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EDUCATIONAL EXPECTATIONS AND SUICIDE RISK AMONG UNIVERSITY STUDENTS IN THE WESTERN PACIFIC

Submitted by

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In fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

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STATEMENT ON THE CONTRIBUTION OF OTHERS

Izzat Morshidi conceived the research focus of the thesis and was guided by his advisors. The conceptualization of each study, the design of the method, the selection of instruments used, data collection and analysis, and the write-up of the chapters in this thesis were performed by Izzat Morshidi.

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ABSTRACT

Students in higher education are vulnerable to poor mental health, intense psychological distress, and suicidal tendencies. A factor commonly attributed to these outcomes is the unrealistic or high educational expectations imposed on students. However, the mechanism linking educational expectations to suicide is unclear as not all students who perceive high expectations develop suicidal thoughts. This thesis is divided into three main studies. The first study reviewed the literature to identify psychosocial risk factors associated with youth suicide in the Western Pacific region. The second study details the development of a scale designed to measure perceived educational expectations. The third study examined the association between educational expectations and suicide ideation through a hypothesized model based on the Three-Step Theory of suicide. The outcome of the thesis includes i) the identification and evaluation of psychosocial risk factors of youth suicide in the Western Pacific, ii) the creation and evaluation of a psychometrically-valid measure of perceived educational expectations, and iii) an understanding of how academic burnout, psychological pain, and hopelessness mediates the link between educational expectations and suicide among tertiary students. Our findings advance the field of higher education and student suicide research. It is hoped that the thesis informs parents, educators, and higher education institutions on approaches to reduce suicide risk among tertiary students.

Keywords: Educational expectations, suicide ideation, higher education, academic burnout, psychological pain,

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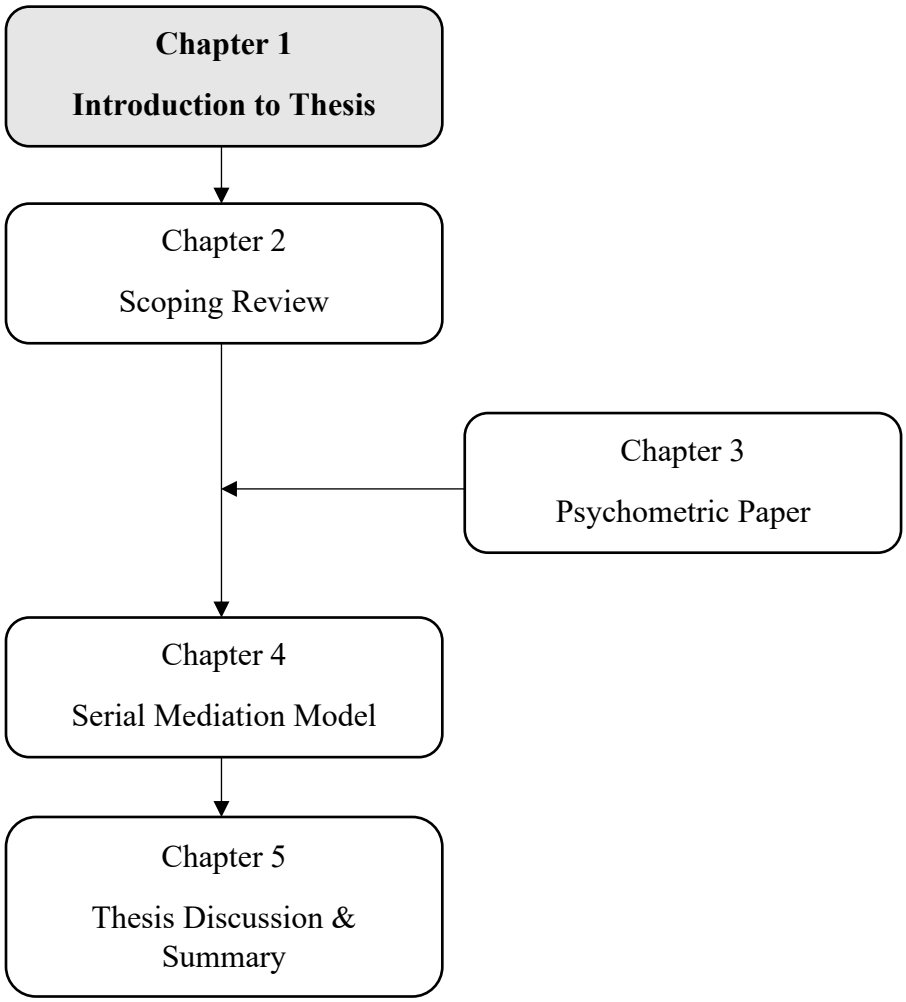
CHAPTER 1

INTRODUCTION TO THE THESIS



Introduction

In 2021, a university student from a Malaysian public university was found dead in her home, believed to be suicide (Chua, 2021). In the same year, two suicide deaths involving university students from two different public universities in Malaysia were also reported (FMT Reporters, 2021). In Taiwan, a Malaysian university student was found to have died by suicide while pursuing an undergraduate degree there (Abdullah, 2021). Over in Singapore, a Sri Lankan undergraduate student hanged himself out of fear of 'letting his parents down' due to a possible suspension from his university (Lam, 2021). Additionally, the Samaritans of Singapore reported that cases of suicide among youths aged 10 to 19 years old peaked in 2021 compared to previous years (Menon & Abdullah, 2022). These are several sample excerpts of known suicide deaths among young persons in recent years which raises concern over the alarming state of poor mental health among youths and students in higher education.

Incidence of Youth Suicide

Suicide among youths is a major global health crisis. Suicide currently ranks among the top five causes of death among youths (Tandon & Nathani, 2018). Mortier et al. (2018) conducted a meta-analysis to examine the global prevalence of suicidal thoughts and suicide attempts among adolescents and youths from pooled student samples of 36 tertiary education institutions (16 samples from North America, 12 samples from Asia, 6 samples from Europe, and 2 samples from Africa). Results from the meta-analysis found a lifetime prevalence rate of 22.3% for suicidal ideation and 3.2% for suicide attempts and a 12-month prevalence rate of 10.62% for suicidal ideation and 1.2% for suicide attempts among college students (Mortier et al., 2018).

In the United States of America (USA), suicide is the second leading cause of premature death among American youths behind accidents or unintentional injury (Centre for Disease Control and Prevention, 2022; Drapeau & McIntosh, 2021; Heron, 2021). In the United Kingdom (UK), the rate of youth suicide is also rising. Data from the Office of National Statistics for England and Wales, the National Records of Scotland, and the Northern Ireland Statistics and Research Agency revealed an estimated increase of 200 deaths annually from the year 2014 to 2016 among those under 20 years of age, which is the highest annual increases of suicide cases compared to other age groups (Rodway et al., 2020). Suicide is also the leading cause of early mortality among young Australians (15 to 24 years old) with a higher rate of suicide among late adolescents (18 to 24 years old) compared to younger adolescents (under 18 years old) (Australian Institute of Health and Welfare, 2023). Similarly, the rate of suicide deaths among youths is higher compared to other age groups in regions such as Australia, Pakistan, Sri Lanka, and Thailand (Hendin & Vijayuakumar, 2008).

Likewise, suicide is also a leading cause of mortality among youths in Asia. Data from the World Health Organization (WHO) reveal that the Southeast Asian region and the Western Pacific region have the highest rate of youth suicide globally (Värnik, 2012). Findings from China's Cause of Death Reporting System in 2018 found that suicide was among the leading cause of youth mortality, especially among high school students (Wang et al., 2019). In 2020, the Japanese Ministry of Health, Labour, and Welfare reported a 25% increase in suicide among young Japanese from the previous year, and that suicide continued to be the leading cause of death for this age group (Yamamoto, 2021). In South Korea, suicide remained the top cause of death among young persons (15 to 24 years old) based on national records from 2008 to 2019 (Statistics Korea, 2021). In Singapore, suicide is the leading cause of death among those aged 10

to 29 years old with males accounting for over 66% of suicide deaths in 2019 (Samaritans of Singapore, n.d.). Young male Singaporeans were more likely to die from suicide while young female Singaporeans were more likely to attempt suicide (Chia et al., 2011; Mak et al., 2015).

It should be noted that most suicide data gathered from government surveys, hospital records, police reports, and nongovernmental entities are only crude estimates. There is also a considerable degree of differences in the reporting, recording, and surveillance of suicide death between highly developed and developing countries (De Leo et al., 2009). Additionally, different cultures have different attitudes and understandings about suicide which can influence reporting (Abraham & Sher, 2017). For example, suicide is taboo in Malaysia, and suicide-related incidences are often under-reported or recorded as accidental death or death due to unknown causes (Ahmad et al., 2014; Wan Salwina et al., 2014). As such, the true figures of suicide deaths may be greater than what is formally reported. Regardless, it is evident that suicide continues to be a public health concern and is a predominant cause of early mortality among youths globally.

Defining Suicide

The term ‘suicide’ often refers to a suicide death. Edwin Shneidman (1993), a key figure in suicidology, defined suicide as a “conscious act of self-induced annihilation, best understood as a multidimensional malaise . . . for which suicide is perceived as the best solution” (Leernars, 1999, p. 115). Suicide is also defined as an act of self-inflicted damage with the intent of self-destruction (Stengel, 1964). Suicide can also be described as an attempt to escape from an unbearable or aversive self-awareness (Baumeister, 1990). De Leo (2004) defined suicide as an act resulting in death that was carried out by the deceased with the expectation of a fatal outcome. These conceptualizations reveal the complexity of suicide as an intricate set of

conscious thoughts, decisions, gestures, plans, and behaviors that can be examined collectively and/or independently (Ngwena et al., 2017).

A particular focus in contemporary suicide research is on suicide attempts. The WHO (2023) estimates that with every reported suicide death, there are approximately 20 nonfatal attempts. There can be up to 10 suicide attempts that result in hospitalization and a further 50 to 100 more attempts resulting in minor injuries or nonfatal outcomes (DeLisle & Holden, 2009). Throughout the literature, a history of a suicide attempt is a strong predictor of suicidal death (López-Steinmetz et al., 2021). Statistically, nonfatal suicide attempts are higher among females than males while suicide attempts with a fatal outcome (death) are higher among males than females (Eskin et al., 2021; Richardson et al., 2005; Walsh & Eggert, 2007). A suicide attempt is defined as an execution of a potentially lethal life-ending behavior with no fatal outcome (Nock et al., 2008). Levinger et al. (2016) defined suicide attempts as nonhabitual behavior initiated by the individual to cause self-harm without a fatal outcome. Similarly, De Leo (2004) defined suicide attempts as a nonhabitual act with the expectation to die by inflicting bodily harm but without a fatal outcome. Based on these definitions, it is clear that a suicide attempt is a conscious self-destructive behavior driven by the desire or intent to die through fatalistic means but without a fatalistic outcome.

With every suicide attempt, there is a greater proportion of individuals who have had thoughts of dying by suicide but have not acted on it (DeLisle & Holden, 2009). Studies show that thoughts of suicide or suicide ideation predict subsequent suicidal plans or attempts (Arria et al., 2009; Campos et al., 2017; Ploskonka & Servaty-Saib, 2015; Spinola et al., 2020). Nock et al. (2008) defined suicidal ideation as the conscious thought of ending one's life through self-inflicted injury or harmful methods. Similarly, Spinola et al. (2020) defined suicide ideation as

ideas or concerns about death and self-destruction. The degree of suicidal ideation and intent can also vary from a passive fleeting desire to die to an active contemplation, planning, and communication of suicide (Ngwena et al., 2017). The intention to die is a fundamental criterion when distinguishing actual suicide ideation from other forms of self-inflicted injurious behavior such as parasuicide, nonsuicidal self-injury, or accidental death where a conscious intent or expectation of death is not present (Andreiseen, 2006). For this thesis, suicide ideation is defined as an organically developed thought about one's death with a clear intention and desire to die through self-inflicted means.

Tertiary Student Suicide

The rate of youths pursuing tertiary education has doubled over the last decade with an estimated 240 million students enrolled in higher education institutions in 2020 (UIS, 2021). University and college enrollment is projected to increase further as the rate of students pursuing higher education continues to increase with an average of 4.2% each year (ICEF, 2018). East Asia and the Pacific region rank highest in terms of enrolment numbers in tertiary education over the last five years compared to other regions globally (UIS, 2021).

In recent years, there is growing attention on the psychological well-being and mental health of students in tertiary education (Education Policy Institute, 2018). Students in universities and colleges are known to experience a higher degree of distress and are more vulnerable to poor mental health than their nonstudent counterparts (Aldiabat et al., 2014; Hernandez-Torrano et al., 2020; Pariat et al., 2014; Storrie et al., 2010). This is concerning as psychological distress and poor mental health among university and college students are likely to result in poor academic performance (Dessauvagie et al., 2022), increased risk of dropout (Ramsdal et al., 2018), and even suicide (Furr et al., 2001).

