified in Nepal, other nations with similar sociopolitical and economic contexts, such as Bhutan, Papua New Guinea and parts of Southeast Asia, could benefit from a targeted approach to building managerial competency. This aids regional efforts in advancing health care management and enhancing system resilience and efficiency [52].

Limitations

The generalisability of the findings is limited because responses were only received from 50 SHMs in four central-level public hospitals in Nepal, representing distinct service types and geographical contexts, including urban and rural locations, and specialised facilities such as a children's hospital, maternity hospital and an infectious disease hospital. Therefore, the result may not be illustrative of all SHMs in central-level public hospitals in Nepal. Furthermore, competency assessment relied on self-assessment by participants which may be

subject to response bias such as overestimation and underestimation of management competency, leading to errors in self-reported data [28]. Additionally, the relatively small sample size of SHMs may inhibit the ability to robustly assess the internal consistency of MCAP tool using Cronbach's alpha [53].

Further research

Further research on different hospital settings and different levels of management may contribute to a better understanding of the competency development requirements for managers in central-level public hospitals in Nepal. The open-ended responses revealed complicated issues influencing SHMs performance that expanded beside individual competency. Challenges such as political interference, progression impacted by favouritism, scarce benefits and substandard working conditions suggest systemic hurdles that warrant closer examination. These barriers further underscore the requirement for qualitative investigation to examine SHMs' lived experiences, insights, understanding and approaches for managing these challenges. Moreover, examining the perceptions of policymakers will also be critical in comprehending the disengagement between governance frameworks and management realities. Future studies should employ in-depth interviews or focus group discussions to understand the nuanced dynamics at play along with identification of actionable moderators that could support SHMs in effectively fulfilling their roles.

4.6 Conclusion

Developing SHMs' managerial competency is a critical strategic approach to reinforcing the efficiency, strength, workability, resilience, stability and sustainability of hospital systems. The study highlights competency gaps among SHMs in areas such as resource management, evidence-based decision-making, knowledge of health care environments, political acumen and transition management, which further underscores the need for prioritised targeted professional development interventions in these domains. The professional development programs, including training, should focus on resource allocation, health care environments, decision-making, political sensitivity and transition management for equipping SHMs with the competencies necessary to perform their roles effectively and efficiently.

Different learning approaches such as case-based learning and simulated training offer valuable opportunities for intensifying evidence-based decision-making in conjunction with fostering critical thinking and collaborative problem-solving. These methods are particularly relevant to the complex, policy-driven environments that SHMs operate in. The study ultimately underscores that addressing these competency development needs of SHMs through

planned, structured and contextually responsive strategies not only strengthens SHMs' individual managerial competency but also enhances their organisational performance and resilience. A sustained investment in competency building and development will enable SHMs to negotiate the challenges of contemporary hospital systems with greater confidence and competency. Such development approaches ultimately contribute to the long-term success and sustainability of Nepalese hospital management and health care settings.

Contribution of Chapter 4 to thesis

Chapter 4 contributes substantively to the thesis by providing empirical evidence of the current level of management competencies along with gaps and development needs among SHMs in Nepalese public hospitals. Through a rigorously designed cross-sectional survey, it offers quantitative insights that complement the thesis's broader mixed-methods approach. The findings inform the strategic relevance of competency-based workforce development in LMIC settings and serve as a diagnostic baseline for policy and educational interventions. The chapter further strengthens the thesis's methodological robustness by demonstrating the feasibility of adapting and applying an international competency framework within the Nepalese context, reinforcing the thesis's regional relevance and practical applicability. The chapter offers transferable insights for similarly resource-constrained settings where prioritising the least-developed competencies based on empirical assessment can guide logical and cost-effective expenditure of limited health management workforce development budgets.

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Chapter 5: Examining the Perspectives of Nepalese Senior Public Hospital Managers on Professional Capability and Capacity Development: A Descriptive Qualitative Study

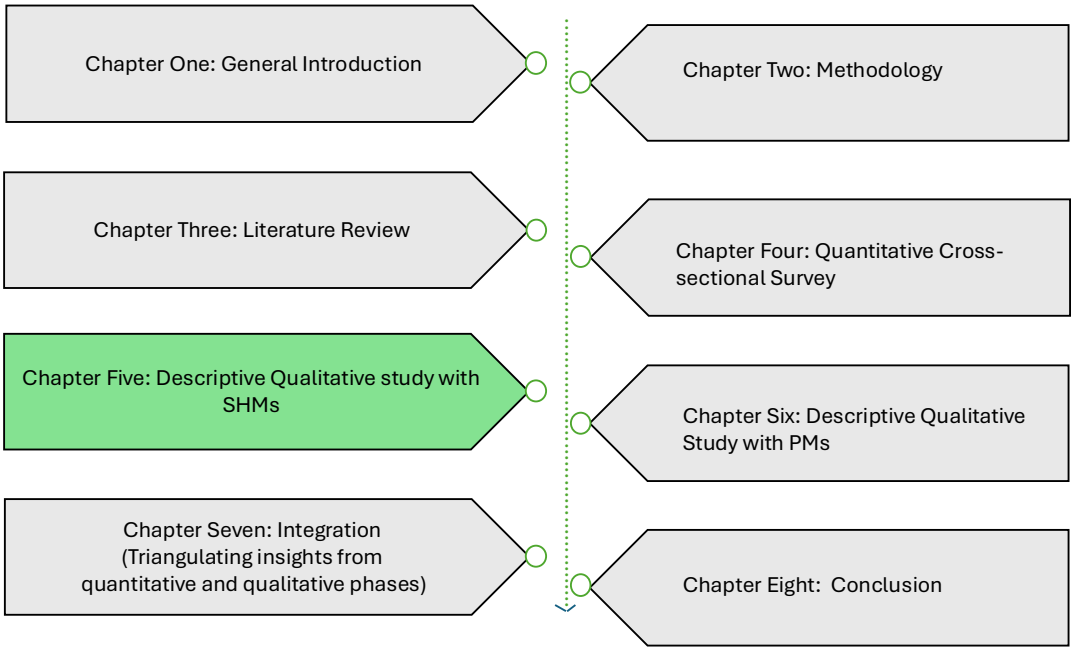

Figure 14: Site of chapter 5 in the whole document

5.1 Chapter overview

Chapter 5 presents a descriptive qualitative study exploring Nepalese senior hospital managers' (SHMs') perspectives on their professional capability and capacity development within the public hospital system. The chapter begins with a contextual background followed by a detailed account of the research methodology, including ethical approval, participant recruitment, data collection and analysis. The results section synthesises key themes reflecting SHMs' insights which are critically examined in the discussion with reference to existing literature. Strengths and limitations are acknowledged to contextualise the study's scope and transferability and the chapter concludes by highlighting implications for SHMs' development and future research directions.

5.2 Background

Well-functioning health systems enable countries to provide the essential health care services that their people need [1]. However, health systems do not operate effectively on their own. They require competent health managers who serve as the backbone of the system's success, driving continuous improvement and ensuring effective operation [2]. Hospitals are essential components of health systems, playing a crucial role in delivering and coordinating care, within and between providers and settings, such as public health, primary care, community services and social-care systems to ensure seamless, person-centred care [3].

Effective management of a hospital's workforce relies on skilled and competent health managers [4]. Competent health managers are essential for strengthening health systems by overseeing operations, optimising resources and ensuring the delivery of quality health services, ultimately leading to positive health outcomes [5].

In practice, health practitioners who are experts in their clinical field become managers by accident [6], being promoted to managerial roles based on their career achievements rather than their managerial skills [7]. However, without formal management training, an expert clinician may not have expertise in management roles and thus become management novices. Research demonstrates that hospital managers are not fully competent to carry out managerial tasks, suggesting a greater need to develop current and future hospital managers [8].

The extent of management tasks is broad and in a rapidly transforming health sector future clinical managers must excel in management alongside their clinical practice [9,10]. For example, a nurse with advanced clinical expertise, enters the role of manager and is promptly required to be a strategic planner, operational manager, HR and risk manager and financial analyst along with managing compliance, professional regulatory rules, organisational policies, procedures and quality assurance systems, teaching and supervision [10]. Efforts aimed at cultivating a competent health management workforce have been fragmented and largely inadequate, hindered by the absence of a coherent and clearly structured strategic framework [8]. Development initiatives undertaken by various countries have been inconsistent, resulting in significant disparities in capacity building and progress [9]. Such inadequacies have been highly noticeable in under-resourced countries possessing social and economic challenges, such as Nepal [11,12].

Nepal has transited to a federal governance system from a central unitary system. Based on the contextual norms of a federal system, the state is responsible for ensuring access to quality health services for all citizens [13]. Nepal's National Health Policy 2019 recognises HR as the backbone of quality health services and the necessity of quality assessment and regulatory measures for workforce development [13]. Nepalese hospital management roles have been operating without formal regulation, lacking specific registration or credentialing standards [14]. Additionally, clear competency criteria for hospital managers have yet to be properly defined. Management positions are mostly occupied by senior doctors, rather than a person with specific education or experience in management and leadership [12,14]. A lack of structured guidance in designing and developing training programs for hospital managers has contributed to reduced confidence in performing managerial roles. Without clear training

frameworks, managers may struggle to build the necessary skills required to effectively do their job.

SHMs are people who allocate resources such as manpower and finance, to enable hospital departments to function in providing services to the public. SHMs in this research refers to all department heads/chiefs or managers who are at senior level and responsible for managerial functions. No documented evidence of competency-based development strategies has been identified for SHMs in Nepal. Studies conducted in 2012 and 2014 highlighted the necessity of in-service management training for the HMW due to a lack of development strategies in managerial competencies, which is one of the factors that limit effective and efficient hospital service provision in Nepal [12,14]. However, these studies were conducted more than a decade ago and before federalisation of Nepal. Thus, research is required for investigating competency and capability development for SHMs in central level public hospitals in Nepal.

A cross-sectional study using a survey questionnaire aimed at Nepalese SHMs was undertaken in Phase I of the study [15]. This built an understanding of the current competency levels and competency gaps identified by Nepalese SHMs in central-level public hospitals in Nepal. To gain a deeper understanding regarding the barriers and enablers for SHMs to develop and demonstrate their managerial roles, a follow up qualitative study has been completed.

5.3 Methods

5.3.1 Ethics approval

Ethics approvals were obtained from both the Nepal Health Research Council (NHRC-545/2023) and James Cook University Australia Human Ethics Research Committee (H9203) prior to the data collection.

5.3.2 Research methodology

The study utilised a qualitative descriptive design as the second phase of a larger sequential mixed-methods research project aiming to identify strategies for development and unlocking of professional capability and capacity among SHMs in Nepal. This phase of the research focused on a qualitative exploration of the experiences and perceptions of SHMs themselves. The qualitative descriptive design was chosen as this approach is valuable for capturing participants experiences without imposing theoretical interpretations, allowing flexibility while maintaining methodological rigour [16]. This approach aided in a combined description of the nature of the experiences and perceptions of the participants. The aim of

qualitative exploratory interview was not statistical representation but to attain the conceptual depth.

Explanatory qualitative descriptive research adopts a relativist ontological position and an associated interpretivist epistemological stance. This means that the researchers consider the lived worlds of SHMs as being fluid, dynamic and interpreted and recognise the interpretive nature of their own analytical processes within the research [16,17].

5.3.3 Participant recruitment

Participants for this qualitative study were recruited purposively [18,19]. The target population was SHMs in four central-level public hospitals in Nepal. Recruitment was restricted to those who completed the cross-sectional survey in the first part of the larger project. Information about the research interviews was distributed to SHMs by hospital administration staff at each hospital with the aim of recruiting at least three participants from each of the four hospitals to promote appropriate variation among the participant sample [18]. Through this process a total of 11 participants expressed interest in undertaking a research interview. The locations and details of participants are not disclosed to ensure they remain unidentifiable. Based on available workforce estimates, the number of SHMs across all central level hospitals is substantially larger than the research sample, so these interviews do not present the population numerically. Instead, they were selected purposively to capture variation in role type, organisational level and managerial pathways. Saturation was assessed iteratively across the SHMs interviews by tracking the emergence of any new codes and concepts. No new codes emerged after interview with 8^{th} SHM, and subsequent 9^{th}, 10^{th} and 11^{th} interviews confirmed thematic stability. After the 11^{th} interview the research team agreed that thematic saturation had been achieved [20,21]. Thus, reflecting the focused scope of study and homogeneity of participant group, the saturation was conceptual rather than exhaustive.

5.3.4 Data collection

Data were collected through semi-structured interviews to allow flexibility in the interview process and enable participants to freely share experiences and perspectives that they considered to be important to the research question [22]. The interview questions were developed based on initial findings from the previous cross-sectional survey with the aim of exploring participants' perspectives on challenges and solutions at individual, team and organisational levels and their views on how their knowledge and skills might be better

developed and utilised within the Nepalese public hospital system. The interview questions were designed to probe those areas. To ensure conceptual coherence between phases, each interview questions was mapped to a specific survey construct that required qualitative elaboration.

The participant information sheet, consent form and a copy of the semi-structured interview guide were emailed to each participant prior to the online interview. The interviews were conducted online via the Zoom videoconferencing platform from August to October 2024 and digitally recorded to aid transcribing. Verbal consent was received from each participant before beginning the interview and revisited on completion of the interview process. Written consent was not obtained because even though SHMs received and read the consent form before the interview, they did not wish to sign and return it.

The interviews were conducted in the Nepali language, the official language of Nepal. The interviews were undertaken at the preferred time of the participants and at conducive places free from third-part intrusions, most often their own homes. Interviews lengths ranged from 30-45 minutes.

5.3.5 Data analysis

All interviews were conducted in Nepali, transcribed in Nepali and translated into English for analysis. Rather than a literal linguistic conversion, the translation was undertaken as an iterative meaning focused process which ensured conceptual and cultural equivalence. The initial English transcripts were produced by primary researcher [PP] which were then reviewed by a second bilingual researcher [HK] who also compared translated English transcripts with the original Nepali transcripts. This confirmed accuracy of meaning, contextual nuance, and culturally embedded expressions. Raised discrepancies were discussed between two researchers and resolved. A translation decision log was maintained to document interpretive choices. Furthermore, during coding key excerpts were cross-checked against the original Nepali phrasing to ensure that analytic interpretations were grounded in SHMs intended meaning. This process strengthened confirmability and mitigated risks associated with cross-language analysis. *NVivo* version 20 was used for data organisation and management during the analytical process. The interview data were analysed inductively using the six phases of reflexive thematic analysis as described by Braun and Clarke specifically: familiarisation; coding; generating initial themes; developing and reviewing themes; refining defining and naming themes; and writing up as storytelling [23].

[PP] and [DL] read the interview transcripts several times to familiarise themselves with the data. Initial coding was then undertaken which involved reviewing the data and searching for segments which were of key relevance to the research question. [PP] and [DL] independently coded the first three transcripts and then met to refine and consolidate these codes. The initial codes were then shared with all members of the research team and further refined following feedback. [PP] completed coding of the remaining eight interviews. [PP and DL] then met to discuss and collate these codes to generate initial themes and subthemes. These initial themes were sent for review and feedback to the broader research team [AJ, MC, HK] with minor amendments made. The themes were then named, and key illustrative quotes or passages of text were collated to support the explanation of themes during the writing phase.

Throughout the research process, [PP] maintained a research diary that included memos and reflections to assist in shaping the analysis and to promote transparency, reflexivity and confirmability of the analytical process and research findings. These memos were discussed in research meetings held between [PP] and [DL].

Throughout the data collection and analysis process, researcher positionality and power dynamics were carefully considered. As an external to SHMs organisational hierarchies, the primary researcher was in a partial outsider position. This reduced the risks of role-based coercion at a same time this also required deliberate rapport-building to support open disclosure. Because of the politically sensitive nature of SHMs roles, there was a recognised possibility of social desirability and strategic self-presentation. To overcome this, interviews emphasised confidentiality, used non-judgemental open prompts, and allowed SHMs to guide the narrative flow. To document assumptions, emotional responses and potential interpretive biases, a reflexive diary (memo) was maintained and these reflections informed analytic decisions. During analysis, attention was given to institutional norms of acceptable discourse and thus interpretations were made cautiously to avoid overstating claims where political sensitivity may have constrained candour. The analysis attended how SHMs positioned themselves, the discursive strategies used by them and the organisational constraints that shaped what could be safely articulated rather than assuming access to unfiltered personal experiences. The interpretive depth of findings and trustworthiness have been strengthened by these reflexive practices. This approach aligns with qualitative interpretivist principles and supports a cautious, credible interpretation of SHMs perceptions within the constraints of the contexts.

5.4 Results

To safeguard participant anonymity, neither a demographic table nor information on where participants were employed has been included. Instead, the relevant information has been aggregated and presented in a clustered format, ensuring confidentiality while maintaining the integrity and contextual relevance of the data.

The explanatory qualitative study including semi-structure interviews with SHMs comprised 11 participants (six females and five males). The participants' experience ranged from up to five years (*n*=1), five to 10 years (*n*=6) and 11-20 (*n*=4) years.

Four key themes and 15 associated subthemes were identified from the analysis of transcripts. The four themes highlight structural and procedural factors that the SHMs reported to influence their capacity to effectively fulfil their roles. For brevity and flow, the results presented in this chapter have been outlined at the level of the overarching themes.

A. Stability, continuity and coherence

a. importance of continuity and stability
b. breakages in communication chains

B. Practical and logistical constraints

a. funding
b. resources and staffing
c. geography
d. time (manager's time)
e. prioritising, planning and future preparedness

C. Interference, conflict and control

a. internal interference
b. political interference
c. top-down decision-making and bureaucracy compromise creativity and autonomy
d. resistance to change

D. Managing the mismatch between ability and expectations

a. underused ability
b. beyond the ability
c. education, training, Supervision and support
d. reward, recognition and motivation.

Stability, continuity and coherence

The theme of stability, continuity and coherence centres on a belief among SHMs that their capacity to perform their role effectively was compromised by interruptions and breakages in their roles. These interruptions took several forms. The most discussed factor, that of compromised stability, was the high rate of staff turnover within the teams led by the managers. The SHMs argued that this loss of continuity and stability inhibited their capacity to promote productivity within their service.

> *The available manpower is frequently changed so new manpower comes. The manpower who has learned some works are transferred elsewhere. Such problems often come. As our hospital is a government hospital, none of the employees are permanent here … New employees must be taught about everything … this causes difficulties. (SHM2)*

> *We must take all the staff on contract. Currently, we cannot keep them on permanent basis. The staff are terminated quickly. There is a problem of turning out. After hiring someone we teach them, but they soon leave the office or transfers to others or move abroad or go to other place where they get permanent opportunity. This is a very common problem" (SHM3)*

The SHMs indicated that the establishment of permanent positions within the health care system assisted in promoting continuity and stability in their organisations. While a permanent position for staff members guarantees ongoing employment in the Nepalese health system, it does not ensure ongoing stability within a particular working role. The participants stated that, typically, staff members in middle or senior management roles are transferred to a different institution after a period of no more than two years. One participant (SHM8) discussed an approach they take to try and ensure stability in staffing by assisting their staff members to remain within their roles for a full two years.

> *… in our department, the duration for transfer is set for two years. For two years, no one either comes or goes by transferring someone. I also do not propose to remove someone before he reaches two years in that post in the organisation and others will not come either. (SHM8)*

Instability in working roles was encountered not only with team members but also by senior managers themselves. Most participants discussed challenges and frustrations brought about by the short-term nature of their appointment to a position. This was made worse where handover processes, to ensure continuity and coherence, have not been followed.

> *It's because there is no hand over system or there is no such thing to show the record that the particular department has done this much till now … If one asks, then I will say but there is no documented system mentioning that what I have done. Because of that, new staff need to go from zero again and when he/she reaches hundred per cent then again, the management changes. (SHM7)*

This frustration reflected concerns regarding both the quality and continuity of communication during times of handover. However, the importance and, at times, poor quality of communication was also discussed by participants in relation to the normal day-to-day working of their teams. For example, when communication was lacking, negative outcomes were described as occurring more frequently.

> *Sometimes there is no communication, even if everyone does the right thing, mistakes are made without understanding each other. …The staff do not understand each other. (SHM5)*

Conversely, in situations where effective communication processes were established, coherence, continuity of care and positive team dynamics were much more likely to be assured.

> *Initially, there used to be conflicts because the communication was not clear. Now we all discuss the issue in the group. Those who have conflict would forward their thoughts which would make things clear. … We discuss* (these conflicts) *in our daily morning session for 15 minutes with all the responsible people … Because of this our dynamics has improved and harmony has maximised among the staff. (SHM1)*

Practical and logistical constraints

Several practical and logistical challenges were discussed by SHMs, expressing concerns that these obstacles undermined their ability to perform their roles effectively. One of

the most frequently discussed constraints was the availability and assuredness of resources. Issues with insufficient budget allocations were highlighted as a key concern that could impact upon all elements of service provision.

> *We also lack the budget. It is a government institution. In one financial year, our budget was short. At that time, the budget was only for salary. Apart from that, tenders were to be made to buy goods, but that could not be done. For one year, we ran the hospital despite the scarcity. (SHM10)*

Examples were discussed by SHMs in which they worked proactively with their hospital directors to address issues around budget shortfalls, recognising that this approach required a degree of compromise.

> *If there is crucial need, we usually talk to the director or head of the hospital through an application (for increased funding). They listen to us about our needs. Now we should be able to prioritise the requirement as per the need. It is not necessary that we get all the things as we say but they listen to us. (SHM4)*

One of the impacts of restricted budgets was difficulties in recruiting staff, leading to an overreliance on casual employees. This was problematic because the combination of staff turnover and casual workers means that staff lack the experience or the corporate knowledge necessary to perform the job well.

> *We must take all the staff on the contract. Now we are not able to take the staff on permanently. Taking the exam (as practiced in Nepalese hospitals for selection to a post) and taking the contract is not worthful. The staff is quick to terminate; there is a problem of turning out. We hire them and teach them, but they leave the office such as transfers to others, move abroad or go to other place where they get permanent job. This is the very common problem. (SHM3)*

Concerns with the process for resource acquisition were also identified by several participants and compounded the challenges associated with insufficient budget allocations. Participants discussed a variety of strategies that they use to manage difficulties associated with

resources acquisition. For example, one participant (SHM3) spoke about the importance of ensuring cooperation between the different levels and sections of the organisation, whereas another (SHM10) indicated that initiating tendering processes in a timely manner was key maintaining enough stocks of essential resources.

> *To run and manage an organisation the major thing is availability of authority (authorisation) and resources. To provide the resources, all the concerned agencies must cooperate. Only giving the instructions to implement this and that but not giving any resources does not allow us (managers) to accomplish the task effectively. We cannot fulfil our objective. (SHM3)*

> *Once after facing lack of budget, we planned and opened tenders timely. If we open tenders in such a timely manner, there will be no shortage of goods. (SHM10)*

Three SHMs described stockpiling strategies that they employed to guarantee availability of essential resources that might be needed urgently. Two of these SHMs worked in a rural context in which receipt of resources was not always guaranteed.

> *To avoid any shortage of goods… Some extra stock was added to the tender. Like six months to three months. If not that way, when the goods are finished and then ordered then, it's difficult to send us the goods since the previous payment still will be pending. Also, the goods are brought by vehicle and again difficult to bring the vehicle here. (SHM10)*

Interestingly one of the SMHs (SHM9) discussed the importance of stockpiling as a critical resource management strategy in rural contexts but also recognised that this approach did not necessarily reflect the most efficient use of allocated resources.

> *… stocks are maintained for emergency drugs, and reagents … so we are maintaining a minimum stock of three months in the store for diagnosis. We are managing these things that way. Now its efficacy and efficiency have created a little problem for us. But we are managing it in some ways. (SHM9)*

Indeed, several geographical barriers associated with service provision specific to rural contexts were discussed. Participants described challenges associated with transport, infrastructure, logistics and staffing, highlighting the multiplicity of factors that complicate service coordination for SHMs in remote settings.

> *There is great difficulty. This hospital is in the entire hilly remote area of Nepal. Sometimes we are threatened by the public in the services we provide. When there is no logistic supply at the time and sometimes there is no internet, there are no lights, such things are many. We have faced many problems when equipment machines are broken, not maintained on time. (SHM11)*

> *Another is the geographical constraint over here. It is very difficult for one to come here due to geographical difficulties. Even if we try to send someone to the training for motivation, mostly the training notice is late. And on the day when one is supposed to go, they cannot go because of waiting time for the plane. Sometime there is shortage of vehicles also. At the same time, sometimes there is scarcity of resources. We need to procure goods or perform the maintenance of equipment such as X-ray, CT when they break down, sometimes the lab reagents run out, they don't arrive timely when they are ordered. (SHM10)*

> *… sometimes some people stay for two-three months and even there is a record that people had stayed just for a week. Some said they could not stay here anymore because of the climate, which was not suitable to them. (SHM11)*

Interference, conflict and control

The theme of interference, conflict and control focuses on a belief among SHMs that their ability to perform their roles effectively is sometimes compromised by internal interference, conflict and restrictive hierarchical structures.

Some SHMs discussed concerns that interference in their working roles was often driven by self-interest among colleagues who had political or financial motivations.

> *… if I try to do something, another person will stop me with political interest. It is more if there are financial matters. If I take any proposal … let's say it has a budget of around 10 lakhs* (about 1.4 times the average SHM salary). *If there is someone else with*

potential financial interest, they will manipulate the person above the director … Due to politics, it will get manipulated and diverted by the higher authorities and do not allow to work … There is a tendency to perform all the work by a person himself and not let others do it. Because there is the economic interest – this is the problem. (SHM11)

Challenges to being able to undertake their role as well as effective teamwork were also reported to arise due to opportunistic efforts from some individuals to enhance their chances of future promotion.

There is leg pulling (creating a difficulty) *because people think he will be better than me or someone is trying to move forward than me. The next thing is someone thinks we try to overtake them. Because of that, there arises conflict at some point. (SHM1)*

Although these forms of interference were considered both unhelpful and unnecessary, SMHs who reported them also discussed employing a range of strategies to try to improve the situation, prior to an escalation to more senior levels of the organisation if required.

I try to talk face-to-face with the person with whom I have a conflict. But sometimes there will be such a negative perception that it is not possible to talk face-to-face. In that situation, I communicate on paper and sit quietly. Sometimes, if there are too many problems, I will inform the ministry above me. I inform that I myself have a problem because of this reason and sometimes I have tried to solve it by organising a meeting in the team. (SHM1)

Several SHMs discussed that top-down decision-making and bureaucracy stifled their creativity and autonomy. One SHM (SHM6) stated that their recommendations relating to staffing and training within their own department were often ignored or overridden by the directors who are in a position a level above them. Given that these decisions would have a considerable bearing on the function of their team, the SMHs felt that their recommendations and preferences should have been given greater consideration.

… if one has worked well in my unit and want to send them to the training as a motivation then, the director should say yes. Or if one didn't work so well and has damaged the position of the unit, if I recommend not to add this contract, the director should not add the contract. If he adds then, it will get worse … If I recommended for their contract extension, it's not like that it will be surely implemented. I recommend it, but practically what top level wants that will only happen. (SHM6)

These SHMs argued that in instances where their recommendations were not accepted, they should be informed of the reasons underpinning the decision. When this did not occur, SHMs felt undervalued and disempowered. Beyond this, however, some SHMs asserted that broader changes to organisational processes are warranted to enable greater emphasis on bottom-up planning to ensure responsiveness to specific departmental needs and greater autonomy in the fulfillment of their roles.

Some SHMs reported feeling hamstrung in their working roles due to lengthy and non-negotiable procedural requirements. One example related to the process of procurement whereby the timely purchase of required commodities products was delayed due to the lengthy bureaucratic processes.

… all the items for procurement within a fiscal year which needs to be purchased within the month of July, but we need to go through PPM (procurement performance management) *and tender process which almost takes five to six months. But we need to timely purchase the required medicines or equipment, and the reagents required in the hospital. (SHM9)*

Another SHM raised similar concerns regarding a continued reliance on slow and multi-layered bureaucratic processes and advocated for a shift towards more output focused approaches targeted at creating greater efficiency and effectiveness. SHM6 argued that the greater the number of hierarchical approval levels that are required, the greater the risk of diversion or dilution of resources eventually received.

Process must be less focused and output should be more focused … When I want to add some service then I need to raise a comment … I need to take it to the head of the department. The head of the department brings it to the hospital director, the hospital

director brings it to the development committee, the development committee will see if it is a priority or not. The more channel is there, the more interests will be mixed. That interest can be diluted when it gets to the decision makers. (SHM6)

Managing the mismatch between ability and expectations

Several SHMs discussed frustrations with a mismatch between their abilities and the expectations in their roles. In some instances, this mismatch related to underuse of their potential when they had specific knowledge and skills that were not required in the organisation they had been transferred to. This appeared to be a by-product of the process of rotating SHMs every two to three years. One example of this was reported by SHM1, who described a diminished role scope after being transferred from a major specialist hospital to a different organisation where her extensive skill set wasn't required.

… it seems that I am not able to utilise the capability that I have. … Because I think that I could utilise my previous experience and the knowledge I had acquired in a bigger area …. But I am not able to utilise my capacity. I believe I could work in more areas. The present space is too small. I have not been able to use my potential. (SHM1)

Conversely, SHMs discussed numerous situations in which they were expected to work beyond their professional skill sets. SHMs suggested that they are routinely expected to perform tasks that extend beyond their stated job descriptions resulting in uncertainty and anxiety as well as compromising the time required to undertake the stated managerial duties.

Regarding the job description … it has not been disclosed clearly whether or how much even: we do not understand it well. There are times when we work beyond our responsibilities. There is not the same skilled manpower everywhere … And it has been challenging when we need to work apart from our skills outside of our subject. It is difficult but there are situations where we must do it. (SHM5)

Even in their stated day-to-day managerial roles, some SHMs reported being responsible for duties that they did not feel able to perform well.

… we practically cannot know different things. We have been doing things as written. But our infrastructure is not that developed. Infrastructure mainly instruments …

Though the maintenance person is in the hospital, they don't have that much skilled degree. They are experienced, they say this can be done this way, but it is a bit difficult to be confident that it will work in the same way. But we always must do that way… Since we are technical people, we may be experts in technical field, but we are not experts in other things. Now, from maintenance to infrastructure, all these things we are not perfect. (SHM5)

Some SHMs pointed to the importance of education and support to grow and unlock their managerial and leadership capacity as needed to perform the variety of roles expected of them. SHMs believed, however, that opportunities for education in managerial and leadership development have been limited in Nepal, impacting negatively on their capacity to perform well.

… regarding hospital management I have not taken any training, and I have been doing as per the responsibility demand with respect to time. Because of this I may have my own weaknesses too … I have not learned to work this subject from any senior or through any training in the centre. (SHM7)

Interestingly, SHMs suggested that the education and training provided to them are typically oriented towards disease management or technical features of their roles, rather than managerial skills development, which is often underfunded.

The budget is reduced; many needs and expectations of the organisation must be covered from a small budget. Mainly our budget allocation is based in the core function. Other non-core functions are not considered. Now there is no situation to develop our own skills. (SHM8)

One participant identified an example of hospital management-related education provided by the Nepalese Government but highlighted the limited access to and long waitlists for this education and a tendency for it to be offered to individuals in higher level of management.

In this hospital there is only one management training given by government. Let's understand it as the higher-level management training. Since government has large organisation, they will provide this training according to the turn. (SHM6)

SHM4 discussed a different management-related training opportunity that had been undertaken and positively reviewed by a few colleagues. SHM4 believed that this training should be prioritised and provided to all SHMs in hospitals.

I have heard that the management training of the staff college is a must. Some of our colleagues have also joined that training. That should be prioritised and given to all the senior managers of the hospital. (SHM4)

The need to be provided with education to support technical updates were also identified as a priority for some participants. SHM3, for example, stated that their technical and leadership knowledge had become outdated and suggested that periodic updates were required to enhance their potential.

… we have certain limitations in recent technical system. We are not updated to it. We are old, at least few decades back generation … If I am sent to different exposures, allowed to take trainings … then I would be more updated to recent technical system. Also, at present it's all about online/virtual thing and I am little lacking to such things, … in recent technical system I am not fully competent. So, if the organisation could provide me with some trainings and exposure then I can be more competent … If I get training on leadership then I could move more forward … Trainings and knowledges related to current affairs and digital things could help me to better land in the leadership role. And I think I could enhance my potential. (SHM3)

There was some difference of opinion among SHMs as to the way in which ongoing education should be provided. Some expressed a view that training should be mandated and built into organisational processes, pointing to the additional burden of having to seek training for oneself.

The organisation can support by giving trainings time to time. But here we must search for it ourselves, we must make an effort. (SHM5)

Others indicated that it would be better to be able to self-select education appropriate to their own needs and allocated roles but emphasised the need for organisational support with this.