The increased mental heatlh issues among students in higher education may be attributed to several factors. Those pursuing tertiary education are commonly between 18 to 25 years of age which represents a phase often referred to as ‘emerging adulthood. Emerging adulthood is defined as the transition from adolescence to adulthood (Arnett, 2000) and is commonly characterized by a degree of uncertainty and ambivalence as one learns to navigate and cope with various interpersonal and intrapersonal changes (Karyotaki et al., 2020; Robotham & Julian, 2006). The transition becomes even more challenging for the youths pursuing tertiary education as they must also adjust to their role as a student and cope with academic demands (Pittman & Richmond, 2008). Additionally, the increased rate of mental health issues in higher education may also be a result having more students with psychological vulnerabilities enrolling in higher education (Storrie et al., 2010).

Suicide continues to be a crisis among students in higher education as well. A review of suicide deaths in the USA from 1940 to 2004 found that suicide was the second leading cause of early mortality among college students with an estimated 6.5 deaths per 100,000 students (Schwartz, 2006). Atkinson’s (1969) study of student suicide among prestigious universities in the UK revealed that the suicide rates of students at Oxford and Cambridge University were reportedly higher than students from other British universities and the general British youth population. In a review of Japanese suicide death records over 23 years, Uchida and Uchida (2017) found that suicide remained the leading cause of death among university students in Japan annually. For this thesis, we focused on examining suicidal ideation among students in higher education.

A Theory of Suicide

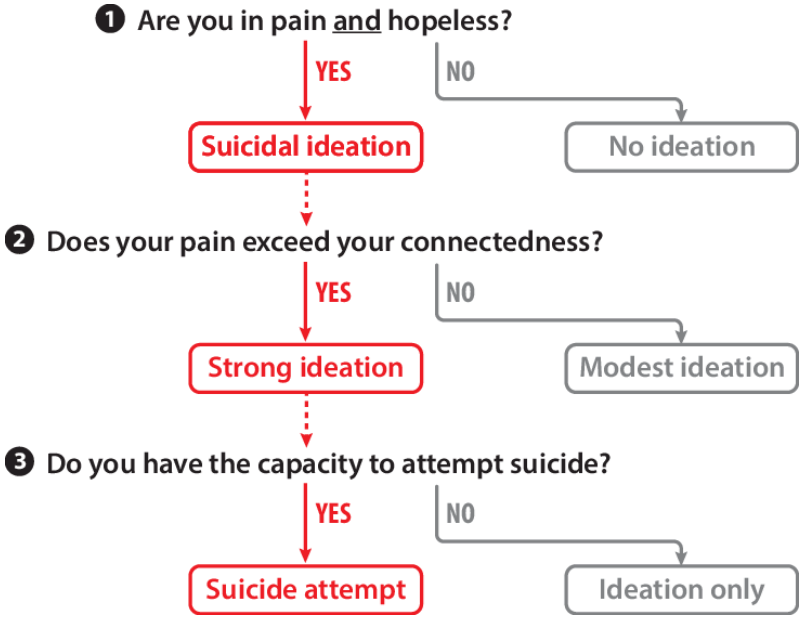
There are multiple theoretical perspectives on suicide. The medical-illness approach views suicide as a symptom or an outcome of severe mental distress (Bertolote & Fleischmann, 2002; O'Connor, 2003). The literature is abundant with studies linking suicide to psychopathological conditions such as major depressive disorder, schizophrenia, post-traumatic stress disorder, and substance abuse (Chesney et al., 2014; Thong et al., 2008; Windfuhr & Kapur, 2011). Several studies have also argued for the role of biological predispositions in increasing the risk of suicidal tendencies such as a dysregulation of the hypothalamic-pituitary system, an increase in proinflammatory cytokines, or a dysfunction in the serotonergic pathway (Ludwig et al., 2017; Pandey et al., 2012). However, contemporary research on suicide has contested the medical-illness model suggesting that mental illness or biological vulnerabilities do not always lead to suicidal outcomes (Fitzpatrick & River, 2018; Leenaars et al., 2018; Nordentoft, 2011).

The psychological approach offers a different perspective on suicide. Shneidman (1993) suggests that suicidal tendencies are caused by a perceived unbearable intense psychological and emotional pain or anguish which he refers to as *psychache,* that forces a person to seek relief. Baumeister (1990) posited that suicide is a form of *egression* (escape) that is driven by a perceived painful existence and the awareness of having unrealistic personal standards and expectations. These postulations argue that suicide is not a symptom, but rather a decisive choice to escape or relieve oneself from unrelenting mental pain, frustration, and unmet psychological needs (Leenaars et al., 2010). Viewing suicide as a conscious choice to escape allows inferences to consider the role of cognitive, personality, and environmental factors in suicide epidemiology.

Contemporary theories of suicide present a methodical conceptualization of suicide by taking into account distal and proximal factors. Most modern suicide theories are based on the ideation-to-action framework which argues 1) that suicide has multiple stages comprising of suicide ideation, suicide attempt, and suicide death, and 2) that there are distinct cognitive, behavioural, physiological, and socioenvironmental factors that influence the formation and transition of each stage of suicide (Klonsky et al., 2016). One particular theory is the Three-Step Theory of Suicide (3ST) which builds on the ideation-to-attempt framework (Klonsky & May, 2015) (see Figure 1).

Figure 1

The Three-Step (3ST) Model of Suicide (Klonsky & May, 2015)



The 3ST model describes the conditions that are necessary for each stage of suicide to occur. The first step suggests that suicidal ideation develops from a combination of perceived psychological pain or psychache and a sense of hopelessness. Klonsky et al. (2021) explained that the experience of pain is not limited to psychological and emotional pain but may also

include painful experiences of the physiological (i.e., medical conditions, physical injury), social (i.e., isolation, rejection), or environmental kind (i.e., natural disasters, war). Hopelessness is also key in the development of suicidal ideation. If a person perceives that their psychache will improve, they are less likely to develop suicidal thoughts compared to a person who perceives that the pain will persist.

The second step suggests that suicidal ideation intensifies when one's sense of connectedness is weak or diminished. Connectedness refers to any form of attachment to life which may include social relationships, a career, a personal goal, a leisurely pursuit, a role in society, or anything that provides a sense of meaning and purpose in life. As such, if pain outweighs connectedness, the thought of suicide becomes stronger as the individual no longer has an attachment to life. The third step suggests that the shift from strong suicide ideation to a suicide attempt is dependent on the presence of a capacity for suicide. The 3ST describes three types of suicide capability: acquired capability (e.g., history of physical abuse, trauma), dispositional capability (e.g., low pain sensitivity, low fear of death), and practical capability (e.g., knowledge of using and access to firearms) (Klonsky & May, 2015).

Educational Expectations

Pursuing higher education is a challenging endeavour. The transition from secondary education to tertiary education is often accompanied by increased demands and expectations to succeed. Throughout the literature, educational expectations have been cited as common stressors among students in higher education (Sue & Okazaki, 1990; Tan & Yates, 2011). This is not to be confused with another concept of 'educational expectations' that refers to the expectations students have towards their experiences attending university such as the presence of academic support, amount of workload, and provision of resources (Hassel & Ridout, 2018;

Naylor et al., 2021). Educational expectations in this thesis refer to the held belief or desire for success and accomplishment of short-term and/or long-term academic goals that are developed and imposed by oneself and/or by others[1] (Ma et al., 2018; Pinquart & Ebeling, 2020; Tan & Yates, 2011). Examples may include but are not limited to expectations on performance in examinations and tests, being top of the class, acquiring awards or recognition, obtaining scholarships, successfully graduating, and pursuing a prestigious academic discipline and career.

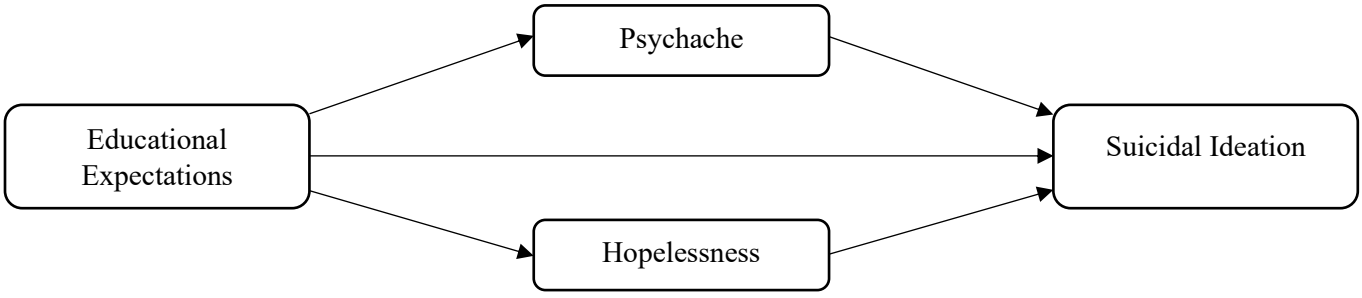
High educational expectations imposed on students can be detrimental to their psychological well-being. Students who experience unrealistically high educational expectations commonly report increased emotional distress, burnout, and isolation (Ali et al., 2019; Costigan et al., 2010). Greater educational expectations are also linked to an increased risk of suicidal ideation among students (Kok et al., 2015; Sinha et al., 2013). Findings from suicide notes of young Singaporeans revealed that failure to meet personal, parental, and teacher expectations are among the main reasons for suicide (Loh et al., 2012). Ortiz et al. (2022) revealed that academic expectations from others and oneself had a direct effect on suicidal ideation among college students in India. Through a mediation analysis, Ortiz et al. (2022) also found that a student's perceived sense of burdensomeness to one's family mediated the effect between academic expectations and suicide ideation. These findings suggest that the risk of suicidal ideation increases when students feel that they are a burden to the family upon failing to meet their (i.e., parents, family) expectations.

[1] Multiple sources of educational expectations are discussed in a review in Chapter 3.

However, the link between high educational expectations and suicidal outcomes among students in higher education is unclear. The present narrative assumes that the higher the perceived educational expectations the greater the risk of suicide which is largely based on correlational or retrospective studies. However, this may not be the case as not all students who are under intense educational expectation are vulnerable to suicide. We propose that the relationship between high educational expectations and suicide is not linear. Rather, there may be additional factors that mediate this relationship. Thus, the thesis aims to examine the link between educational expectations and suicide among students in higher education by utilizing the first step of the 3ST (Klonsky & May, 2015). According to theory, the presence of psychache and a sense of hopelessness give rise to suicidal thoughts. Excessive and unrealistic educational expectations are known to cause a myriad of negative emotional outcomes such as anxiety, fear of failure, guilt, disappointment, and humiliation, which are manifestations of psychache as well as a sense of hopelessness (Dundes et al., 2009; Levinger et al., 2015). As such, we predict that psychache and hopelessness mediate the relationship between educational expectations and suicidal ideation among students in higher education (see Figure 2).

Figure 2

Mediation Model between Educational Expectations and Suicidal Ideation



Academic Burnout

The incidence of burnout, while often associated with the working professional, has also been observed among the student population (Kim et al., 2015; Reis et al., 2015; Ríos-Risquez et al., 2018; Robins et al., 2018; Yu et al., 2016). A review of medical students in the USA noted that at least 50% of students report academic burnout during their medical studies (Ishak et al., 2013). Dyrbye and Shanafelt (2016) estimated that about 30% to 60% of medical students in their later years of training were more likely to report exhaustion and burnout compared to students in their early years of medical school. In another study, 29% of students from four different academic majors reported burnout, with 37% feeling emotionally exhausted, 17% feeling cynical towards studies, and 36% feeling inept as a university student (Salgado & Au-Yong-Oliveira, 2021).

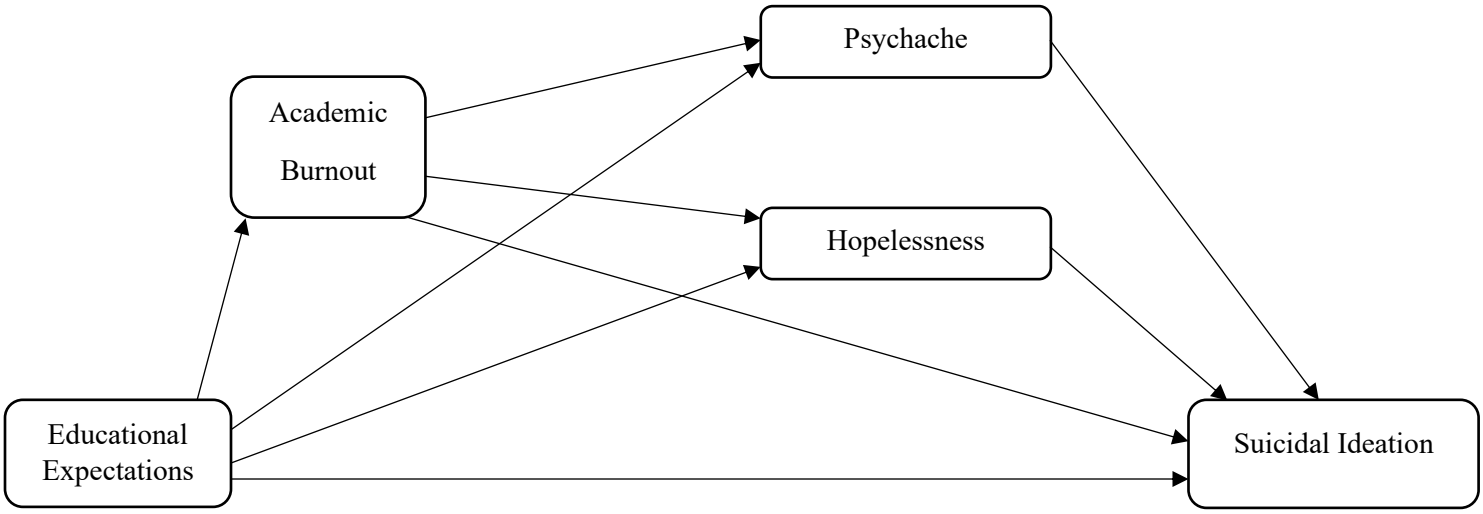
The concept of academic burnout is similar to the general definition of burnout but applied to the academic setting. Academic burnout is a state of psychological distress characterized by emotional exhaustion, depersonalization, and perceived inadequacy (Lee et al., 2020; Pagnin et al., 2013; Salmela-Aro & Read, 2017). Exhaustion in the context of academic burnout refers to mental or physical fatigue as a result of being overworked or drained by academic demands (Olwage & Mostert, 2014). Through prolonged exhaustion, students may develop a dislike and hatred towards studying and their academic pursuits, thus becoming depersonalized and cynical about the purpose of studying (Lee et al., 2020). Research shows that students who reported burnout had lower academic motivation, poorer self-esteem, and more maladaptive coping mechanisms than those who do not report burnout (dos Santos Boni et al., 2018; Kljajic et al., 2017; Rahmati, 2015). Consequently, students may develop a critically negative perception of their capacity as a learner and their ability to complete their education

successfully, which further intensifies the perceived inadequacy component of academic burnout (Reis et al., 2015).

Burnout is also associated with suicidal tendencies among students (Galán et al., 2014; Ijaz & Ahmed, 2019). A cross-sectional study among 5,126 medical students revealed that suicide ideation was higher among students who reported burnout compared to students who did not experience burnout (van Der Heijden et al., 2008). Dyrbye et al. (2008) noted that students with burnout were two to three times more likely to report suicidal ideation than students without burnout. The connection between academic burnout and suicidal ideation is apparent when we consider that the components of burnout –emotional exhaustion, poor perceived academic efficacy, and perceived inadequacy– are manifestations of psychache. Cynical beliefs about the purpose of studying along with the perceived incompetence as a student signify a pessimistic outlook and a sense of hopelessness toward their academic pursuit (Lee et al., 2020). As academic burnout appears to characterize both the experience of psychache and hopelessness, we hypothesize that i) academic burnout mediates the relationship between educational expectations and suicide ideation, and ii) academic burnout mediates the relationship between educational expectations and suicide ideation through psychache and hopelessness (see Figure 3).

Figure 3

Hypothesized Serial Mediation Model with Academic Burnout as a Mediator.



Significance of Project

There is a global urgency to reduce the rate of suicidal deaths. This is reflected in item 3.4.2 of the WHO's Sustainable Development Goals which aims to reduce the rate of premature deaths from noncommunicable diseases globally through the prevention, treatment, and promotion of mental health by 2030 (WHO, 2022). Suicide deaths, attempts, and thoughts are noncommunicable public health crises that require attention as suicide adversely impacts individuals, families, and the community.

First, suicide leaves a lasting adverse impact on survivors[2] of a suicidal attempt. A history of a suicide attempt is a robust predictor of a future attempt (Bilsen, 2018; Lopez-Steinmetz et al., 2021) and other comorbidities such as depression and increased substance abuse (Kalist et al., 2007). A large-scale cohort study found that youths with a history of attempts are twice as likely to develop depression, substance dependency, and poorer physiological health than those without a history of suicide attempts (Goldman-Mellor et al., 2014). A recent global neuroimaging study found initial evidence of reduced frontal brain surface area among youths with a history of suicidal attempts compared to youths without a history of suicide attempts (van Velzen et al., 2022). The authors argue that the reduced frontal brain activity impairs higher-order cognitive processes, emotional regulation, and decision-making processes which complicates the prognosis of survivors in their ability to heal after an attempt.

Survivors also face challenges in securing employment and being financially stable. Findings from a longitudinal study in Quebec found that youths who had a history of suicide attempts had a lower reported annual income, reduced retirement savings, and were more likely

[2] Defined as individuals who have attempted suicide without a fatal outcome (death).

to remain single or unmarried than youths without a history of suicide attempts (Orri et al., 2022). The adverse socioeconomic consequence reported by Kalist et al. (2007) revealed that the likelihood of full-time employment for survivors of a suicide attempt was lower compared to those without a history of a suicide attempt. Challenges in securing employment or being financially stable can further exacerbate the already vulnerable mental state of survivors and make it more challenging for them to become functional healthy members of society.

Second, there is a clear consensus in the literature that exposure to a suicide death or a suicide attempt negatively impacts individuals connected to the victim/attempter. In a case-control study, Bolton et al. (2013) examined parents who have lost their child through suicide versus parents who lost their child through a fatal car crash. Findings revealed that parents who lost their children by suicide were three times more likely to develop alcohol abuse and were twice as likely to be hospitalized. Additionally, family members or peers who were exposed to a suicide death or attempt of a loved one were more likely to develop suicidal thoughts and behaviours themselves (Hill et al., 2021; McNamara, 2013; Santos et al., 2017). An epidemiological study among Chinese adolescents found that adolescents who had a peer who died by suicide or attempted suicide were at a higher risk of suicidal thought and attempt than adolescents without exposure to peer suicide (Liu et al., 2019). The study also found that adolescents with a history of suicide death or attempt in the family are 1.7 times more at risk of planning for suicide than those without a family history of suicide death or attempt. A similar finding was also reported in a study involving youths from Vietnam, Taiwan, and China which found that youths with a family history of a suicide attempt were 2.14 times more at risk of suicidal ideation and 2.57 times more at risk of suicidal attempts compared to youths without a family history of a suicide attempt (Blum et al., 2012).

Lastly, suicide has a significant socioeconomic cost. The total potential years of life lost (PYLL) is an estimate of premature death based on the frequency of reported deaths and age at death which is often used to quantify the economic cost potentially incurred due to these premature deaths (Gardner & Sanborn, 1990). Although limited, several studies have attempted to examine the economic cost of suicide to a country's economy through the PYLL measure. This was done by analyzing the total PYLL due to suicide against the direct costs (i.e., ambulance cost, policing, funeral expenses), indirect costs (i.e., human capital, taxes, employment), and intangible costs (i.e., therapy for family, bereavement needs) incurred (Kinchin & Doran, 2018). A cost analysis of youth suicide (15 to 24 years old) in Australia reported a total of 307 suicide deaths in 2014 which was stipulated to cost Australia a total of 511 million Australian dollars (AUD) (Kinchin & Doran, 2018). In a multinational study involving 10 developed countries, Doran and Kincin (2020) revealed a total of 6,914 cases of youth suicide in 2014 which reflected an average economic burden of 802,939 US dollars (USD) for each country and a cumulative total of 5.53 billion USD.

The cost of suicidal attempts is likely to be greater than the cost of suicide deaths, specifically in terms of direct medical and treatment costs. Czernin et al. (2012) estimated a total direct cost of 3.38 million USD in the form of medical and psychiatric care of suicide attempt survivors based on the records from two Swiss hospitals. Patients with suicide attempts also require longer observation and tend to spend twice as many days in the hospital compared to patients with coronary heart syndrome (Sgobin et al., 2015). A national study in the USA compared the costs of suicide death and attempts based on the records of suicide deaths in 2013. Results found that the direct medical costs of suicide attempts (1,537 million USD) were higher than suicide death (146 million USD). However, the indirect cost of suicide deaths (53,047

million USD) was higher than that of suicide attempts (3,714 million USD) (Shepard et al., 2016). The study further noted that the cost of suicide death among youths (15 to 24 years old) incurred the largest economic cost compared to the cost of suicide death of other age groups in the USA. In sum, the cost of suicide death and attempts is immense and incessant. The negative consequence of suicide death or attempt pervades every social system directly and indirectly connected to the victim or survivor. Kinchin and Doran (2018) estimated that a reduction of the national suicide death rate by 10% could reduce the economic burden of suicide by 51.1 billion AUD each year in Australia.

Suicide is a crisis that can be prevented. Student suicide in particular can be tackled through early intervention to prevent the development of suicide ideation and subsequent progression of a suicide attempt and even death. The number of students pursuing higher education will continue to increase and they will undoubtedly face increased nonacademic and academic-related challenges while trying to navigate the transition into adulthood. Institutions such as schools, colleges, and universities have a pivotal role to play to address the problem of suicide among students. Hence, research into the underlying factors that contribute to suicide risks among students in higher education is vital to assist in the formulation of evidence-based suicide prevention efforts.

Structure of Thesis

The current project aims to uncover the underlying mechanism between educational expectations and suicidal ideation among tertiary students. As this is a thesis by publication, chapters are systematically structured to explain the processes undertaken in the project.

Chapter 1 is an introduction to the thesis. A review of youth and tertiary student suicide as a public health crisis and the problem statement of the project was described. Additionally, the variables, definitions, and theories utilized in this study were discussed briefly[3]. The necessity and significance of undertaking the research project were also presented.

Chapter 2 situates the thesis and provides an answer to the research question: What are the risk factors of suicide among youths? A scoping review approach was used to examine the suicide literature published within the Western Pacific region to identify the psychosocial risk factors of youth suicides over the last decade (from 2010 to 2021). The review examines all suicide outcomes (i.e., ideation, attempt, death) to ensure inclusivity of all relevant publications and comprehensively map the suicide climate in the region. We identified five key themes which included: interpersonal factors, the experience of abuse, academic factors, work factors, and minority status. Additionally, gaps in regional youth suicide research were highlighted. Findings from the review set the foundation of the thesis and attests to a link between academic factors such as academic stress and educational expectations with suicidal outcomes among the youth and student population.

Chapter 3 builds upon the inquiry on the link between educational expectations and suicide risk among youths. In order to uncover the mechanism between educational expectations

[3] An extensive review of the study variables are available in respective chapters.

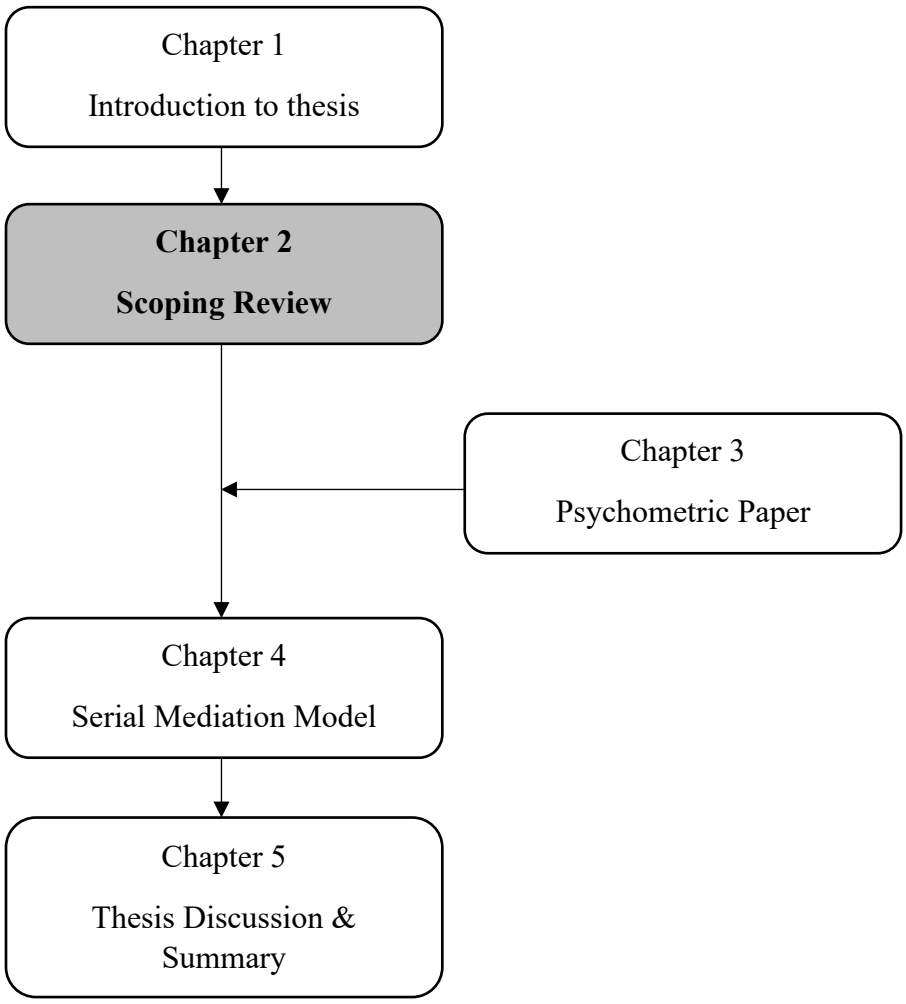
and suicide risk, an accurate and reliable instrument measuring the construct of educational expectations was necessary. Here we attempt to answer two research questions: i) How are educational expectations defined in literature? and ii) How are educational expectations empirically measured? Through a review of the literature on educational expectations, we found that a multidimensional measurement of educational expectations for students in higher education was nonexistent. Chapter 3 is a psychometric paper describing the development and testing of a novel multidimensional instrument designed to measure the degree of perceived educational expectations among students in higher education. Chapter 3 was necessary to the thesis as it provided an instrument that enabled the investigation into the mechanism linking educational expectations and suicidal ideation.