It would be helpful if the organisation could facilitate in participating at national and international conference, we could take the initiative ourselves. And if the organisation could nominate the name of staff for training, then it would be better. (SHM10)

I will upgrade as much as I can to be expert. Upgrading is not just on my will; I need a very 100 per cent role from hospital management. (SHM7)

A few SHMs stated that the absence of educational opportunities contributed to a loss of professional motivation, suggesting that it reflected a broader lack of recognition of the hard work that is put into the SHM roles.

For motivation I need to get what I deserve. After certain period, I was to get a promotion. I still have a place to go up to 11th level from 10th level but it's pending … Because of that my motivation is also lost … Organisation can further provide … appreciation of activities I had performed for the welfare of organisation. My personal strengths should be developed along with opportunities for trainings as well as nominating and facilitating some quotas to me for education. If these facilities are provided, then I believe these will highly help to develop my personal strengths. (SHM3)

One participant highlighted the risks to individual mental health that can occur as a consequence of SHMs performing their role. This concern reflects a need for greater personal and pastoral support for SHMs due to the challenging and dynamic nature of their working roles.

Emotional matters and mental health also need to be focused … How do a manager feel and his thinking also should be considered … The manager is also under stress,

now what is the reason why this happened to him? To find out what is the problem of him not being able to do that. What is the specific reason why it is happening. It's important to identify the cause behind it. I feel that mental health and emotional issues need to be addressed. (SHM10)

5.5 Discussion

This qualitative descriptive study explored the barriers for SHMs in central-level public hospitals in Nepal in demonstrating their managerial competencies and capabilities. The findings highlighted several structural and procedural factors that SHMs reported to influence their capacity to effectively fulfil their managerial roles.

This study reveals that the instability of SHMs and their working team has undermined SHMs' productivity and jeopardised their ability to accomplish their managerial tasks. The short-term nature of hospital management appointments results in high staff turnover, unpredictability, lost productivity, shifting responsibilities and lack of handovers. The approach taken by one SHM through advocating his team member to remain in their working roles for designated period has been helpful in ensuring stability and continuity in staffing. These findings suggest a need for a degree of predictability in the working roles of SHMs and their teams along with arrangements for structured promotion. Turato et al. reinforce this by stating that provision of structured progression opportunities reduces uncertainty and improves retention of health professionals [24].

Challenges and frustrations brought about by the short-term nature of SHMs own appointments were made worse due to the non-adherence to existing handover processes. The lack of formal handovers reported by SHMs needs immediate attention to implement and adhere to the existing handover protocols. As supported by the Australian Commission on Safety and Quality in Health Care, executing structured handover protocols along with clear documentation systems is essential for ensuring the transmission of consistent and accurate information [25]. McCarthy also emphasises that organised handover approaches can mitigate risks associated with fragmented information exchange thus strengthening patient safety [26]. Handover aids as a pivotal safeguard for clinical continuity and quality health care delivery [27]. While Nepal Health Service Regulations 1988 requires proper documentation of duties, responsibilities and assets during managerial transitions [28], the actual problem is its use and application. Similarly, Nepal Public Health Service Regulations 2020 mandates that institutions maintain service continuity during leadership changes [29] but lack of adherence to policies and procedures have led to frustration and inefficiencies with inferior communication strategies

resulting in unfavourable outcomes and decreased morale of SHMs. Handover and effective communication strategies should be prioritised as part of a business continuity management system, thus maintaining coherence, continuity of care, and positive team dynamics [30]. In addition, to assist SHMs through transition, mentorship and peer networks should be encouraged thus fostering adaptive leadership skills [31]. Kreps reinforces the importance of a collaborative work culture for empowering team members to communicate, share their thoughts, and reduce misunderstandings while improving patient outcomes and organisational coherence [32]. Complementing this, structured workshops on communication skills focusing on conveying crucial information confidently and precisely should be implemented [33].

Senior hospital managers report that budget-related issues have impacted their management role with the need to compromise with hospital directors. This finding is similar to the study by Holmer et al. who note that health care executives routinely accommodate resource deficiency through prioritisation and workflow adjustments [34]. Suggestions for overcoming lack of funding include optimising resource allocation, acquiring government grants, and exploring public-private partnerships [35]. As well as this, systematic budgeting approaches and tailored allocation mechanisms are crucial in sustaining health service delivery [36]. SHMs discussed their concerns with the processes associated with resource acquisitions and viewed it to compound the challenges associated with insufficient budget allocations. Different strategies have been employed by SHMs to overcome these challenges, such as ensuring cooperation between the different levels and sections of the organisation and initiating tendering processes in a timely manner for maintaining enough stock of essential resources.

This study has identified that rural location has impacted management practices since the timely receipt of resources was not always guaranteed. SHMs discussed the importance of stockpiling as a critical resource management strategy in rural contexts but also recognised that this approach may not adequately reflect the most efficient use of allocated resources.

Previous research has demonstrated that geographically harsh environments, restricted transport facilities and low staff numbers impact service provision [37]. These context-specific difficulties highlight the importance of government strategies including prioritisation of transport infrastructure, regional collaboration and targeted resource issuance to enhance health care [38]. Initiatives such as the rural electrification and road connectivity programs have been implemented to improve access to services in these areas. However, the effectiveness of these initiatives has been limited due to slow implementation and insufficient maintenance [37]. Prioritisation of strategic investment in logistical support systems in rural and underserved

areas along with multisectoral collaborative approaches [38] would help to address infrastructure barriers and assist SHMs in their managerial role.

The study has found that the use of casual staff, competing interests and power struggles stifled autonomy of SHMs and hindered institutional coherence. Such challenges require SHMs to have critical leadership skills to navigate these challengers as well as remain proactive and resilient. This is a similar finding to Clarke et al. who emphasised political skills for aiding health managers in engaging stakeholder negotiation, utilising contextual knowledge and having impact on policy processes [39]. Similarly, Agostini et al. also identified that resilient hospital managers are well prepared for handling both acute disturbances and chronic stressors including politically intensified situations while maintaining service standards [40]. The identification of strategies proactively employed by SHMs during handling difficult situations prior to needing to escalate issues to senior directors further supports the importance of developing resilient and proactive SHMs.

SHMs felt undervalued and disempowered when their recommendations regarding their department were overridden or ignored by senior directors. The lack of transparency and respect for SHM knowledge has undermined SHMs' confidence, eroding trust as well as reducing team morale. This finding is similar to Weed who identified that psychologically safe environments are places where professional input is encouraged and respected [41]. Such approaches are important for promoting participatory governance while strengthening accountability and improving cohesion of the health workforce in dynamic and resource-sensitive circumstances [42].

SHMs identified multi-layered bureaucratic processes as an impediment to effective and efficient management advocating for transition towards output-oriented and adaptive approaches. SHMs also discussed that broader changes to organisational processes are warranted to enable greater emphasis on bottom-up planning to ensure responsiveness to specific departmental needs and greater autonomy in the fulfillment of their roles. These findings highlight the significance of empowering SHMs through government reforms, prioritising transparency and flexibility in the interests of productive and accountable service delivery through the dynamic hospital system.

Broad dissatisfaction and diminished motivation among SHMs were identified due to misalignment between their professional capabilities and role expectations. Similar to previous research [14,43], access to training was limited and predominantly oriented towards clinical and technical competencies development. The need for organisational leadership development reinforces findings by Chadwell et al. and Liang et al. who recommend a multidimensional

approach, targeting management competencies, specific to the context and roles required of SHMs [14,44]. Research evidence suggests mentorship, peer collaboration, and the opportunity for expert consultation are other strategies for increasing manager competency [45,46]. These mechanisms strengthen managerial skill acquisition, reinforcing the ability of health managers to negotiate complex health systems. At an organisational level work is required to define SHMs roles, responsibilities and expectations. Thus, policy makers and SHMs need to develop adaptable, context-specific role descriptors as well as training and mentorship opportunities to support SHMs in their managerial role.

SHMs identified that stress when undertaking their role can impact mental health. Previous research [47,48] has highlighted that managers experience stress in their roles due to expectations placed on them, the level of responsibility to meet high standards with limited resources and additional bureaucracy when trying to implement change. This study did not aim to investigate psychological safety and future research in this area is recommended.

5.6 Strengths and limitations

This study provides a rich understanding of an under-researched context related to SHMs in central-level public hospitals in Nepal. The incorporation of current SHMs' perspectives assures that the explored topic is connected to current real-world practice. Practical suggestions for improving the hospital management system and workforce policy development, may aid in hospital management reform.

This study has a number of limitations. Findings are based on self-reported perceptions of SHMs within four central-level public hospitals in Nepal. Results may be impacted by personal bias. Utilising reflexivity in data interpretation along with identifying consistent patterns by comparing evolving themes, the research process reduces potential individual bias [49].

The focused scope on central-level public hospitals in Nepal sets the findings within the bounds of a defined cultural and operational circumstance. Findings from this study may be broadly applicable to other under-resourced countries in the Asia-Pacific region. The Asia-Pacific region has 12 of the least developed countries in the world, of which Nepal is one, as well as countries classified as landlocked or pacific island developing countries [50].

5.7 Conclusion

This study has explored the perspectives of SHMs employed within central-level public hospitals in Nepal. The findings highlight the nuanced barriers for the development and

demonstration of managerial competencies and capabilities required for their roles. SHMs' effectiveness is multidimensional and influenced by workforce instability, practical and logistical constraints, interference and conflict and the mismatch between ability and expectations. Breakages in work roles and sabotage of formal handover processes contributes to undermining SHMs' managerial performance, with a need for predictability in SHMs and their team dynamics and role accountabilities. Operational capacity of SHMs can be significantly constrained because of geographical and logistical challenges particularly those arising in rural and underserved regions. Overall government investment in infrastructure, transport and the health workforce is required to enable appropriate service provision.

The pervasiveness of political and opportunistic individual actions alongside complex and lengthy bureaucratic processes requires development of well-organised administrative procedures, defined promotional pathways and appropriate compliance training. Discrepancy between organisational expectations and managerial ability lead to professional frustration, warranting documented role expectations, targeted skill development, system-level support. Given the multidimensional, complex and stressful nature of SHMs' roles, pastoral and personal support mechanisms are required for long-term hospital management workforce resilience.

Future research should explore the opinions of policy makers in understanding the barriers and enablers for SHM capacity and capability development. This may reveal systemic misalignment and policy-level barriers constraining SHMs' effectiveness in executing the role.

Contribution of Chapter 5 to thesis

Chapter 5 contributes to the thesis by deepening its empirical foundation through a descriptive qualitative study capturing Nepalese SHMs' perspectives on professional capability and capacity development. Building upon Chapters 3 and 4, which presented a scoping review on development efforts implemented for health managers across the Asia-Pacific and a cross-sectional survey of Nepalese SHMs respectively, this chapter adds interpretive depth and contextual nuance to the research framework. The thematic analysis of interview data provides grounded insights into SHMs' real-world experiences and institutional dynamics, thereby reinforcing and refining the conceptual constructs introduced earlier. Also, by integrating these findings with relevant literatures, the chapter enhances the thesis's analytical coherence, methodological rigour and practical relevance for SHMs strengthening in LMIC settings.

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Chapter 6: Policy Perspectives on Strengthening Senior Hospital Managers' Capability and Capacity in Nepalese Public Hospital System

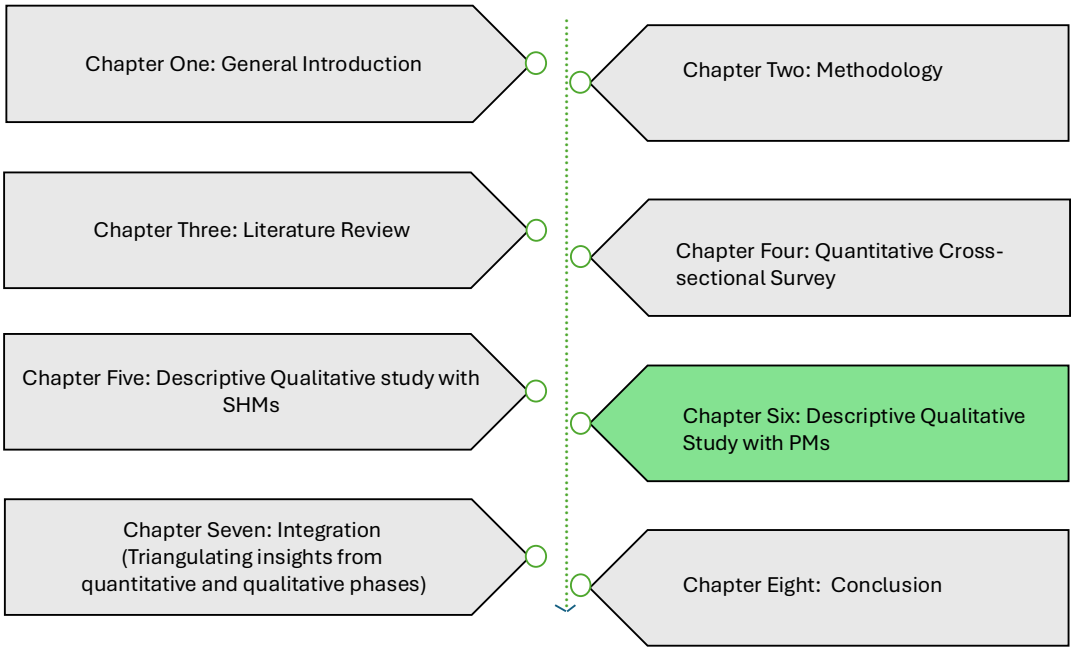

Figure 15: Site of chapter 6 in the whole document

6.1 Chapter overview

This chapter highlights a comprehensive overview of health workforce development in general followed by contextualised strategic priorities and national policy frameworks of Nepal. It then outlines the qualitative research methodology, that includes participant selection, the data collection and thematic analysis. The thematic analysis reveals four key themes that health policy makers (PMs) in Nepal identified as critical to strengthening the professional capability and capacity of senior hospital managers (SHMs). These themes are discussed in relation to existing broad literatures. The chapter concludes with reflections on the study's strengths and limitations and also offers implications for future research.

6.2 Background

Health workforce development acts as the foundation for universal health safeguards and equitable access to standard health care [1,2]. Targeted investment in professional development, advancement, training and retention of health workforce nurtures advanced health service delivery, contributing to the achievement of WHO Sustainable Development Goal 3 (SDG) Good health and wellbeing [3,4]. WHO advocated a labour market approach that supports interventions aiming at optimising expenditure for professional development,

knowledge and creating decent jobs opportunities across the health and social sectors [5]. Investment in health workforce professional development in low- and middle-income countries (LMICs) can lead to many benefits, including enhancing health and wellbeing together with socioeconomic gains in education and gender equality [2,6]. Strengthening the health workforce capacity aids therapeutic and community-based services and enhances national resilience and productivity [2]. The inequitable distribution of the health workforce within and across countries disproportionately affects marginalised populations and weakens efforts to achieve equity in global health systems [7]. These difficulties can be addressed through targeted interventions in managing the mobility of health professionals. World Health Organization reinforces this, emphasising the importance of strategic planning, ethical recruitment practices, coordinated governance and bilateral/multilateral agreements to ensure that health professional migration benefits both source and destination countries [8].

Sustained international assistance for economically disadvantaged countries experiencing chronic workforce shortfall remains crucial. WHO emphasises that such support helps in addressing systemic disruptions and facilitating attainment of universal health coverage [9]. Evidence suggests that the ability to deliver effective health care with minimum inputs may serve as a key indicator of systemic resilience and efficiency [10]. This ability holds greater significance in resource-constrained settings facing complex socioeconomic challenges, such as Nepal, where optimising health system performance within limited means is both a necessity and a transformative measure. Several health plans and policies have been drafted and operationalised for better functioning of the Nepalese health system [11,12]. For instance, the MoHP with the joint commitment of Health Development Partners (HDP), has launched the Nepal Health Sector Strategic Plan (NHSSP) 2023-2030 as a sector-wide framework, to operationalise constitutional health provisions and universal health coverage in alignment with the SDGs [11]. The first annual review report of the NHSSP (Fiscal Year 2023/2024) reported key progress in improving health system efficiency and responsiveness through the deployment of skill-mixed HR [11].

The Public Health Service Regulation 2020, published by the Government of Nepal, provides the legal basis for managing health personnel, including provisions for staff transfer and rotation across federal, provincial and local levels [12]. Furthermore, MoHP emphasises strategic staff rotations as a means to reduce disparities in health care access, especially in rural and remote areas [13].

The Nepalese Government has implemented a range of financial and non-financial incentives including financial rewards, subsidised housing, opportunities for professional

development and preferential deployment policies, to attract health professionals including senior hospital managers (SHMs) to rural and isolated communities [14]. These measures aim to improve retention rates and strengthen service delivery in underserved regions. However, despite different policy attempts, regular transfers and mandatory rotations have contributed to high staff turnovers, including SHMs, particularly in remote areas. The National Human Resources for Health Strategy 2021-2030 identifies workforce maldistribution and recurrent transfers as critical barriers to service continuity and system efficiency [15]. Similarly, the Nepal Health Workforce Management Information System Operational Guideline (2024) reports a significant imbalance in the distribution of health personnel including SHMs with health workers concentrated in urban areas, and significant shortages in rural communities [16]. The preference for urban postings, coupled with increasing aspirations for overseas employment, has further exacerbated workforce instability and regional disparities. Despite the existence of different strategies, there remains a notable absence of targeted, customised frameworks for systematically developing a skilled health management workforce, particularly in relation to the training and advancement of SHMs. In response to this gap, a research study was conceptualised and undertaken with a focused objective to examine and strengthen the competencies, capabilities and overall capacity of SHMs operating within central-level public hospitals in Nepal.

This study is part of a broader sequential explanatory mixed-methods research design. Phase I comprised a cross-sectional survey of SHMs in central-level public hospitals in Nepal [17], followed by Phase II which was an explanatory qualitative inquiry through semi-structured interviews with SHMs [18]. These phases identified critical competency gaps underscoring the need for targeted competency and capability development among SHMs. They also facilitated an in-depth understanding of the systemic barriers and enabling factors influencing SHMs performance in managerial roles. Building upon these findings, engagement with health policy makers was deemed essential to identify opportunities for system and policy-level interventions to address the challenges identified. Consequently, the research presented in this chapter comprises individual interviews and focus group discussion with policy makers that was undertaken to explore the nature and scope of system level supports that may empower SHMs, mitigate existing constraints and strengthen their managerial capacity to fulfil their responsibilities with greater effectiveness and efficiency.

6.3 Methods

6.3.1 Ethics approval

Ethics approvals were obtained from both the Nepal Health Research Council (NHRC-545/2023) and James Cook University Human Ethics Research Committee (H9203) prior to data collection.

6.3.2 Research methodology

This study employs a qualitative descriptive approach to explore system level managers' (policy makers') perspectives on the development of SHM capability and capacity. The qualitative descriptive method is deemed appropriate as it captures participants' accounts without the imposition of theoretical constructs, offering both adaptability and methodological robustness [19]. This design facilitates a coherent, experience-based portrayal of the phenomena under investigation.

Epistemologically, the research embraces an interpretivist stance underpinned by a relativist ontological standpoint, acknowledging that the realities experienced by policy makers are socially constructed, dynamic and subject to individual interpretation. The researchers also remain reflexively aware of their own interpretive roles in shaping the analysis and representation of participants' narratives [19, 20].

6.3.3 Participant recruitment

A purposive recruitment strategy was adopted for this study [21] with the target population being policy makers (division head/ system level managers) in the MoHP and NHTC. Of the five divisions within the MoHP, only the division responsible for overseeing health systems was approached for interview participation. Three division heads were contacted personally and invited for the interview. Similarly, three relevant departments of NHTC were also contacted. Across these entities, a total of nine participants indicated willingness to participate in the study. The organograms to show where PMs from MoHP and NHTC, fit are included in Appendix F.

6.3.4 Data collection

The participants from the MoHP expressed a preference for individual interviews, whereas those affiliated with the NHTC opted for a focus group discussion (FGD) format. Use of interviews and FGD follows the same semi-structured question guide and allows participants to freely express their experiences and perspectives.

The participant information sheet, consent form and a copy of the semi-structured interview guide or FGD guide were emailed to the participant prior to the face-to-face interview or FGD. Verbal consent was received from each participant before beginning the interview or FGD and revisited on completion of the interview process.

The research interviews and FGD were completed from January-February 2025. The interviews and FGD were conducted in Nepali. The interviews and FGD were undertaken at the preferred time of the participants and at conducive places free from third-part intrusions, most often their own office rooms. The individual interviews ranged in duration from 25-45 minutes, whereas the FGD extended for approximately 90 minutes.

6.3.5 Data analysis

All interviews including FGD were conducted in Nepali, transcribed verbatim in Nepali and translated into English for analysis by primary researcher [PP]. The translation was undertaken as an iterative meaning focused process to ensure conceptual and cultural equivalence rather than just a linguistic conversion. To ensure linguistic clarity and fidelity, along with accuracy of meaning, contextual nuance and culturally embedded expressions, each translation was independently reviewed by a second bilingual researcher [HK] who compared translated English transcripts with the original Nepali transcripts. A translation decision log was maintained to document interpretive choices. The resulting English transcripts were then subjected to an inductive analytical process, guided by the six-phase framework of reflexive thematic analysis as described by Braun and Clarke, specifically: familiarisation; coding; generating initial themes; developing and reviewing themes; refining defining and naming themes; and writing up as storytelling [22]. To strengthen confirmability and mitigate the risks associated with cross-language analysis, key excerpts were cross-checked against the original Nepali phrasing during coding process. This also ensured that analytic interpretations were grounded in PMs intended meaning.

[PP] and [DL] read the interview transcripts several times to familiarise themselves with the data. Following this, a process of initial coding was undertaken which involved reviewing the data and searching for segments that appeared of key relevance to the research question. [PP] and [DL] independently coded the FGD and then met to refine and consolidate these codes. The initial codes were then shared with all members of the research team and further refined based on feedback. [PP] then completed the coding of the remaining five interviews. [PP and DL] held a series of meetings to discuss and collate these codes and generate initial themes and subthemes. These initial themes were sent for review and feedback

to the broader research team [AJ, MC] with minor amendments made. The themes were then named and key illustrative quotes and/or passages of text collated to support the explanation of themes during the writing phase.

Throughout the research process [PP] maintained a research diary that included memos and reflections to assist in shaping the analysis and to promote transparency, reflexivity and confirmability of the analytical process and research findings. These memos were discussed regularly in research meetings held between [PP] and [DL].

6.4 Results

Four key themes were identified from the analysis of interview transcripts. The four themes highlight configurational and operational factors that policy makers (PMs) believe influence the capability of SHMs in fulfilling their roles and responsibilities.

The four key themes were:

1. targeted and phased orientation, training and education
2. need to free job stability and promotional structures from political interference
3. improvements to the forms and chains of communication to increase connection and coherence
4. adherence to policy as a means of promoting predictability and cohesion through ongoing change

Targeted and phased orientation, training and education

The theme of targeted and phased orientation, training and education centres on a belief among PMs that it is essential for SHM education to extend beyond a focus on clinical experience to also encompass knowledge and skills specifically related to their capacity to effectively and efficiently accomplish their managerial roles. One participant (PM8) made frequent reference to the critical role that a well-developed orientation plays in assuring familiarity with local systems and processes and at different managerial tiers.

> *… the basic thing is the orientation. Orientation is very necessary among us. And whenever we take responsibility… one should know what they are going to take and what their role is. … there are certain procedural things in place, there are certain SOPs* (standard operating procedures). *But at times, even me, myself, I, need to just, turn the pages and look what that is there. That means we regularly need some more orientations which we are doing … we need to orient our leaders, different tiers of leaders. (PM8)*

There was a variety of opinions expressed among the PMs in relation to the role of targeted education to nurture and assure SHM capability. Two participants (PM1 and PM4) argued that specialist clinical knowledge does not translate to the forms of managerial knowledge that are needed when people transfer into new roles or between roles, advocating for an increase in education oriented towards management.

> *Newly appointed clinical practitioners, often lacking managerial experience from day one, may struggle in managerial positions, even if they excel in their clinical practice. … individuals aspiring to leadership roles … should undergo specialised management training programs to develop the necessary competencies before assuming such positions. (PM1)*

Three PMs suggested that there is presently sufficient education available to SHMs as needed to perform their roles. These participants highlighted opportunities provided by the Government of Nepal for both pre-service and in-service training as well as training specific to different levels and roles.

> *… there are different health executive training programs. If they are first class and above there is senior executive development program … everything is taught and at the inception also, they have been given trainings on the procurement, legal frameworks and some of the leadership things. (PM5)*

> *Training is provided from time to time for future investment and development. The government provides in-service and pre-service training, which strengthens the quality of those who participate. Training related to management is provided. There is a training for 11th level. There is also one-month or three-month training for 10th level. (PM9)*

Participant PM1 discussed a somewhat different perspective on the availability of education, suggesting that a broadening of the availability of specific leadership and management training is needed, alongside assurances of the continuity of this training.

We develop training packages to enhance knowledge, skills, and attitudes ... We conduct these trainings, as well as public health related leadership and management training. We've focused training on hospital management ... We've also introduced a course in leadership and management, specifically for senior health administrators, policymakers and senior hospital directors. However, this course needs to be sustained. We have conducted courses in leadership and management for senior health managers at the 11th or 10th level, but this is not enough and needs to be continuous. (PM1)

However, PM1 also argued that the managerial and leadership training should not be offered to everyone but, instead, provided only to those candidates who are deemed suitable for managerial roles. PM1 based this argument on financial grounds, indicating that the provision of education to individuals unlikely to be offered lengthy or sustained tenure in a senior management position would be a loss of investment to the country.

…if someone's career path is clear … for example, a gynaecologist in a leadership position, could be given leadership management training. However, if, after receiving the training, there's a political change, and they're transferred back to the gynaecology department, then the investment in their training is lost. Therefore, it would be good if senior management positions could identify and provide in-service training days based on identified competencies for those who are eligible for those senior positions. (PM1)

Although broadly in favour of the provision of SHM education, PM5 stated that, regardless of whether a commitment to education is outlined in policy, it is often the case that there are insufficient funds to actually provide it. PM5 suggested that this challenge occurs because of limited availability of funds within the Nepalese health system, resulting in the education budget being rediverted into other areas.

Policies and strategies for increasing the leadership abilities of health care personnel are being included, and there has been an effort to create a separate cadre. Dedicated training in ONM (Organisation and management) *is available within Nepal, but the system currently doesn't recognise it … the country isn't currently in a position where we can significantly increase the budget, we have been managing with 4 per cent allocated budget to the health sector. There aren't any prospects for increased funding.*

There are many areas of need ... Currently, the country's resources are insufficient to manage this, and it poses a challenge. (PM5)

An alternative perspective was offered by PM7 who stated that SHMs should possess the requisite knowledge and skills to undertake the responsibilities of their appointed roles prior to assuming their position. He further stated that those who are unable to adequately fulfil their roles should be removed.

Those who can't take responsibility they must not be given the responsibility. If he is competent but he lacks resources, then he must be provided with resources. Now he is the senior level manager then what training he may require? What I am saying is to give a performance-based TOR (Term of Reference). *If he can't work, remove him. (PM7)*

Although not in complete agreement with this stance, PM6 suggested that the responsibility of upskilling lies with the SHMs themselves by proactively seeking support or education as required. Furthermore, PM6 argued that lack of role specific education should not be used as an excuse to avoid unfamiliar role tasks.

A manager should fulfil the manager's responsibilities … Since the relevant laws and regulations are clearly specified, as a manager, I cannot claim a task is not my responsibility. If I feel a task is outside my abilities, I must consult with the relevant junior staff, discuss it and express an opinion that is beneficial to the individual, the country or the organisation. That's the main duty of a manager. Therefore, it seems to me that this is not a way to avoid responsibility … There are many tasks. We understand that, but we must remember that in emergency situations, managers should have the ability to do anything. (PM6)

Need to free job stability and promotional structures from political interference

Interview participants generally agreed that political interference affected job stability and/or promotional opportunities posing organisational challenges. While many policy makers supported policies mandating periodic rotation of SHMs to prevent stagnation and/or corruption, concerns were raised that rotations can also facilitate political interference and foster sycophancy compromising workplace culture. One such example was discussed by PM6 in relation to promotions in hospital settings.

Hospital manager post is definitely politically initiated … We can have the group of people, but the selection criteria are done by the politicians. So, I mean out of a group of five one can be selected. It's not that the other four are not capable enough, it's just that he or she had the influence on the selector at that particular time. So, it's the belief of the government to give him. I won't say there is no political interference. (PM6)

Some PMs stated that the politicisation of appointments becomes exacerbated when Governments and/or Ministers are replaced. They observed that, when this occurs, the normal rotational tenures of SHMs can be cut short resulting in an ever-present sense of job instability and uncertainty.

… a challenge arises when political changes, such as new ministers coming into power, immediately lead to complete personnel changes. This can mean that individuals who were close to achieving peak performance in their respective roles must restart from the beginning. This is a significant challenge. (PM1)

Policy makers noted that appointing less capable SHMs to key positions through politically influenced processes negatively impacted communication, trust and respect.

An important point I've realised now is that political appointments, by bypassing the hierarchy, are also creating communication gaps. For example, a senior employee at Level 11 in a hospital is bypassed, and someone at Level 10 is appointed as the executive director. There are many such instances of interference … If a senior, competent person, who has risen through competition, is appointed to a senior executive position, then communication improves. But if someone is appointed through political interference, the staff won't respect them and consequently won't respect seniors either. (PM2)

One participant (PM8) stated that some SHMs relied on political interference to assist career progression which was driven by individual self-interest rather than the needs of the population or the health system.

… if we desire to reach somewhere before time the route is political. So, it seems, sometimes general, but in my view, it is basically individual ... If we don't desire extra

things beyond our boundaries and beyond our capacity, that is the main thing we have to abide by … if we have other relations with political bodies … then definitely, we start to enjoy that relationship … basically, what I observe is most of these senior guys has some linkages and they enjoy using those linkages. We need to stop that. (PM8)

Policy makers identified that political interference in rotational decisions and/or promotions of SHMs may result in unethical practices due to a sense of debt and duty to the political agent who supported the promotion. For example, one participant (PM7) suggested that, sometimes, SHMs feel pressured to carry out activities against their ethical code because of a sense of personal debt, coupled with the implied threat of potential removal from the position because of non-compliance.

… I'm competent. I trust my abilities, so even if ministers or secretaries try to make me do something wrong, I won't. If I know this file has something wrong in it, then I should be able to say I won't sign it. But if I can't say that, then I must do whatever the minister or secretary says. If someone is not competent, they often … become sycophantic, get a position and then must obey whoever got them there. Those who were promoted through sycophancy, through the kindness of others, their wishes, must be obeyed. If I don't, then I could be removed from my position. If I earned this position based on my ability; let them remove me, but I need to be able to say I won't do something wrong. (PM7)

This can lead to challenging ethical dilemmas and increased positional instability for SHMs, as described by PM2.

The advantages and disadvantages of a particular course of action are in their own place. But sometimes, one must consider whether or not to adhere to one's ethics. One's devotion to the post or to one's work. Sometimes there's a big dilemma. In the Nepali context, if a post requires political pressure, the person's house and family can be ruined, if they are transferred, so they might have to do something even if it seems bad to them. This kind of pressure is there. (PM2)

Another participant (PM8) highlighted the risk of political interference in SHMs' roles as evidence for the need for highly competent, knowledgeable and resilient managers. PM8 argued that managers lacking competence are particularly vulnerable to such interference, partly due to limited knowledge and reduced confidence.

… you should be able to say that no, it is not applicable. How you can be a senior health manager if you can't say no based on the evidence. That is your undercapacity … How do you answer, "no". It should be based on some evidence. It should be based on rules and regulations. If you don't know that rules and regulations, then you need to obey everything. So that is the thing, keeping more desire and not developing capacity and connectivity. (PM8)

When discussing potential solutions, some PMs argued that any solution to political or external interference must arise from the politicians themselves as it is beyond the control of PMs.

This is extremely complicated … The solution is to ensure political stability and grant freedom of action within the responsibilities of the position. However, this does not happen in reality. While we acknowledge the challenge and raise it where we should, we cannot find the answer or solution at the bureaucratic level. We must go to the political level for this. (PM5)

Improvements to the forms and chains of communication to increase connection and coherence

The need to improve both the forms and chains of communication as a means of enabling the development and fulfillment of SHM capacity was discussed by several of the PMs. Policy makers generally agreed that organisational communication tended to occur in written form which lends itself to the maintenance of existing hierarchies as well as ensuring promoting effective record keeping.