Chapter 4 describes the main purpose of this thesis which is an investigation into the interaction between perceived educational expectations and suicidal ideation via academic burnout, psychache, and hopelessness among students in higher education. The study draws from the findings in Chapter 2 but focuses on suicide ideation as a measurable outcome as suicide ideation is robust predictor of suicidal behaviour. This study attempts to answer two major questions: 1) Does excessive educational expectation predict suicide ideation and 2) Do academic burnout, psychache, and hopelessness mediate the relationship between educational expectations and suicide ideation? This chapter describes the proposed conceptual serial mediation model that demonstrates the mechanisms between educational expectations and suicide ideation based on the first step of the 3ST (Klonsky & May, 2005). The findings and implications of the study are discussed in the chapter.

Chapter 5 provides a summary of each chapter and how they collectively build the thesis. The thesis contributions, limitations, strengths, and future recommendations are also discussed.

CHAPTER 2

PSYCHOSOCIAL RISK FACTORS OF YOUTH SUICIDE IN THE WESTERN PACIFIC: A SCOPING REVIEW[4]



[4] A manuscript of this chapter has been published.
Morshidi, M.I., Chew, P.K.H. & Suárez, L. (2023). Psychosocial risk factors of youth suicide in the Western Pacific: A scoping review. *Social Psychiatry and Psychiatric Epidemiology*. https://doi.org/10.1007/s00127-023-02529-6

Psychosocial Risk Factors of Youth Suicide in the Western Pacific: A Scoping Review

Suicide is one of the leading causes of death among youths (15 to 20 years old). The Western Pacific is a region of 27 independent nations[5] that accounts for 25% of the global suicide rate (WHO, 2019). The Western Pacific aims to be the "healthiest and safest region in the world" by the year 2025 (WHO, 2020, p.3). Among the priorities identified in this vision is a focus on reducing the rate of noncommunicable diseases which includes lowering the risk of mental health disorders and suicide (WHO, 2020).

Although the overall rate of suicide in the region has seen a decline over the last decade, there is rising concern over the rate of suicide among youths. Findings from the World Health Organization (WHO) database revealed a suicide rate of 12.6 per 100 000 among 15 to 29-year-olds in the Western Pacific region based on mortality data in 2008 (Värnik, 2012). Data from the Australian Institute of Health and Welfare (2023) reported that suicide is a leading cause of early mortality for young Australians (15 to 24 years old) and that an estimated 381 young persons died by suicide in 2020. De Leo et al. (2009) reported that youth has the highest rate of suicide death compared to other age groups within the Eastern nations of the Western Pacific. Additionally, a review of suicide data from the Pacific Islands reported that the youth population appears to be most vulnerable to suicide compared to other age groups (Mathieu et al., 2021).

Several publications have examined the state of suicide deaths and behaviours in the Western Pacific region. The Suicide Threats in At-Risk Territories (START) study was developed and initially focused on Western Pacific nations to stimulate global suicide research

[5] Australia, Brunei Darussalam, Cambodia, China, Cook Islands, Fiji, Japan, Kiribati, Laos, Malaysia, Marshall Islands, Federated States of Micronesia, Mongolia, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Philippines, Republic of Korea, Samoa, Singapore, Solomon Islands, Tonga, Tuvalu, Vanuatu, Vietnam.

(De Leo et al., 2013). In time, other nations from different regions participated in the project. During the time of publication, 14 areas[6] were examined and data were collected from respective health ministries, coroner reports, and police databases. Findings from the START study revealed significant variations in suicidal behaviours in terms of age, sex, and the suicide method used. Suicide death was overall higher among males while nonfatal attempts were higher among females. Hanging was the most prevalent method of suicide used across the 14 areas (De Leo et al., 2013). Findings from the START study provided insight into the suicide climate in the Western Pacific. The authors stressed that future suicide research and prevention initiatives should account for the diversity in the social, economic, political, and cultural environment of member nations of the region.

In a review by the International Association for Suicide Prevention /WHO Global Survey in 2013, Pirkis et al. (2020) found variations in the prevention efforts taken by nations in the Western Pacific. Most low-to-middle-income member countries (i.e., Malaysia, Tonga) have adopted some form of national suicide prevention strategy while higher-income member nations (i.e. Australia, New Zealand) have more formalized national strategies and policies for suicide prevention and treatment. Moreover, the study also found that despite the differences in government-backed policies and economic status, most member nations had some form of nongovernmental entity and organization focused on suicide prevention (e.g., Samaritans of Singapore, Befrienders in Malaysia, Inochi no Denwa in Japan). The study however did not examine the efficacy of these strategies in tackling or reducing suicide risk but emphasized the

[6] Australia, New Zeland, Philippines, Mongolia, French Polynesia, Hong Kong, Guam, Vanuatu, Fiji, China, Italy, & Brazil.

need for equity in the monitoring, funding, and training of suicide prevention efforts and policies across member nations in the region.

Current Study

The rate of youth suicide in the Western Pacific is alarming and detrimental to individuals, families, peers, communities, and the socioeconomic environment (Bilsen, 2018). Current regional research such as the START study has only uncovered demographical and statistical trends and variations regarding suicide in the Western Pacific. However, there is a paucity of studies that examine the factors that contribute to the increase in suicidal tendencies within the region. Epidemiological investigations on the risk factors associated with suicide can better inform future suicide research and prevention efforts. Thus, this study aims to identify the psychosocial risk factors linked to youth suicide in the Western Pacific and identify gaps in suicide research in the region.

Method

A scoping review synthesizes evidence to examine the extent of research in an area and to stimulate future research (Arksey & O'Malley, 2005; Pham et al., 2014; Struszczyk et al., 2019). The scoping review method allows investigators to 'map' relevant literature in a selected field of interest more broadly than a systematic review which narrows the eligibility of articles based on the quality of the study. Additionally, a scoping review allows for a heterogenous mix of study designs to be included for review whilst a systematic review typically focuses on a specific design to be reviewed (Arksey & O'Malley, 2005; Tricco et al., 2016). The 5-stage framework (Arksey & O'Malley, 2005) and the PRISMA extension for scoping review (PRISMA-ScR) guidelines (Tricco et al., 2018) were utilized in this review (see appendix A).

Identifying the Research Question

The first step of a scoping review is to define the review parameters (Arksey & O'Malley, 2005). In our review, we sought to identify the psychosocial risk factors of suicide among youths in the Western Pacific. Psychosocial factors refer to social factors which influence a person's mind, behavior, and health (Loughry & Eyber, 2003; Martikainen et al., 2002). The focus on psychosocial factors was based on psychosocial epidemiology; emphasizing social determinants of behavior and health to aid the development of prevention efforts (Martikainen et al., 2002).

The United Nations defines youth as a period of transition from adolescence to adulthood and statistically designates the range of 15 to 24 years of age as a youth (UNDESA, 2013). Similarly, the Society for Adolescent Health and Medicine in the United States (2017) defines youth or young adults as those between 18 to 25 years of age. An alternative conceptualization of youth is as emerging adults which is typically between 18 to 29 years (Arnett, 2014). For our review, we classified youth as being from 15 to 29 years of age to better represent the developmental phase between adolescence and adulthood, characterized by transitional life events such as leaving home, entering and completing tertiary education, finding employment, and/or starting a family.

Suicide is a broad term that is conceptualized as a process with three main stages. First, suicide ideation refers to conscious thoughts of ending one's life (Lai et al., 2018; Nock et al., 2008). Second, suicide attempt refers to the execution of a potentially lethal life-ending behavior with the intent of death but with no fatal outcome. Lastly, suicide death refers to a self-initiated death (Nock et al., 2008). Contemporary suicide theories stipulate that each stage of suicide is influenced by distinct factors. According to the Interpersonal Theory of Suicide (Van Orden et

al., 2012), the development of suicide ideation is a result of perceived burdensomeness and a sense of thwarted belonging. Suicide ideation progresses to suicide attempts only when the capacity for self-harm is present (e.g., access to firearms). Similarly, the Three-Step Theory (Klonsky et al., 2016) suggests that suicide ideation is a result of psychological pain and hopelessness while the transition into an attempt is moderated by the presence of the suicide capacity (e.g., access to firearms, low pain sensitivity). We decided to take an ontological approach to identify the psychosocial suicide risk factors irrespective of the different stages of suicide to better comprehend the risk factors of youth suicide in the region. In sum, the review aims to identify the psychosocial risk factors associated with suicide ideation, attempt, and deaths among youths (15 to 29 years of age) in the Western Pacific region.

Identifying Relevant Studies

A broad nomenclature for suicide was used in the literature search to ensure all relevant papers on suicide were identified. We searched using Boolean phrases with 'suicid*' and a truncation operator [*], followed by names of each country in the region including the term Western Pacific and areas such as Hong Kong, Taiwan, and Macau for inclusivity (see appendix B). Publications were sourced through the Scopus, PubMed, and PsycINFO databases.

Study Selection

Limitations were placed during the initial screening of articles. These included i) having the term 'suicide' or variations of the word in the title or keyword, ii) full articles published in the English language, iii) publications between 1st January 2010 to 31st December 2021, and iv) having at least one sample group from the Western Pacific region. There were no restrictions on

the type of research design. Book chapters, grey literature, conference proceedings, and news articles were excluded. Duplicates were removed and articles were screened for eligibility.

After the initial screening, we enforced limitations to screen papers that did not focus on psychosocial factors. The papers that examined; i) homicide or terrorism-related suicides, ii) prevention or clinical trials, iii) mental or psychiatric illnesses, iv) parasuicide[7], euthanasia, or non-suicidal self-injury, v) media reporting of suicide, vi) psychometric studies, vii) medical autopsies, viii) reports of suicide methods and/or location, and ix) others (e.g., natural disasters, war) were excluded. In the final screening, we limited the remaining papers based on the age group. The population studied in each paper was examined and only papers that had a youth sample (a range of 15 to 29 years of age) were included for the final review. The flow of article selection is shown in Figure 4.

Charting of Data

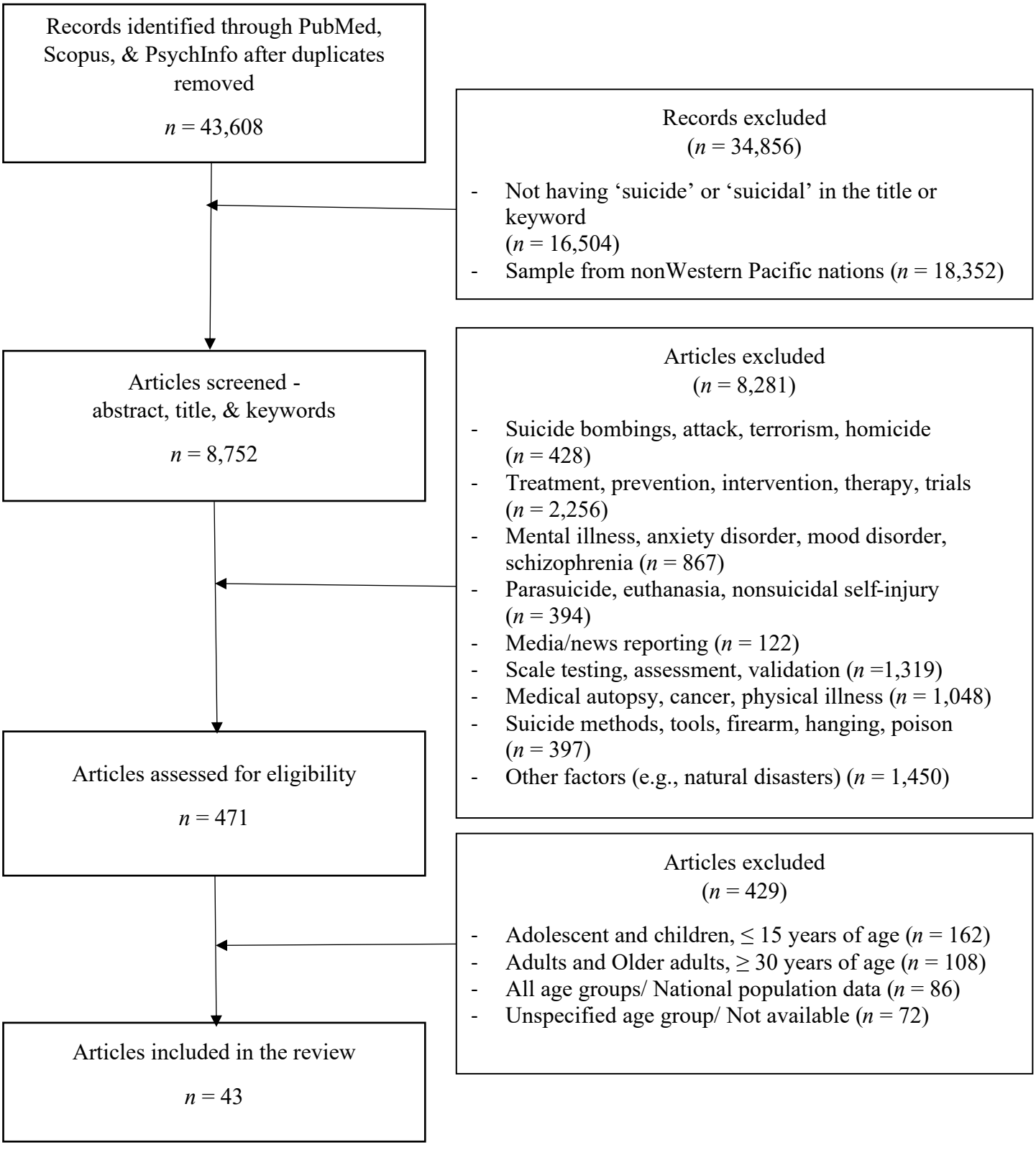
The data extraction process followed the descriptive-analytical approach which involves summarizing a wealth of information in a meaningful format such as identifying trends, strengths, and gaps in the literature (Arksey & O'Malley, 2005). All eligible articles were read in full and information that was relevant to the review was extracted by the first author using a data charting form (see Appendix C). The psychosocial risk factors were identified by examining the variable(s) that was associated or linked to suicide outcomes in each publication. Each identified variable was coded and then thematically grouped based on a shared social system, phenomena, or experience. The extracted factors and themes were subsequently reviewed by the second and

[7] Parasuicide was excluded as it is defined as a non-fatal act in which an individual deliberately causes self-injury of which the intention of death is absent (Casey, 2006).

third authors independently until a consensus was made. The quality of eligible articles was not assessed as it was not necessary for a scoping review (Arksey & O'Malley, 2005).