Each person does their own work, and everything goes through paperwork. Face-to-face communication is less frequent. A paper-based system and filing system are in place, maintaining all the hierarchy. (PM9)

Many PMs expressed concern that overreliance on formal, highly structured communication methods can lead to restrictiveness and reduced interpersonal connection. Conversely the use of casual or informal communication was also seen as problematic, potentially resulting in undocumented communication subject to misinterpretation or perceived unfairness. One interviewee (PM4) proposed semi-formal communication structures, neither

strictly formal nor informal as a viable alternative, highlighting its value to enhance horizontal and vertical understanding and connectivity within organisations.

> *We mostly communicate vertically. We only seek teamwork when things go wrong … This is an issue in every office. Secondly, we either communicate highly formally or highly informally. A semi-formal approach is lacking. There is potential for semi-formal communication. If we also have semi-formal communication, then the communication wouldn't be just vertical, but horizontal and zigzag, which would prevent information gaps. (PM4)*

Participant PM2 expressed a similar concern, arguing that, although communication hierarchies are often important, rigid adherence to these structures can stem the flow of important information concerning organisational needs and challenges.

> *… effective communication is crucial for streamlining hospital management. It's one of the important factors. Communication, especially a clear chain of command, plays a significant role. A chain of command is necessary, but sometimes, administrators only communicate with those one level below them, not others. This is the nature of some people. It's important to maintain that, but also to stay informally connected with others. Informal communication is important to understand what the problems are. (PM2)*

Most PMs indicated that SHMs often fail to effectively communicate with their colleagues and teams resulting in a lack of shared knowledge resulting in incoherent or incomplete recommendations and/or requests.

> *... Where is the problem, again the problem is in the hospital. Being manager, I have worked in the last 20 years. When I was in hospital none of the hospital directors call us. What are the priorities, what I want to buy next year? … Many a times account person brings something and the director signs which he/she may not know what he signed. (PM5)*

Similarly, PM9 highlighted the critical role of SHMs in managing the collection and flow of information to ensure organisational needs are effectively communicated to the

ministry. PM9 further noted that direct consultation between the ministry and individual departments is impractical, underscoring the challenges that occur when communication breaks down at the SHM level.

> *… the ministry asks for the needs in the plan, not individually, but from the organisations. That organisation's head must ask their subordinates … The health chief has direct involvement. Individual involvement is not possible. But rather than complaints, the chief should initiate the involvement. (PM9)*

Participant PM7 argued that SHMs are responsible for establishing effective communication processes and networks, stating that these individuals should have the capacity to utilise available technologies to support information flow.

> *We don't need the system for that. For example, who can make my email deliver and reply in my mobile. I'll create it myself. Regarding whom establishes things in the system, as he is a senior manager, why would someone come and create it for him. As for communication in his office, that's up to him. (PM7)*

One participant (PM8) had a different view, suggesting that, to some degree, policy makers were responsible for communication breakdown as SHMs where not familiar with the coordination and communication frameworks developed by the Nepalese government.

> *… there is very good coordination framework, very good communication framework and it is guided by national planning commission's guidelines and regretfully what I have to say … sometimes we fail to propagate the same information to our subordinates or hospitals like these.* (PM8)

PM9 highlighted that issues in communication occurred due to constant turnover and transfer of SHMs (previously discussed in Theme 1) resulting in loss of continuity and corporate knowledge within teams.

> *… Frequent position changes and staff turnover frequently means that what one person needed today isn't continued tomorrow. There is a break in continuity. This is the main reason for the communication gap. (PM9)*

Adherence to policy as a means of promoting predictability and cohesion through ongoing change

In a previous phase of qualitative interviews connected to the overarching study of SHM capability in the Nepalese health system, SHMs expressed considerable frustration with the frequency of transfers and rotations associated with their roles [18]. PMs viewed the process of transferring SHMs between roles differently, arguing that it brought value to the organisation. PMs described this value as being twofold: firstly it brought fresh ideas to the organisation, preventing stagnation; secondly it helped prevent corruption.

> *Our current policy dictates that directors only serve for one to two years at a single institute, after which a rotation is mandatory … While periodic transfer is necessary, the expectation that individuals should always remain in the same position isn't always justifiable from an employee's perspective. Periodic rotations positively drive the management system, considering both individual and institutional interests. (PM1)*

> *… the employee administration says that a person can't stay in one position for more than two or three years. That's an accepted law. Human resource management believes that if someone stays in a position longer than two years, they will engage in corruption. (PM7)*

PMs did agree with SHMs regarding problems associated with the frequency and unpredictability of transfers. For example, participant PM4 suggested that transfers occurring too often inadvertently compromises cohesion and hampers organisational goal achievement.

> *My personal opinion is that transfers are necessary. Just as a security force moves to a different location when needed, so too should health care staff. If a person has experience in training at one hospital, they can bring that experience to another. Similarly, hospital work needs to change locations. Frequent transfers, on the other hand, prevent alignment with institutional goals. (PM4)*

Policy managers agreed that transfers could be managed with appropriate planning leading to predictability thus enabling SHMs effective fulfilment of their roles. Several PMs indicated that unpredictability and disharmony associated with change was a result of not adhering to existing policies.

If the Nepalese government could implement that as stated as per the provisions of the health act that an individual would be in certain place for either one year, three years or a specific period, then the individual will remain in that place during that time, which would ensure stability. (PM9)

One interviewee (PM1) advocated for the development of pre-determined rotational pathways detailing the location and duration of SHM transfers. PM1 argued that pre-planning by organisations offered clarity, and predictability for SHMs supporting preparation and reducing instability experienced when transfers occurred.

… the Nepali system is called a cyclical rotation system, where every individual service entrant has an exit date predetermined. There's an age bar, too … At least, a specific period of 5 or 10 years in which specific organisations they must be known to the individual … If I get promoted or stay in the same position, my next two years are at xxx, and then another one is xxx. This creates a dynamic system and allows for pre-planning for a new organisation. (PM1)

Adherence to policies relating to handover processes between SHMs when transferring was raised by PMs. While there are clear policies for handover procedures, they were ignored, overlooked or undervalued by SHMs. For example, participant PM4 critiqued the inadequate documentation of SHMs' decisions and actions during their tenure, resulting in a lack of formal records (institutional memory) to incoming SHMs. Although existing policies mandate formal record keeping, PM4 highlighted a clear gap between policy and actual practice of some SHMs.

Maintaining institutional memory is important, so we need to ensure that we don't violate the policy … This is a gap between policy formulation and implementation that needs to be reduced for better outcomes. While government policies have good provisions, there's a gap in translating them into practical action. Bridging this gap can significantly improve the situation. (PM4)

Beyond this, several PMs commented that sometimes the handover process was deliberately sabotaged due to feelings of personal grievance by SHMs. PM7 stated that this compromised cooperation, organisational culture and service continuity, but also constituted misconduct.

We need to do a handover/takeover … The system exists, and the incoming colleague should then complete the handover on their side as well … Clearly, there's a handover system, but there are behaviour problems. As I need to transfer to another position and a new colleague will be here then I feel like I'm being ripped off because of him. Then I delete all the information from my desktop, all the files and leave the office. This is misconduct. This is a behavioural problem. I don't hand over the information to the new person … When the new colleague calls even, I don't answer. I got transferred due to him so why do I need cooperate him, that's how I feel. Then how can I expect cooperation for myself in the new place? But there's … a handover system. This means handing over information, files, knowledge ... There are legal provisions, but individuals don't do this. This is a problem with that person's behaviour. (PM7)

Finally, one participant (PM7) outlined future policy directions aimed at enhancing SHMs' capacity to perform their roles. PM7 described a proposed model in which SHM positions would be dedicated managerial roles distinct from clinical specialties, thereby enabling a clearer separation of clinical and managerial competencies and elevating the significance of managerial and leadership expertise.

The Government of Nepal has endorsed the HRs Strategic Road Map by the Ministry of Health. It requires a separate cadre of hospital managers, not by handing over the matron. We have also projected HRs Strategy that the hospital director is the hospital director, and the matron is the matron, but the hospital also needs another cadre as a manager. We have even calculated how many numbers are needed. That's our policy direction. (PM7)

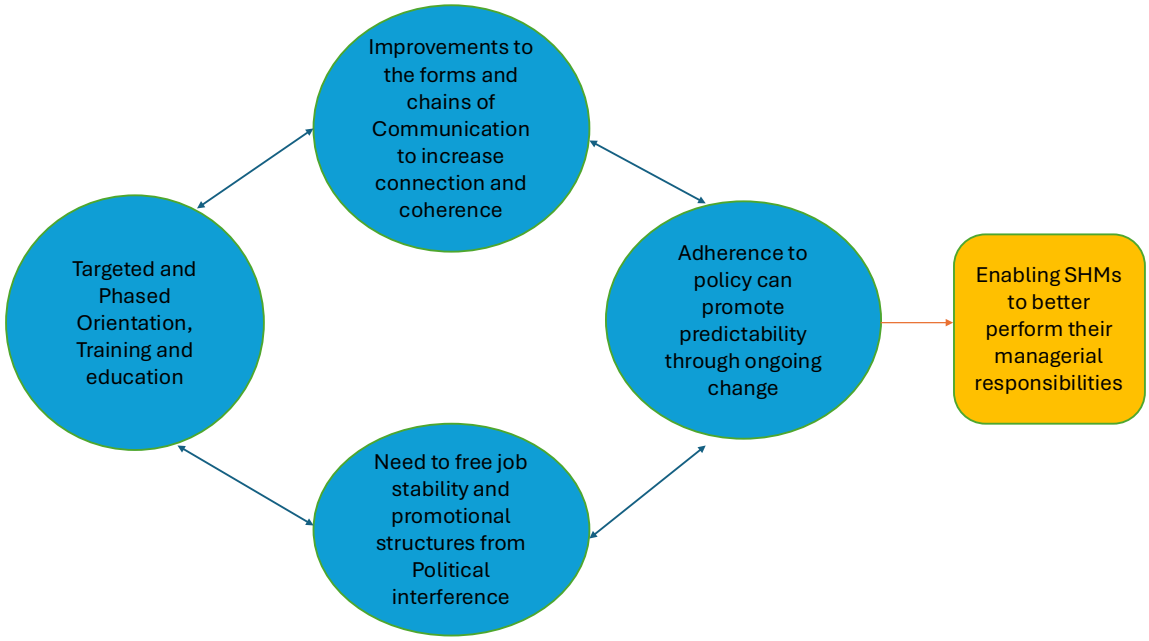

Figure 16: A conceptualisation of PMs perspectives on strategies to promote SHMs capability and capacity for accomplishing their managerial roles (author developed)

6.5 Discussion

This study has examined the perspectives of Nepalese PMs regarding the development of SHMs' capability and capacity within the Nepalese public hospital system. The four themes highlight configurational and operational factors that PMs believe either support or inhibit SHMs capability and capacity development.

Routine rotational processes of SHMs between hospitals were generally supported by PMs, who stated that SHM transfers prevented stagnation and possible issues of corruption. Previous research has indicated that these rotations can result in instability and loss of continuity, having a negative impact on the morale of SHMs [18]. A few of the PMs in this study also noted that unhelpful competitive behaviours and sycophancy can arise due to rotations, compromising working cultures. These PMs suggested that rotation planning, and removal of political interference would increase predictability, aiding SHM capability to perform their role. Political interference in Nepalese hospital context operates as a broad systemic force that incorporates internal hospital politics along with the broader bureaucratic or governmental structures shaping hospital functions. It has been a layered set of influences that collectively determines not only who becomes SHMs but also what SHMs are able to do once appointed. Such political interference may restrict decision-making authority, reduced accountability or distort priorities which may lead to inconsistent leadership quality, reduced motivation among competent SHMs, limited strategic continuity and weakened institutional

governance [23]. Problems resulting from political interference in recruitment and job stability have been previously described by Webbe and Kirby who noted that institutional integrity and trust are eroded when meritocracy is not maintained [24]. One way of achieving both predictability and freedom from political interference in SHM transfers might be through the development of pre-determined rotational pathways, whereby SHMs would know in advance both the location and timing of their planned transfers within the Nepalese health system from the outset. This approach may simultaneously provide greater stability and certainty regarding the rotational process, thereby promoting clarity in relation to career trajectory with flow on effects to morale.

Certainty and predictability in SHMs rotations may yield significant benefits for communication structures and styles. Taranekar emphasises the need for strategic, communication frameworks to ensure message consistency and enhance transparency trust and collaboration, noting that poor communication compromises operational efficiency eroding trust and increasing uncertainty [25]. Stabilisation of rotational pathways could facilitate improvement in communication among and across levels of management. Firstly, it would enable more targeted, forward planning of communication channels between successive rotations. Additionally, it would enhance SHM handovers and service continuity by reducing a tendency among some SHMs to neglect quality handovers due to professional frustration, grievance or competition. Research demonstrates that structured handover protocols enhance communication, reduce errors and ultimately improve patient outcomes [26,27]. Furthermore, clarity and predictability in rotations may foster stronger connections both among SHMs and between SHMs and PMs, thereby promoting the semi-formal, accessible and relatable dialogue which PMs indicated might support best practice. Leach et al. reported that leadership structures in hospitals critically influence effective communication (whether highly formal or too casual) reducing message clarity, relational engagement and, ultimately, patient safety [28].

Certainty and predictability in SHM rotational pathways allow for role and context-specific planned orientation and education. PMs identified a critical distinction between clinical expertise and managerial competence, underscoring that clinical proficiency alone does not prepare SHMs for management roles. Liang et al. support the need for health service managers to receive targeted education enabling competency development beyond clinical roles [29]. While the Nepalese Health system has some generic management and leadership educational opportunities, PMs recognised that this education may not be accessible to all SHMs and lacks a contextualised hospital focus. PMs advocated for more strategically offered, specialised managerial education to ensure role-readiness and safeguard investments in

hospital management. The use of embedding micro-credentialing in the form of modular and stackable training programs into pre-service education and in-service development for Nepalese SHMs may be a suitable approach to drive transformative improvements with broader impacts on health outcomes [30]. Use of simulation-based learning, case studies and blended formats are other strategies to build SHM competency and capability development [31]. The simulation-based programs and Master of Health Care Management (MHCM) degrees offered by institutions such as the National Open College and Imperial Business College in Nepal, illustrate early movements towards personalised, context-specific learning, but may require greater refinement to meet the nuanced demands of hospital management systems [32].

Policy makers acknowledge that education budgets are often redistributed due to operational funding shortfalls, reflecting a systemic prioritisation of immediate operational requirements over long-term professional capacity development of SHMs. The PMs recognised this as a challenging issue whereby urgent needs for service delivery are met at the expense of strategic investments in future management capability. While periodic reallocation of budget resources may occasionally be necessary, the lack of certainty and availability of funding for SHM education may, itself, serve to perpetuate less efficient financial and organisational management among SHMs. This cycle of inconsistent and/or under investment in SHM education may result in higher costs of service provision in the longer term. To address this issue, effective capacity building for SHMs may need to be endorsed by robust institutional and policy frameworks that ensure the systematic, predictable and fair distribution of educational opportunities. Such frameworks have previously been reported as beneficial in improving education for public health managers in low- and middle-income countries [33].

A Nepalese framework would, of course, need to account for the financial challenges experienced in the Nepalese health system, reflecting the importance of education being both targeted and affordable. The recent introduction of the Nepalese Government's National Health Financing Strategy 2080-2090 (2023-2033) reflects a commitment towards the development of a sustainable and well-prepared health workforce and, thus, may serve as a useful lever to support strategic investment in education [34]. This approach would be in line with the recommendations posited by UNICEF. These recommendations advocate for problem-driven approaches to public financial management and recommend that national health systems identify and resolve financial bottlenecks through iterative, government-led reform processes that align budget allocations with strategic health outcomes [35]. This approach resonates with evidence that highlights multi-level strategies which include linking system reform,

governance alignment and curriculum design as being most beneficial for embedding managerial competence within hospital management workforces [29, 36].

6.6 Strengths and limitations

This study's engagement with PMs provides essential insight into scalable strategies for strengthening SHMs capability and capacity across diverse central-level public hospitals in Nepal. The inclusion of PMs has ensured that the proposed approaches are not only theoretically robust but also contextually feasible and adhere to the long-term sustainability objectives of the national health system. Thus, by integrating perspectives from policy making, the study fosters practical relevance and policy coherence, the key elements for translating hospital management reforms into applicable programs.

However, as qualitative research, the study has relied solely on participants' self-reported perceptions, thus responses are shaped by individual experiences, roles and institutional contexts, which may introduce potential bias [37]. To address the limitation, the study has adopted a purposive sampling strategy ensuring diversity of PMs' experiences, roles and institutional contexts. Hence, although the findings are not intended to be universally generalisable, they may offer rich insights with transferability to similar health system contexts, especially those in resource-constrained and economically disadvantaged settings.

6.7 Conclusion

This study has explored the perspectives of Nepalese health sector PMs regarding the strategic development of senior hospital management workforce. The findings demonstrate a need for a comprehensive, systems-oriented approach to managerial competency and capacity development and that moves beyond a narrow focus on SHMs clinical expertise. While existing training initiatives offer foundational support, they are insufficiently responsive to the complex and evolving demands of the Nepalese hospital management system. The value of pre-service and in-service frameworks was highlighted by PMs with the incorporation of modular and stackable educational approaches possible solutions which can support managerial competency acquisition while aligning with dynamic SHMs roles. The integration of these approaches requires robust policy and institutional backing including formal mandates and dedicated financial investments to ensure the sustainability and legitimacy of hospital management training efforts.

However, persistent structural constraints including the politicisation of appointments, inconsistent handovers and communication practices were also identified. These challenges

threaten institutional continuity and dilute accountability within the hospital system. Although political influence over SHMs' roles is acknowledged as systemic, it is viewed as a challenge to institutional integrity, pressuring merit-based systems and exposing SHMs to governance vulnerabilities. Communication breakdowns at the hospital director level highlight the importance of structured, semi-formal communication models that balance clarity and relational engagement. Overall, this study advocates for a coordinated and holistic reform agenda encompassing policy alignment, capacity building, curriculum innovation and ethical governance to transform SHMs ability to fulfil their roles effectively and efficiently. Such a framework is essential to develop a competent, ethically resilient, and strategically empowered cadre of SHMs who can ultimately lead Nepal's public hospitals towards sustained and equitable performance.

Future research: Future research may include comparative analyses across countries with similar health system constraints. Such research may illuminate both common structural challenges and regionally distinctive solutions, offering the Nepalese health system valuable insights into transferable practices and context-specific reform strategies. By situating Nepal's experience within a broader international framework, future studies can enrich understanding of scalable approaches to hospital management and foster cross-system learning for policy innovation.

Contribution of Chapter 6 to the thesis

Chapter 6 presents qualitative insights from health PMs in Nepal, focusing on strategies to strengthen professional capability and capacity of SHMs in central-level public hospitals in Nepal. Four key themes emerged through thematic analysis of interviews and reflect the operational and configurational factors that PMs said influenced shaping managerial capability and capacity development of SHMs. These findings are critically examined in relation to broader literature, offering a contextualised understanding on professional capacity development mechanisms within the Nepalese hospital system. The chapter concludes by outlining implications for future research, thereby substantively contributing to the thesis's overarching framework on professional capability and capacity development of SHMs in public hospitals in Nepal.

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Chapter 7: Triangulating insights from quantitative and qualitative phases: Integrating surveys, interviews and focus groups

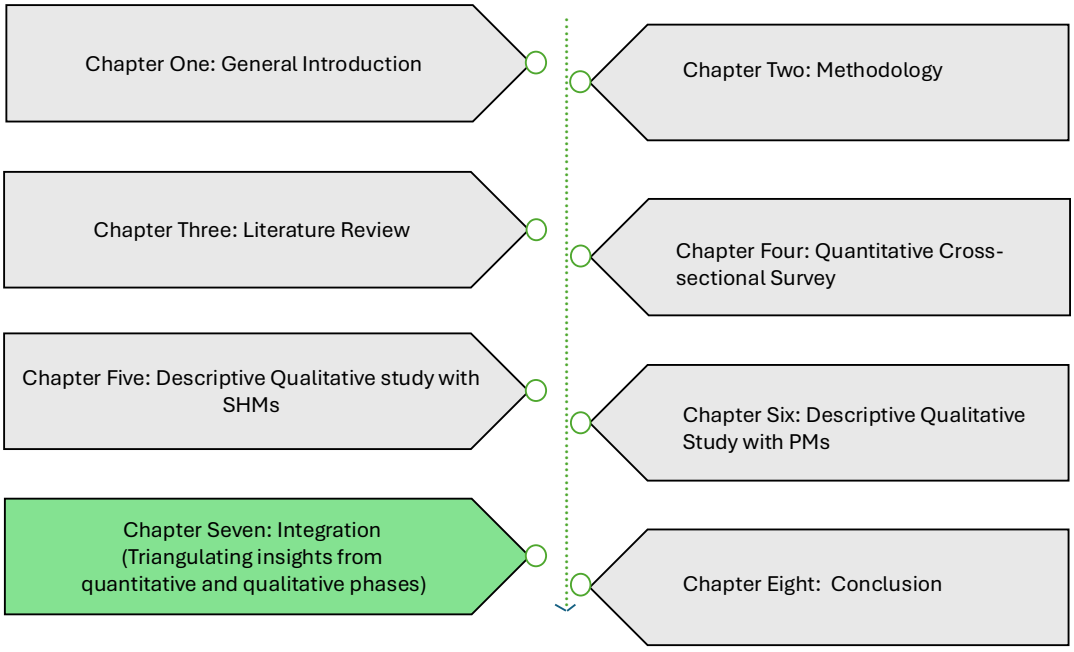

Figure 17: Site of chapter 7 in the whole document

7.1 Chapter overview

Chapter 7 details the data triangulation conducted across the quantitative and qualitative phases of the study to enhance the depth and robustness of the findings. The chapter outlines the triangulation process, followed by a synthesis of the findings that further illuminates the multifaceted, individual, organisational and system-level challenges encountered by SHMs in public hospitals in Nepal. Chapter 7 also introduces the ECOS model, building upon the insights that have developed inductively from the triangulated data. The chapter also maps the identified barriers against targeted remedies by drawing upon broader literature supporting the proposed solutions and additionally aligning them with the domains of the ECOS model. The integrative approach utilised in this chapter not only advances theoretical understanding but also offers practical guidance for professional capacity development of SHMs in public hospitals in Nepal.

7.2 Introduction

This study employs a five-phase multiple perspective approach to explore the competency development of senior hospital managers (SHMs) in Nepal. Phase 1, the scoping review, identified strategies that had been utilised to develop the health management workforce in the Asia-Pacific region and that competency and capacity development are influenced by the

organisational culture and working environment [1]. Phase 2, utilising the MCAP survey, found competency gaps in decision-making, resource management, political awareness and health care knowledge [2]. Engaging SHMs in interviews, Phase 3 found barriers such as workforce instability, logistical constraints, interference and mismatched expectations hindered SHMs' performance [3]. Phase 4 involved interviews and focus group discussions with policy makers (PMs) which revealed systemic enablers including structured training, reduced political interference, improved communication and consistent policy adherence could help support SHM to develop competency, capability and capacity in their managerial roles [4]. Thus, Phase 5 triangulates the data across the previous four phases and has led to the development of a conceptual model which we call ECOS (Education, Communication, Overcoming constraints, and Stability) which helps frame the complex interaction of factors at individual, organisational and system levels to help SHMs to develop and demonstrate their managerial competencies.

Data triangulation strengthens the validity and depth of research findings by integrating multiple sources of evidence [5,6]. By incorporating self-assessments of SHMs alongside the perspectives of both SHMs and PMs, triangulation provides a balanced frame of reference, strengthening credibility, reducing bias and offering a multidimensional understanding of the factors influencing managerial competency, capability and capacity development [5,6,7]

An overview of data triangulation from this study is presented in Figure 18. The various dimensions identified across the earlier phases of research, were systemically compared and contrasted to generate a synthesised understanding of the findings. A comparison of these dimensions is presented in Table 17.

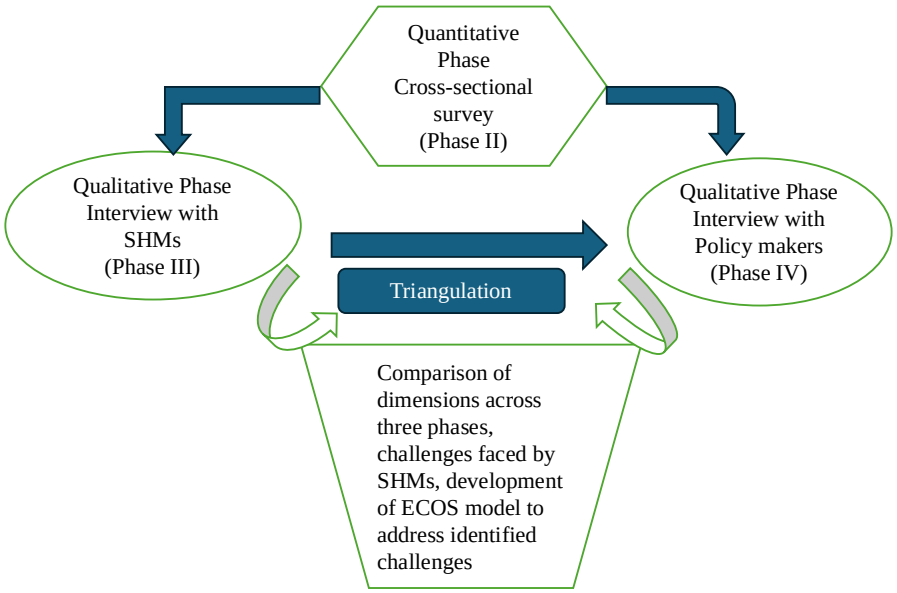

Figure 18: Triangulation of Phase II, Phase III and Phase IV (author developed)

Table 17: Comparison and summary of dimension

Dimensions	Phase II - Senior hospital managers	Phase III - Senior hospital managers	Phase IV - Policy makers
Personal and professional development (including education and training)	70% would commit to ongoing personal and professional development. 38% were involved in training in the past three years.	• To perform the diverse roles expected education and support to grow and unlock their managerial capacity was needed. Available opportunities for managerial education have been limited in Nepal, impacting negatively on performance. • The education and training provided are typically oriented towards disease management or technical requirement of the clinical roles, rather than managerial skills development, which is often underfunded. • Different methods can be implemented to provide ongoing managerial education – either training should be mandated and built into organisational induction processes, or managers should be able to self-select education appropriate to their own needs and allocated roles, but they need organisational support with this. • Expected to work beyond their professional skill sets. Required to undertake tasks that they do not feel confident in performing. Routinely expected to perform tasks that extend beyond their stated job descriptions resulting in uncertainty and anxiety and compromising the time to undertake the stated duties pertaining to their managerial roles.	• Management education was essential as specialist clinical knowledge doesn't transfer to managerial knowledge required by SHMs. • Management training for SHMs have not been ignored and there have been existing provisions (in-service, pre-service) for training them in different phases. However, a broadening of the availability of specific leadership and management training is needed, alongside assurances of the continuity of this training. • The provision of education would be a loss of investment to the country if provided to SHMs unlikely to be offered lengthy or sustained tenure in a senior management position. would be a loss of investment to the country. • Regardless of whether a commitment to education is outlined in policy, it is often that there are insufficient funds to provide training and this challenge occurs because of limited availability of funds within the Nepalese health system, resulting in the education budget being rediverted into other areas. • The responsibility of upskilling should lie with the SHMs themselves by proactively seeking support or education as required. Furthermore, lack of role specific education should not be used as an excuse to avoid unfamiliar role tasks.

Dimensions	Phase II - Senior hospital managers	Phase III - Senior hospital managers	Phase IV - Policy makers
Supporting change	52% able to implement change and effectively manage the transition process.	• Technical and leadership knowledge had become outdated and suggested that periodic updates were required to enhance their potential and meet the changing requirements.	• A critical role is played by well-developed orientation in assuring familiarity (or even updating knowledge) with local systems and processes. This also supports better transition into new roles.
Resource management	56% competent in operation and resource management. 42% able to develop budgets in accordance with organisational objectives.	• Rural location impacted management practice since the timely receipt of resources was not always guaranteed. Also, rural hospitals faced severe shortages of skilled professionals. • It is important to ensure cooperation between the different levels and sections of the organisation for availability and assuredness of resources. • There are constraints related to the availability and assuredness of resource provision. Issues with insufficient budget allocations has been a key concern that could impact upon all elements of service provision. • Worked proactively with their hospital directors to address issues around budget shortfalls, recognising that this approach required a degree of compromise.	• Challenges are led by limited availability of funds within the Nepalese health system, resulting in the SHMs education budget being rediverted into other areas.

Dimensions	Phase II - Senior hospital managers	Phase III - Senior hospital managers	Phase IV - Policy makers
Interferences, conflicts and politics	48% competent for considering and acting with sensitivity regarding the politics of any given situation.	• Interferences in working roles have been often driven by self-interest among colleagues having political or financial motivations. • Such interferences have compromised the ability of SHMs to perform their roles effectively. • SHMs have employed a range of strategies for proactive management, prior to an escalation to more senior levels of the organisation as required.	• It is essential for SHMs themselves to be resilient and proactive in handling difficult political situations. • Political interferences have been predominant in hospitals as hospital manager post are politically initiated and the selections for the post are carried out under the influence of politicians. • Political interference in appointments and transfers is problematic since they compromise fairness and appropriate working culture, so should not be promoted. • Such change has been compromising stability and effectiveness of organisational work. • Most of the SHMs have some political linkages and they have been enjoying using such linkages which needs to be ended. • SHMs fear negative transfers resulting from political interference, with SHMs being sometimes pressurised to carry out activities against their will. • However, competent and resilient managers can overcome such external/political hurdles as they have earned their position based on their ability and they are resilient in refusing the unethical wishes of others. Thus, developing managerial capacity is essential.

Dimensions	Phase II - Senior hospital managers	Phase III - Senior hospital managers	Phase IV - Policy makers
Stability and continuity	42% of SHM identified high staff turnover as one of the major difficulty in accomplishing their managerial roles.	• The high rate of staff turnover within teams led by SHMs compromised continuity and stability and inhibited their capacity to promote productivity within their service. • The staff members in middle or senior management roles are transferred to a different institution after a period of no more than two years. Such loss of continuity and stability inhibited capacity to promote productivity within their service. • The rotating nature of SHMs positions created challenges and frustrations which was made worse in situations in which handover processes to ensure continuity and coherence had not been formally established.	• Although the constantly changing nature of SHMs teams and themselves in their roles were critiqued by SHMs, PMs see this as being of actual value to organisations since SHMs get fresher ideas, preventing stagnation and corruption as well as preventing people staying in a job forever. • However, SHMs needed a degree of predictability around these changes. The policy is already in place to achieve this but it's the adherence to the policy that has been problematic and causing unpredictability and disharmony around change. • Sometime SHMs deliberately sabotage the handover process due to feelings of personal grievance. These actions not only compromise cooperation, organisational culture and service continuity, but also constitute misconduct. • Good policy and clarity work together to promote stability and predictability. There are clear policies and procedures, however, some individuals don't trust them and fail to adhere to them. to strengthen the system, the gap between policy and practice should be reduced. • The political interference in rotational decisions and/or promotions of SHMs can result in unethical practice due to a sense of debt and duty to the political agent who supported the promotion.

Dimensions	Phase II - Senior hospital managers	Phase III - Senior hospital managers	Phase IV - Policy makers
Communication	70% of SHMs rated themselves as highly competent for interpersonal communication qualities and relationship management.	• Lack of quality of communication in the normal day-to-day working of their teams resulted in. negative outcomes occurring more frequently. • Conversely, in situations where effective communication processes were established, coherence, continuity of care and positive team dynamics were much more likely to be assured.	• There have been gaps in the communication chain seemingly at the hospital director level. Communicating and coordinating down to the institutional level has been occurring but communication down to the individual level must be the hospital directors' responsibility. The disconnected consultation and communication needed to be improved for better connection and coherence. • Communication at present has been highly structured (formal) or entirely unstructured (casual). Such formal communication, although controlled can be restrictive and casual communication can be seen to lead to preferential unfairness. There should be intermediate/ semi-formal communication, allowing a balanced and range of formats. This can foster stronger connections and mutual understanding, enhancing coherence across the system.

7.3 Synthesis of findings

7.3.1 Personal and professional development (including education and training)

While individual motivation among SHMs for professional development was strong, structural barriers hindered the effective implementation of professional development. Despite health care workers commitment to development, existing efforts risked stagnation without systemic recognition for SHMs. There is a need for long-term financial investment in personal and professional development for SHMs. Bridging this gap may be possible through innovative solutions, such as alternative funding strategies that may include public-private partnerships/ collaboration with universities or NGOs, shared investment between ministries and combining donor support with hospital generated income [8,9].

Similarly, policy integration and sustainable professional development frameworks which are structured, long-term approaches, as well as being financially viable, institutionally embedded and adaptable to change and disruption, will allow SHMs to continuously build and maintain skills, knowledge and leadership capacity. Findings from the three phases demonstrated a clear alignment between SHMs and PMs on the importance of SHMs professional development. However, the findings also revealed a disconnect between optimum policy recognition and resource allocation. Currently, there are fragmented or aspirational policies that lack operation clarity, funding and accountability mechanisms. For instance, Nepal's HRH Strategic Plan outlines leadership development but implementation remains uneven [10]. Integration efforts can bridge this gap by translating policy into practice; aligning actors, resources and incentives across ministries and levels of government.

7.3.2 Supporting change

Although SHMs stated that they are managing transitions, a strong orientation framework could bridge the gap between systemic changes and individual preparedness, ensuring smoother transitions. The findings from the three phases lacked agreement between SHMs and PMs, exposing underlying challenges in professional development and knowledge maintenance essential for supporting change management. While 52 per cent of SHMs reported successful change management competence, the need for updated technical and leadership knowledge implied that some SHMs might struggle due to outdated information. Strengthening orientation and periodic updates could bridge this gap, which also ensures that both SHMs and PMs systemic frameworks work seamlessly together.

7.3.3 Resource management

The fact that 56 per cent of SHMs self-rated their competence in operation and resource management in Phase II may be linked to systemic fragmentation or a lack of coordinated strategies outlined by SHMs in Phase III. The emphasis on cooperation was a key theme, suggesting weak interdepartmental collaboration could hinder both resource access and operational confidence among SHMs. Findings suggested a dual focus on addressing individual and systemic needs. There is a need to build managerial competence through targeted development programs in operation and resource management as well as strengthening horizontal and vertical collaboration within organisations.

Only 42 per cent of SHMs reported successfully developing budgets aligned with organisational goals which demonstrated a skills gap or a lack of adequate support structures for financial planning. SHMs discussed the uncertainty and inconsistency in resource provision, suggesting that budgeting challenges are not purely related to individual shortcomings. Rather they are symptomatic of problems at a systems level, including insufficient professional development and training, unpredictable resource flows and limitations related to policy-level funding. The overall findings highlight the need to reinvest in management education, particularly financial planning, to build more stable resource allocation systems and foster collaboration across organisational levels while safeguarding both integrity and sustainability of resource provision. The findings from the three phases generally align thus forming a cohesive narrative: Individual competency gaps in budgeting are associated with institutional constraints in addition to the policy-level funding decisions.

7.3.4 Interferences, conflicts and politics

Political interference was identified as a pervasive issue. However, there appeared to be a disconnect between acknowledgment and accountability. While SHMs recognised the negative impact of political entanglement, PMs placed disproportionate responsibility on SHMs to navigate this issue. The overall findings highlighted a support gap as well as a need for training in political acumen including ethical leadership. The findings also highlighted a misalignment within systemic practices such as political appointments. Thus, there is a need for culturally sensitive and incremental policy reform that aligns with existing health system realities without ignoring the local dynamics to minimise the deeply embedded informal networks and political patronage.

Political interference may be reduced through multi-layered policy reforms and policy mechanisms that include institutional autonomy and legal safeguards such as establishing

independent health management bodies with legal protections against political appointments or dismissals. There must be transparent recruitment and career pathways such as implementing merit-based recruitment and promotion systems for SHMs and using independent panels to reduce patronage and favouritism. Similarly, multi-stakeholder platforms such as health councils may be institutionalised so that they dilute political dominance and fosters consensus-based decision-making.

Investment in leadership resilience, ethical governance, political navigation and role clarity for SHMs are essential. This would define clear mandates and decision-making authority for SHMs. The findings from the three phases agreed on a shared recognition that political dynamics significantly influence SHMs' managerial roles, though perspectives differed between PMs and SHMs on responsibility and resolution of this issue.

7.3.5 Stability and continuity

Rotations for SHM positions led to tensions between fostering innovation and maintaining continuity: both SHMs and PMs acknowledged this as an existing issue. SHMs believed that unstructured rotations were a threat to productivity and morale in their working roles, while PMs viewed it as an essential medium for dynamic renewal and to prevent corruption. However, PMs also admitted that its current execution was flawed. The findings highlighted a need to follow handover procedures to preserve institutional memory. PMs also stated that there was a need to educate managers on the strategic intent of rotational policies, potentially reducing mistrust, while building accountability. The findings from the three phases highlighted an alignment on the problem but diverging perspectives on the causes and solutions for the issue.

7.3.6 Communication

Effective communication is not only about the individual skills of SHMs but also the system structure and consistency of communication. While SHMs felt confident in their interpersonal abilities, poor communication mechanisms at the leadership handoff point (hospital directors) lead to operational friction. These findings further suggested a need to train and support hospital directors in their communication roles. The results from interviews with Nepalese health policy makers showed that there was a rigid two-level communication system because communication was mostly made vertically or highly formal or highly informal. The findings identified a need for development of standardised, semi-formal communication frameworks that provide structure without rigidity [4]. Such a framework would limit restrictiveness along with misinterpretation or perceived unfairness and enhance horizontal and

vertical understanding and connectivity within organisations. Examples of semiformal communication may include internal memos between departments, meeting invitations and feedback requests. This ultimately aligns system- and hospital-level communication avoiding information gaps, confusion and thus impacting hospital operation.

7.4 Challenges faced by SHMs

The integration of data led to identification of numerous challenges faced by SHMs in central level public hospitals in Nepal. These challenges revolved around multiple facets, from personal limitations to broader systemic issues. The challenges faced by SHMs can be broadly classified into individual-level, organisational-level and system-level challenges.

7.4.1 Individual-level challenges

- Skills gaps: SHMs lacked certain competencies, for example resource management and budgeting skills
- high workload: SHMs are often responsible for multi-tasks which are sometimes beyond their abilities resulting in high-stress environments where the emotional toll can affect performance and wellbeing
- limited professional development: SHMs discussed limited opportunities for training and education.

7.4.2 Organisational-level challenges

- Lack of institutional support: SHMs believed there was insufficient guidance and lack of structured leadership programs, resulting in lack of governance and weak leadership
- resource constraints: SHMs identified issues relating to resource constraints such as budget limitations, outdated infrastructure and staffing shortages
- resistance to change: SHMs identified problems with adopting new technologies, policies or innovation-driven strategies, with hospital management practices being slow to evolve due to bureaucratic hurdles.

7.4.3 System-level challenges

- Regulatory and policy related barriers: Complex health care regulations, lengthy bureaucratic processes, as well as challenges relating to unclear roles and responsibilities.
- health care access and equity issues: SHM identified persistent disparities in health care delivery across urban and rural settings. Rural hospitals faced severe shortages of

skilled professionals and continuous resource availability due to geographical constraints.

- coordination and communication: A coordination and communication gap existed between SHMs and PMs because currently there is provision for engagement with hospital directors only and hospital directors are expected to communicate with SHMs, with no established mechanisms for communication or coordination of PMs with all SHMs.

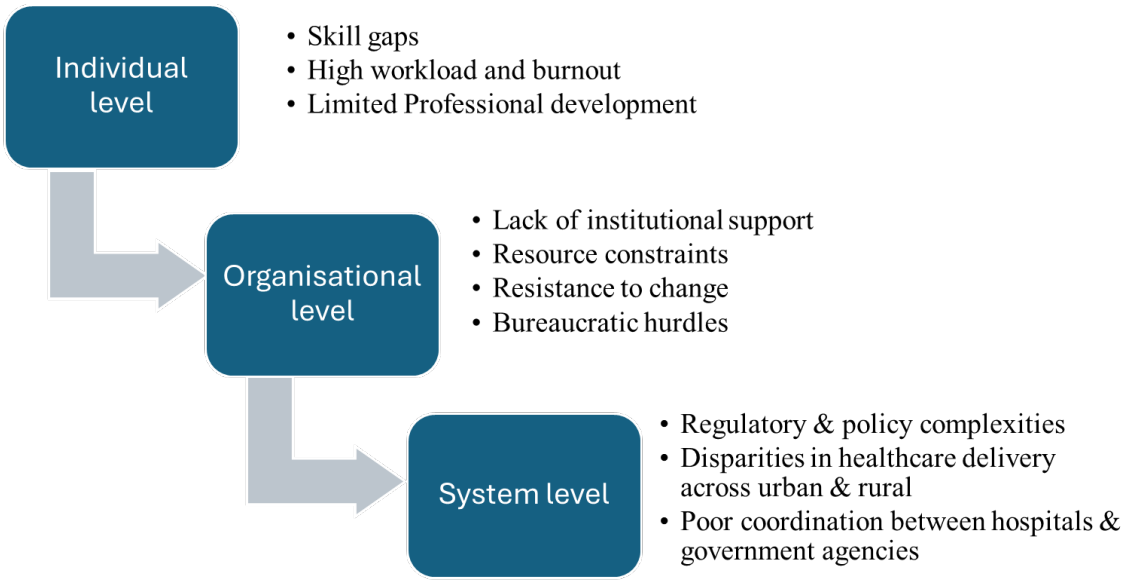

Figure 19: Challenges faced by Senior hospital manager (author developed)

The three levels of challenges require a multi-layered integrated approach to enable SHMs in the Nepalese public hospital system to develop competency, capacity and capability to perform their managerial roles. Addressing individual competency gaps without fixing systemic issues will not lead to lasting improvements [11]. Individual competency development can be transformative only when it is aligned with system level mechanisms such as performance appraisal, role design, organisational accountability and supervisory capability. Individual skill development is often constrained by organisational limitations, while operational efficiency is restricted by systemic barriers, highlighting the need for stronger alignment across all the three levels [12]. Alternatively, hospitals could coordinate policy reforms, institutional improvements and professional training to foster supportive working environments for SHMs. System-level challenges underscore the importance of policy reforms and enhanced coordination between health care institutions and government agencies. Without these changes, improvements at the individual and organisational level will remain limited and

short-term. Ultimately, strengthening capacity development at the system level is key to achieving sustainable, long-term progress at both the individual and organisational levels since it can seed the next generation PMs who are equipped to reshape the system itself.

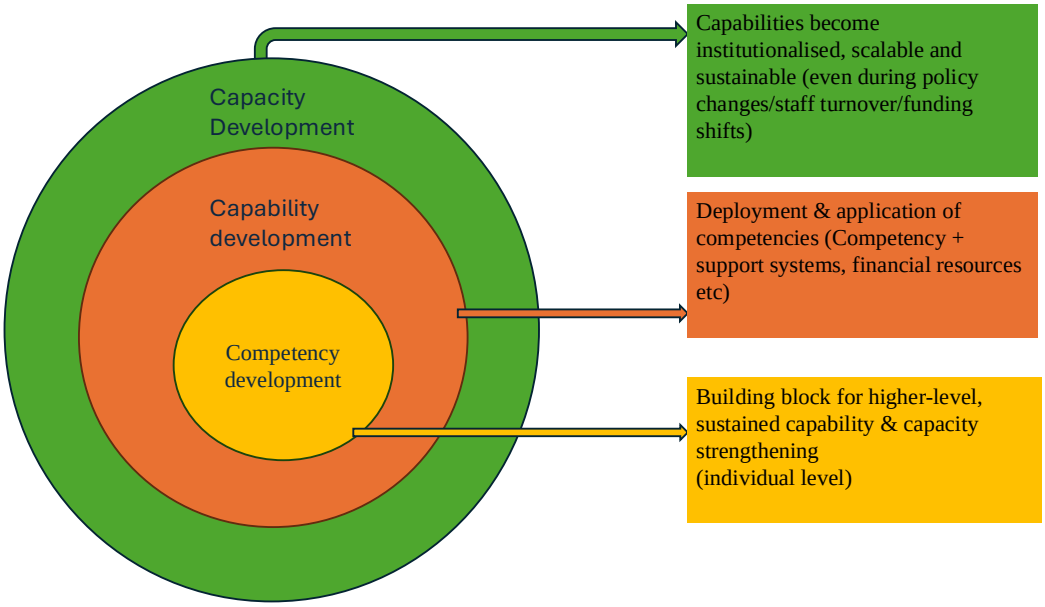

Figure 20: Competency, capability and capacity development(author developed)

7.5 Development and description of the ECOS Model

Evolving research can lead to new models that deepen theoretical insights [13]. Conceptual models play a significant role in translating theoretical propositions into structured operational frameworks. Rather than serving as static abstractions, they actively integrate relevant theories into explanatory structures [14]. Morgan notes that categorising models into cycles, processes, hierarchies and timelines offers a systematic way to organise thematic data and clarify conceptual relationships, thereby enhancing both interpretive depth and theoretical clarity [13]. Guided by these principles, this study has developed a cyclical model – ECOS – through the integration of data across the sequential phases of this study with the aim of advancing understanding and conceptualising the interplay between competency, capability and capacity development of SHMs in central level public hospitals in Nepal.

Within this model, each domain is represented in an outer box reflecting qualitative findings from SHMs and PMs recommendations. The quantitative findings are directly embedded within the domains, forming a foundation in the model's inner box highlighting gaps and development needs in SHMs managerial competencies. The directional arrows illustrate

complex reciprocal relationships emphasising dynamic interplays rather than linear or isolated processes. While each domain retains its distinct character, the model underscores their interconnectedness and acknowledges that their relevant importance may vary across contexts. Overall, the model identifies nine interrelated domains that collectively support competency, capability and capacity development of SHMs in central level public hospitals in Nepal. These domains are: (1) addressing mismatches between ability and expectations; (2) implementing targeted and phased orientation, training and education; (3) strengthening mechanisms for control, conflict resolution and interference management; (4) improving communication structures and pathways to enhance coherence; (5) overcoming practical and logistical barriers; (6) developing strategies to address geographical challenges in rural areas while ensuring **s**tability and continuity; (7) approaches for stability, continuity and coherence; (8) creating job security and promotional systems free from political interference; and (9) promoting adherence to policy to support predictability and ongoing change.

To accommodate more dynamic and context-sensitive structures, the ECOS model builds on and extends theoretical approaches that have traditionally used linear hierarchies or static categories such as the WHO's international classification of health workers, which organises roles rigidly by skill level and specialisation [15]. In contrast the ECOS model presents a cyclical conceptualisation of competence, capability and capacity development emphasising the interdependence of factors shaping SHMs managerial performance. By bridging theory with empirical findings, the model offers both an explanatory and functional framework for strengthening SHM management performance in resource limited contexts.

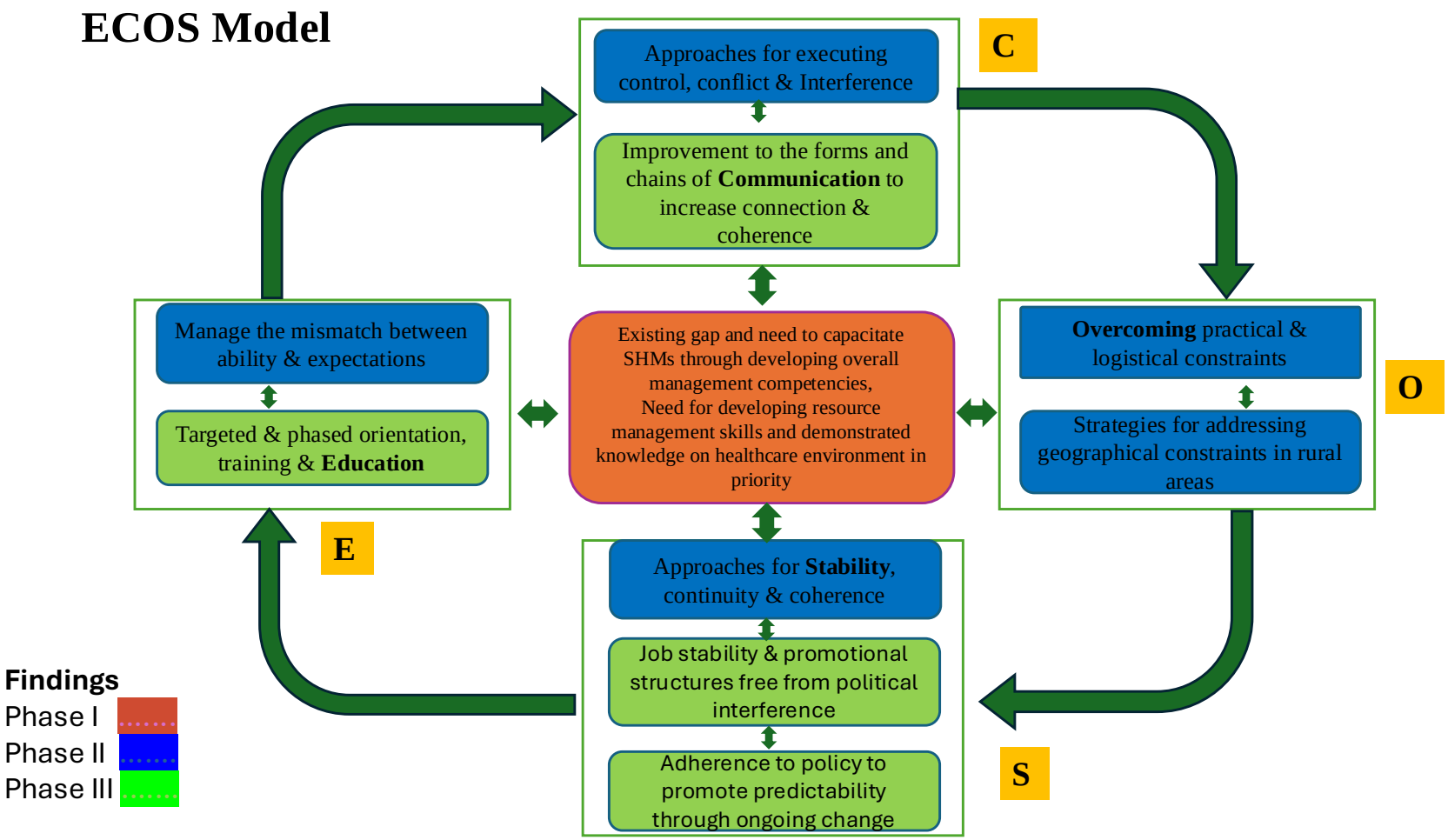

Figure 21: ECOS: A conceptual model for SHMs to develop and demonstrate their management competencies (author developed)

7.5.1 E is for Education

Targeted and phased orientation, training and education

SHMs' education needs to extend beyond a focus on clinical experience, with an emphasis on management and leadership, and ensuring continuity of such training. Both pre-service and in-service programs should prioritise tailored training for different levels and roles. Embedding micro-credentialing through modular and stackable training programs into pre-service education and in-service development for Nepalese SHMs may offer a practical approach to driving transformative improvements with wider impacts on health outcomes [16]. Strategies such as simulation-based learning, case studies and blended formats can also strengthen SHM competency and capability development [17].

This study also recommends that the targeted training be offered only to candidates deemed suitable for senior managerial roles. This is based on the recommendations provided by PMs where health professionals identified by their managers and who have the potential to be promoted to SHM are provided managerial training. However, SHMs themselves did not make a clear statement about who should have managerial training but supported that trainings should be prioritised and offered to all SHMs in the organisation.

Furthermore, SHMs should take initiative in seeking support or education relevant to their responsibilities. Although training should ideally be provided to SHMs as part of their role, it may not always be provided in a timely manner. Thus, it is also the SHMs' responsibility to seek out further education opportunities.

Finally, structured orientation programs must be prioritised across managerial tiers to ensure familiarity with local systems and processes. Orientation not only serves to familiarise SHMs with institutional protocols but also to refresh their understanding of existing guidelines, which may be overlooked or forgotten over time. Thus, an orientation process enhances role clarity, promotes procedural compliance and supports consistent decision-making across organisational levels.

It is essential that a multidimensional approach is followed that targets management competencies and capabilities specific to the context and roles of SHMs [18]. Integrating system reforms such as aligning governance structures and improving curriculum design may help strengthen managerial competence within hospital management workforces [19]. Effective and efficient competency and capacity building for SHMs needs to be endorsed by robust institutional leadership and policy frameworks for ensuring systematic, predictable and fair distribution of educational opportunities. Similar frameworks have been previously

reported as beneficial in improving education for public health managers in low- and middle-income countries [20].

Manage the mismatch between ability and expectation

Limited investment in leadership development has led many SHMs to perceive a systemic undervaluation of their roles, amplifying feelings of disempowerment and inadequacy. At a structural level, organisations should recalibrate role expectations in accordance with contextual resource limitations and establish clearly defined responsibilities to avoid undue strain. Ensuring job descriptions aligning with realistic responsibilities is essential to preventing unnecessary confusion for SHMs. Creating a culture of realistic planning and continuous development is crucial for significantly decreasing frustration and improving effective leadership. Greater system level support is essential for customised and targeted management training and education building SHMs managerial capacity. Liang et al. (corroborates the finding that bridging skill gaps and clarifying responsibilities requires a multifaceted approach, including tailored leadership training, targeted management courses and ongoing organisational support [18]. A combination of skills development, organisational support and realistic goal setting is essential for SHMs to accomplish their managerial task. The use of mentorship programs, peer collaboration, and access to expert consultation are effective strategies to enhance effective management and resilience [21,22].

7.5.2 C is for Communication

Approaches for executing control, conflict and interference

Role interference, often driven by colleagues' self-interest and political or financial motivations should be discouraged. Opportunistic efforts to secure personal benefit can be reduced through transparent work practices and fair promotion strategies for SHMs. These dynamics highlight the informal politics embedded within health care organisations, where competing interests and power struggles undermine managerial autonomy and institutional coherence. Clarke et al. emphasise the importance of political skill for health managers to navigate these complexities, engage in stakeholder negotiation, maintain contextual awareness, and influence policy processes effectively [23]. SHMs must be resilient and proactive in handling difficult situations. Agostini et al. argue that resilient hospital managers are better equipped to adapt to both acute disruptions and chronic stressors, including politically charged environments, thereby fostering organisational flexibility and sustaining service quality under pressure [24].

Greater consideration should be given to SHMs recommendations and preferences to ensure effective team functioning. Grailey et al. note that cultivating strong health care teams requires leaders to foster psychologically safe environments where professional input is both encouraged and visibly respected [25]. The challenges posed by lengthy and rigid procedures call for a shift towards more output focused approaches. This can be achieved through policy adjustments and investing in compliance training, which would reduce bureaucratic burdens and enhance organisational agility. Research underscores that inflexible administrative structures and outdated policy frameworks inhibit timely decision-making, highlighting the need for multipronged strategies involving policy reform and compliance capacity building [3,26].

Improvement to the forms and chains of communication to increase connection and coherence

Poor communication in hospitals can lead to serious consequences. Thus, effective communication systems must be established to ensure coherence, continuity of care and positive team dynamics. Building a collaborative working environment where all team members feel empowered to speak up is critical to preventing misunderstandings. Regular workshops on effective communication skills should be provided so that team members can convey critical information accurately. Also, semi-formal communication structures need to be promoted for improving better connection and understanding both vertically and horizontally within the organisation. Leach et al. highlight that leadership structures are key moderators of communication breakdowns and extremes (whether overly formal or too casual) can obstruct clarity, trust and ultimately, safety outcomes [27]. Tareanekar emphasises the need for strategic, communication frameworks to promote and enhance transparency, trust and collaboration, noting that poor communication compromises operational efficiency, eroding trust and increasing uncertainty [28]. Additionally, SHMs should be oriented properly with local systems and processes to familiarise themselves with existing coordination and communication frameworks.

7.5.3 O is for Overcoming constraints

Overcoming practical and logistical constraints

Addressing practical and logistical barriers in health management requires strategic planning and targeted interventions. This includes ensuring reliable budget allocations to prevent disruptions to service provision. The Lancet Commission (2022) stresses that

systematic budgeting and tailored allocation mechanisms are vital to sustaining health system performance [29]. Strategies such as optimising resource allocation, securing government grants, and exploring public-private partnerships should also be considered for overcoming financial constraints [30]. It is also important to ensure cooperation between different levels and sections within the organisations and SHMs may further proactively work with their hospital directors to address issues around budget shortfalls. Initiating tendering processes in a timely manner may be another useful strategy for overcoming practical and logistical constraints [3]. Furthermore, problem-driven approaches to public financial management along with the national health systems is essential to identify and resolve financial bottlenecks through iterative, government-led reform processes aligning budget allocations with strategic health outcomes [31].

Approaches to conquer geographical challenges in rural areas

Government vision and direction is essential for overcoming geographical barriers affecting service provision. Rural hospitals face barriers such as poor transport, inadequate infrastructure, logistical difficulties and staff shortages. These issues require systemic recognition of the distinct contextual realities inherent in rural and remote health service environments, which differ markedly from those in well-resourced urban settings. Accordingly, tailored strategies must be developed to enhance service coordination and operational support for SHMs working in geographically isolated regions. Solutions may include strategic investment in strengthening transport infrastructure, development of logistical support systems and fostering multisectoral partnerships [32]. Adaptive management strategies that prioritise regional partnerships and targeted resource allocation are essential to improve access and continuity of care [4,32]. Approaches for attraction and retention of skilled SHMs in rural areas may be useful to strengthen service delivery provision in underserved regions. For instance, the Nepalese Government has implemented a range of financial and non-financial incentives including rural allowance, subsidised housing, opportunities for professional development and preferential deployment policies, to attract health professionals including SHMs to rural and isolated communities [33]. This is provided, in general, for health workers in Government of Nepal but there has been no study conducted on its effectiveness for SHMs.

7.5.4 S is for Stability

Approaches for stability, continuity and coherence

Predictability in SHMs' roles and responsibilities is essential for reducing errors and maintaining efficiency. Clear handover steps and easy-to-follow documentation should be made consistent across all settings. Mentorship and peer networks can aid SHMs to manage role transitions more effectively. Stable policies and management systems should be supported by strong laws and clear policy guidelines. Greater certainty in rotational pathways may improve retention as well as support communication and organisational coherence [34]. The provision of structured progression opportunities could reduce uncertainty and improve retention of health professionals [34]. Furthermore, establishment of permanent positions within the health care system can aid in promoting continuity and stability. Beauvais et al. acknowledge that permanent staff provide invaluable stability and continuity in health care settings [35]. Beauvais et al. further advocated that permanent health staff contribute to consistent implementation of quality improvement initiatives and maintenance of organisational commitment. Additionally, establishment of effective communication processes (such as daily morning sessions) synergises coherence, continuity of care and positive team dynamics. The Australian Commission on Safety and Quality in Health Care (2020) supports this, emphasising effective clinical communication, collaboration and teamwork for the delivery of continuous and coordinated health care [36]. Also, handovers between incoming and outgoing SHMs and effective communication strategies should be prioritised as part of a business continuity management system thus maintaining coherence, continuity of care, and positive team dynamics [37].

Job stability and promotional structures free from political interference

Political interference in SHM career progression often prioritises individual interest over health system needs. Appointing candidates through political interference undermines communication, trust and respect. while fostering unethical practice rooted in a sense of obligation to political patrons. Webbe and Kirby note that when meritocracy is not maintained, institutional integrity and trust are eroded [38]. One way to strengthen predictability and reduce political interference is to implement rotational pathways where SHMs are informed of the location and timing of transfers at the start of their managerial roles. This would allow SHMs to plan, organise and adapt to upcoming rotations, compared with the current situation where

short notice, for example a couple of days, is not uncommon [4]. This recommendation promotes clarity in relation to career trajectory with flow on effects to morale.

Acquiring and developing political skills is essential to reduce political interference in the organisation. Skills such as understanding power dynamics within health care systems, building negotiation and advocacy skills to protect institutional integrity, and developing resilience to navigate political pressures together with conflict management and emotional intelligence skills would effectively help SHMs resist political pressure [4]. Evidence suggests that health care leaders should develop this distinct set of political skills to understand and manage the competing interests and agendas in health care services [4, 39]. Political skills can be developed more effectively by using a combined approach that might include formal education, mentoring, experiential learning and reflective practice tailored to the changing needs and opportunities SHMs face at different points in their careers. Improvement in policy frameworks is essential to prevent or reduce negative impact of political interference, such as policy reforms that limit external interference and enhancing institutional governance with clear processes, transparent decision-making, and institutional safeguards along with policy enforcement [40].

Adherence to policy to promote predictability through ongoing change

Weak adherence to policies contributes to unpredictability and disharmony. For example, during SHM transfers, deliberate obstruction of the handover process can occur due to personal grievances which compromise cooperation, organisational culture and service continuity, while constituting misconduct [4]. In Nepal these challenges reflect broader governance weaknesses, including policy misalignment and fragmented funding, which obstructs sustainable health system reform. Good policy and clarity along with policy enforcement are essential to add predictability to instability/in-continuity. Mukherjee et al. emphasises that well-designed policies reduce uncertainty through aligning tools with goals and anticipating implementation challenges [41]. The Global State of Democracy report highlights that declining trust in public institutions, particularly in the health and social sectors, hampers effective policy implementation [42]. Policy-practice misalignment arises when well-planned reforms fail due to contextual disconnects, that is ignoring local dynamics and cultural realities, and weak implementation mechanisms [43,44]. Adherence to policy through practicing institutional memory aids in a degree of predictability around changes. To ensure future adherence to newly developed policies, it is essential to foster an organisational culture that prioritises consistent policy enforcement. However, achieving such a cultural

transformation presents a significant challenge. This requires a good leadership group that not only advocates policy implementation but also demonstrates integrity, independence from political influence and long-term commitment to institutional reform.

The Pan American Health Organisation emphasises that internal policies and procedures need to include strategies for managing institutional memory [45]. It also highlights that institutional memory is a component of organisational culture that is essential for maintaining consistency as well as resilience in the health care systems. Additionally, research demonstrates that adherence to structured handover protocols not only enhances communication and reduced errors but ultimately improves patient outcomes [36,46]. Nepal Public Health Service Regulations 2020 mandates that the institutions maintain service continuity during leadership changes [47] but existing lack of adherence to policies and procedures has been problematic. This demands handover and effective communication strategies to be prioritised as part of a business continuity management system thus maintaining coherence, continuity of care, and positive team dynamics [37].

7.6 Conclusion and way forward

Existing policies regarding SHMs are unclear or do not explicitly address the roles and responsibilities of SHMs. This affects stability, continuity and coherence of SHMs. Addressing this gap requires both technical solutions and cultural change, which emphasises predictability and participatory policy design that brings together different voices to ensure policies are feasible, culturally appropriate and ethically grounded.

The integrative ECOS model presents a contextually grounded, robust framework for advancing and unlocking the competency, capability and capacity of SHMs in the Nepalese public hospital system. The ECOS model bridges theoretical constructs with empirical insights, comprising nine interrelated domains offering both practical utility and explanatory depth for strengthening management performance in practical and resource-constrained settings. By foregrounding cultural transformation, sustainable development principles and policy integration and reinforcement, the model addresses operational and systemic complexities that shape hospital management in low-resource environments. Furthermore, the model advocates for targeted educational interventions, strategic communication approaches to manage conflict and interference, and pragmatic solutions to logistical and infrastructural constraints. The model importantly emphasises mechanisms for ensuring stability, continuity and coherence within hospital management systems that is also critical for long-term resilience.

To ensure meaningful and sustainable impact, the ECOS model underscores the imperative of culturally responsive and ethically grounded policy design and enforcement. Cultural change is not treated as a peripheral concern but as a central domain influencing SHMs behaviour, institutional norms and workforce engagement. The model also advocates for policy frameworks that are not only technically sound but also socially feasible and aligned with grounded values, practices and governance structures. By embedding cultural appropriateness and ethical integrity into policy development and implementation, the ECOS model promotes legitimacy and long-term viability. This approach is particularly vital in the Nepalese health system, where top-down reforms must be harmonised with bottom-up realities. The ECOS model serves as a strategic guide for fostering adaptive leadership and context-sensitive managerial capacity building across Nepalese public hospitals.

Moving forward, the ECOS model provides a strategic foundation for policymakers, educators and institutional leaders to design and implement capacity building initiatives tailored to the evolving Nepalese hospital sector. Future research may focus on validating the ECOS model in Nepalese context and eventually across diverse low- and middle-income country contexts, embedding it within national health workforce development strategies and refining its components through longitudinal application to foster adaptive, systemically aligned and culturally responsive leadership practices.