Figure 4

PRISMA-ScR Flowchart of Articles for Review



Results

A total of 43 papers were eligible for review (see Appendix D). The bulk of research publications were from China (17) followed by Australia (8), South Korea (7), Japan (3), Malaysia (2), New Zealand (1), Singapore (1), the Philippines (1), and multinational studies within the Association of Southeast Asian Nations (ASEAN) (1) and Vietnam and China (2). We did not identify any publications from the Pacific Island nations[8] and other member nations that fit our review criteria. In terms of study design, there were 25 cross-sectional investigations, 10 descriptive studies (e.g., coroner data, hospital admissions, psychological autopsy), four case-control studies, two systematic reviews, and two qualitative studies. Five themes were produced from the extraction of eligible articles: interpersonal factors, experience of abuse, academic factors, work factors, and minority status. The following section provides a narrative on each theme and connection to suicide among youths in the Western Pacific.

Interpersonal Factors

This theme comprised factors relating to issues involving or associated with (or the lack of) interpersonal relationships. These factors were identified in studies distributed across China (13 publications), South Korea (4 publications), Australia (4 publications), Japan (2 publications), Singapore (1 publication), Malaysia (1 publication), and two multinational studies. A tense family environment and relationship were consistently reported as a salient risk factor for youth suicide in the region. Wang et al.'s (2019) study among Chinese college students found that constant arguments and quarrels between parents were found to increase the risk of suicidal ideation among students. Additionally, having a strained parent-child relationship was linked to

[8] Cook Islands, the Marshall Islands, Niue, Palau, Tonga, Papua New Guinea, Tuvalu, and Micronesia.

suicidal outcomes among young students (Lee et al., 2010). A study of young suicide crisis callers in Japan found that 21.5% of calls were about family conflicts and problems (Ohtaki et al., 2019). In a cross-sectional study among Chinese youths, Jia et al. (2016) found that family disharmony was among the factors linked to suicide ideation. A similar association was found in Hong Kong, where family dysfunction significantly predicted suicide ideation among university students (Kwok, 2011). A South Korean investigation on youth mental health found that poor family functioning was significantly associated with depression and suicidal ideation as well (Park et al., 2017).

Naturally, conflict with parents and family members eventually leads to dissatisfaction and subsequent distress. A systematic review of qualitative studies on youth suicide found that family factors such as being distant from parents, sibling conflicts, and a harsh family environment were associated with suicide risk (Grimmond et al., 2019). Poor satisfaction with one's family was predictive of suicide ideation among Chinese college students (Yao et al., 2014). As such, a healthy family environment and relationship appear to reduce suicide risk among youths (Wang et al., 2019) while a strained family relationship can increase the risk of suicide (Luke et al., 2013; Park et al., 2014).

In addition to family disharmony, traumatic family events were also cited as suicide risk factors among youths. Separation through the incarceration of a family member was significantly associated with suicide ideation among Chinese youths (Wang et al., 2019). In another Chinese study, You et al. (2014) reported that a death of a parent and parental divorce were significantly associated with a greater risk of suicide ideation and attempt. Analysis of suicide deaths of young Australians also identified that the death of a parent, exposure to suicide, and exposure to domestic violence were significant risk factors for suicide (Hill et al., 2021). The loss of parents

or family members through suicide was also identified as a risk factor. Zhang et al. (2011) found that a history of suicide in the family was a significant negative life event that was strongly linked to suicide among Chinese youths. A multinational study in China, Taiwan, and Vietnam found that a family history of suicide was significantly linked to suicidal ideation and attempt, with a higher prevalence among female than male youths (Blum et al., 2012).

Throughout the review, we also identified several other family-related factors that were associated with suicide risk among youths in addition to familial disharmony and trauma. The financial status of one's family appears to be associated with high suicide risk as well. Chen et al. (2014) found that family poverty was predictive of repeated suicide attempts among Taiwanese youth and that the effect was greater among males than females. The authors noted that the increased suicide risk may be a result of distress from the social marginalization of impoverished Taiwanese youths and their families. In another study, an unstable parental income was found to be associated with a higher likelihood of suicidal thoughts among female Chinese youth than males (Zhai et al., 2015). Other family-related factors also included youths from single parenthood and low paternal education which were associated with increased suicide risk among Taiwanese youth (Chen et al., 2013).

Problematic interpersonal relationships with peers or a romantic partner were also identified. In a psychological autopsy of youth suicides in China, Zhang and Ma (2012) found that problems relating to one's family, romantic partner, and peers were among the main negative life events that increased the tendency for suicide. Lee et al. (2010) highlighted that problems in a romantic relationship were among the major factors for suicide among young South Koreans. A qualitative study among Malaysian youths reported a positive association between romantic and peer conflict with increased suicide risk (Kok et al., 2015). Similarly, the

dissolution of romantic relationships was a common source of emotional distress linked to suicide deaths based on suicide notes left by young Singaporeans (Loh et al., 2012).

The lack of an interpersonal relationship was also identified as a risk factor for suicide among youths. Zaroff et al. (2014) argue that disruption or trouble in a youth's interpersonal relationships threatens their sense of belonging. A review of suicide among Australian college students reported that the lack of interpersonal relationships and being disconnected from others were associated with a heightened risk of suicide (Li et al., 2020). In a cross-sectional study of Japanese university students, Ostuka and Anamizu (2019) found that youths who reported having 'difficulty in living', which was defined as being distressed with society, feeling a lack of belonging, and a greater sense of loneliness, were more likely to report suicidal ideation.

In summary, the interpersonal risk factors of suicide among youths in the Western Pacific included poor parental relationships, familial dysfunction, familial poverty, problems with romantic and peer relationships, and loneliness due to a lack of interpersonal relationships. The transition from adolescence to adulthood presents a change in social connections and interpersonal relationships. It appears that the link between poor interpersonal relationships and suicide indicates the importance of a good social support system and a sense of belonging. As such, attention should be given to building resiliency to help youths cope with interpersonal problems and foster a sense of belonging among students, especially those living away from family on university grounds or among international students.

Experience of Abuse

Abuse is a pattern of control towards a former or current partner that is either a combination of a physical, psychological, or sexual assault (Rahmani et al., 2019; Wu et al., 2018). This theme was reported in eight publications distributed across China (4 publications), Australia (2 publications), Malaysia (1 publication), and ASEAN (1 publication). Abuse during childhood was commonly cited as a risk factor for suicide in later youth. In a cross-sectional study, Low et al. (2017) found that early childhood physical abuse was predictive of higher suicidal ideation among university students in Hong Kong. Apart from physical abuse, a history of emotional neglect by parents was found to predict a greater likelihood of suicidal ideation among young adults (Wang et al., 2019). Similarly, an analysis of coronial data of young Australians (under 25 years old) reported that a total of 223 recorded suicide deaths were attributed to a history of familial abuse and neglect (Hill et al., 2021).

The risk of suicidal outcomes was also identified among victims of sexual abuse. A history of sexual abuse was significantly associated with suicidal behavior among Malaysian youths (Chan et al., 2013). A survey of aboriginal Koori youths in Australia found that youths who were victims of sexual abuse were more likely to develop suicidal ideation and suicide attempt than nonvictims (Luke et al., 2013). The increased risk of suicidal outcomes among victims of sexual abuse was also found among a sample of Chinese youths (You et al., 2014). Additionally, an ASEAN study found that childhood sexual abuse was among the factors associated with later suicidal ideation and attempts among university students (Peltzer et al., 2017). Abuse can also occur among peers, often in the form of bullying. In a cross-sectional study of university students in China, Wang et al. (2019) found that a history of persistent

victimization during primary and secondary schooling years was predictive of later suicidal ideation, plans, and attempts in university.

In conclusion, youths who were victims of childhood physical, emotional, and sexual abuse or victims of peer bullying are likely to be at a higher risk of suicide. This theme highlights the lasting harmful impact of abuse on the psychological well-being of youths which can linger from adolescence up to young adulthood.

Academic Factors

This theme reflects the factors associated with scholarly pursuits which included publications from South Korea (3 publications) and one publication each from China, Malaysia, Singapore, Japan, Australia, and ASEAN. A common academic-related risk factor was academic stress. A qualitative investigation of Malaysian youths revealed that academic stress and failure in examinations were among the reasons for suicide (Kok et al., 2015). A systematic review of Australian youths noted that academic stress was among the common triggers of suicide (Grimmond et al., 2019). Similarly, the national data on suicide deaths among Japanese university students revealed that male students, medicine majors, final-year undergraduates, and students who took extra years to graduate had the highest risk of suicide due to higher levels of stress than any other student demography (Uchida & Uchida, 2017).

High educational expectations from parents and teachers were also identified as a substantial suicide risk factor. In an investigation of suicide among young Singaporeans, Loh et al. (2012) found that failure to meet personal, parental, and teacher educational expectations were among the main reasons cited in the suicide notes. Similarly, a systematic review of youth suicide in South Korea found that parental expectations towards examinations, especially from

mothers, were significantly linked to greater suicide risk (Lee et al., 2010). Consequently, failure to meet high parental expectations and concern over poor academic performance was also linked to an increased risk of suicidal tendencies among students (Peltzer et al., 2017; You et al., 2014).

Aside from academic distress and high educational expectations, poor adjustment to college was also noted as a risk factor. An investigation of suicide deaths based on the South Korean Student Suicide Report from 2011 to 2015 found that suicide deaths among senior high school students (above 15 years of age) were noticeably higher during March, which marks an adjustment period into a new school year or semester (Lee et al., 2010). Additionally, a study among South Korean college students found that poor adjustment to college life was predictive of suicidal ideation (Kim & Cha, 2018). As such, difficulty adjusting and adapting to a new academic life and environment presents an increased risk for suicidal ideation among youths, especially among the student population (Yao et al., 2014).

In summary, the pressure and expectations from studying as well as difficulty adjusting to a new academic environment were found to be associated with suicide risk among youths in the region. Our findings suggest that educational institutions have an active role to play in mitigating the risk of poor mental health and suicide among students.

Work Factors

The theme encompasses factors related to work and financial issues. These were sourced from publications from China (4 publications), South Korea (2 publications), and Australia (2 publications). A common work-related risk factor was involuntary job loss or unemployment. A

case-control study of suicides by 18 to 34-year-olds[9] in Australia found that a sudden dismissal from work was significantly associated with a higher risk of suicide attempt and death (Milner et al., 2014). In another case-control study, Zhang and Ma (2012) reported that being laid off and being unemployed were significant negative life events associated with suicide deaths among Chinese youth. A cross-sectional study in South Korea found that youths who were neither working nor interested in working had an elevated risk of suicidal thoughts compared to youths in fixed-waged employment (Kim & Yoon, 2018). Unemployment or a sudden dismissal threatens a person's financial stability and negatively impacts their financial commitments which can be highly distressing.

Financial challenges were also cited as suicide risk factors among youths. A cross-sectional survey in South Korea found that having a low income was significantly associated with increased suicidal ideation among youths (Jo et al., 2017). In a qualitative study of rural Chinese youth, Dai et al. (2011) found that those who perceive themselves as being poor were more likely to report suicidal ideation and suicide plan as compared to those who perceive themselves as moderate or rich. It was postulated that actual or perceived financial deprivation and insecurity can elevate psychological strain which increases the risk of emotional distress and risk of suicide among youths (Zhang et al., 2011). In a case-control study, Chen et al. (2014) found that 15 to 24-year-old male Taiwanese youths who work and had to be financially self-sufficient (i.e., unable to rely on parental financial support) had an increased risk of repeated suicide attempts compared to peers who did not need to work and were financially supported by their family. Additionally, specific types of professions were highlighted as having a higher risk

[9] The paper was included in the review despite exceeding the upper age range of our review because the study examined suicide across different age groups; 18 to 19 years, 20 to 24 years, 25 to 29 years, and 30 to 34 years. We only collected findings relevant to the age groups 18 to 29 years for our review.

of suicide compared to other professions. In a study of junior doctors in Australia, Petrie et al. (2021) found that workplace stress, workplace bullying, and fear of litigation were strongly associated with suicidal ideation.