Contribution of Chapter 7 to the thesis

Chapter 7 utilises a robust data triangulation approach, through the integration of findings from quantitative and qualitative phases of the study. This synthesis offers a comprehensive understanding of the multiple challenges faced by SHMs. This is the first known study to identify these challenges, which occur at different levels thus impacting on SHMs' managerial competence, capability and capacity development. The findings identified that education, communication, overcoming constraints and stability can help to develop and unlock competency, capability and capacity of SHMs in central-level public hospitals in Nepal. Key contributions of Chapter 7 are:

- Methodological rigour: By employing data triangulation, the validity and reliability of findings are enhanced. A nuanced and empirically grounded understanding of the complex hospital management context of Nepal along with barriers to the working roles of SHMs are explored through converging insights from distinct methodological paradigms.

- Identification of multilevel challenges: The integration of data also enables the identification of a range of challenges from individual, organisational and systemic issues. This layered analysis contributes to the overall thesis by mapping the interconnected nature of the barriers faced by SHMs within the Nepalese public hospital setting.
- Development of ECOS Model: Synthesised findings from the quantitative and qualitative phases have been instrumental in the conceptualisation of the ECOS model. By capturing the dynamic interactions between the different domains, the model offers a structured lens through which SHMs' professional capability and capacity can be developed.
- Evidence-informed solutions: the chapter proposes contextually relevant solutions by drawing upon the broader scientific literature to support recommendations for enhancing SHM competence, capacity and capability while reinforcing the applicability and theoretical robustness of the model.
- Theoretical and practical integration: The chapter contributes to both theory-building and practical applications through bridging empirical findings with the existing scholarship. This positions the ECOS model as a potential tool for changing workplace culture, guiding policy development, SHMs professional training and development with organisational reform within the Nepalese public hospital sector.

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Chapter 8: Conclusion

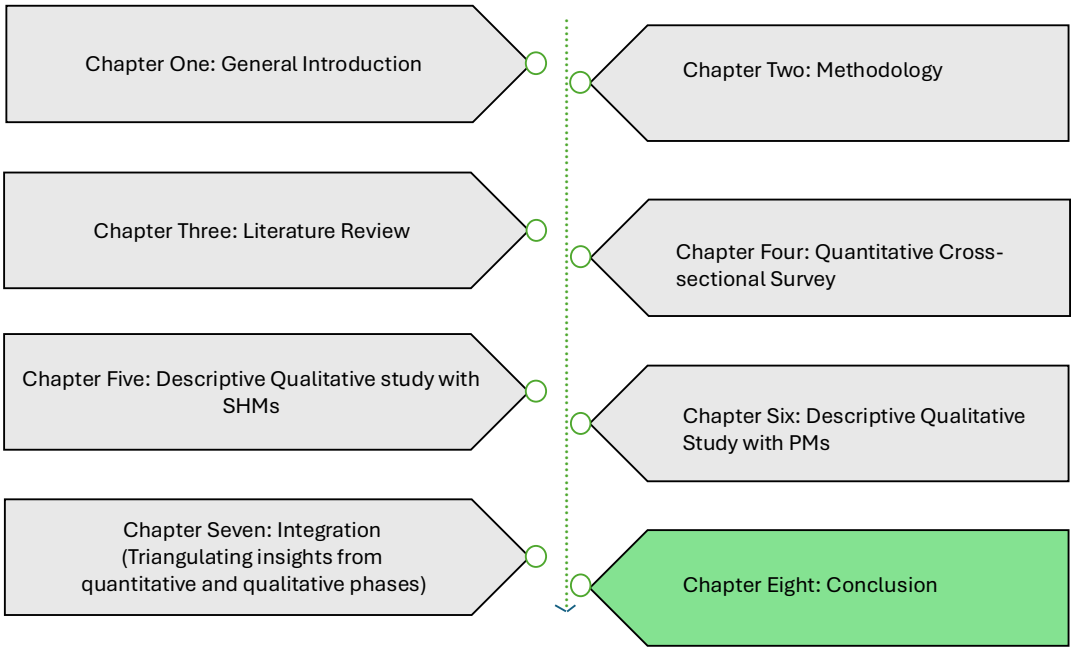

Figure 22: Site of chapter 8 in the whole document

8.1 Chapter overview

Initially, the aim of this thesis was to examine the competency development needs of senior hospital managers (SHMs) within the Nepalese central-level public hospital system. As the study unfolded, the scoping review and the survey open-ended responses provided additional nuance, revealing dimensions of organisational and contextual strain that competency development needs could not capture. The revised research direction included the perspectives of SHMs and policy makers (PMs) which increased understanding of the barriers to SHM competencies as well as identifying actionable solutions. Thus, this study has critically examined the needs of SHMs within the Nepalese central-level public hospital system with a particular focus on understanding both SHMs' experiences and the strategic perspectives of PMs in relation to enhancing competency, capability and capacity of SHMs to strengthen their managerial performance. A brief outline of each chapter including the aim, main findings and limitations is presented in Table 18.

Table 18: A brief outline on each chapter including the aim, main findings and limitations

Chapter	Aim	Findings	Limitations
1	General Introduction		
2	Identify the various strategies/efforts implemented for developing HMW in the Asia-Pacific.	Four development strategies were identified: • organisational informal professional development programs • competency assessment and identification of gaps in knowledge and skills of HMW • confirming competencies and developing competency framework and • formal education and training.	The scoping review excluded grey literature and literature published in languages other than English which may have offered additional insights.
3	Methodology	Outlined the detailed methodology underpinning the research study, including theoretical framework, limitation of initial design and evolution of new research design, data triangulation, steps for quality assurance and data management.	
4	Characterise levels and gaps in competency to fulfil the managerial responsibilities among Nepalese SHMs (Phase II).	A high proportion of SHMs self-assessed as competent or expert in C5 *Leading people and organisations* (72%) followed closely by C4 *Interpersonal communication qualities and relationship management* (70%), with the lowest (56%) for C2 *Operation, administration and resource management and* C3 *Demonstrated knowledge of health care environment and organisation* (62%). Only 56-72% of SHMs self-assessed as competent or expert across all six core competencies. SHMs had difficulties in their working role due to high staff turnover, issues with higher management level or high-level political interference in the job and no proper job description.	The results may not be illustrative of all SHMs in central level public hospitals in Nepal since the responses were received from only 50 SHMs in four central level public hospital in Nepal. The competency assessment relied on self-assessment by participants which may be subject to response bias such as overestimation and underestimation of management competency.
5	Explore the perspectives of SHMs regarding their professional capacity	Four key themes identified and 15 subthemes 1. Stability, continuity and coherence 2. Practical and logistical constraints	Participation was voluntary, which may have introduced self-selection bias; those interviewed

	development in managerial roles (Phase III).	3. Interference, conflict and control 4. Managing the mismatch between ability and expectations.	may differ in motivation or experience from non-participants. The small sample size limits breadth, capturing depth but not the full diversity of SHMs experiences. Since not all survey respondents were interviewed, it limits representativeness. The focus on central-level public hospitals in Nepal sets the findings within the bounds of a defined cultural and operational circumstance.
6	Policy Perspectives on strengthening Senior Hospital Managers Capability and Capacity in Nepalese Public Hospital System (Phase IV).	Four key themes. 1. Targeted and phased orientation, training and education 2. Need to free job stability and promotional structures from political interference 3. Improvements to the forms and chains of communication to increase connection and coherence 4. Adherence to policy can promote predictability through ongoing change.	Though the purposive sampling ensured inclusion of relevant and experienced participants, it may have introduced selection bias, as only those deemed most appropriate were invited. The responses are shaped by individual experiences, roles and institutional contexts, which may introduce bias.
7	Triangulate the findings from quantitative and qualitative phases of the study.	The integration of findings from the survey, interviews and focus groups led to the development of ECOS. The model suggests that nine key factors could be considered to support the competency, capability and capacity development of SHMs and are linked together.	The model may not be generalisable however, it may be useful to countries with similar contexts.
8	Conclusion	Summary of research findings, key discussion on each chapter, Implication of research and the limitations.	

From the research four articles were written, one published, one accepted for publication and two are under review.

The articles are

- Pokhrel, P, Liang, Z, Taylor, J [2024]. Efforts implemented for developing health management workforce in the Asia-Pacific: a scoping review. *Asia-Pacific Journal of Health Management. 19*[2]. https://doi.org/10.24083/apjhm.v19i2.2827
- Pokhrel, P, Jones, A, Crowe, M, Kaphle, H, Liang Z [2025]. Assessment of management competency among senior hospital managers in Nepalese public hospitals: a cross-sectional study. *Asia-Pacific Journal of Health Management,* 20[3]. https://doi.org/10.24083/apjhm.v20i3.4889
- Pokhrel, P, Jones, A, Lowrie, D, Crowe, M, Kaphle, H. Examining the perspectives of Nepalese senior public hospital managers on professional capability and capacity development: a descriptive qualitative study. Manuscript under review.
- Pokhrel, P, Jones, A, Lowrie, D, Crowe, M, Kaphle, H. Examining the perspectives of policy makers on strategies to promote senior hospital managers capability and capacity within Nepalese public hospital systems. Manuscript under review.

The overall implications for SHMs to develop and demonstrate their managerial competency and capability in the context of central-level public hospitals in Nepal are outlined below. Practical examples to develop management capacity are also provided. Following this, the chapter details the limitations of the different phases of the study as well as outlining future directions where research and policy development could build upon the findings of this thesis.

8.2 Implications of research

This study presents original insights for central-level public hospital management in Nepal. The identification of competency gaps along with barriers in the working roles among SHMs can guide development of a foundational framework for targeted professional development initiatives. This is particularly relevant in low-resource settings, such as Nepal, where financial constraints limit the extent of investment in the health sector. In such contexts prioritising competency domains with the most critical gaps such as resource management, health system awareness and evidence-informed decision-making, strengthens managerial effectiveness. Development efforts can initially focus on these high-priority areas while competencies in which SHMs already demonstrate relative strength may be addressed in subsequent phases. This phased and evidence-informed approach offers a pragmatic pathway

to improving hospital management efficiency in a resource-sensitive manner. Based on the findings of this study, customised interventions can be developed to strengthen priority areas such as resource management, operational efficiency and communication skills on a priority basis. These domains are essential for enhancing managerial performance and organisational effectiveness within hospital management services.

No previous study has investigated SHMs' perspectives on managerial capacity and capability. The findings from the study highlighted the critical role that organisational mechanisms play in shaping the effectiveness of hospital management. Specifically, structures such as formal and informal communication pathways, patterns of interference and conflict, and the presence of practical and logistical constraints, significantly impact on managerial capacity and place tangible limits on what SHMs can realistically achieve, regardless of their competency or intent. By addressing deficiencies in organisational communication, mitigating sources of conflict and resolving structural inefficiencies, health systems can foster an enabling environment in which SHMs are able to develop and demonstrate their managerial capabilities.

The incorporation perspectives from PMs, an approach not previously applied, allowed the study to move beyond the operational concerns of individual senior hospital managers and investigate managerial capacity development within the broader health system. Obtaining PMs' perspectives offered a macro-level understanding of organisational dynamics, policy environments and resource distribution insights that are essential when designing interventions with system-wide impact. Drawing on PMs' expertise, the study identified scalable strategies and approaches that can be adapted and implemented across different central-level hospital contexts. These include targeted and phased orientation, training and education programs, job stability and promotional structures freed from political interference. Such strategies not only strengthen individual competency but also help operationalise robust and sustainable processes for continued development of competent and capable SHMs. The inclusion of PMs' perspectives ensures that recommendations are not only theoretically sound, but also feasible, grounded in real-world policymaking and aligned with the long-term sustainability goals of the health sector.

The ECOS model is a novel contribution to the health management workforce evidence. ECOS is a robust, context-sensitive framework which serves as a practical and actionable approach for informing policy formulation, shaping educational curriculums, and guiding managerial practice within Nepalese public hospital settings. The model's strength lies in its ability to holistically address the multilevel factors that influence managerial performance, ranging from individual skill deficiencies and behavioural competencies to organisational

culture, system constraints and broader governance structures. By synthesising insights from SHMs and PMs, the model captures the complex interplay between personal agency and institutional environments. The model can inform the development of competency-based standards, workforce planning initiatives and investment strategies aimed at strengthening hospital management. In practice, the model provides health system administrators with a structured guide to assess current gaps, implement support mechanisms and evaluate managerial impact through evidence-informed lens. Importantly, the model's development through methodological triangulation increases its relevance and applicability across diverse hospital contexts within Nepal, reinforcing its utility as a scalable solution for systemic strengthening.

The applicability of the ECOS model extends beyond the Nepalese context. It holds potential utility for other under-resourced countries that exhibit comparable health care system characteristics such as constrained resources, decentralised management structures and evolving health governance frameworks. In such settings, the model offers a strategic guide for addressing managerial competency gaps, while fostering organisational and system-level support mechanisms. By adapting the model to local sociopolitical and institutional contexts, policymakers and hospital managers in similar environments may derive meaningful insights to inform systemic improvements in hospital management and health care delivery. By incorporating the competency development needs identified in Nepal, other nations with similar sociopolitical and economic contexts, such as Bhutan, Papua New Guinea and parts of Southeast Asia, could benefit from a targeted approach to building managerial competency. This aids regional efforts in advancing health care management and enhancing system resilience and efficiency.

The ECOS model continue to retain the explanatory power in a high-resource systems as the underlying mechanisms remain universal, even though contextual drivers, intensity and policy levers shifts. Clinically trained managers everywhere experience tensions between the clinical authority and managerial responsibility; however, the pressure comes less from basic managerial skill gaps and more from navigating system complexity, regulatory environment and multidisciplinary team dynamics. Similarly, interference persists though its source becomes bureaucratic and regulatory rather than overtly political, with conflict arising from siloed departments, union rules and entrenched professional boundaries. Communication chains may be formal but fragmented. Also, instability takes a different form, rather than compulsory transfers or political churn, managers content with restructures, recurrent organisational redesigns and shifting policy priorities that unsettle continuity and role clarity.

Likewise, constraints too are shaped by system complexity rather than scarcity, manifesting through digital overload, fragmented information systems, workforce maldistribution, and co-ordination challenges across federal-state boundaries. Across these shifts, the ECOS model retains its explanatory power by identifying where expectations exceed capability and by guiding targeted responses such as structured preparation, training, mentoring, governance adjustments and clearer role design that strengthen managerial performance in complex, well-resourced environments.

The sequential mixed-methods approach employed represents a rigorous and systematic research design that effectively captures both breadth and depth of insight. This design has facilitated the integration of numerical data with rich narrative evidence, enabling a more comprehensive understanding of the complex phenomena of competency, capacity and capability development within the multifaceted organisational and system-level context of the Nepalese health system. Each phase was informed by the findings of the previous phase which ensured a logical progression of inquiry. This iterative process not only strengthened the internal validity of the research but also enhanced its external relevance by grounding statistical patterns in real-world experiences. In dynamic and resource-constrained environments, research on public health care systems through the sequential mixed-methods approach is particularly valuable. It allows researchers to triangulate evidence across data sources and stakeholder levels, ensuring that the resulting conclusions are both empirically robust and practically applicable to policy and practice.

8.3 Limitations and future research

The research is intentionally focused on SHMs in central-level hospitals in Nepal. Four out of eight hospitals agreed to participate in the study, so the results are consequently limited to these four organisations. This potentially restricts the representative nature of the information collected, meaning that the results may not reflect the full diversity of managerial practices across all central-level hospitals in Nepal. Further research on different hospital settings and different levels of management may contribute to a wider understanding of the competency development requirements for SHMs in central-level public hospitals in Nepal. This is because competency development requirements may differ across various hospital settings as well as different tiers of managers [5]. The applicability of these findings to provincial, secondary or private hospitals both within Nepal and beyond, may be limited as organisational contextual factors played an important role [5,6]. The private hospitals though influential in Nepalese health service delivery and training, was not included in this research

because of the defined scope of this PhD, which focused exclusively on Nepalese public-sector governance and workforce structures. The distinct organisational and accountability arrangements of private hospitals would have required a separate methodological design, making its exclusion a scope-related limitation and a direction for future research.

The quantitative component of this research relied on self-reported data which may introduce response bias and limit objectivity, as participants may underestimate or overestimate their management competencies, leading to measurement errors [7]. To address this limitation, future research on the competency, capacity and capability of the health management workforce should adopt a mixed-methods approach to provide a holistic understanding of the complex interplay between individual, organisational and systemic level factors.

Future research may include comparative analyses across countries with similar health system constraints and sociopolitical and economic contexts, such as Bhutan, Papua New Guinea and parts of Southeast Asia. These countries may also benefit from a targeted approach to building managerial competency and capacity for SHMs, aiding regional efforts in advancing health care management and enhancing system resilience and efficiency. Such research may illuminate both common individual and systemic challenges was well as regionally distinctive solutions, offering valuable insights into transferable practices and context-specific reform strategies. By situating Nepal's experience within a broader international framework, future studies can enrich understanding of scalable approaches to hospital management and foster cross-system learning for policy innovation.

The ECOS model could aid policy design, and development of targeted interventions including education, training and professional development for SHMs. Its potential adaptability to diverse contexts allows the model to serve as a foundational framework for developing and unlocking the managerial competency, capability and capacity. While this research enabled the conceptual development of the ECOS model, future research should aim to empirically validate the model in a range of different health system contexts.

8.4 Intellectual gap and the ECOS model

This thesis advances conceptual understanding of SHMs managerial competency, capability and capacity development in constrained health systems by demonstrating that these cannot be adequately explained through existing competency frameworks such as generic managerial competency models [8], enhanced WHO global competency model [9]. Such frameworks typically conceptualise capability as an individual attribute that can be

strengthened through training, guidelines or technical support. They do not adequately account for the structural instability, political interference, legitimacy deficits and policy integration failures that shape whether capability and capacity can develop or be enacted. The findings of this study illustrates that these models are insufficient for explaining the reason behind persisting capability gaps despite the investments in managerial training and organisational tools. The ECOS model developed in this research provides a new conceptual lens by identifying that managerial performance is an emergent outcome produced through the interaction of competency, capability and capacity conditions. Thus, managerial performance in constrained health systems is not merely a function of individual competency or organisational resources but an emergent property shaped by interacting structural, relational, individual and institutional conditions. The ECOS model provides a new conceptual lens rather than an additional tool as it explains the phenomena that existing frameworks could not explain. For instance, why competency-based training repeatedly fails to translate into improved managerial performance and why various capacity building initiatives stall despite technical investments. The model highlights the role of political instability in eroding legitimacy and how this condition collectively constrains the development and enactment of SHMs capability and capacity. The ECOS model fills a critical intellectual gap by articulating the causal logic linking such conditions and offers a theoretically grounded explanation for why SHMs performance remains limited in low-resource systems. The ECOS model therefore represents a substantive theoretical contribution that advances both scholarship and practice, offering a foundation for more realistic, system-aware approaches to strengthening health system management.

8.5 Recommendations

To address the systemic challenges facing Nepal's public hospital management, this study recommends a phased, competency-driven reform agenda focused on strengthening managerial effectiveness, institutional legitimacy and long-term sustainability. The following phases and implementation road map are proposed for consideration by the Department of Health, Ministry of Health and Population, Government of Nepal.:

Phase I Diagnostic and design

1. Immediate priorities

a. Stakeholder inclusion and groundwork

Strengthening SHMs' development requires inclusive stakeholder engagement, strategic groundwork and pragmatic resource planning. Key stakeholders such as hospital directors, SHMs, health authorities, planning units, academic institutions and regulatory bodies must be actively involved to ensure not only contextual relevance, but also institutional legitimacy and policy coherence. Foundational preparatory steps include developing a standardised managerial competency framework to guide role expectations and performance benchmarks, establishing pilot training programs embedded with robust monitoring and evaluation mechanisms and securing cross-sectoral policy alignment alongside budgetary commitments to support sustainable implementation.

The operationalisation of these initiatives critically demands clear designation of responsibility. Nepal national health authorities in collaboration with civil service commissions and academic partners must lead the coordination and execution of SHM reforms. Funding must be mobilised through a combination of public-sector allocations, development of partner support if available, and strategic integration into existing health system strengthening budgets. Without such clarity in roles and resourcing, even well-conceived frameworks risk stagnation. Therefore, aligning capability with responsibility and financing is essential to ensure that SHMs are not only well prepared but also sustainably supported.

b. Professional development

SHMs' professional development should centre on strengthening core professional competencies essential for effective managerial leadership and system responsiveness. Specifically, targeted development must prioritise resource management and financial stewardship to ensure effective and efficient resource management and accountability, as well as health system navigation and environmental awareness to enable strategic positioning within complex and evolving service landscapes, and evidence-informed decision-making to promote data-driven, contextually relevant interventions. These competencies form the foundation for resilient, adaptive and ethically grounded health management practice for SHMs.

i. resource management and financial stewardship
ii. health system navigation and environmental awareness
iii. evidence-informed decision-making

c. Clarifying role expectations

It is essential to document SHMs' roles and establish clear accountability structures with SHMs appointed to roles that reflect their demonstrated capabilities to mitigate professional frustration arising from misaligned expectations.

d. Administrative streamlining

Given the prevalence of bureaucratic delays and opportunistic behaviours, it is critical to develop well-organised administrative procedures, transparent promotional pathways and compliance-oriented training for SHMs.

2. Medium-term priorities

a. Competency framework expansion

While foundational competencies are urgent, more advanced capabilities such as strategic leadership and political sensitivity may be appropriately scheduled for subsequent phases of competency development. The design of a modular and stackable educational architecture, encompassing both pre-service and in-service modalities, offers a flexible and progressive pathway for SHMs to acquire and consolidate competencies in alignment with their evolving role expectations and organisational demands.

b. Systems-oriented capacity building

Managerial effectiveness for SHMs must be understood as multidimensional, shaped by workforce stability, logistical constraints and team dynamics. A system-oriented approach that focuses on the interconnectedness, complexity and dynamic interactions within the complex hospital system is needed to foster predictability, resilience and adaptive capacity within SHMs and their teams.

c. Resource allocation and strategic focus

The investment priorities must be strategically concentrated to maximise impact and sustainability of SHMs' professional development. Substantial resources should be directed towards strengthening competency development infrastructure including the design of contextually relevant training curriculums, capacity building of faculty and the establishment or enhancement of dedicated training institutes. Institutional policy reform and mandate enforcement require targeted funding to ensure that managerial roles are clearly defined, embedded within regulatory frameworks and supported by mechanisms for accountability and performance monitoring. This dual investment focus is essential to align capability with system needs and to institutionalise long-term SHMs resilience.

d. Policy and Institutional backing

Sustained reform needs to be considered through robust policy and institutional backing to ensure legitimacy, continuity and system-wide integration. The strategic importance of SHMs' capability must be articulated by formal policy mandates, embedding it within national health priorities and regulatory frameworks. Interministerial coordination particularly among health, finance, education and civil service sectors is essential to harmonise efforts, align workforce initiative and reduce fragmentation with broader governance structures.

Phase II Pilot and scale

Building on the foundational reforms of Phase I, Phase II needs to focus on operationalising and scaling SHMs' development through targeted interventions. Tailored to local service contexts and aligned with the standardised competency framework, modular training programs should be launched across selected pilot sites. These programs essentially must incorporate flexible delivery modalities, continuous feedback mechanisms and embedded monitoring and evaluation to ensure adaptability and effectiveness. Concurrently, institutional reforms such as mandate enforcement, role clarification and performance accountability must be activated to support the integration of trained SHMs into the system. Infrastructure upgrades, particularly in rural and underserved regions, are critical to enabling equitable access to training and managerial support systems. This phase serves as a proving ground for scalable models, informing national roll-out and long-term sustainability.

Phase III Consolidation

Integration into national policy frameworks, longitudinal impact assessments, and adaptive refinement: The final phase needs to focus on embedding SHMs reforms into national policy frameworks to ensure institutionalisation and long-term sustainability. Dedicated financial investments must be secured to operationalise reforms, support institutional capacity and enable long-term implementation beyond pilot phases. The reform efforts risk remaining peripheral and unsustainable in the absence of such structural commitment.

Integration must be formalised through legislative instruments, inclusion in strategic health-sector plans and regulatory alignment. This phase ensures that reforms transition from pilot initiatives to enduring components of national health system strengthening of Nepal.

By adopting this coordinated and holistic reform agenda, the Department of Health, the Ministry of Health and Population, Government of Nepal, can cultivate a cadre of competent, ethical, resilient and strategically empowered SHMs capable of leading Nepal's public hospitals towards sustained, equitable and high-performing service delivery.

Evaluation

Longitudinal impact assessments should be conducted for evaluating effectiveness of training programs, institutional reforms and system level outcomes over time. These assessments will allow for continuous improvement based on empirical evidence and stakeholder feedback by informing adaptive refinement of both content and delivery mechanisms.

Anticipated resistance and barriers

Effective implementation of SHM reforms must anticipate and address key sources of resistance and structural barriers. Entrenched bureaucratic norms and institutional inertia often hinder adaptive change. Additionally, misalignment between clinical expertise and managerial expectations can generate role conflict and undermine professional engagement. On the operational front, SHMs and their teams' instability exacerbated by frequent rotations, transfer policies and high turnover disrupts continuity and capacity building. It is essential to acknowledge and address the nuanced sources of resistance that may arise at SHM level. Some SHMs may resist accountability measures, particularly formal handover processes, due to perceived threats to their professional standing, unresolved personal grievances or mistrust in institutional procedures. These reactions, while often rooted in complex interpersonal or systemic dynamics can undermine reform efforts and perpetuate role ambiguity. Addressing such resistance requires transparent communication, empathetic engagement and the establishment of fair, consistent accountability mechanisms that foster trust and reinforce professional legitimacy. Infrastructure deficits, particularly in rural and underserved areas, constrain feasibility, while fragmented governance and weak cross-sectoral coordination impede coherent policy execution. Addressing these challenges requires deliberate change management strategies, inclusive dialogue and sustained institutional commitment.

Contribution of Chapter 8 to thesis:

Chapter 8 briefly reviews the research journey, highlighting the sequential steps from scoping review to quantitative cross-sectional study, qualitative studies and data triangulation. Limitations such as scope and reliance on self-reported data are acknowledged. Additionally, future research directions that include cross-contextual application as well as longitudinal validation of the ECOS model are proposed. Finally, recommendations on the key requirements

for developing and unlocking the managerial competencies, capabilities and capacities of SHMs in central-level public hospital in Nepal are presented.

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Appendices

Appendix A (Ethics Approval)

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Appendix B (Participant Information Sheet and Informed Consent)

PARTICIPANT INFORMATION SHEET

(Interview)

Project title:

Developing a Competent Senior Hospital Management Workforce in Public Hospitals in Nepal.

Why am I being invited to participate?

You are invited to participate in an interview for a PhD research project which is about developing the management competency and capacity of senior hospital managers in public hospitals in Nepal. The study is being conducted as a PhD research project by Ms. Priyanka Pokhrel. It will contribute to capture management competency requirements and barriers on management competency demonstration and provide evidence to guide the formation of hospital management workforce development strategies.

Taking part in this study is completely voluntary and you can withdraw from the study at any time without explanation or prejudice.

The project aims to develop a policy framework to guide hospital management workforce development with short-term and long-term strategies in developing competency and management capacity of senior hospital managers in Nepal.

The project aim is achieved by the following objectives.

1. Confirmation of core competency requirements for senior hospital managers in central level public hospitals in Nepal.
2. Confirmation of competency gaps and competency development needs of senior public hospital managers in central level public hospitals in Nepal, and
3. Identification of the key factors that enable senior public hospital managers to develop and demonstrate their management competencies in Nepal.

Who is conducting the study?

The study is being carried out by PhD candidate from James Cook University:

- Ms. Priyanka Pokhrel, PhD candidate (PhD Candidate)
- A/Professor Anne Jones (Primary supervisor)
- Dr Daniel Lowrie (Supervisor)
- Dr Michael Crowe (Supervisor)
- Dr Hari Pd. Kaphle (Supervisor)

What does my participation involve?

If you agree to be involved in the study, you will be invited to participate in an interview. You will be interviewed with open-ended questions. The interview will be conducted with your consent and should only take approximately 45 minutes of your time.

Are there any risks associated with the study?

No personal identification of participants will be publicly available, hence, there are not any risks associated with the study.

Are there any benefits associated with the study?

The project will identify the current competency level, competency gaps and competency development needs for senior hospital managers in public hospitals in Nepal. By completing the interview, you will be provided with the opportunity to have a clear vision on management competency development and demonstration requirement for senior hospital managers in public hospitals in Nepal.

Confidentiality

Personal details will be strictly confidential. The data from the study will be stored securely in JCU one drive. The data from the study will be aggregated to report findings without disclosure of any personal identification and will be used in research publications and reports, including conference presentations, seminars and journal articles.

Storage of data

All data will be stored within a password protected James Cook University database on a password protected computer. Upon completion of the project, all study files/transcripts will be saved electronically at JCU for five years as per James Cook University's data policy.

Results

The results will contribute for guiding in formation of hospital management workforce development strategies for Nepal.

If you have any questions about the study, please contact the research investigator, PhD candidate, Ms. Priyanka Pokhrel.

Research Investigator

Ms. Priyanka Pokhrel

College of Healthcare Sciences

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Phone: +610410460136

Email: Priyanka.pokhrel@my.jcu.edu

If you have any concerns regarding the ethical conduct of the study, please contact:
Human Ethics, Research Office
James Cook University, Townsville, Queensland, 4811
Phone: (07) 4781 5011 (ethics@jcu.edu.au)

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PARTICIPANT INFORMATION SHEET- Paper based survey

Project title:

Developing a Competent Senior Hospital Management Workforce in Public Hospitals in Nepal.

Why am I being invited to participate?

You are invited to participate in a paper-based survey for a PhD research project which is about developing the management competency and capacity of senior hospital managers in public hospitals in Nepal. The study is being conducted as a PhD research project by Ms. Priyanka Pokhrel. It will contribute to capture management competency strengths and identify competency gaps among hospital managers, providing evidence to guide the formation of health service management workforce development strategies.

Taking part in this study is completely voluntary and you can withdraw from the study at any time without explanation or prejudice.

The project aims to develop a policy framework to guide hospital management workforce development with short-term and long-term strategies in developing competency and management capacity of senior hospital managers in Nepal. The project will adapt a management competency frame/tool [MCAP] developed and validated in the Australian health care sector so that it can be used to guide a framework in developing a competent hospital management workforce into the Nepalese public hospital context.

The project aim is achieved by the following objectives.

4. Confirmation of core competency requirements for senior hospital managers in central level public hospitals in Nepal.
5. Confirmation of competency gaps and competency development needs of senior public hospital managers in central level public hospitals in Nepal, and
6. Identification of the key factors that enable senior public hospital managers to develop and demonstrate their management competencies in Nepal.

Who is conducting the study?

The study is being carried out by PhD candidate from James Cook University:

- Ms. Priyanka Pokhrel, PhD candidate (PhD Candidate)

- A/Professor Zhanming Liang (Primary supervisor)
- Dr Judy Taylor (Secondary supervisor)

What does my participation involve?

If you agree to be involved in the study, you will be invited to participate in a paper-based survey. The MCAP survey questionnaire will be sent to SHMs, at each of the selected hospitals for completion. The paper-based survey will be conducted with your consent and should only take approximately 30 minutes of your time.

Are there any risks associated with the study?

Since, the paper-based survey will be taking in hospital premises, there are not any risks associated with the study.

Are there any benefits associated with the study?

The project will confirm the core competency requirements for senior hospital managers and competency gaps along with competency development needs for senior hospital managers in public hospitals in Nepal. By completing the survey, you will be provided the opportunities to reflect on your own management practices and identify your management strengths and weaknesses.

Confidentiality

No name, contact details or identifiable information will be collected from the study. Details that you provided will be strictly confidential. The data from the study will be stored securely in JCU one drive and investigators personal computer. The data from the study will be aggregated to report findings without disclosure of any personal identification. Any personal information recorded in the investigation will remain confidential and no information that identifies me will be made publicly available and will be used in research publications and reports, including conference presentations, seminars and journal articles. A summary of the study including journal publications will be made available to the organisations which can be shared with you upon request.

Storage of data

All data will be stored within a password protected James Cook University database on a password protected computer. Upon completion of the project, all study files/transcripts will be saved electronically at JCU for five years as per James Cook University's data policy.

Results

The results will contribute to capture management competency strengths and identify competency gaps among hospital managers, providing evidence to guide the formation of hospital management workforce development strategies in Nepal.

If you have any questions about the study, please contact the research investigator, PhD candidate, Ms. Priyanka Pokhrel.

Research Investigator

Ms. Priyanka Pokhrel

College of Public Health, Medical and Veterinary Science

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Email: Priyanka.pokhrel@my.jcu.edu

If you have any concerns regarding the ethical conduct of the study, please contact:
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Phone: (07) 4781 5011 (ethics@jcu.edu.au)

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PARTICIPANT INFORMATION SHEET -Online Interview SHM

Project title:

Developing a Competent Senior Hospital Management Workforce in Public Hospitals in Nepal.

Why am I being invited to participate?