In summary, this theme suggests that the loss of employment, being unemployed, financial strains, a harsh workplace environment, and having to be financially independent at a young age were associated with suicide risk among youths in the region. These factors highlight how a stable financial and economic status can influence the well-being of youths, especially among those who are entering the workforce for the first time or struggling with poverty.

Minority Status

The theme is centralized around the factors such as prejudice and discriminatory behaviour targeted toward youths from a sexual minority group (4 publications) and an ethnic minority group (2 publications). Social stigmatization, rejection, self-stigmatizing thoughts, and negative attitudes were strongly linked to the risk of mental health issues and suicide among youths from the lesbian, gay, and bisexual (LGB) community (Lea et al., 2014). In a multinational study (China, Taiwan, and Vietnam), Lian et al. (2015) found that the rate of suicide ideation and suicide attempt was higher among LGB youths compared to heterosexual youths. Manalastas (2016) found that youths in the Philippines who were in a same-sex relationship were more likely to develop suicidal thoughts and attempt suicide compared to their heterosexual peers. Similarly, a study in New Zealand found that homosexual and bisexual youths were more vulnerable to peer bullying, depression, and suicide than heterosexual youths (Denny et al., 2016).

Identifying as an ethnic minority was also linked to higher suicide risk in several countries in the region. Gibson et al.'s (2021) investigation of Aboriginal and Torres Strait Islander youths found that low levels of community and cultural connectedness were associated with higher rates of suicide. The authors further stated that perceived discrimination elevated the risk of suicide among young Aboriginal and Torres Strait Island youths in Australia. Similarly, a study among ethnic Koori youths in Australia found that the experience of being discriminated against increased the risk of developing suicide ideation and lifetime suicide attempt (Luke et al., 2013). Although research in the Western Pacific region is limited, this theme highlights that youths from either a sexual minority group or an ethnic minority group are highly vulnerable to bullying, discriminatory behaviour, and social isolation which subsequently increases the risk of suicidal outcomes.

Discussion

This study utilized a scoping review approach to examine the current literature on the psychosocial risk factors linked to suicide among youths in the Western Pacific. The distribution of publications on youth suicide was largely disproportionate with more studies conducted in high- to middle-income countries[10] (90%) compared to low-income countries. De Leo et al. (2009) suggest that this may be attributed to the variation in suicide surveillance data and coverage across different member nations. More developed countries in the region such as Singapore and Australia have systems that effectively record information on suicide while low-to-middle-income countries have inconsistent reporting of suicide or lack adequate suicide data collection practices (De Leo et al., 2009). Therefore, our findings cannot be generalized

[10] Based on the classification by The World Bank (2021).

throughout the entire region or specific member nations. Thus, the suicide risk factors identified in this review serve as a reference for countries in the region to inform research and proactive preventative measures to reduce suicidal risk among the youth population.

The connection between the identified risk factors in our review and suicide risk can be understood through theory. Factors such as a history of physical or sexual abuse, death in the family, and academic stress are experiences of intense psychological pain which can drive the desire for individuals to consider suicide as a means of escape from a highly distressing existence (Shneidman, 1993). Through the lens of the Interpersonal Theory of Suicide, negative experiences such as being discriminated against, poor college adjustment, parental neglect, the dissolution or loss of a romantic relationship, and the lack of interpersonal relationships signify a thwarted sense of belongingness which predicts suicide ideation (Joiner et al., 2012). Moreover, failure to meet high academic expectations, being laid off, and being unemployed can develop into feelings of burdensomeness and humiliation which is also key in the development of suicidal thoughts according to the Interpersonal theory (Joiner et al., 2012). Similarly, through the lens of the Three-Step Theory of Suicide, parental neglect, an adverse family environment, physical and sexual abuse, and bully victimization exemplify an intense feeling of pain and a sense of hopelessness which can progress into suicidal ideation (Klonsky & May, 2015).

Gaps in Youth Suicide Research

Following the descriptive-analytical approach (Arksey & O'Malley, 2005), we have identified several gaps in suicide research within the Western Pacific. Firstly, in our review, we identified that the lack of interpersonal relationships and loneliness were associated with suicide risk among youths. Incidentally, a trend of self-isolationism and social disconnection has emerged over the last decade among youths. The Japanese term *hikikomori* refers to a person

who is socially withdrawn and chooses to be isolated from any form of social connections for long periods (i.e., up to six months or more) (Wong et al., 2019). These behaviours reflect a lack or absence of interpersonal relationships which is a known suicide risk factor. Indeed, findings from a national cross-sectional study on a sample of 5,000 residents in urban and suburban Japan found that those who identified as hikikomori were more likely to have interpersonal difficulties and higher suicide risk compared to a nonhikikomori (Yong & Nomura, 2019). Apart from Japan, the number of youths who have been identified as hikikomori has also been recorded in other Western Pacific countries (Uchida & Norasakkunkit, 2015; Wong et al., 2019). These countries include China, South Korea, Singapore, and Australia (Kato et al., 2012; Wong et al., 2015; Yong & Nomura, 2019). However, research on the psychological impact and suicide risk of being a hikikomori in these countries is currently unknown and requires attention.

Secondly, publications on the suicide risk of bully victimization included in this review have only centered on the traditional physical form of bullying. Cyberbullying refers to an intentional act to inflict emotional distress on another person through the use of technology which may include online harassment, disclosure of personal information (i.e., doxing), or unsolicited sexual messages (Watts et al., 2017). The consequence of cyberbullying is arguably greater than physical bullying due to the omnipresent and permanent nature of the internet. Faucher et al. (2014) in a survey of four Canadian universities found an overall rate of 24.1% of students reported having been a victim of cyberbullying over the last 12 months. In another study, 94.9% of psychology undergraduates from a New Zealand university reported having experienced some form of cyberbullying during the past year (Phizacklea & Sargisson, 2018). As youths are native to digital technology and social media, future research should consider

examining the prevalence and impact of cyberbullying on the psychological well-being and suicide risk of youths in the region.

Thirdly, there is a growing concern about the mental well-being of students in tertiary education which is spurred by rising rates of emotional distress, depression, anxiety, and suicide among college and university students globally (Eisenberg et al., 2013; Reddy et al., 2018). The higher education climate in the Western Pacific is booming with increasingly more youths pursuing tertiary education upon completion of secondary education (Varghese, 2015). Apart from bullying by peers, instances of bullying by educators have also been reported by students. Chapell et al. (2004) sampled 1,025 undergraduate students and examined self-reported victimization of bullying by peers and teachers and found that almost 5% of students reported having been bullied by their teachers. In a study among Turkish nursing students, 60% reported having been frequently bullied either by their lecturers or clinicians during their course of study (Palaz, 2013). Research on student well-being should not shy away from the possibility of abuse by authoritative figures in academic institutions and industry partners. More research needs to be done to examine the prevalence and impact of such maltreatment and its impact on the well-being of youths and students in the region.

Lastly, unrealistic and high educational expectations were also among the academic risk factors linked to suicide among youths. Most of the publications included in this review were centered on the educational expectations of parents. According to the literature however, educational expectations can also come from oneself (Ang & Huan, 2006; Hamaideh, 2011), educators (Friedrich et al., 2015; Szumski & Karwowski, 2019), the academic institution (Eisenberg et al., 2013), and/or the sociocultural environment (Tao & Hong, 2014). Research on

the perceived educational expectations of students should therefore consider the distinct impact of each source of expectations on a student's psychological well-being.

Strengths and Implications

The study is the first to map and identify the psychosocial risk factors of youth suicide within the Western Pacific region. We used a broad definition of suicide in this review to account for all stages of suicide to ensure inclusivity. In line with the vision to become the "healthiest and safest region" by the year 2025 (WHO, 2020, p.3), greater attention to regional suicide research and prevention is warranted. As such, our findings have important implications for the region and its member nations in terms of research and policy for suicide prevention. Throughout our review, it was clear that there was a large disparity in suicide surveillance, recording practices, prevention strategies, public awareness, and publications on suicide among Western Pacific member nations. In particular, there is a considerable shortage of research on the suicide risk factors among youths in low-to-middle-income member countries compared to high-income member countries. Therefore, the WHO Western Pacific branch office and developed member nations should encourage collaboration and exchange of suicide prevention policies, funding, expertise, data recording, and research to address the rising youth suicide crisis in the region (Pirkis et al., 2020).

The increasing rate of suicide among youths is alarming yet suicide is a crisis that can be averted. As such, greater attention must be given to address the risk factors associated with youth suicide. Our findings and discussions provide a point of reference to guide future suicide research, targeted suicide awareness and prevention campaigns, and the development of public policies and strategies to reduce suicide rates among youths within the Western Pacific.

Limitations

There were several limitations in this review. First, screening and charting of data was conducted by a single reviewer and later examined by two reviewers separately. Nonetheless, the requirement of more than one reviewer in a scoping review has been mixed (Tricco et al., 2016). Second, due to the abundance of cross-sectional and retrospective case studies, causality between the identified factors and suicide outcomes cannot be inferred. Third, the inclusion criteria limited publications with the term ‘suicide’ in the title or keyword. There is a possibility for suicide publications that did not use the term in their title or keyword to be excluded from this review. Fourth, we limited research that only examined the youth sample age range (15 to 29 years old). Thus, data from a large population or nationwide studies across various age groups were excluded from this review. Lastly, the review only included papers published in the English language. Given the diversity of cultures and languages in the region, relevant nonEnglish publications were excluded. Our findings are not conclusive as the nonEnglish publications may reveal additional risk factors and evidence not found in this review.

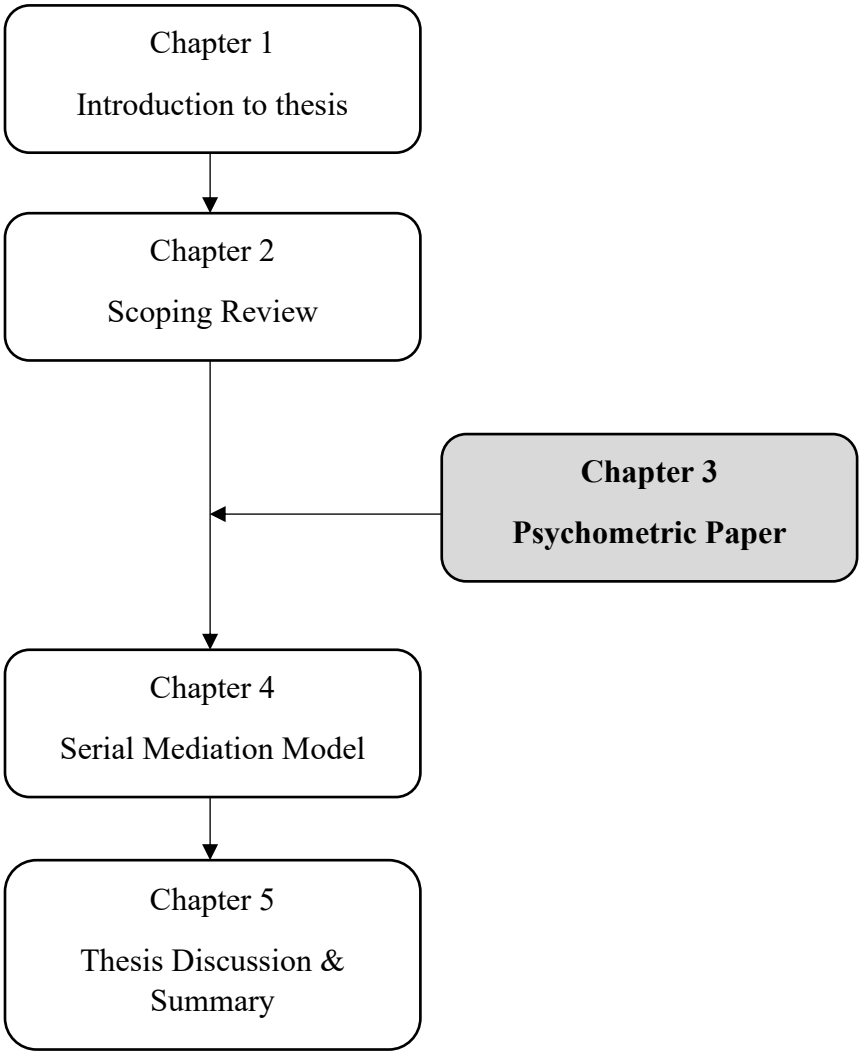
Conclusion

The research supports the Western Pacific regional goal of reducing the rate of noncommunicable diseases by the year 2025. A scoping review was conducted to identify and map the psychosocial risk factors associated with youth suicide in the region. Five themes were identified and discussed: interpersonal factors, the experience of abuse, academic factors, work factors, and minority status. It is hoped that the identified risk factors will inform future research and further examine the underlying mechanisms linking each risk factor to suicide among youths in the region to aid suicide prevention efforts.

In particular interest to this thesis is the link between high educational expectations, academic distress, and suicidal ideation. We noted that current research on educational expectational expectations is focused on youths in secondary education and that there was a lack of research among students in tertiary education in the region. For any examination of educational expectations to commence, an instrument that can empirically measure educational expectations is therefore necessary.

CHAPTER 3

THE HIGHER EDUCATION EXPECTATION SCALE: DEVELOPMENT AND TESTING[11]



[11] A manuscript of this chapter has been published.
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The Higher Education Expectation Scale: Development and Testing

University and college students experience high levels of distress mainly due to exams, increased workload, time constraints, fear of failure, peer competition, interpersonal problems, and high expectations (Aloia & McTigue, 2019; Bedewy & Gabriel, 2015; Isralowitz & Hong, 1990; Reddy et al., 2018). In Chapter 2, we identified that academic-related factors were among the factors associated with suicidal outcomes among youths in the Western Pacific. Within this factor, academic distress and high educational expectations as risk factors were frequently recorded. As highlighted in Chapter 2, research on the impact of high educational expectations on among tertiary students in the Western Pacific region is scarce. High educational expectations are known to have a positive impact on student academic performance and achievement (Chatterjee & Sinha, 2013; Jacobs & Harvey, 2005; Ma et al., 2018; Malik, 2021). On the other hand, excessive and unrealistic educational expectations have also been linked to increased emotional distress, anxiety, and depressive symptoms among students (Cao et al., 2007; Isralowitz & Hong, 1990; Sue & Okazaki, 1990).

Most investigations on the impact of educational expectations are largely focused on primary- and secondary-level students with a scarcity among tertiary-level students. As such, the instruments and scales used in these studies mainly test the expectations relevant to primary- and secondary-level students such as academic grades and exams. Additionally, the scope of expectations is limited to the expectations imposed mainly by parents and does not account for the expectations imposed by other sources. In sum, not much is known about the impact of perceived educational expectations on tertiary students and the expectation from other sources. The current study aims to design and test a multidimensional instrument that measures the perceived educational expectations of students in tertiary education.

Educational Expectations as a Construct

The concept of educational expectations has had various definitions in the literature. Diniz et al. (2018) defined educational expectation as a set of motivations and cognitions associated with experience in education. This generalized definition was shared by Pinquart and Ebeling (2020), who defined educational expectation as the anticipation of the attainment of short-term and long-term academic goals. Sheng (2014) defined educational expectation as the highest level of academic qualification one is expected to acquire. Other definitions have been constructed based on the source of educational expectations. For example, parental educational expectation is defined as a parental belief in their child's ability to attain academic success (Sorkkila et al., 2017). Lindberg and colleagues (2019) defined parental expectations as a belief and judgment parents have for their children's future accomplishments. Additionally, teacher expectation refers to the belief and desire for the student's ability to be academically successful (Saracho, 1991; Tsiplakides & Keramida, 2010). Given the numerous definitions of educational expectations across literature, the current study employs a holistic conceptualization of the construct. We define the construct of educational expectations as the belief and desire towards the successful accomplishment of academic short-term goals (e.g., tests, examinations, assignments) and/or long-term goals (e.g., graduation, awards, employment) that are developed and imposed by oneself and/or by others.

Sources of Educational Expectations

Parents and Family

Parents are notably the most common source of educational expectations cited in the literature (Cao et al., 2007; Israelowitz & Hong, 1990; Sue & Okazaki, 1990). Parental or familial educational expectations are the held desires for their child to be successful in their educational pursuits and to perform exceptionally in their academic endeavour (Tan & Yates, 2011). This is because, greater scholastic achievement is believed to be a pathway to success in life and upward social mobility for the family (Tao & Hong, 2014). Consequently, failure or poor achievement is regarded as a disappointment and an embarrassment to the family (Tan & Yates, 2011). The educational expectations commonly imposed by parents include but are not limited to having excellent grades in exams and tests, being the top performer in class, having a positive studying attitude, a high degree of self-discipline, obtaining academic awards, and attaining a higher level of academic qualifications (e.g, postgraduate studies).

Apart from expectations on academic performance and grades, parental expectations can also extend into decisions on academic pathways, type of university/institution, and future career choices. A qualitative study among secondary students in New Zealand found that students expressed that their parents had high expectations about wanting them to enroll in a university with a greater reputation (Rubie-Davies et al., 2010). In a study among Chinese students and their parents, Hou et al., (2011) found that parents had different expectations of career types compared to their children. Parents expected their children to pursue enterprising careers (e.g., managers, financial planners) and investigative careers (e.g., health specialists, engineers) and avoid realistic (e.g., mechanics, police officers) and conventional (e.g., operators, technicians) type careers. According to Hou et al. (2011), parental preference for certain career types is

motivated by the held prestige and wealth often associated with enterprising and investigative-type careers. A study among South Korean nursing students found that the majority of students reported having enrolled in a nursing school because of their parents' decisions (Dos Santos, 2020). Similarly, in communities where medicine is perceived as a prestigious field, students reported a higher degree of parental career expectation to enroll in medical school (Griffin & Hu, 2019). Students may find themselves in a 'double bind', where students are forced to comply to parental expectations to avoid parental disapproval (Low, 2015). In other words, students are confronted with the choice of either a) complying with their parental expectation and obtain parental approval or b) not complying to parental expectation and obtain parental disapproval. In sum, students are not only pressured to meet the high expectations of academic performance but also to submit to the academic and career choices set by their parents.

The weight of perceived parental expectations appears to vary. A study among university students in China found that students from high-income families reported a greater degree of educational expectations from their parents than students from lower-income families (Sheng, 2014). The education level of parents also influenced the weight of perceived educational expectations toward their children. Parents with a greater academic background are likely to impose greater academic pressure and are more involved in their children's learning than parents with a lower academic background (Jacobs & Harvey, 2005). This reflects the parent's desire to ensure that the children maintain the parents' or family's social capital, reputation, and economic status which can be overbearing (Kim & Bang, 2017).

Mounting academic pressure from parents is known to negatively impact students. Findings have consistently revealed an association between high parental expectations and poor psychological well-being (Calaguas, 2012; Loh et al., 2012; Warikoo et al., 2020). A study in

Hong Kong found that adolescents who experience high parental expectations were more likely to report depressive symptoms than those with low parental pressure (Ma et al., 2018). Studies have also shown that higher perceived parental educational expectation were positively correlated with higher test anxiety (Çelik & Yildirim, 2019; Peleg et al., 2016) and suicidal ideation (Lee et al., 2006). Increased pressure from parents has been linked to increased test anxiety, poor attention, and poor esteem among students (Ritchwood et al., 2015). Similarly, a review of academic achievements among immigrant Chinese students noted that a high degree of parental expectation contributed to a higher risk of psychological distress, depression, and perceived isolation from parents and peers (Costigan et al., 2010). Other studies have found that students who enrolled in a university program due to parental pressure reported greater emotional distress than those who enrolled in a program based on their own decision (Poots & Cassidy, 2020).

Educators and the Institution

Another common source of academic expectation comes from teachers or educators. An educator's expectation refers to the judgments or estimates made by the educator about the probable future achievements of a student based on the student's past achievements and behaviour (Johnston et al., 2019; Saracho, 1991; Timmermans et al., 2016). Several studies have found that an educator's high expectations can significantly improve a student's academic performance (Friedrich et al., 2015; Szumski & Karwowski, 2019). However, the positive effect of an educator's expectation is mediated by factors such as the quality of guidance, the amount, and the difficulty of tasks given to the student (Szumski & Karwowski, 2019).

Educators have also been reported to influence decision-making among students, particularly regarding a student's future career options (Dandy et al., 2015). A qualitative

investigation among Taiwanese nursing students found that most of the students interviewed attributed their choice of enrolling in nursing school to their teachers in secondary school in addition to parental pressure (Dos Santos, 2020). Lee et al. (2015) further noted that teachers' expectations played a crucial role in affecting the choice of Science, Technology, Engineering, Mathematics, and Medicine (STEMM) postsecondary studies. The authors also found that male students were more susceptible to the influence of their teachers in choosing STEMM-related studies than female students.

Expectations from educators can add to the burden on students who may perceive the increased attention as highly distressing (Ang & Huan, 2006; Låftman et al., 2013; Paler et al., 2019; Pariat et al., 2014; Tan & Yates, 2011). Students report feeling overburdened, pressured, and anxious about underperforming or possibly disappointing their educators, which can lead to negative psychological outcomes (Johnston et al., 2019; Rubie-Davis et al., 2010). A study by Ritchwood et al. (2015) among 9 to 12-grade students found that high academic pressure from educators was associated with high levels of self-reported stress and test anxiety. Similarly, a study among college students found that expectation from educators was one of the main sources of academic distress, second only to parents (Pariat et al., 2014). Excessive expectations from educators can subsequently result in burnout. Wickramasinghe et al.'s (2018) study of Sri Lankan university students found that in addition to parents and self-expectations, educators' expectation was also significantly correlated with symptoms of burnout. A similar finding was also reported in a study among Chinese university students where high educator expectations were linked to academic burnout (Rahmatpour et al., 2019).

An aspect not often examined regarding an educator's expectation is the influence of institutional demands. High educational expectations by educators may be a result of the

demands of the educational institutions themselves. In other words, educators may be imposing excessive pressure on students to perform because the institution has great expectations regarding the academic excellence of their students. For example, in Malaysia, secondary schools are annually ranked based on the cumulative grade point average of the Malaysian Certificate of Education national examination which is taken by fifth-year secondary students (Adnan, 2022). To gain a greater reputation and a higher national rank, schools are known to communicate their demands for exceptional performance in the national exam (i.e., a 4.0 Grade Point Average) to students, parents, and teachers (Chen et al., 2009; Morini, 2019). We speculate that the perceived educational pressure imposed onto students during their secondary education may trickle over when students move into tertiary education.

Higher education institutions are annually ranked based on various criteria such as publication outputs, student satisfaction, and graduate employability. The higher education climate is nonetheless highly competitive with universities striving for better ranks and reputation (Crew, 2019). The competitiveness between universities may have an indirect impact as institutional targets, goals, and aspirations are communicated to students (Morini, 2019). Several studies have noted that students from high-ranked universities or 'prestigious' universities reported higher levels of stress and poor mental health than students from average-to-low-ranked universities (Chen et al., 2009; Eisenberg et al., 2013). Unfortunately, not much is empirically known about the influence of institutional pressure on student well-being or whether students perceive any form of expectation from their institution. Thus, a comprehensive measure of educational expectations should explore items on the perceived expectations from institutions.

Cultural Expectations

Cultural standards on scholarship and academic achievement can also influence the weight of expectations perceived by students. In particular, there appear to be cultural differences regarding educational expectations between students from Eastern and Western sociocultural backgrounds. For example, a cross-cultural study found that Japanese and mainland Chinese students reported higher levels of parental academic expectation than American students (Crystal et al., 1994). In another study, Asian immigrant students and Asian American students reported higher perceived educational expectations from their families compared to their Caucasian American counterparts (Mau, 1997; Saw et al., 2013). Similarly, Singaporean students were found to perceive a higher degree of academic expectations than Canadian students (Ang et al., 2009). Although focused on parental expectations, these findings demonstrate a clear discrepancy between the sociocultural environment and its influence on the weight of educational expectations between students from an Eastern background versus a student from a Western background.

A common theory that has been used to explain a higher degree of educational expectations among Asian or Eastern students is the Confucian Heritage Culture (Dundes et al., 2009; Sue & Okazaki, 1990). Note that the Confucian culture regarding education is commonly studied in East Asia (e.g., China, Japan, South Korea) and several countries in Southeast Asia (e.g., Singapore, Malaysia) (Mason, 2014). The Confucian model places great importance on academic success as a means of upward social mobility and is regarded as the child's duty toward their family (Costigan et al., 2010; Tao & Hong, 2014). For example, attaining and graduating from a university is considered a duty because a university qualification is believed to

raise the social status of the family (Goyette & Xie, 1999; Griffin & Hu, 2019; Komarraju et al., 2007).

Students from a Confucian cultural background are also likely to be influenced by the cultural standards regarding career selection (Akosah-Twumasi et al., 2018). Certain disciplines and careers are considered prestigious and revered (e.g., medicine, business) while other career options are often discouraged or not commendable (e.g., entertainment, arts) (Dos Santos, 2020). This is different from the West which is largely influenced by a Socratic model that emphasizes independence and individualism in education. Students in the West are more able to freely decide on a future course of study or career with minimal sociocultural pressure to attain high academic achievement as compared to students in the East (Philipson & Philipson, 2007).

The Confucian model and its emphasis on academic excellence are speculated to explain why most Asian students or students of Asian descent outperform Western students but are also more at risk of poor mental health than their Western counterparts (Crystal et al., 1994). Ang et al. (2009) found that Singaporean adolescents reported significantly greater academic stress due to self-, parental, and teacher expectations than Canadian adolescents. In a series of studies by Oishi and Sullivan (2005), Japanese and Asian American college students were found to report significantly lower life satisfaction and self-esteem due to the pressure to meet expectations as compared to their American and European counterparts who reported better life satisfaction, esteem, and lower need to meet expectations. On a macro level, cultural norms on education and academic success may also intensify the educational expectations perceived by students.