You are invited to participate in an online interview for a PhD research project which is about developing the management competency and capacity of senior hospital managers in public hospitals in Nepal. The study is being conducted as a PhD research project by Ms. Priyanka Pokhrel. It will contribute to capture management competency requirements and barriers on management competency demonstration and provide evidence to guide the formation of hospital management workforce development strategies.

Taking part in this study is completely voluntary and you can withdraw from the study at any time without explanation or prejudice.

The project aims to develop a policy framework to guide hospital management workforce development with short-term and long-term strategies in developing competency and management capacity of senior hospital managers in Nepal.

The project aim is achieved by the following objectives.

7. Confirmation of core competency requirements for senior hospital managers in central level public hospitals in Nepal.
8. Confirmation of competency gaps and competency development needs of senior public hospital managers in central level public hospitals in Nepal, and
9. Identification of the key factors that enable senior public hospital managers to develop and demonstrate their management competencies in Nepal.

Who is conducting the study?

The study is being carried out by PhD candidate from James Cook University:

- Ms. Priyanka Pokhrel, PhD candidate (PhD Candidate)
- A/Professor Anne Jones (Primary supervisor)
- Dr Daniel Lowrie (Supervisor)
- Dr Michael Crowe (Supervisor)

- Dr Hari Pd. Kaphle (Supervisor)

What does my participation involve?

If you agree to be involved in the study, you will be invited to participate in an online interview via Zoom. You will be interviewed with open-ended questions. The online interview will be conducted with your consent and should only take approximately 45 minutes of your time.

Are there any risks associated with the study?

Since, the interview will be conducted online and no personal identification of participants will be publicly available, hence, there are not any risks associated with the study.

Are there any benefits associated with the study?

The project will identify the current competency level, competency gaps and competency development needs for senior hospital managers in public hospitals in Nepal. By completing the interview, you will be provided with the opportunity to have a clear vision on management competency development and demonstration requirement for senior hospital managers in public hospitals in Nepal.

Confidentiality

Personal details will be strictly confidential. The data from the study will be stored securely in JCU one drive. The data from the study will be aggregated to report findings without disclosure of any personal identification and will be used in research publications and reports, including conference presentations, seminars and journal articles.

Storage of data

All data will be stored within a password protected James Cook University database on a password protected computer. Upon completion of the project, all study files/transcripts will be saved electronically at JCU for five years as per James Cook University's data policy.

Results

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If you have any questions about the study, please contact the research investigator, PhD candidate, Ms. Priyanka Pokhrel.

Research Investigator

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Appendix C (Study Instruments)

Sample Interview Questions (Policy makers)

Senior hospital managers (SHMs) have experienced a lack of cohesion and continuity between the levels of the organisation (their levels and above them). They feel that the better communication between levels will really help them. They also feel they need freedom to do things. But that is not enough because top of that they need stability and continuity because the level above too often changes. Unless the continuity and stability are there, rest does not work.

वरिष्ठ अस्पताल व्यवस्थापकहरू (SHMs) ले संगठनका स्तरहरू (उनीहरूको स्तर र तिनीहरूभन्दा माथिका स्तरहरू) बीचको एकता र निरन्तरताको कमी अनुभव गरेका छन्। उनीहरूले स्तरहरू बीचको राम्रो संचारले वास्तवमा मद्दत गर्ने विश्वास गर्छन्। उनीहरूले काम गर्न स्वतन्त्रता पनि आवश्यक छ भन्ने महसुस गर्छन्। तर यो मात्र पर्याप्त छैन किनभने यसका साथै उनीहरू लाई स्थिरता र निरन्तरताको आवश्यकता छ किनभने माथिको स्तर धेरै पटक परिवर्तन हुन्छ। निरन्तरता र स्थिरता नभएसम्म, बाँकी कुरा काम गर्दैन।

1. What would help the cohesion between the levels in turns of communication? (संचारको सन्दर्भमा स्तरहरू बीचको एकतामा कसरी मद्दत गर्न सकिन्छ?)
2. What may be planned for sustainability of the hospital management workforce? What can anything be done around stability and continuity of managers? (अस्पताल व्यवस्थापन कार्यबलको दिगोपनाका लागि के के योजना बनाउन सकिन्छ? अस्पताल व्यवस्थापकहरूको स्थिरता र निरन्तरताको बारेमा के गर्न सकिन्छ?)
3. What are the current and future Government investment plan for developing hospital management workforce? (अस्पताल व्यवस्थापन कार्यबल विकासका लागि वर्तमान र भविष्यका सरकारको लगानी योजना के के छन्?)
4. SHMs has experienced the hurdle that has been caused by the external environment/ political pressure. How may the high-level interference/political pressure at the workplace for hospital management workforce be lowered/eliminated? What are the ways to reduce the influence of external environment? (वरिष्ठ अस्पताल व्यवस्थापकहरू (SHMs) ले बाह्य वातावरण/राजनीतिक दबाबले सिर्जना गरेको बाधाको अनुभव गरेका छन्। अस्पताल व्यवस्थापन कार्यबलका लागि कार्यस्थलमा उच्च स्तरको हस्तक्षेप/राजनीतिक दबाब कसरी घटाउन/नष्ट गर्न सकिन्छ? बाह्य वातावरणको प्रभावलाई कम गर्ने के के तरिकाहरू हुन सक्छन?)
5. SHMs have raised issues related to their freedom in work and delegation of authority. For instance, SHM has stated why is the system made to come to Ministry for anything? How the delegation of authority for hospital management workforce may be assured? What might be done to support the freedom, autonomy and creativity of the managers or how far that is reasonable? (वरिष्ठ अस्पताल व्यवस्थापकहरूले काममा स्वतन्त्रता र अधिकारको प्रतिनिधित्वसँग सम्बन्धित मुद्दाहरू उठाएका छन्। उदाहरणका लागि, SHMले भनेका छन् कि किन कुनै पनि कुरा मन्त्रालयमा जानको लागि प्रणाली बनाइएको छ? अस्पताल व्यवस्थापन

कार्यबलको लागि अधिकारको प्रतिनिधित्व कसरी सुनिश्चित गर्न सकिन्छ? व्यवस्थापकहरूको स्वतन्त्रता, स्वायत्तता र सिर्जनशीलतालाई समर्थन गर्न के गर्न सकिन्छ, वा त्यो कति उचित छ?)

6. SHMs has stated dissatisfaction in the mechanism of planning, which is basically said to be bottom up. Is it really bottom up or not? How can such issue be solved? (वरिष्ठ अस्पताल व्यवस्थापकहरूले योजना बनाउने प्रक्रियामा असन्तोष व्यक्त गरेका छन्, जुन मूलतः तलबाट माथि भन्ने भनिन्छ। के यो साँच्चै तलबाट माथि हो कि होइन? यस्तो समस्याको समाधान कसरी गर्न सकिन्छ?)
7. SHMs have suggested that the mechanism of controlling related to budgetary controlling has been whom to give budget and when, which hospital needs to be given a bigger budget etc. There is no system to give a disease base budget apart from cancer. Though there has been many kidney problem, it is not acceptable to put budget for kidney-related diseases. Because there is no such system, and the budget is allocated with respected to MSS (minimal service standard). In what ways this hurdle can be overcome? (वरिष्ठ अस्पताल व्यवस्थापकहरूले बजेट नियन्त्रणसँग सम्बन्धित नियन्त्रणको मेकानिजममा बजेट कसलाई र कहिले दिन भन्ने कुरा, कुन अस्पतालले ठूलो बजेट दिन पर्ने आदि पर्ने बताएका छन्। क्यान्सर बाहेक रोगको आधारमा बजेट दिने कुनै प्रणाली नभएको अनि धेरै किड्नी समस्याहरू भए तापनि, किड्नी सम्बन्धी रोगहरूको लागि बजेट राख्नु स्वीकार्य नभएको अवस्था छ। किनभने यस्तो प्रणाली छैन, र बजेट MSS (न्यूनतम सेवा मानक) को सन्दर्भमा allocate गरिन्छ। के यस्ता बाधाहरू पार गर्न सकिन्छ?)
8. SHMs have advised that it would be best if SHMs are offered with different trainings before getting a managerial role such as: Leadership trainings on how to handle hurdles, how to manage the hospital, what is management etc. They should firstly know about the role is management. How can such issued be addressed? What things can be done to support, education, training and supervision for SHMs? (वरिष्ठ अस्पताल व्यवस्थापकहरूले सल्लाह दिएका छन् कि व्यवस्थापकीय भूमिकामा जानु अघि विभिन्न तालिमहरू प्रदान गरिनु सबैभन्दा राम्रो हुनेछ जस्तै: बाधाहरूलाई कसरी manage गर्ने, अस्पताललाई कसरी व्यवस्थापन गर्ने, व्यवस्थापन के हो आदि। उनीहरूले सर्ब प्रथम व्यवस्थापनको भूमिकाबारे जान्नुपर्छ। समस्याहरूलाई कसरी सम्बोधन गर्न सकिन्छ जान्नुपर्छ?

   SHMs हरूको लागि समर्थन, शिक्षा, तालिम र सुपरिवेक्षणका लागि के के गर्न सकिन्छ?)
9. SHMs have raised issues related to political appointment. For instance, a VC comes and works according to his plans and then his tenure ends. The term of service of VC is four years if it was more like greater than five or six years, then he could implement what he has planned. The new VC may or may not give continuity to the work started by the previous VC which depends upon his interest. Also, they have suggested that instead of VC and registrars in each institutional hospital why the government can't send the person at secretary level to manage the hospital? In your view to what extent such thing is reasonable? (वरिष्ठ अस्पताल व्यवस्थापकहरूले राजनीतिक नियुक्तिसँग सम्बन्धित मुद्दाहरू उठाएका छन्। उदाहरणका लागि, एउटा VC आउँछ र आफ्ना योजनाहरू अनुसार काम गर्छ र त्यसपछि उसको कार्यकाल समाप्त हुन्छ। VC को सेवा अवधि चार वर्ष हो, यदि यो पाँच वा छ वर्षभन्दा बढी भएमा, तब उसले योजना बनाएको कुरा कार्यान्वयन गर्न सक्थ्यो। नयाँ VC

ले अघिल्लो VC द्वारा सुरु गरिएको कामलाई निरन्तरता दिन सक्छ वा नदिन सक्छ जुन उसको interest मा निर्भर गर्दछ। साथै, SHMs ले सुझाव दिएका छन् कि प्रत्येक संस्थागत अस्पतालमा VC र रजिस्ट्रारको सट्टा किन सरकारले अस्पताल व्यवस्थापन गर्न सचिव स्तरको व्यक्तिलाई पठाउन सक्दैन? त्यसो हुदा वहा हरुलाई काम गर्न सजिलो हुने थियो भन्नु भएको छ। तपाईंको दृष्टिमा यस्तो कुरा कति हदसम्म उचित छ?)

10. SHMs have raised issues related to discontinuation of development committee board in their hospital. Because of this SHMs have faced difficulties in their daily managerial roles. The member of board needs to be allocated by ministry and selected from different places by the government. In such instances why the board has not been able to be established and how such hurdles can be overcome? (वरिष्ठ अस्पताल व्यवस्थापकहरूले आफ्नो अस्पतालमा विकास समिति बोर्डको निरन्तरता नभएको सम्बन्धी मुद्दाहरू उठाएका छन्। यसका कारण वरिष्ठ अस्पताल व्यवस्थापकहरूले आफ्नो दैनिक व्यवस्थापकीय भूमिकामा कठिनाइहरूको सामना गर्नुपरेको छ। (जस्तै कसैको promotion, कसैको hospital ma permanent appointment आदि रोकिएको अवस्था छ।) बोर्डका सदस्यलाई मन्त्रालयद्वारा allocate गर्नुपर्छ र सरकारद्वारा विभिन्न स्थानबाट चयन गर्नुपर्छ। यस्ता अवस्थामा बोर्ड किन स्थापना गर्न सकिएको छैन र यस्ता बाधाहरूलाई कसरी पार गर्न सकिन्छ?

Sample Interview Questions (SHMs)

1. मलाई तपाईंको व्यवस्थापकीय भूमिकाको बारेमा बताउन सक्नुहुन्छ? (Tell me about your managerial role)
2. के तपाईं आफ्नो भूमिकामा कुनै कठिनाइहरू अनुभव गर्नुहुन्छ? मलाई यी कठिनाइहरूको बारेमा थप बताउनुहोस्। (Are there any difficulties that you experience in your role? Tell me more about these difficulties).
3. के तपाईंलाई लाग्छ कि तपाईंको संगठनले तपाईंलाई यी कठिनाइहरू पार गर्न केही मदत गर्न सक्छ? कृपया मलाई केही उदाहरण दिन सक्नुहुन्छ? (Do you think that there is anything that your organization could do to help you overcome these difficulties? Can you please give me some examples).
4. के तपाईंको संगठनले तपाईंको व्यवस्थापकीय कौशल (managerial skills) विकास गर्न तपाईंलाई केही सहयोग गरेको छ? मलाई कृपया उदाहरण दिन सक्नुहुन्छ? (Has there been anything that your organization has done to help support you in developing your managerial skills? Can you please give examples?).

5. तपाईंको भूमिकामा सहयोग गर्न संगठनले तपाइलाई के कस्तो अतिरिक्त समर्थन (additional support) प्रदान गर्न सक्छ? (Is there any additional support that you think your organization could provide to help support you in your role?)
6. तपाईं आफ्नो व्यवस्थापकीय भूमिकामा आफ्नो सीपलाई कति हदसम्म लागू गर्न सक्षम हुनुहुन्छ? (To what extent are you able to apply your skills in your management role?)
7. के तपाईंसँग कुनै सीपहरू छन् जुन तपाईं आफ्नो वर्तमान भूमिकामा लागू गर्न सक्षम हुनुहुन्न? यदि त्यसो हो भने, कृपया केही उदाहरण हरू दिन सक्नुहुन्छ? (Are there any skills that you have that you are not able to apply to your current role? If yes, Can you please give some examples?)
8. तपाईं किन लाग्छ कि तपाईंले यी सीपहरू लागू गर्न सक्नुभएको छैन? (Why do you think that you have not been able to apply these skills?)
9. के तपाईंको संगठनले यी सीपहरू प्रयोग गर्न तपाईंलाई केही सहयोग गर्न सक्छ? (Is there anything that your organisation can do to help support you in using these skills?)
10. के तपाईं मलाई हामीले पहिले कभर नगरेका तपाईंको व्यवस्थापकीय भूमिकाको बारेमा बताउन चाहनुहुन्छ? (Is there anything else that you would like to tell me about your managerial role that we have not already covered?)

Appendix D (Articles)

ACHSM Asia-Pacific Journal of Health Management

REVIEW ARTICLE

Efforts Implemented for Developing Health Management Workforce in the Asia Pacific: A scoping review

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ABSTRACT

Background and Objectives

A strong and effective health management workforce (HMW) is essential to underpin the comprehensive health care services provided by health care organizations. The fast-growing nature of healthcare systems suggests the required competencies for HMW continue to evolve. Hence, an up to date understanding of management competency requirements is important to the productivity and sustainability of the healthcare system. Before any investment in management competency development, understanding the current health service management workforce development strategies is one of the key steps. There has been no integrated review on the development efforts for HMW in the Asia Pacific region. The objective of this scoping review is to identify and confirm the key strategies that have been used in developing the health management workforce in the Asia Pacific region.

Materials and Methods:

A scoping review of the literature was conducted between May and August 2022 using the following databases: Medline, Ovid Emcare, CINAHL, Scopus, and Web of Science, to retrieve original research articles demonstrating development efforts for HMW in the Asia Pacific regions. The review was guided by the PRISMA-ScR (2018) checklist [23].

Results:

The scoping review identified four different development strategies for HMW in Asia Pacific region: i) Organisational informal professional development programs, ii) Competency assessment and identification of gaps in knowledge and skills of HMW, iii) Confirming competencies and developing competency framework and iv) Formal education and training. Among these four development strategies, organisational informal professional development programs and competency assessment and the identification of gaps in knowledge and skills of HMW were the main strategies implemented for HMW in the Asia Pacific region. The review also highlighted a relatively low level of government or system level development strategies for HMW in the Asia Pacific region.

Conclusion:

The review concluded that the existing development strategies and efforts for HMW are not evenly implemented within the Asia Pacific region. Political will and policy direction are important and plays a vital role in the competency development of HMW. It is also critical to provide multilevel commitment from system and organisational level together with identifying and addressing the bottlenecks in the development strategies by considering organisation types, management levels and positions, practical training methods, motivation of participants, and other contextual factors.

keywords:

Health management workforce, Management development, Asia Pacific region

INTRODUCTION

A competent health management workforce (HMW) is important for the effective functioning of the health care system and improved healthcare outcomes of the population by emphasizing safe, high quality, and compassionate care as a top priority [1,2,3]. Developmental activities need to be planned and implemented to build the competency and capability of HMW. It is crucial to develop an understanding of the current strategies and actions prior to investing in new activities. An initial search of literature did not identify review articles that present evidence of the collective efforts implemented to develop health service managers (HSM)/HMW in the Asia Pacific region. According to the World Health Organisation (WHO), the Asia Pacific region includes 37 countries which are divided into two subregions: the Western Pacific consisting of 27 countries such as China, Japan, and Australia and the South- East Asia consisting of 10 countries such as India, Nepal, and Thailand [4].

While the development of HSMs' competencies and capabilities are crucial for achieving better management outcomes and ultimately positive health results, various challenges need to be addressed [1]. Using Nepal as an example, management positions are generally occupied by senior doctors with extensive clinical experience without formal management education [5, 6]. There is no documented evidence of competency-based development strategies being implemented for hospital managers. Only one study conducted in 2012 was identified which confirmed the need for in-service management training for HMW [6] to develop managerial competencies in Nepal. This lack of development of managerial competencies was one of the factors thought to limit effective and efficient hospital service provision in Nepal [5, 6].

Challenges faced in developing a health management workforce that can meet the needs of the health system

The literature provides discussion on the various challenges facing the development of a competent health management workforce that contribute to meeting the growing and changing healthcare needs of the population. Evidence has been reported on the lack of understanding on competency requirements for HSMs; on the lack of competency-based approaches in guiding the design of training and education programs; and the inadequate investment in the development of competencies of HSMs may be challenging for the HMW development [1, 7]. Other challenges facing the HSM workforce include work pressures, budgetary factors, advanced technological requirements, lack of personal will, rural/remote settings, and political instability hindering sustainability of development programs [6 ,8, 9, 10, 11, 12, 13, 14, 15].

In some developing Asia Pacific countries there has been limited guidance in the design of formal and informal training and development programs for HMW [1, 12]. This is because the competency requirements for health managers have not been clearly established in these countries [6, 12, 13] and the management competency improvements are often not embedded in regular management performance appraisals in healthcare organisations [1]. This provides inadequate incentives for investing in continuous, informal management development program for HMW [1, 7].

Although formal education is an important development strategy for HMW, research from Australia has been reported that among the awarded postgraduate qualifications for HSMs, very few were management specific [1, 7]. Such situations may challenge the HMW to achieve the core foundational knowledge required for management position. Research conducted in Vietnam reported that the hospital managers have focused more on their clinical profession where they can easily foresee and earn pecuniary benefits rather than their leadership and managerial development where the benefits are not as immediate [9]. This suggests the requirement of personal will and desire for the development of managerial capability.

The pressing needs of developing the health management workforce in the Asia Pacific region

Management competency assessments on health service managers conducted in Australia, Bhutan, China, Nepal, and India have suggested there are pressing needs for competency development amongst HSMs [5 ,6, 7, 12, 16, 17]. The formal and informal management training amongst health managers before commencing their management positions has been found to be inadequate [5, 6, 7, 16]. For example, a study conducted among health managers in China identified that less than half of the health managers participated in management training either prior to or after taking up their management positions [16]. With continuous healthcare reform, health systems in the Asia Pacific region are under pressure to improve cost efficiency while enhancing access and quality of care [13, 19, 20, 21]. Competent managers are required to lead the improvement process. However, formal and informal management training amongst health managers before commencing their management positions has been found to be inadequate [5, 6, 7, 16]. Hence, there is an urgent need in utilising various strategic approaches to equip health managers in working in a complex system with a higher level of awareness and required technical expertise for positive and measurable health outcomes [21, 22].

To maximise the efforts in assisting HSM development, learning from the past experience is necessary. Thus, a scoping review was conducted to identify and learn from the development strategies for HMW in Asia Pacific countries. This paper aims to present and discuss the key strategies that have been implemented in developing the health management workforce in the Asia Pacific region. In this scoping review, HMW development efforts refers to policy and strategies that focus on building management capacity and developing capable health service managers including identifying competency gaps and management development needs.

Methodology

The scoping review was guided by PRISMA-ScR (2018) [23]. The literature search was performed from May 2022 to August 2022 to retrieve original articles on efforts for developing HMW across the globe. Various synonyms or keywords were used in the search strategy to expand the search terms. Key words and key concepts for the data search are presented in Table 1. The word 'Asia Pacific' was precluded from the search term to avoid the potential exclusion of eligible articles reporting research conducted in Asia Pacific.

TABLE 1: KEY WORDS FOR DATA SEARCH

Management/ Manager	Competency	Competency development/Efforts/ Strategies	Health
Administrator*	Aptitude	Trainings	Hospital
Coordinator*	Achievement	Professional development	Health care
Managers*	Capacity	Upskilling, Capacity building	Health care system
"Department Head"	Proficiency	Staff development	Health sector
Team Leader	Skill	Strategy, Regulations	Health care services
Health Administrator	Competency	Mentoring	Primary Health care
Executives	Professionalism	Facility	Health facilities
		Policy, Ethics	Health service, Health system

A reference list search was conducted from the eligible research studies to identify any other relevant studies.

Inclusion criteria:

The scoping review included research articles that presented empirical studies and are published in English, in or after year 2000 and in peer-reviewed journals.

Exclusion criteria:

The review excluded all types of review articles such as scoping reviews, systematic reviews, rapid reviews, non-research articles, opinion pieces or commentaries and publications in languages other than English.

Data base searching:

Initially the literature search focused on subject heading databases. This allowed the maximum inclusion of all related articles from these databases. It also helped to find other synonyms of key words from related searches. Then keyword database was explored to narrow the literature search.

Subject heading databases:

1. Medline
2. CINAHL Complete
3. Ovid Emcare

Keyword Databases:

4. Scopus
5. Web of Science

During database searches each of the four key words were searched individually along with identified synonyms (e.g. the management/manager search included all synonyms as: Administrator or coordinator or managers or department head or team leader or health administrator or executives or management). After completion of the search for individual key words along with their synonym, a final search was conducted among identified research studies which included search using "and" for common search between the identified research. For instance, identifying common research studies between 1 and 2 and 3 and 4. For the Scopus database, * sign was used during keyword search to eliminate the chance of missing any relevant research studies.

Screening of retrieved studies:

The identified research studies were exported to Clarivate's EndNote product and 120 duplicate articles were removed. The remaining 3,761 studies were exported to Covidence, a web based systematic review production tool for title, abstract and full text screening.

Title screening was conducted initially by the principal author (PP). As a result, 3,145 articles were deemed irrelevant to this study and therefore were not included in further screening. Then abstract screening of 508 articles was conducted independently by two authors (PP & ZL) with each of the articles given either a "yes", "no" or "maybe" on Covidence. Disagreement on whether the articles should be included or excluded were resolved by discussion between PP & ZL. PP performed full text screening on 117 articles. Based on the study's inclusion and exclusion criteria, 22 articles were moved onto the data extraction phase.

Selection and extraction of data

Twenty-two research articles were found to be eligible for data extraction in order to meet the research objectives. The types of data extracted were study setting, target group/size, study type, study design, aims/objectives, sampling technique and efforts/strategies in HSM workforce development from each study.

Data analysis

Data analysis has identified four different types of efforts that has been put in place for development of HMW in the Asia Pacific region: i. Formal education and training; ii. Organisational informal professional development programs; iii. Research process confirming competencies and developing competency frameworks; and iv. Embedded competency assessment.

The review author (PP) synthesised the data from the 22 research articles that best met the topic requirements which were finalised by review author (ZL). The included studies that were evaluated based on the type of efforts implemented to develop HMW in the Asia Pacific region. The first step included an overview of 22 research studies and identifying the findings in each study. The second step led to condensing and summarising of these findings which was followed by a third step of grouping the findings thematically into four different categories.

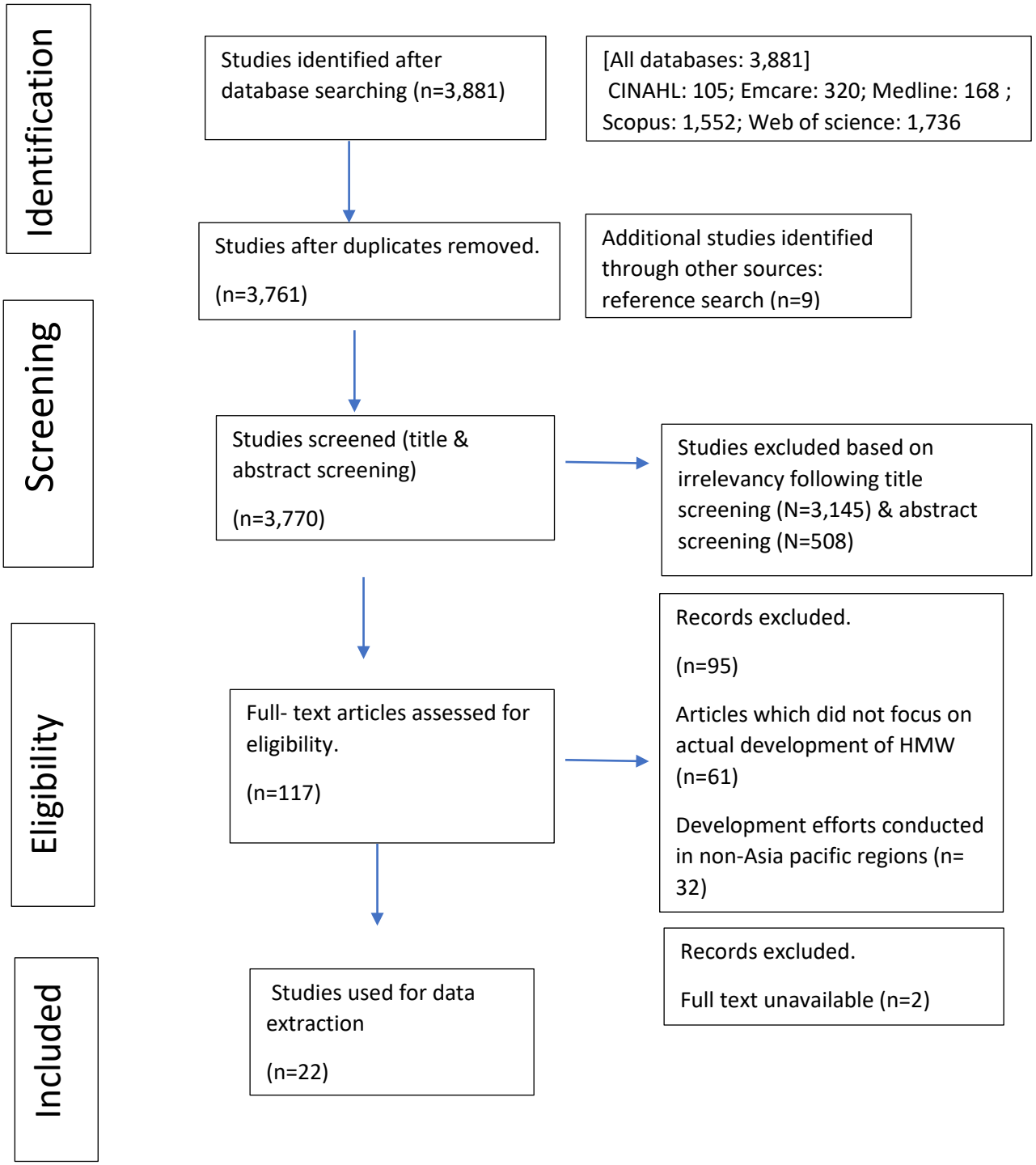
Results

Twenty-two articles that represented studies undertaken in Asia Pacific countries were included in the scoping review. Figure 1 (PRISMA flowchart) shows key steps and results of the review process.

Distribution of Reviewed Research Articles

Nine of the research articles selected originated from Australia while three research articles were from India and two from Nepal. China, South. Korea, Thailand, Cambodia, Bhutan, Vietnam, Indonesia, and Timor-Leste each generated one research article (Map 1).

Figure 1: Scoping Review PRISMA Flow Diagram [23]



MAP 1: ASIA-PACIFIC REGION DISPLAYING THE NUMBER OF STUDIES USED IN THIS REVIEW ORIGINATING FROM VARIOUS COUNTRIES (TAKEN FROM WWW.ENGLISH-BLOGS.COM ACCESSED: 19 OCTOBER 2022).

Characteristics of review articles

The characteristics of the review articles are presented in Table 2. Sample size varied with quantitative studies ranging from 44 to 339 participants while qualitative studies sample size ranged from 17 to 300 participants and mixed method sample size ranged from 7 to 891 participants.

Table 2: Characteristics of development efforts for HMW in the Asia Pacific region

Reference	Study Setting	Target Group/Size	Study Type	Study Design	Aims/Objective	Sampling Technique	Summary of Findings
Cashin et al.	Australia: NSW	9 health managers	Mixed method	Maslach Burnout Inventory General Survey	Evaluated the introduction of a 12-month health manager mentoring program within a correctional facility in NSW, Australia	Non-sampling (volunteer participants)	A positive change was observed in the participants based on self-appraisal and peer's appraisal. Supervisees reported negative change on the same tool over the same period. Job satisfaction of the participants decreased, and job stress increased over the period in which the mentoring program was conducted but not to a statistically significant level.
Chadwell et al.	Nepal	103 hospital managers	Quantitative	Survey	Demonstrated the management training needs for hospital managers in Nepal	Purposive sampling	In most hospitals, overall management was provided by doctors. The need for a separate cadre of managers was supported by respondents but most doctors felt the best people to manage hospitals were doctors. Few managers had undergone training to take on management responsibilities. All types of managers, regardless of profession or type of hospital reported a competence gap.
Clarke et al.	Australia: NSW	17 nursing/midwifery unit managers(N/MUM)	Qualitative	Not stated	Evaluated the effect of 'take the lead' ('ttl') program on 17 N/MUM on their professional development components.	Purposive sampling	After the 'ttl' program N/MUM felt more valued, empowered, increment in leadership standards and increased networking opportunities.
Dorji et al.	Bhutan	339 PHC managers	Quantitative	Cross sectional	Identified the required management competencies, current competency levels, and strategies for improving	Random sampling	Agencies responsible for health system need to focus more on the competencies defined by the study to positively influence health

					the management competencies of Bhutanese PHC managers.		leadership and management development interventions.
Duffield et al.	Australia: NSW	18 Nurse unit managers	Qualitative	Delphi Survey	Studied on a master class leadership course for nursing unit managers.	Purposive sampling	The program was able to enhance participants aspects in terms of allowing the expression of opinions, networking, stretching their minds and time to reflect on their own experiences.
Gunawan et al.	Indonesia	300 First line nurse managers (FLNMs)	Qualitative	Not mentioned	Developed the managerial competence scale and psychometrically tested for first-line nurse managers of Indonesia.	Random sampling	The findings of the study demonstrated that the managerial competence scale is valid and reliable as a vehicle for assessment of competence for FLNMs.
Horvath C et al.	Cambodia	20 health managers	Mixed method	Not mentioned	Evaluated the IMPACT Cambodia program and determined the extent to which the program reached its intended outcome of increase management competence of participants.	Purposive sampling	Participant's competency in all management areas was increased. Improvement was observed in leadership and governance.
Howard et al.	Australia	117 senior and middle HSMs	Mixed method	Not mentioned	Validated the management competency assessment tool for HSMs which resulted from the development and validation of the framework, addressed by a previous paper.	Purposive sampling	Both validity and reliability of management competency assessment tool were demonstrated.
Jeon et al.	S.Korea: University Hospital, Seoul	44 Nurse Unit Managers (NUM)	Quantitative	Quasi experimental	Evaluated the ethical leadership, organizational citizenship behaviour and job outcomes of NUM.	Non-sampling (Volunteer participants)	There was improvement in competencies related to ethical leadership of nursing unit managers after the six- month leadership program.

Khadka et al.	Nepal	51 hospital manager/administrator	Mixed method	Cross-sectional	Assessed the managerial competencies of hospital managers of Kathmandu, Nepal	Purposive sampling	There is enormous need for development of lacking managerial competencies among hospital managers/administrators.
Kitreerawutiwong et al.	Thailand	487 primary care managers	Mixed method	Instrument development model	Developed and examined the psychometric properties of a competency scale for primary care managers in Thailand	Simple random sampling	The developed instrument demonstrated sound psychometric properties and therefore is considered an effective tool for assessment of the primary care manager competencies.
Liang et al.	China	498 senior hospital executives	Mixed method	Cross sectional, descriptive survey	Developed an understanding of the characteristics and training experience of hospital managers in one major Chinese city.	Purposive sampling	The survey confirmed that formal and informal management training amongst participants before commencing their management positions was inadequate.
Liang et al.	Australia	93 mid-level HSM (319 colleagues participated in the 360^0 assessments.)	Mixed method	Cross sectional, descriptive survey	Conducted a 360^0 assessment of the competence of Australian HSMs to identify managerial competence levels and training and development needs.	Non-sampling (Volunteer participants)	The study confirmed managerial competence for most of the middle-level HSMs from hospitals and CHS but found competency gaps.
Liang et al.	Australia	64 managers	Mixed method	Not mentioned	Introduced a validated process in management competency identification and development applied in Australia.	Purposive sampling	The framework developed is considered reliable and valid for developing a management competency assessment tool.
Liang et al.	Australia	74 Hospital managers	Mixed method	Exploratory	Confirmed the core competencies required for middle to senior level managers in Victorian public hospitals in both metropolitan and regional/rural areas.	Purposive sampling	The study supports the use of a competency-based educational approach to train and prepare current and future healthcare managers for their roles.
Lopes et al.	Timor-Leste	183 Primary Health Care Managers	Quantitative	Cross sectional survey	Assessed the levels of management competencies of primary health care managers	Stratified random sampling	PHC managers required more professional development programs/trainings in different domains which needs to be in line with

							health system goals and reinforced by a positive environment.
Prashanth et al.	Tumkur district, Southern India	21 Health Manager	Mixed method (Qualitative and Quantitative)	Not mentioned	Assessed the performance of health managers after periodic contact classes, mentoring visits and assignments to help practical application of knowledge and skills discussed in classroom.	Purposive sampling	A positive change was found after training program in facility near to district headquarters while low performance was observed in remote area far from headquarters.
Sandhu & Liang	India	7 senior managers	Mixed method	Exploratory case study	Assessed the managerial competencies of project managers of a National NGO in India for developing, implementing, and evaluating a new service model effectively.	Purposive sampling	Senior managers clearly demonstrated their understanding of a project's life cycle and were able to detail the key activities and procedures they developed under each phase of the project life cycle. However, they do need training to improve their competency to allow more effective project planning, design, and implementation.
Schultz et al.	Australia: Adelaide Hospital	160 Health care middle managers (HCMM)	Mixed method	Uncontrolled pre-post study design	Evaluated a change leadership development program (leading 4 change) to support HCMM	Non-sampling (Volunteer participants)	Health care middle managers developed leadership capacity for going through period of significant organisational change and enhanced workplace resilience.
Tiwari et al.	India: Madhya pradesh	114 Health manager	Quantitative	Not mentioned	Assessed the Post Graduate Diploma in Public Health Management (PGDPHM) program to bridge the gap in public health managerial capacity among health professionals.	Purposive sampling	This partnership between academic institutions and health system strengthened the capacities of partner institutions and networks of professionals to take the lead in designing, adapting, and sustaining innovative capacity building measures.
Tuong et al.	Vietnam	891 Hospital mangers	Mixed method	Exploratory factor analysis	Developed a leadership and managerial competency framework for public hospital managers in Vietnam.	Non-sampling (Volunteer participants)	The 81 items of leadership and managerial competencies were identified for public hospital managers.

Waters et al.	Australia	Nurse manager (NM)	Mixed method	Descriptive	Determined the participant expectations on mentoring program and outcomes of the pilot program.	Non-sampling (Volunteer participants)	The pilot mentoring program was highly successful to identify and address the needs of NM in professionally or geographically isolated areas.

HMW development efforts implemented in the Asia Pacific

Based on the development efforts in the 22 identified articles, four categories of HMW development efforts have emerged. All efforts identified have been grouped into these four different categories thematically as follows:
Formal education and training

Two research studies, one each from Cambodia and India, focused on formal education as the developmental efforts for HMW [11,24]. In Cambodia, formal education was provided through a competency driven curriculum which positively contributed to building leadership and governance of HMW. This also resulted in better health information and human resource system in Cambodia [24]. In India, health managers were provided with the opportunity to pursue post graduate diploma in public health management program. The study reported the improved competencies of managers after completing post graduate diploma in public health management program [11].

Organisational informal professional development programs

Seven research studies focused on organisational informal professional development training for HMW [10, 19, 25, 26, 27, 28, 29]. These programs included contents such as: development of ethical leadership, workplace resilience and stress management, communication, and relationship management, and leading and managing change. The study conducted in Australia on a change leadership development program designed to support healthcare middle managers through a period of significant organisational change reported that the training participants felt being valued and empowered after participating in the development program [19]. The participants were also motivated to perform their tasks most effectively. Some of these studies also reported positive outcomes of the informal training programs [19, 25, 26, 27, 29]. For instance, in South Korea, the ethical leadership program developed for nurse unit managers has improved their understanding of ethical leadership and creating ethical environment and cultures in hospital [25]. Study also found that the same development program may generate differing outcomes at different settings. For instance, the management development program conducted in Tumkur district in India was not equally effective in urban and rural settings [10].

Research process confirming competencies and developing competency framework.

Six research studies focused on competency framework development for HMW [1, 2, 9, 21, 30, 31]. These studies confirmed competencies required for HMW and developed frameworks that guided the development of short term and long-term strategies. For instance, the management competencies identified for HSM in the validated MCAP tool included: operations, administration and resource management, evidence informed decision making, demonstrated knowledge of healthcare environment and organisation, interpersonal communication qualities and relationship management, leading people, and enabling and managing change [2]. Another study in Vietnam identified and validated 14 essential competencies for hospital managers in Vietnam [9]. The identified essential competencies in Vietnam had 7 different competencies as compared to the competencies in MCAP i.e., Policy development and implementation, strategy development and orientation, plan making, risk and disaster management, quality management, investigation, and self-management. While the remaining 7 competencies were similar to MCAP 6 competencies. Another study in Indonesia constructed 7 essential competencies for nurse managers [30]. Four of the identified competencies were different from the competencies listed in MCAP (i.e., facilitating spiritual nursing care, self-management, utilizing informatics and applying quality care improvement). While three of the identified competencies in Indonesia were similar to MCAP [2, 30]. Similarly, five of the identified competencies in Indonesia were similar to those identified in Vietnam [9,30].

Embedded competency assessment

Seven research studies focused on presenting findings of management competency assessment of HMW [5, 6, 7, 12, 15, 16, 17] that identified competency gaps and identified the competency development needs that guided the design of targeted development programs. Competency assessment was conducted via either self-assessment only [5, 6, 12,

15, 16, 17],] or 360-degree process [7]. The findings of competency assessment of health managers in the Asia Pacific region are consistent with the findings of other studies and suggests for the competency development needs of these health managers [6, 12, 15, 16, 17]. However, competency assessment conducted in Australia confirmed managerial competence for the majority of health managers but identified competency gap [7] and it was confirmed that managerial strengths and weakness varied across management groups in different organisations [7]. The findings also suggested the need of multifaceted development strategies for strengthening the HMW [7].

Government collaboration with another organisation

Collaboration between government and other education, research and healthcare organisations has been an important system level strategy for HMW development. Such collaborations have led to design and development of various formal and informal management development programs for HMW. For instance, In Cambodia, the National Institute of Public health (NIPH), with the approval of the Cambodia Ministry of Health, formed a technical working group including the U.S. Centres for Disease Control and Prevention and the Korea International Cooperation Agency. The working group developed and implemented a six-month management and leadership capacity building program that resulted in the improved management competency amongst health managers [24]. The State Government of Karnataka, India, and a consortium of five non-governmental organisations was established to organise a capacity building programme for health managers in the district. The programme focused on improving the performance of health managers with respect to planning and supervision of health services [10].

Discussion

Seven out of nine studies included in the review discussed the positive outcomes of the training and development programs [11, 19, 24, 25, 27, 28, 29] indicating the necessity in investing in professional development of HSMs. There is evidence that participatory action research approach [PAR] been successful in building local capacity and enhancing the continuity of interventions [32,33]. This approach may be adapted in Asia Pacific countries for long term and sustainable improvements in program delivery. Only a small amount of management related research has been conducted in the Asia Pacific region as only 22 studies were identified during the data extraction process.

A management development program should be developed and implemented in consideration within an organisational context. There is evidence where management development programs have not produced the same result in different settings or even within the same settings at two different hospitals because of differences in working environments, governance, management structures, and sometime due to geographical conditions such as rural settings [10, 26].

This supports the pre-existing evidence in other literature that the capacity and management competency building interventions are influenced by contextual factors such as organisation culture, geographical locations and working environment at organisation [1, 7]. This also suggests the importance of an enabling environment and adequate incentives from the state health systems. Thus, to develop the competence of the HMW, it is critical to provide multilevel commitment from both the system and organisational levels to identify and address the bottlenecks related to organisation and other contextual factors.

Evidence has emerged that discusses the importance of embedding management competency assessment into the annual performance review process to provide evidence on the strengths and weaknesses of managers that can guide the setting for a professional development focus for health managers [12, 16, 17]. All seven competency assessment studies confirmed the existence of competency gaps that must be addressed. Considering the lack of formal and informal training broadly available and provided to HSMs, improved investment in developing the capability of health managers at the system and organisational levels is needed. Such investment may not be just in the form of professional development programs, as it may also include confirming competency requirements and developing

competency frameworks for HMW. It is essential for establishing clear management competency requirements to guide management position, recruitment, development, and performance management of health managers [16]. The managerial strengths and weakness vary across health service management groups, hence specific and targeted development strategies must be developed [2].

In addition, the partnership between government, healthcare and professional organisations should be strengthened maximising the efforts in HSMs development [10, 11, 24]. Evidence suggests the importance of partnership in attaining the common goals for building capacity of HMW [10, 11, 24]. Academic partnership is an example of the interface between academia and the health system where the common goal for building capacity of health professionals may be achieved. An example of collaborative partnerships between academic institutions and government could be jointly designing and providing educational degree program for health managers aiming to develop managerial capacities and competencies [11]. Also, collaborations between government and other organisations, such as non-government organisations and international organisations, may be able to achieve the intended outcome of building capacity of HMW. For instance, in Cambodia, the National Institute of Public Health collaborated with the U.S. Centres for Disease Control and Prevention to provide management and leadership trainings to health managers [24]. Improvement in leadership and governance was observed among the participants after the training [24]. Such collaboration may also help to form a technical working group of expertise from diverse regions and knowledge sharing to develop management and leadership capacity building program for HMW.

Healthcare is operating in a resource constraint environment and therefore benefits of any investment should be well demonstrated. Therefore, it is important to incorporate a valid evaluation process in management development programs so that benefits of the programs can be well demonstrated [29]. This will also allow effective learnings for future program improvement. These evaluations need to be conducted by following standard review protocols and using suitable validated tools [26].

Strengths and limitations of the method

This review relied upon reported development programs to highlight the development strategies within Asia Pacific nations. To the best of our knowledge, this is the first article to study the development efforts for HMW in Asia Pacific nations overall. This scoping review provides useful information on existing development strategies for health managers throughout the Asia Pacific region along with the type of development program in the specific country. However, the included studies were not evenly distributed as most of the studies were from Australia [1,2,7,19,26,27,28,29,31] and the number of available articles was relatively small in comparison with the number of countries included in the region. The exclusion of grey literature and articles not written in English created possible grounds for oversight.

Conclusions

The scoping review confirmed four different categories of existing development strategies for HMW in Asia Pacific nations: organisational informal professional development programs; competency assessment to identify management competency gaps; research process confirming competencies and developing competency framework; and formal education, and training.

Managerial strength and weakness vary across health service management groups thus, specific development programs must be designed to meet the differing competency development needs of health managers. The study reinforces the importance of evaluating the benefits of management development programs to maximise learnings and allow improvements. Government should play a key role in supporting HSM workforce development by setting clear policy direction and strengthening collaboration with healthcare organisations and professional institutions.

Author Contribution

Writing - Original draft preparation PP; writing - Review and editing, PP, ZL, JT. Both ZL and JT provided critical review and extensive editing during the initial development and revision of the paper. All authors provided final approval for publication.

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The authors declare no conflicts of interest.

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RESEARCH ARTICLE

Assessment of Management Competency Among Senior Hospital Managers in Nepalese Public Hospitals: A cross-sectional study

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ABSTRACT

Health managers often assume leadership roles with limited formal training. Health managers face ongoing constraints in accessing continuous professional development opportunities related to management competency throughout their careers. The management competency of health service managers is crucial since they perform wide-ranging complex tasks including financial oversight, workforce management, and governance for patient safety. It is thus essential to identify and assess heath managers' current competency levels to understand the development needs and plans for both organisational and system level capacity building strategies. A review of literature revealed a lack of studies specifically focused on assessing the competency of senior hospital managers in central level public hospitals in Nepal. While two studies were identified that examined managerial competency, the scope was limited to general hospital managers across all types of hospitals, without distinguishing senior leadership roles or central level hospitals. The two studies provided useful information but are limited because they were conducted prior to the federal democratic republic system in Nepal. With subsequent changes in the Nepalese health system, it is important to understand what the current level of management competency is for senior hospital managers in Nepal. Therefore, a quantitative cross-sectional study was conducted utilising the Management Competency Assessment Partnership (MCAP) self-assessment tool to measure the current competency level and identify the competency gaps. The data were analysed with RStudio (R 4.3.3) and SPSS (version 29 for Windows). The study highlights competency gaps among senior hospital managers in areas such as resource management, evidence-based decision making, knowledge on healthcare environment, political acumen, and transition management which further underscores the need for prioritised targeted professional development interventions in these domains. A sustained investment in competency building and development will enable senior hospital managers to negotiate the challenges of contemporary hospital systems with greater confidence and competency. Such development approaches ultimately contribute to the long-term success and sustainability of Nepalese hospital management and healthcare settings.

keywords

management competency, competency assessment, senior hospital managers, Nepal

Background

When clinicians such as doctors, nurses and allied health professionals, move into management roles, it is important for them to apply foundational leadership and management competencies to effectively perform the tasks and fulfil the responsibilities of leading hospitals and deliver quality health services [1]. Health managers often assume leadership roles with limited formal training, and many face ongoing constraints in accessing continuous professional development opportunities related to management competency throughout their careers [2]. Management competency is defined as "the skills, knowledge, personal characteristics and behaviours needed to effectively perform a role in the organisation and help the business meet its strategic objectives" [3, p. 5]. The management competency of senior and mid-level health service managers is crucial since they perform wide-ranging complex tasks including financial oversight, workforce management, and governance for patient safety [4]. Mid-level managers typically occupy middle tiers in the organisational hierarchy senior managers with clinical or professional responsibilities, supervision of front- line staff, and reporting to senior managers. In some health systems, e.g. Australia, senior-level managers hold top-tier leadership positions within hospitals which include roles such as medical director, hospital directors, and chief operating officers. They oversee strategic planning, financial governance, workforce management and patient safety systems, often shape organisational culture, and liaise with external stakeholders and policymakers [5,6]. Competent senior health service managers need the capacity to satisfactorily integrate clinical services, management, and political domains using leadership, collaboration and team-based competencies which are crucial for better health outcomes and quality healthcare [7,8,9].

The World Health Organization recommends all countries build leadership and management capacity ensuring adequate numbers of competent managers who provide critical management support systems and an enabling working environment [10]. A study in Kenya demonstrated increased coverage of child and maternal health services after piloting a six-month leadership program for management teams [11]. A significant increase in the number of client visits was observed at the facility level in the intervention group versus comparison facilities. The leadership program contributed to improved health service delivery outcomes and the improvements were sustained for at least for six months. The performance of health managers thus can be improved by improving their managerial competency [7]. However, it is essential to identify and assess heath managers' current competency levels to understand the development needs and plans for both organisational and system level capacity building strategies.

Management competency assessment

Management competency assessment is an important step in performance management [12]. Competency assessment can identify gaps in knowledge and skills which, in turn, may be used to design development programs that address these gaps and consequently maintain organisational competitiveness and resilience [13]. This also ensures employee competencies are in sync with the evolving needs and objectives of the organisation [14,15]. Research evidence suggests that a person's self-judgement of their own knowledge, skills and abilities positively relates to their ability to improve current and learn new competencies. [16]. Research studies also reveal that such judgements provide managers with an opportunity to evaluate their strengths and weaknesses, and plan training based on their identified needs [17]. Therefore, effective tools for assessing management competency of health managers have implications for health service management workforce development.

Management competency assessment tools are important in identifying healthcare management strengths and weaknesses, enhancing managerial development, leadership, decision-making, succession planning and talent management, and ultimately ensuring compliance and quality [18,19]. In the healthcare context, three major types of management competency assessment are used: 360-degree feedback, competency-based interviews, and self-assessment [20,21,22,23]. 360-degree feedback provide a holistic assessment of a manager's competency based on

feedback from subordinates, peers, and supervisors. This offers a comprehensive view of a healthcare manager's strengths and development areas and helps to identify blind spots and further enhancing leadership effectiveness [20, 21]. The feedback coming from multiple perspective, offers a broader, unbiased evaluation of managerial strengths and weaknesses. However, a key disadvantage of 360-degree feedback is its complexity, it needs well-designed processes and implementation, while poor execution may lead to confusion and resistance among staff [21].

Competency-based interviews involve structured interviews that assess managerial competency through behavioural questions, allowing organisations to evaluate leadership skills based on real-world decision-making [22]. Competency based interviews evaluate past behaviours to predict future job performance and are often used in the hiring processes but not as much in assessing on-going management competency [23].

Self-assessment competency tools offer advantages such as personal reflection which fosters self-awareness, insights into areas for development, and require health managers to evaluate their competency across different management domains [19]. Unlike 360-degree feedback, which includes external opinions, self-assessments produce unfiltered introspection without external biases. Although self-assessment can be limited by individual biases and might lack the comprehensive perspective offered by 360-degree feedback, other factors such as convenience, accessibility, cost-effectiveness, immediate insights, and privacy can make self-assessment more suitable than other competency assessment tools. Self-assessment is a culturally adaptable and reliable which makes it especially valuable in contexts where other forms of competency evaluation may be impractical or counterproductive [24].

Given the context of this research, as outlined below, it was decided that a self-assessment competency tool was most appropriate. The Management Competency Assessment Partnership (MCAP) self-assessment tool was chosen because it identified globally recognised core competencies for health managers through a systematic review and best-fit framework synthesis of studies over a two-decade period up to 2019 [25]. Although the MCAP was originally developed and validated in Australia [26,27] , it has been applied internationally in China [28, 29], India [30], Iran [31] and Finland [32] healthcare contexts, demonstrating its cross-cultural relevance and adaptability.

Context

Nepal moved from a central, unitary system of government to the Federal Democratic Republic system consisting of seven, self-governing provinces in September 2015 [33]. Although the federal system paved a new pathway for opportunities in building a better health system, the health system itself has many challenges including inefficient hospital management systems, hospital service provision, and coordination across government tiers [34].

Hospitals that are equipped with sophisticated facilities and provide speciality services are managed at the federal government level and are designated as central level hospitals [35]. There are 15 central level hospitals in three provinces, with 13 in Province No. 3 (Bagmati), and one each in Province No. 1 (Koshi) and Province No. 6 (Karnali). Central level hospitals provide complex care and the highest level of treatment services to public patients [36]. These hospitals are broadly accessible to the public because they have minimum fees, whereas private hospitals are costly and are for those who are from social and economically advantaged background.

FIGURE 1 MAP OF NEPAL SHOWING THE PROVINCES WITH CENTRAL LEVEL HOSPITALS.

Source: Nations Online Project. (n.d.). *Map of Provinces of Nepal*. Retrieved January 2023, from https://www.nationsonline.org/oneworld/map/nepal-administrative-map.htm

Senior hospital managers (SHMs) positions in central level hospitals are generally occupied by senior doctors with extensive clinical experience but without formal management education [8,37]. These positions encompass both clinical and non-clinical SHMs, reflecting the multidimensional leadership structure within hospitals. These professionals hold critical responsibilities, such as overseeing clinical service delivery, managing hospital resources, and coordinating operational activities to ensure consistent and effective health service provision. A review of literature revealed a lack of studies specifically focused on assessing the competency of SHMs in central level public hospitals in Nepal. While two studies were identified that examined managerial competency, the scope was limited to general hospital managers across all types of hospitals, without distinguishing senior leadership roles or central level hospitals [8,37]. These two studies, in 2012 and 2014, identified the need for in-service management training for SHMs and a lack of development strategies for managerial competency; one of the factors that limits effective and efficient hospital service provision [8,37]. The two studies provided useful information but are limited because they were conducted prior to the federal democratic republic system. With subsequent changes in the Nepalese health system, it is important to understand what the current level of management competency is for SHMs in Nepal.

Therefore, the aim of this study was to identify the current management competency level of SHMs in central level public hospitals in Nepal.

Methods

This study utilised quantitative cross sectional survey design as the first part of a larger mixed methods research project. Data was collected from October to December 2023 using a paper-based questionnaire.

Target population

The target population was SHMs in the 15 central level public hospitals in Nepal. SHMs are hospital directors and chiefs of various departments employed at level eight through to eleven. These levels are distinct tiers within the government organisational hierarchy that classify employees' relative rank, responsibilities and authority. Examples of SHMs include chief medical officer, chief finance officer, chief of administration services, head of gynaecology, chief hospital pharmacist, head of dentistry, head of radiology, head of paediatrics, and the head of nursing.

The decision to include only public hospitals in this study was guided by the policy framework set out by the Ministry of Health and Population (MoHP) of Nepal, which holds primary responsibility for developing strategies, guidelines, and standards for public hospitals and health services [38]. Since MoHP does not extend regulatory authority or strategic development to private healthcare institutions, focusing on public hospitals ensures alignment with national

health policy directives and allows the research to generate findings that are directly relevant to government-led health system improvements.

On review of the 13 central level hospitals in Bagmati Province, three were excluded because one was run by the army, one was run by the police, and one was an Ayurveda hospital providing a holistic medical system utilising herbal medicine, diet, nutrition, detoxification, yoga and meditation. As ayurveda emphasises balance between body, mind and spirit to heal imbalances of three doshas that represent biological energies governing physical and mental functions-Vata (air and space), Pitta (fire and water) and Kapha (earth and water) [39] and thus are different to other hospitals run by the Ministry of Health and Population. Contact information could only be obtained for six of the remaining ten central level public hospitals in Bagmati Province. Thus, a total of eight central level hospitals were invited to participate in the survey. However, the central level hospital in Koshi province and three central level hospitals in Bagmati Province did not respond to the request for participation in the study. The four remaining central level public hospitals that provided letters of acceptance to participate were:

5. Paropakar Maternity & Women's Hospital (PMWH) Kathmandu, Bagmati Province (Province No. 3)
6. Kanti Children Hospital (KCH), Kathmandu, Bagmati Province (Province No. 3)
7. Sukraraj Tropical and Infectious Disease Hospital (STIDH), Kathmandu, Bagmati Province (Province No. 3)
8. Karnali Academy of Health Sciences (KAHS), Jumla, Karnali Province (Province No. 6).

All the estimated 59 SHMs from the participating hospitals were invited to take part in the survey.

Ethics approval

Ethics approvals were obtained from both Nepal Health Research Council (NHRC-545/2023) and James Cook University Australia Human Ethics Research Committee (H9203). Also, where applicable, hospital institutional ethics review committee (IERC) approval was obtained from the participating hospitals prior to data collection.

Measurement tool

The study utilised Management Competency Assessment Partnership (MCAP) self-assessment tool for measuring the competency level and identifying the competency gaps of SHMs [26,27]. The MCAP tool assesses six core management competencies including evidence informed decision making, operation administration and resource management, demonstrated knowledge of healthcare environment and the organisation, interpersonal communication qualities and relationship management, leading people and organisations, and enabling and managing change (Table 19) by measuring 82 behavioural items overall.

Prior to data collection, the MCAP was translated into Nepali by an official translator and pilot tested with five people in Nepal. The pilot testing participants were provided with the questionnaire via email and were requested to provide feedback on the clarity of the questions. Although the results of pilot testing demonstrated that the questionnaire was easy to understand and complete, there was a problem with translating the competency assessment descriptive scale.

In the English versions of the MCAP, the competency assessment descriptive scale is used to explain what the levels of competency mean and the related Likert scale score from one to seven. However, in Nepali an adequate distinction could not be made between the competency assessment descriptions for score 6 (*always apply in my role with extensive experience*) and 7 (*always apply appropriately in my role, with extensive experience gained from diverse management roles at executive level*). In discussion with the developer of the MCAP (ZL), it was decided to use a six-level competency assessment descriptive scale and six-point Likert scale (Table 20.A), knowing that this would make direct comparisons more difficult with other versions of the MCAP. The Nepali version used the existing five-point scale to assess the level of importance of competencies (Table 20.B). Lastly, the Nepali version did not include participant names, to help maintain confidentiality.

TABLE 19 MCAP CORE COMPETENCIES

Abbreviation	Core competency
C1	Evidence informed decision making
C2	Operation, administration, and resource management
C3	Demonstrated knowledge of healthcare environment and the organisation
C4	Interpersonal communication qualities and relationship management
C5	Leading people and organisations
C6	Enabling and managing change

TABLE 20 MCAP SCALES TO MEASURE LEVELS OF COMPETENCY AND IMPORTANCE

	A. Competency assessment descriptive scale (level of competency)
1	May be capable of demonstrating minor aspects in my role
2	May be capable of demonstrating in my role but not in all required aspects
3	Can fully demonstrate in my roles with regular guidance
4	Can generally demonstrate in my role but guidance is needed occasionally
5	Can demonstrate in my role independently without guidance
6	Always appropriately apply in my role with extensive experience
	B. The level of importance to the management role
1	Very unimportant
2	Not so important
3	Unsure whether it is important
4	Somewhat important
5	Very Important

Data collection

A paper-based participant information sheet, consent form, and questionnaire (including the Nepali version of the MCAP, demographic questions and three open-ended questions) was supplied to each appropriate Hospital Administrator for approval and distribution to the SHMs in their hospital. An internal letter from the Hospital Administrator was also distributed inviting their SHMs to participate in the survey. Participants were asked to return the questionnaire to a dedicated collection area within the administrative department. Hospitals were requested to send reminder emails to potential participants at the end of the first week and the end of the second week to return the questionnaire. Participants were ensured of confidentiality since the questionnaire was returned in an enclosed envelope and only the researcher had access to the dedicated collection box.

Data analysis

Upon the receipt of the returned and completed questionnaires, the data were manually entered into Qualtrics, where a matching English version of the questionnaire was set up. The data were also directly entered to an Excel spreadsheet. Data was then downloaded from Qualtrics to check for accuracy against the Excel spreadsheet. This was effective in identifying and solving data entry errors. The data were analysed with RStudio (R 4.3.3) and SPSS (version 29 for Windows). Percentage of responses for level of importance and level of competency were calculated. Kruskal Wallis test and Fisher's test were conducted to test the association between variables and competency.

Results

Of the 59 SHMs invited to participate, 50 completed the survey, resulting in a response rate of 85% and a maximum margin of error of 5.5%.

Management experience

The average experience of SHMs in their current management position was 4.8 years while the average years of experience in management roles overall, including their current position, was 8 years (Table 21). In their current position, 56% of SHMs (n = 28) had less than five years' experience, while 68% of SHMs (n = 34) had greater than five years' total experience in management roles (Table 22).

TABLE 21 WORK EXPERIENCE OF SHMS

No. years	Current position	Management overall
Mean	4.8	8.0
Median	3.5	7.0
Minimum	1.0	1.0
Maximum	36.0	36.0

TABLE 22 YEARS EXPERIENCE IN CURRENT POSITION AND OVERALL

Experience	Current (%)	Overall (%)
<5 years	28 (56)	16 (32)
5-10 years	18 (36)	21 (42)
10-20 years	3 (6)	10 (20)
>20 years	1 (2)	3 (6)

Qualifications of SHMs

The majority of SHMs (n= 41, 82%) possessed a postgraduate qualification with 80% (n = 40) having a master's degree and one person had a PhD (Table 23). The disciplines of these degrees are detailed in Table 5.

TABLE 23 QUALIFICATIONS OF SHMS

Qualification	N (%)	Description
Bachelor	9 (18)	Bachelor of Medicine and Bachelor of Surgery (MBBS), Bachelor of Hospital Nursing/Bachelor of Nursing (BN), Bachelor of Science Medical Laboratory Technology (BSCMLT)
Master	40 (80)	Doctor of Medicine (MD), Master of Nursing (MN), Master of Business Administration (MBA), Master of Orthopaedic Surgery (MS), Master of Dermatology (MD), Master of Business Studies (MBS), Master of Rural development (RD), Master of Mathematics, Master of Child Development, Master of Public Health (MPH), Master of Clinical Pathology
PhD	1 (2)	Global Health

In addition, 10% of SHMs (n = 5) were currently enrolled in a degree which included Master of Public Administration, Master of Business Administration, Master of Public Health, and PhD Global Health.

Participants were asked whether they had participated in any training (non-degree program) for more than 10 hours per year in the past three years (Table 24). Thirty-eight percent (n = 19) were engaged in management training or self-study on management-related topics. Sixty two percent of SHMs (n = 31) had not participated in any type of training.

TABLE 24 TRAINING PARTICIPATION FOR MORE THAN 10 HOURS PER YEAR IN THE PAST 3 YEARS

Training type	N (%)
Non-management	5 (10)
Management	10 (20)
Self-study, management-related	9 (18)
None of above	31 (62)

Difficulties encountered by SHMs

SHMs were asked to indicate the three most common management difficulties they had encountered in the past three years in their management roles from a list of 14 provided in the MCAP tool (Table 25). The three most encountered difficulties were high staff turnover (21, 42%), changing team skill requirements (16, 32%), and losing a high potential employee (15, 30%). Other difficulties faced included: Confronting an employee performance problem, ranked 4, n = 13, 26%; Peer conflict; Making right hiring decisions, and Confronting higher management level, each ranked 5, n = 12, 24%.

TABLE 25 DIFFICULTIES ENCOUNTERED BY SHMS

Rank	Difficulty	N (%)
1	High staff turnover	21 (42)
2	Changing team skill requirements	16 (32)
3	Losing a high potential employee	15 (30)
4	Confronting an employee performance problem	13 (26)
5	Peer conflict	12 (24)
6	Making right hiring decisions	12 (24)
7	Confronting higher management level	12 (24)
8	Having to learn something new such as information or medical technology	9 (18)
9	Employee engagement in decision-making and implementation of change	8 (16)
10	Team conflict	7 (14)
11	Conflicts with patients	7 (14)
12	Creating an innovative team	6 (12)
13	Doing something unethical or wrong	5 (10)
14	Other	3 (6)

Insights from open-ended responses

At the end of the questionnaire, participants were provided with open-ended questions to outline in their own words the difficulties they encountered in organisational management. Only five participants responded to the open-ended questions, which was focused on exploring the challenges faced by SHMs in their roles, the underlying causes and potential organisational- level solutions, as well as their aspirations for career development. Participants primarily shared insights on the challenges faced by SHMs. A recurring theme was the prevalence of political issues in the workplace, such as political pressure, high-level interference, and personnel promotions influenced by favouritism and political connections. These dynamics often undermined merit-based progression and created a demotivating work environment. SHMs also reported facing resistance from subordinates, particularly in relation to the implementation of organisational changes. This resistance hindered smooth transitions and innovation. A particularly

concerning issue raised by one SHM was the exposure to violence and abuse from patients or their families. This not only compromised the safety and wellbeing of SHMs but also contributed to their reluctance to continue in their current positions. Among the challenges identified, resistance to change aligned with difficulties outlined in the MCAP tool, whereas the other four types of difficulties (political interference and political pressure, promotions based on favouritism, inadequate benefits and poor work facilities, and instances of violence or abuse from patients and their families) emerged as additional concerns not previously captured in the MCAP tool's predefined options.

Management preparedness, competency and importance

MCAP internal consistency

The number of respondents was larger than the sample size required for Cronbach's alpha of n = 38 (where, $\alpha = 0.05$, precision $w = 0.1$, previous reliability $r = 0.9$, and the lowest number of items in C6 $q = 9$) [40]. Cronbach's alpha for the respondents' level of competency and level of importance exceeded 0.90 for each core competency (Table 26). This showed a that the MCAP scale had very good internal consistency for the Nepali version.

TABLE 26 MCAP INTERNAL CONSISTENCY (CRONBACH'S ALPHA)

Level of competency		Level of importance	
Competency*	**alpha (95% CI)**	**Competency***	**alpha (95% CI)**
CI	0.95 (0.94, 0.96)	CI	0.92 (0.91, 0.94)
C2	0.96 (0.95, 0.96)	C2	0.90 (0.88, 0.92)
C3	0.96 (0.95, 0.96)	C3	0.92 (0.90, 0.94)
C4	0.97 (0.97, 0.98)	C4	0.94 (0.93, 0.95)
C5	0.96 (0.96, 0.97)	C5	0.91 (0.89, 0.93)
C6	0.96 (0.95, 0.97)	C6	0.90 (0.88, 0.92)

* See Table 19 for core competency abbreviations

Management competency before taking up the current management role

Participants were asked to indicate the extent to which competencies were acquired before taking up their current management role (Table 27). Overall, 40-50% of SHMs indicated that they were competent in the six core competencies prior to taking up their current management position. Prior to taking the current management role, the highest number of SHMs, 50% (n = 25), self-assessed themselves as competent in C1 *Evidence informed decision making*. This was followed by C2 *Operation, administration, and resource management* and C5 *Leading people and organisations*, both at 48% (n = 24). 32-42% of SHMs (n = 16-21) self-assessed themselves as requiring occasional guidance before undertaking their current role for the six core competencies.

TABLE 27 COMPETENCY PRIOR TO CURRENT ROLE

Competency* [N (%)]	Not yet competent (1-3)	Occasional guidance (4)	Competent (5)	Expert (6)
C1	6 (12)	19 (38)	25 (50)	0
C2	5 (10)	21 (42)	24 (48)	0
C3	10 (20)	20 (40)	20 (40)	0
C4	9 (18)	18 (36)	23 (46)	0
C5	10 (20)	16 (32)	24 (48)	0
C6	8 (16)	21 (42)	21 (42)	0

* See Table 1 for core competency abbreviations

Perceived importance of management competencies

The majority of the SHMs (96-100%, n = 48-50) perceived the six core competencies as somewhat or very important to their current management role (Table 28). 4% (n = 2) indicated C3 *Demonstrated knowledge of healthcare environment and the organisation* was not so import or were unsure, and 2% each (n = 1) were unsure about the importance of C4 *Interpersonal communication qualities and relationship management* and C5 *Leading people and organisations*.

TABLE 28 SHMS PERCEIVED IMPORTANCE OF MANAGEMENT COMPETENCIES

Competency* [N (%)]	Very unimportant	Not so important	Unsure	Somewhat important	Very important
C1	–	–	–	10 (20)	40 (80)
C2	–	–	–	17 (34)	33 (66)
C3	–	1 (2)	1 (2)	18 (36)	30 (60)
C4	–	–	1 (2)	12 (24)	37 (74)
C5	–	–	1 (2)	7 (14)	42 (84)
C6	–	–	–	13 (26)	37 (74)

* See Table 1 for core competency abbreviations

Self-assessed competency

Overall, 56-72% of SHMs (n = 28-36) indicated that they were currently competent or expert in the six core competencies (Table 29). The highest percentage of SHMs who self-assessed themselves as competent or expert was for C5 *Leading people and organisations* (72 %, n = 36) followed by C4 *Interpersonal communication qualities and relationship management* (70%, n = 35), and the least was C2 *Operation, administration, and resource management* (56%, n = 28) followed by C3 *Demonstrated knowledge of healthcare environment and the organisation* (62%, n = 31) and C1 *Evidence informed decision making* (64%, n = 32). Also, the occasional guidance necessary were highest for C2 *Operation, administration, and resource management* (30%, n = 15) followed by C1 *Evidence informed decision making* (24%, n = 12) and C3 *Demonstrated knowledge of healthcare environment and the organisation* (18%, n = 9).

TABLE 29 SHMS SELF-ASSESSED LEVEL OF COMPETENCY

Competency* [N (%)]	Not yet competent (1-3)	Occasional guidance (4)	Competent (5)	Expert (6)	Competent/ Expert (5-6)
C1	6 (12)	12 (24)	18 (36)	14 (28)	32 (64)
C2	7 (14)	15 (30)	18 (36)	10 (20)	28 (56)
C3	9 (18)	9 (18)	25 (50)	6 (12)	31 (62)
C4	4 (8)	11 (22)	18 (36)	17 (34)	35 (70)
C5	7 (14)	7 (14)	16 (32)	20 (40)	36 (72)
C6	8 (16)	9 (18)	17 (34)	16 (32)	33 (66)

* See Table 1 for core competency abbreviations

Competency for individual behavioural items

The highest percentage of SHMs that self-assessed themselves as a competent or expert for individual behavioural items (Appendix A) of each competency were: C1.13 *Commit to ongoing personal and professional development* (70% , n = 35), C2.1 *Complete necessary workforce records e.g. overtime, leave, rosters, attendance, absence to inform the payroll process* (72%, n = 36), C3.11 *Effectively navigate organisational structures, roles and relationships in order to*

achieve work goals (60%, n = 30), C4.3 *Listen and empathise with others* (80%, n = 40), C5.10 *Persevere to achieve goals* (78%, n = 39) and C6.3 *Act accountably and accept personal responsibility* (72%, n = 36).

Among the behavioural items the lowest percentages for competent or expert were (Appendix A): C1.4 *Critically appraise the validity and relevance of evidence* (52%, n = 26), C2.5 *Develop budgets in accordance with organisational objectives*, and C2.7 *Anticipate and plan for changes in policies affecting funding to the organisation/unit* (42%, n = 21), C3.2 *Demonstrate understanding of political, social, technical and economic factors and their impact on the organisation* (50%, n = 25), C4.12 *Consider and act with sensitivity to the politics of any given situation* (48%, n = 24), C5.9 *Establish and maintains a personal and professional support network* (56%, n = 28), and C6.7 *Implement change and effectively manage the transition process* (52%, n = 26).

Individual scores within each core competency

A Kruskal-Wallis test was performed to examine associations between individual scores for level of competency (C1.1, C1.2,.... etc) within each core competency (C1-C6). The results indicated a statistically significant difference between individual scores for level of competency within C2 *Operation, administration, and resource management* ($\chi^2(16) = 30.2$, $p = 0.0169$) and C4 *Interpersonal communication qualities and relationship management* ($\chi^2(18) = 34.1$, $p = 0.0124$). No statistically significant differences were observed among the remaining groups (C1 *Evidence informed decision making* $\chi^2(12) = 6.97$, $p = 0.8597$; C3 *Demonstrated knowledge of healthcare environment and the organisation* $\chi^2(10) = 1.97$, $p = 0.9966$; C5 *Leading people and organisations* $\chi^2(12) = 17.2$, $p = 0.1409$; C6 *Enabling and managing change* $\chi^2(8) = 5.03$, $p = 0.7540$).

TABLE 12 MCAP BEHAVIOURAL ITEMS (COMPETENCY AND IMPORTANCE)

Note: the MCAP tool and behavioural items are copyrighted. Use of the MCAP tool or the behavioural items require the written approval of Dr Zhanming Liang. Dr Liang can be contacted at zhanming.liang@jcu.edu.au.s

Behavioural item	Level of competency (%)						Level of importance (%)				
	1	2	3	4	5	6	1	2	3	4	5
C1. Evidence informed decision making											
14. Use timely and appropriate questioning/investigation to identify the nature of a problem, issue, or opportunity	0	0	14	18	34	34	0	0	0	20	80
15. Seek appropriate evidence from multiple organisational sources to guide the identification of solutions	0	0	14	26	36	24	0	0	4	22	74
16. Seek appropriate (qualitative/quantitative) evidence from multiple external sources to guide the identification of solutions	0	2	10	24	40	24	0	0	6	32	62
17. Critically appraise the validity and relevance of evidence	2	4	20	22	30	22	2	2	2	36	58
18. Assess and prioritise the relevance of evidence to the question(s)	0	2	14	24	34	26	0	0	4	36	60
19. Use evidence to question and improve existing practice and processes	2	2	14	20	28	34	0	0	4	28	68
20. Apply the best form(s) of evidence to guide management decision-making	2	0	12	26	34	26	0	0	6	28	66
21. Evaluate the process of seeking and applying evidence to management decision-making	0	0	14	30	24	30	0	0	6	38	65

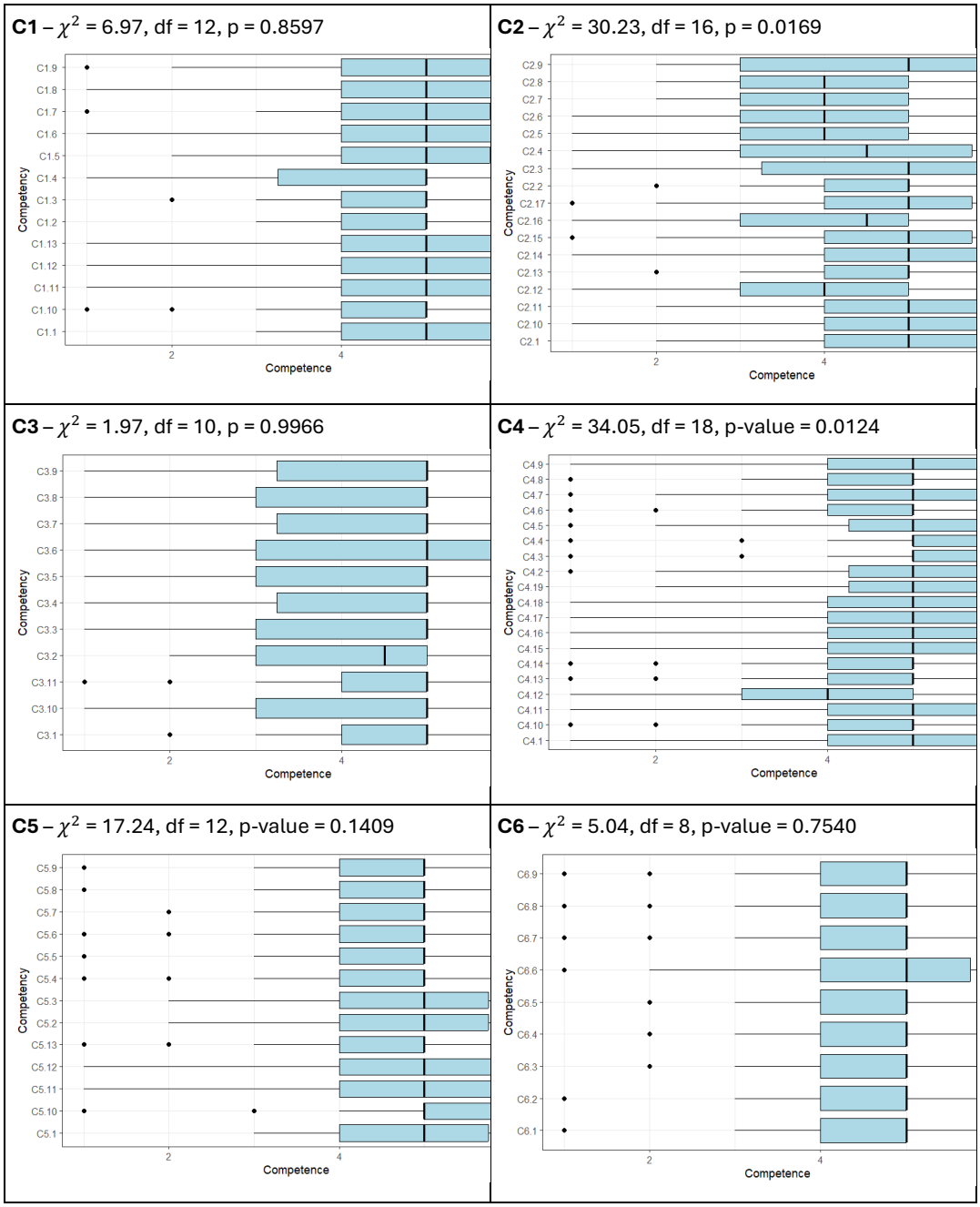
Behavioural item	Level of competency (%)						Level of importance (%)				
	1	2	3	4	5	6	1	2	3	4	5
22. Anticipate decision implementation problems/ impacts and develops and communicate appropriate contingency plans	2	2	14	22	34	26	0	2	2	34	62
23. Set and use measures to evaluate decision outcomes	2	2	18	20	34	24	0	2	4	38	65
24. Support and encourage colleagues and subordinates to use evidence to guide decision-making	2	0	14	24	28	32	0	0	2	32	66
25. Anticipate and prepare for the future by staying abreast of best practice and emerging trends that will have an impact on health outcomes	2	2	16	22	28	30	0	0	0	14	86
26. Commit to ongoing personal and professional development	2	0	8	20	36	34	0	0	4	26	70
C2. Operation administration and resource management											
18. Complete necessary workforce records (e.g. overtime, leave, rosters, attendance, absence) to inform the payroll process	0	4	8	16	40	32	0	0	6	34	60
19. Balance the needs of organisation and of staff through effective planning and management of staff roster and work coverage	0	2	8	26	40	24	0	0	4	42	54
20. Interpret basic financial statements	4	16	14	20	26	28	4	0	12	30	54
21. Monitor financial performance by analysing a variety of financial data	4	16	20	18	24	26	4	2	4	34	56
22. Develop budgets in accordance with organisational objectives	4	14	20	20	24	18	4	0	8	32	56
23. Manage budgets in accordance with organisational objectives	4	10	20	20	28	18	4	0	6	26	64
24. Anticipate and plan for changes in policies affecting funding to the organisation/unit	0	16	26	16	24	18	0	4	8	36	52
25. Design and develop appropriate roles and reporting structure (across a range of areas) in accordance with organisational objectives	0	6	30	16	24	22	0	2	8	36	54
26. Effectively manage recruitment, selection, and appointment of sufficient, suitably skilled staff	0	6	22	14	24	34	0	0	8	32	60
27. Effectively manage staff turnover and retention	2	2	14	22	30	30	2	0	2	38	58
28. Manage staff in accordance with human resource policy and procedure	0	2	18	16	30	34	0	0	2	40	58
29. Establish and maintain the organisation's insurance contracts and financial relationships	2	12	16	24	26	20	0	4	12	28	56
30. Conduct regular two-way performance review & development discussions to support staff development	0	6	14	16	40	24	0	0	4	38	58

Behavioural item	Level of competency (%)						Level of importance (%)				
	1	2	3	4	5	6	1	2	3	4	5
31. Recognise and develop the performance of others by providing timely and appropriate feedback	4	2	16	18	32	28	2	0	6	34	58
32. Contribute to continuous improvement of organisational processes, including quality and safety	4	2	16	26	26	26	2	0	2	32	64
33. Use performance measures and industry benchmarks to inform continuous performance improvement	2	6	20	22	36	14	2	2	4	36	56
34. Plan, execute and evaluate projects with significant scope and impact	2	8	12	24	28	26	2	0	6	34	58
C3. Demonstrated knowledge of healthcare environment and the organisation											
12. Demonstrate understanding of the healthcare industry and its impact on healthcare organisations	0	4	18	26	34	18	0	0	10	44	46
13. Demonstrate understanding of political, social, technical and economic factors and their impact on the organisation	0	10	26	14	30	20	0	4	12	40	44
14. Demonstrate understanding of the roles of key stakeholders in health and how they interact	2	4	22	14	34	24	0	0	14	36	50
15. Demonstrate understanding of the highly professionalised health workforce	4	6	16	16	46	12	0	0	10	40	50
16. Apply relevant legislation and accountability frameworks specific to healthcare settings	2	2	24	20	28	24	0	0	8	32	60
17. Demonstrate awareness of clinical and non-clinical risks specific to healthcare organisations	2	2	26	16	24	30	0	0	12	42	46
18. Apply quality indices and benchmarks to identify opportunities, set performance standards and improve quality	2	2	22	22	34	18	0	0	6	44	50
19. Apply risk management concepts and techniques in their work	2	6	22	18	32	20	0	4	8	26	62
20. Demonstrate understanding of the diversity of healthcare needs	2	4	20	22	30	22	0	0	8	38	54
21. Demonstrate awareness of the organisational history, culture and development	2	2	24	18	32	22	0	0	6	46	48
22. Effectively navigate organisational structures, roles and relationships in order to achieve work goals	2	6	16	16	38	22	0	0	10	30	60
C4. Interpersonal, communication qualities and relationship management											
20. Show trust and respect for others in their actions	2	2	2	22	26	46	0	0	4	18	78
21. Provide appropriate support to others in the workplace	2	2	6	16	26	48	0	0	0	24	76
22. Listen and empathise with others	2	0	6	12	38	42	0	2	0	18	80

Behavioural item	Level of competency (%)						Level of importance (%)				
	1	2	3	4	5	6	1	2	3	4	5
23. Engage confidently and constructively in verbal and non-verbal interactions with others	2	0	6	16	46	30	0	2	2	26	70
24. Communicate verbally in a clear, logical and grammatically correct manner in both formal and informal situations	2	2	6	16	38	36	0	0	2	36	62
25. Produce written reports/materials which are appropriate for both audience and purpose	2	2	8	26	40	22	0	0	6	36	56
26. Invest time and effort in working and engaging with stakeholders	2	2	4	28	38	26	0	0	8	32	60
27. Actively question, listen, respond and provide feedback as a basis for effective communication	2	0	8	30	36	24	0	0	4	42	54
28. Function effectively in a team by developing and maintaining professional relationships with people from a wide range of backgrounds	2	2	10	24	34	28	0	2	8	32	58
29. Build collaborative internal and external relationships	2	4	8	26	36	24	0	0	4	40	56
30. Adopt a flexible, client-oriented approach that is sensitive to diverse needs	2	6	8	22	34	28	0	0	6	40	54
31. Consider and act with sensitivity to the politics of any given situation	2	4	20	24	24	24	2	2	10	42	44
32. Work through conflict (and with diverse views) by initiating and engaging in robust conversations	2	2	18	26	32	20	0	4	10	42	44
33. Demonstrate awareness of own emotions and their impact on others	2	4	6	24	40	24	0	0	8	44	48
34. Show self-control over disruptive emotions and impulses	2	0	6	28	36	28	0	0	4	36	60
35. Maintain focus, set realistic goals and are not easily distracted	2	0	16	22	32	28	0	0	6	30	64
36. Show awareness of, and sensitivity to, the feelings of others	2	0	12	16	36	34	0	0	8	24	68
37. Invest time in self-care and personal support mechanisms, especially during stressful times.	2	0	12	18	38	30	0	0	4	32	64
38. Promote and adhere to high standards for personal and organisational integrity, honesty, transparency and respect for people	0	2	6	18	36	38	0	0	4	26	70
C5. Leading people and organisations											
14. Develop and/or implement a shared vision to achieve organisational goals	0	0	16	22	36	26	0	0	6	32	62
15. Manage with reference to the broader organisational context	0	2	14	22	36	26	0	0	2	46	52
16. Engage effectively in organisational decision-making	0	2	10	24	38	26	0	0	4	36	60

Behavioural item	Level of competency (%)						Level of importance (%)				
	1	2	3	4	5	6	1	2	3	4	5
17. Inform and educate influential decision makers	2	2	6	24	40	24	0	0	6	36	58
18. Balance the values and priorities of both organisation and profession(s)	2	0	12	24	40	22	0	0	4	38	58
19. Lead, develop and evaluate performance to build an effective team	2	2	12	26	48	10	0	0	2	40	58
20. Empower others to achieve goals	0	4	12	20	42	22	0	0	4	28	68
21. Adapt leadership style to suit the situation	0	2	14	22	44	18	0	0	6	30	64
22. Establish and maintain a personal and professional support network	2	0	18	24	32	24	0	0	10	36	54
23. Persevere to achieve goals	2	0	8	12	32	46	0	0	4	20	76
24. Demonstrate energy, commitment and enthusiasm	2	0	6	24	34	34	0	2	4	22	72
25. Encourage ideas and identify opportunities	2	0	8	20	42	28	0	0	2	26	72
26. Remain calm whilst under pressure	2	8	8	22	38	22	0	4	4	28	64
C6. Enabling and managing change											
10. Explain the need for change in an effective way	2	0	14	24	42	18	0	0	2	44	54
11. Assess readiness for change and plans accordingly	2	0	16	22	48	12	0	0	2	38	60
12. Act accountably and accept personal responsibility	0	2	10	16	50	22	0	0	2	30	68
13. Effectively balance consultation and decisiveness in decision making	0	2	20	10	48	20	0	0	2	38	60
14. Use available evidence to appraise options	0	4	18	14	42	22	0	0	6	36	58
15. Anticipate and appreciate the impact of change and plans accordingly	2	6	12	22	32	26	0	0	4	40	56
16. Implement change and effectively manage the transition process	2	2	20	24	34	18	0	0	4	44	52
17. Evaluate the processes and outcomes of change	2	4	14	26	38	16	0	0	4	44	52
18. Recognise and tolerate ambiguity	2	4	12	16	44	22	0	0	4	40	56

FIGURE 2 KRUSKAL WALLIS RANK SUM TEST BY CORE COMPETENCY



Association between training and competencies

Kruskal-Walli's rank sum test suggested a positive association between management training and self-assessed competency, but the association did not achieve statistical significance (p=0.6376).

Association between experience and competencies

The Fisher's test indicated no significant difference in the proportion of SHMs with high competency (scoring a level of competency 5 or 6) and their level of experience categorised as low being (<3 years) or high (>3 years) of experience (p = 0.27).

Discussion

This study showed that 96 to 100% of SHMs scored the six core management competencies from the MCAP tool as either important or very important, reinforcing the suitability of MCAP tool to the international context [28,29,30,31,32] including Nepalese senior hospital managers.
The self-assessment data presents a revealing picture of current levels of competency among Nepalese SHMs across the six core domains. Most SHMs reported competency expertise in leading people and organisations, closely followed by strengths in communication and relationship management. In comparison, findings from studies in China and Iran which used the MCAP tool highlighted that hospital executives rated themselves significantly lower in leadership competency [28,31]. In contrast the findings from this study suggest a strong foundation in leadership and interpersonal skills, both critical for influencing teams and driving organisational goals.

However, not all SHMs are fully proficient in the core competencies since levels of competency for SHMs across the domains ranged between 56 and 72% suggesting a need for targeted professional development strategies. In particular, areas such as resource management, knowledge of the healthcare environment, and evidence-informed decision making were the least developed competencies indicated by SHMs. This aligns with findings from India, where project managers considered themselves as least competent for evidence informed decision making and knowledge on healthcare organisation [30]. Furthermore, the lowest levels of competency were in SHMs developing budgets aligned with organisational goals which signals either a skill gap or a lack of adequate support structures in financial planning. Additionally, the open-ended questions identified SHMs lower level of confidence in political acumen and managing the change. These findings highlight a critical need for targeted competency-building in three core competencies along with additional support on strengthening working politics and change management for effective and efficient hospital management and service provision in central level public hospital in Nepal.

The primary focus needs to be on resource management including financial insights and budgets to bridge the competency gaps of SHMs. This is further supported by broader literature such as Ziv et al. (2003) who identified that the resource management training programs have good outcomes for fillings competency gaps in health managers specifically for the well organised use of resources [41]. Additionally, research evidence shows that simulation- and scenario-based learning is a cost-effective positive method for improving performance of health executives which supports the acquisition of critical management skills and confidence while incubating a culture of safety [42,43]. Likewise, cross-functional mentorship programs can be utilised for aiding SHMs to improve their management performance in areas like accounting, HR, monitoring, and evaluation [44], in addition to better team dynamics [45].

The second priority is to deepen SHMs understanding on health care environment. This requires increased comprehension of hospital systems and organisational structures including system-wide functions, policy and governance. Workshops and collaborative learning initiatives involving system experts may be included to facilitate the contextualised learning for SHMs, thereby enhancing their understanding of organisational structures within specific healthcare settings [46]. It has been acknowledged that such collaboration fosters deeper insights into governance, policy and operational frameworks, promotes cross-level dialogue and strengthens resilience and adaptability through shared problem-sharing [46]. Furthermore, as a potential strategy, the learning health systems (LHS) framework, which aligns people, data, and organisational culture to enable ongoing learning and innovation, may be employed to foster continuous, context-sensitive improvement [47]. The LHS framework uses real-time evidence from clinical practice to inform decisions, ensuring that new knowledge is rapidly translated into better care. By promoting shared understanding across all levels of the health system, the framework may be utilised to facilitate sustained transformation [47].

The third priority is SHMs knowledge of evidence-based decision making which includes development of skills to access, interpret, and apply research and data in policy and practice. The integration of case-based learning and analytics training may present a valuable approach for developing managerial competency and capabilities of SHMs.

By embedding case-based learning within the professional development programs, SHMs can engage in contextualised, experiential learning that deepens their understanding of evidence-based decision-making frameworks [48,49]. This teaching method is effective in cultivating critical thinking, collaborative problem-solving, and systems-level reasoning that is important for negotiating complex areas such as governance, policy and operational challenges in healthcare settings [48,49].

The fourth priority this study identified was a lack of confidence among SHMs in overseeing politically delicate circumstances. This suggests an inadequate exposure to political acumen training along with insufficient assistance during professional development for SHMs and reflects the importance of targeted capacity building initiatives in political literacy and policy navigation. This sentiment is echoed on study by Waring et al. (2023), who emphasises the implementation of targeted capacity-building initiatives, such as leadership development programs incorporating political education, stakeholder engagement, and policy navigation [50]. Therefore, this study underscores the importance of embedding these components into both pre-service education and ongoing professional development program for SHMs to foster greater preparedness and competency in navigating complex political environments within Nepalese public hospital settings.

The final priority is the competency gap in implementing and managing change processes effectively which suggests a need for professional development strategies for SHMs focusing on change management approach. A study by Le-Dao (2025) identified that addressing shortfalls in change management may include introduction of targeted professional development initiatives on change leadership and transition management underlying stakeholder management, resilience, and strategic alliance for uplifting transition management competencies [51]. These finding collectively underscore the importance of planned and structured development approaches as a foundational support to boost SHMs performance attaining organisational persuasiveness, and system sustainability. Together with the development of SHMs resilience and adaptability, the structured and targeted approaches for competency development ensures that SHMs are well-equipped to navigate the complexities of modern public hospital management in Nepal with competence and conviction.

These findings, along with highlighting a critical need to support Nepalese SHMs in developing the core managerial competencies, are relevant across the broader Asia Pacific region, principally in developing countries where health system strengthening remains uneven. As highlighted in several analyses, discrepancy in management and leadership development have obstructed steady progress in healthcare delivery [25,37,52]. By incorporating the competency development needs identified in Nepal, other nations with similar socio-political and economic contexts, such as Bhutan, Papua New Guinea, and parts of Southeast Asia could benefit from a targeted approach to building managerial competency. This aids regional efforts in advancing healthcare management and enhancing system resilience and efficiency [53].

Limitations

The generalisability of the findings is limited because responses were only received from 50 SHMs in four central level public hospital in Nepal, representing distinct service types and geographical contexts, including urban and rural locations, and specialised facilities such as a children's hospital, maternity hospital, and an infectious disease hospital. Therefore, the result may not be illustrative of all SHMs in central level public hospitals in Nepal. Furthermore, competency assessment relied on self-assessment by participants which may be subject to response bias such as overestimation and underestimation of management competency, leading to errors in self-reported data [28]. Additionally, the relatively small sample size of SHMs may inhibit the ability to robustly assess the internal consistency of MCAP tool using Cronbach's alpha [54].

Further research

Further research on different hospital settings and different levels of management may contribute to a better understanding of the competency development requirements for managers in central level public hospitals in Nepal. The open-ended responses revealed complicated issues influencing SHMs performance that expanded beside individual competency. Challenges such as political interference, progression impacted by favouritism, scarce benefits, and substandard working conditions suggest systemic hurdles that warrant closer examination. These barriers further underscore the requirement for qualitative investigation to examine SHMs lived experiences, insights, understanding, and approaches for managing these challenges. Moreover, examining the perceptions of policymakers will also be critical in comprehending the disengagement between governance frameworks and management realities. Future studies should employ in-depth interviews or focus group discussions to understand the nuanced dynamics at play along with identification of actionable moderators that could support SHMs in effectively fulfilling their roles.

Conclusion

Developing SHMs managerial competency is a critical strategic approach to reinforce the efficiency, strength, workability, resilience, stability and sustainability of hospital systems. The study highlights competency gaps among SHMs in areas such as resource management, evidence-based decision making, knowledge on healthcare environment, political acumen, and transition management which further underscores the need for prioritised targeted professional development interventions in these domains. The professional development programs including trainings need to focus on resource allocation, healthcare environment, decision making, political sensitivity, and transition management for equipping SHMs with the competencies necessary to perform their roles effectively and efficiently.

Different learning approaches such as case-based learning and simulated trainings offer valuable opportunities for intensifying evidence-based decision making in conjunction to fostering critical thinking and collaborative problem-solving. These methods are particularly relevant to the complex, policy driven environments that SHMs operate in. The study ultimately underscores that addressing these competency development needs of SHMs through planned, structured and contextually responsive strategies not only strengthens SHMs individual managerial competency but also enhances their organisational performance and resilience. A sustained investment in competency building and development will enable SHMs to negotiate the challenges of contemporary hospital systems with greater confidence and competency. Such development approaches ultimately contribute to the long-term success and sustainability of Nepalese hospital management and healthcare settings.

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Appendix E (Supporting letters)

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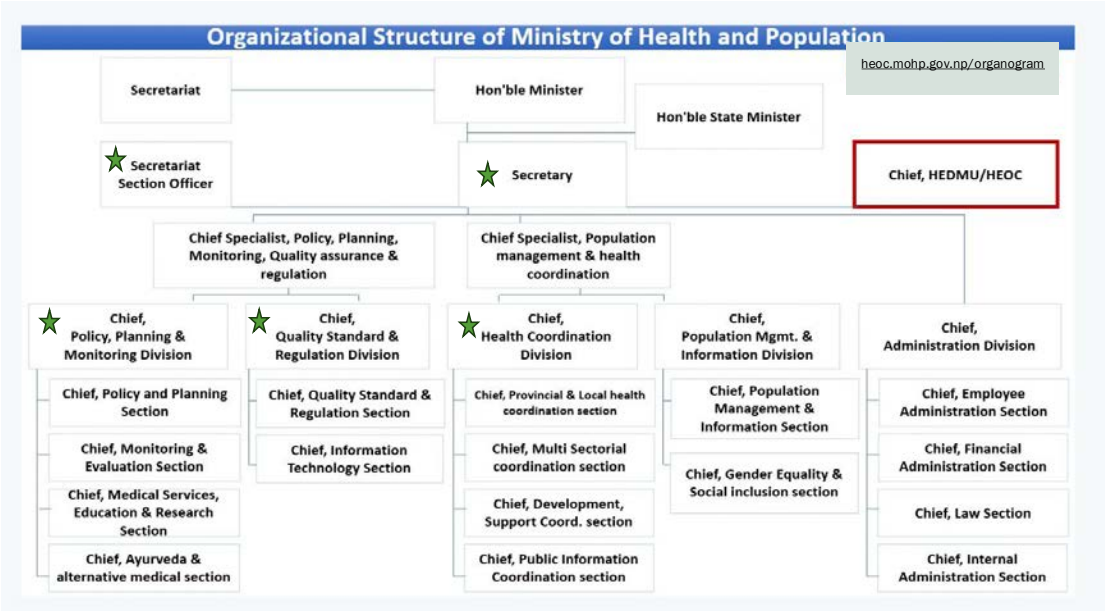
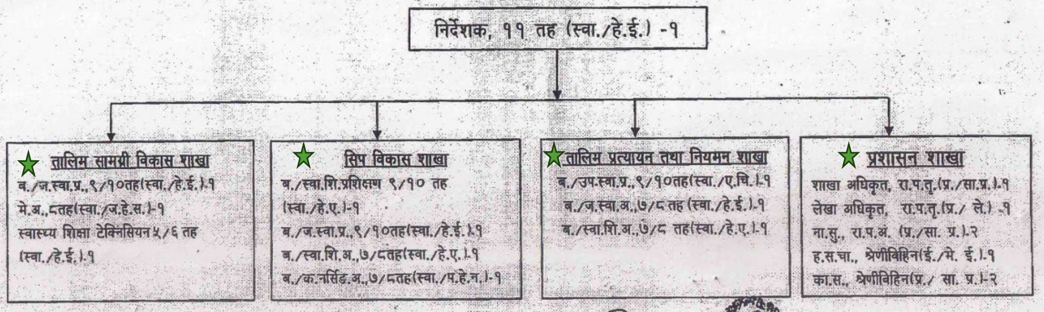
Appendix F (Organisational Structure)



अनुसूची २१.७.१

स्वास्थ्य तथा जनसंख्या मन्त्रालय
राष्ट्रिय स्वास्थ्य तालिम केन्द्रको संगठन संरचना



सचिव