The Self

Students also impose personal standards and educational expectations on themselves (Chang et al., 2016; Trinidad, 2019). A student's expectation refers to a perceived self-belief in their academic achievements (Verdesco, 2016). Self-expectations are based on the student's past performance but they may also internalize the expectations from others (e.g., parents and teachers) (Mun & Hertzog, 2019; Rubie-Davies et al., 2010). Students with expectations about their academic performance are more motivated, have higher self-esteem, and are more likely to successfully graduate than students without personal goals and expectations (Rubie-Davies et al., 2010; Trinidad, 2019). In a longitudinal study, Mello (2008) found that having higher educational expectations during adolescence was predictive of later occupational attainment in adulthood.

However, several studies have found that students who report having excessive self-imposed expectations were likely to report distress (Ang & Huan, 2006; Hamaideh, 2009). Saipanish (2003) found that high self-expectation was reported as a major cause of stress among medical students in Thailand. In a qualitative study among college students, Hurst et al. (2012) found that having to live up to one's high expectations and personal goals was among the many sources of academic stress. In sum, having unrealistic or high self-expectations can also be emotionally and psychologically detrimental.

Review of Instruments Measuring Educational Expectations

Several instruments have been developed to measure educational expectations throughout the literature. We conducted a review to evaluate these instruments and their suitability as a multidimensional tool to examine perceived educational expectations among tertiary students.

These included instruments that 1) have been tailored to measure educational expectations and 2) contain domains or items related to educational expectations. A summary of these instruments and their psychometric properties is detailed in Table 1.

None of the scales were deemed suitable to examine perceived educational expectations among students in higher education. First, most instruments were limited in terms of the sources of expectations. For example, the Living up to Parental Expectation Inventory (LPEI), the Perception of Parental Expectations Inventory (PPEI), the Perceived Parental Academic Pressure Scale (PPAPS), and the Family Influence Scale (FIS) only examined a single source of educational expectation - parents. Other scales such as the Academic Expectation Stress Inventory (AESI) and the Educational Stress Scale for Adolescents (ESSA) examine several sources of educational expectations which include oneself, parents, and teachers. However, these scales do not include other sources relevant to students in higher education such as expectations from the institution and sociocultural background.

Second, most of the instruments, such as the AESI, ESSA, and PPAPS, were designed for use with primary- and secondary-level students and are therefore centered on the expectations regarding examinations and academic performance only. Naturally, expectations that are relevant to tertiary-level students such as expectations on the choice of a university, choice of an undergraduate course, the pressure to graduate, or choice of employment were not considered in these scales.

Third, several instruments measure the perceived stress due to educational expectations rather than the weight of educational expectations themselves. For instance, the AESI examines a student's perceived stress resulting from personal and parental/ teacher expectations. The ESSA is similar to the AESI as it also measures perceived stress from academic expectations. Scores

from the AESI and ESSA inform us how stressed students feel about educational expectations that are imposed on them but not the perceived weight of the expectations. Other scales such as the PAPQ measures educational expectations as perceived by parents, not the student. Moreover, the scales that have been developed for university students were either focused on a single source of expectation or focused on specific expectations such as choice of academic discipline and career pathways.

Our review revealed that the current instruments on educational expectations are limited in terms of scope; focusing mainly on the expectations from parents, and depth; items only relevant to primary and secondary students. Therefore, a new scale that can comprehensively measure the weight of perceived educational expectations by tertiary students from multiple sources is necessary for this thesis.

Purpose of this paper

This study sought to develop and test a multidimensional scale designed to measure the degree of educational expectations perceived by students in higher education from four distinct sources: self, parents, educator/institution, and culture. This paper describes three studies involved in the development and testing of the proposed Higher Education Expectation Scale (HEES).

Table 1

Summary of Educational Expectations Instruments

Instrument	Authors	Country of Origin	Sample	No. of items	Scale (Cronbach's α) Dimensions (Cronbach's α)	Validity tests
Academic Expectation Stress Inventory (AESI)	Ang & Huan (2006)	Singapore	Secondary school students	9	Overall scale (.89) Expectation from self (.85) Expectation from parents and teachers (.84)	Convergent validity = Fear of Negative Evaluation Scale - brief version (FNE-Brief; Leary, 1983), Children's Depression Inventory- Short form (CDI; Kovacs, 1992).
Living Up to Parental Expectation Inventory (LPEI)	Wang & Heppner (2002)	Taiwan	University students	32	Personal maturity (.87 to .91) Academic achievement (.81 to .85) Dating concerns (.74 to .85)	Discriminant validity = Marlowe-Crowne Social Desirability Scale -Chinese version (MCSDS-C; Hwang & Yang, 1972) Convergent validity = State-trait Anxiety Inventory -Chinese form (STAI-C; Chien, 1989), State-trait Anger Expression Inventory - Chinese form (STAXI-C; Chien, 1989), Beck Depression Inventory - Chinese version (BDI-C; Huang, 1983).
Perception Of Parental Expectations Inventory (PPEI)	Sasikala & Karunanidhi (2011)	India	Secondary school students	30	Personal expectations (.76 to .78) Academic expectations (.75 to .76) Career expectations (.65 to .66) Parental ambitions (.65 to .71)	NA
Parents' Attributions And Perceptions Questionnaire (PAPQ)	Phillipson & Phillipson (2010)	Hong Kong	Primary school students	46	Parental attributions (.78) Parental belief of working memory (.80) Parental home and school environment (.82) Academic expectations (NA) Parental background (NA)	Construct validity = Rasch modeling (Phillipson & Phillipson, 2010).

Instrument	Authors	Country of Origin	Sample	No. of items	Scale (Cronbach's α) Dimensions (Cronbach's α)	Validity tests
High Parental Expectation Scale	Fuligni (1997)	United States of America	Secondary school students	4	Overall scale (.77)	NA
Family Influence Scale (FIS)	Fouad et al. (2010)	United States of America	University students	22	Overall scale (.88) Informational support (.89) Financial support (.82) Family expectations (.82) Values/Belief (.75)	Convergent validity = Satisfaction with Life Scale (SWLS; Diener et al., 1985), Parental Attachment Questionnaire (PAQ; Kenny, 1987), Individualism–collectivism Scale (INDCOL; Singelis et al., 1995)
Educational Stress Scale For Adolescents (ESSA)	Sun et al. (2012)	China	Secondary school students	16	Overall scale (.81) Pressure from the study (.74) Workload (.75) Worry about grades (.71) Self-expectation (.66) Despondency (.66)	Concurrent validity = AESI (Ang & Huan, 2006) and student academic grades Predictive validity = Centre for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977)
University Stress Scale (USS)	Stallman & Hurst (2016)	Australia	University students	21	Overall scale (.83) Academic (.62) Equity (.63) Relationships (.69) Practical (.73) Parenting (.64) Health (.60)	Convergent validity = Depression, Anxiety, Stress Scale (DASS; Lovibond & Lovibond, 1995), Patient Health Questionnaire (PHQ; Kroenke, et al., 2002), Social Support Scale (SSS; Crouchey et al., 2006).
Perceived Parental Academic Pressure (PPAPS)	Kaynak et al. (2021)	Turkey	Secondary school students	20	Overall scale (.91) Psychological pressure (.85) Restriction (.84) Too high expectation (.79)	Concurrent validity = Satisfaction with Life Scale (SWLS; Diener et al., 1985), Student's GPA.

Note. NA= Not available

Study 1: Development and Initial Testing of the HEES

Study 1 details the development of the Higher Education Expectation Scale (HEES) based on the framework by Boateng et al. (2018) and Hinkin (1995). The framework comprises three phases starting from item generation which includes identification of the construct and producing the items for the scale, followed by scale development through exploratory factor analysis, and finally scale evaluation through reliability and validity testing (Boateng et al., 2018).

Scale Construction and Item Generation

We defined the construct of educational expectations as the belief and desire toward the accomplishment of academic short-term and/or long-term goals that are developed and imposed by oneself and/or others. An initial pool of 41 items was generated to allow for the successive process of elimination (Boateng et al., 2018). A total of 29 items were generated using a deductive approach from our review of the literature and 12 items were modified from existing educational expectation scales to reflect the higher education setting (e.g., school to university) (see Appendix E). The 41 items were classified across the four sources of expectations with a minimum of four items each; nine items for self-expectations, 14 items for parental expectations, seven items for educator/institutional expectations, and 11 items for cultural expectations. The items were then reviewed and agreed upon by the co-authors. A 5-point Likert-type response with 1 (*strongly disagree)* to 5 (*strongly agree*) was chosen for the scale due to good reliability in response (Krosnick & Presser, 2009). A higher sum of scores indicates a higher degree of perceived educational expectations for each respective source of expectation.

Content validity refers to the extent an instrument measures the construct adequately and was tested through the content validity index (CVI) (Polit & Beck, 2006). For this scale, an item-level CVI (I-CVI) was conducted with experts to examine the relevance of each item of the construct. Expert judges were identified based on having one or more publications that 1) examined university students' mental well-being and/or academic stress and 2) included at least one cross-cultural sample to ensure the expert's cultural awareness. Six experts were invited to provide their response on the relevance of each item using a 4-point Likert scale (1 = *not relevant*, 2 = *somewhat relevant*, 3 = *quite relevant*, and 4 = *highly relevant*) following the recommendation by Polit and Beck (2006). The experts were from tertiary institutions with three from Malaysia, one from Singapore, one from China, and one from the United Kingdom, with positions ranging from university lecturers to professors.

I-CVI scores were calculated using the total relevant ratings for each item divided by the number of experts. For excellent content validity, the recommended I-CVI score with 6 to 10 experts is .78 (Polit & Beck, 2006). However, given the differences in the socio-cultural background of the experts and possible cultural variation in the concept of academic expectations, a more flexible cut-off I-CVI of .60 was used. Based on the ratings, 11 items had an I-CVI score lower than .60 and were removed. A scale-level content validity index (S-CVI) was calculated to determine the overall content validity of the scale which is calculated by averaging the I-CVI of the accepted items. The recommended minimum S-CVI score to ensure high congruence is .90 (Polit & Beck, 2006). Given that the scale explores several new sources of expectations (i.e., institution, culture), we opted for a lower S-CVI score of .70. The S-CVI score of the retained 30 items was .73 which indicates a moderate level of content validity (see Table 2).

Method

Psychometric Testing

Participants

A total of 346 tertiary students from Malaysia were sampled but 43 responses had missing data and one response was from a student studying outside of Malaysia. Only 302 responses were eligible (M_{age} = 21.08, SD = 2.72, 27.8% male, 70.9% female, and 1.3% not specified). The final total sample size was in line with recommendations for a minimum of 300 participants for factor analysis (Guadagnoli & Velicer, 1988; Myers et al., 2011). Inclusion criteria included 1) participants had to be 18 years old or older and 2) participants had to be current students of a higher education institution in Malaysia. Sampling among Malaysian students was to ensure sample homogeneity. The exclusion criteria were 1) students who have graduated from any higher education institution in Malaysia and 2) international students (i.e., nonMalaysian students studying in Malaysia). Students were recruited via snowball sampling across tertiary institutions in Malaysia (i.e., universities, colleges, and polytechnics). Of the sample, 24.8% were from public institutions, 75.2% were from private institutions, 66.9% were undergraduate students, 23.5% were college or foundation level students, 6.6% were postgraduate students, and 3.0% were diploma or polytechnic students.

Table 2

Item Content Validity Index Ratings by Experts

Item	Description	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	No. of relevant items	Item CVI
1	**My academic performance is very important to me.**	**X**	**X**	**X**	**X**	**X**	**X**	**6**	**1**
2	**I expect to perform better than my peers academically.**	**X**	**X**	**X**	**X**		**X**	**5**	**0.83**
3	**When I do not meet my target grades I get upset.**	**X**	**X**	**X**		**X**	**X**	**5**	**0.83**
4	**I set high standards in my studies.**	**X**	**X**	**X**	**X**	**X**	**X**	**6**	**1**
5	My grades will determine the type of jobs I get.		X		X	X		3	0.5
6	I always wanted to enter a high-ranking university.	X			X	X		3	0.5
7	**I am fully satisfied with my current grades.**	**X**		**X**	**X**		**X**	**4**	**0.67**
8	**I know I can achieve higher grades.**	**X**	**X**	**X**	**X**	**X**	**X**	**6**	**1**
9	**Failure in exams is not an option for me.**	**X**	**X**		**X**		**X**	**4**	**0.67**
10	**My parents expect me to perform extremely well in my studies.**	**X**	**X**	**X**	**X**	**X**	**X**	**6**	**1**
11	**When I do well in my studies, I get my parent's approval.**	**X**	**X**	**X**	**X**	**X**	**X**	**6**	**1**
12	**My parents want me to pursue careers of their choice.**	**X**	**X**	**X**	**X**	**X**	**X**	**6**	**1**
13	**I must have excellent grades to make my parents proud.**	**X**	**X**			**X**	**X**	**4**	**0.67**

Item	Description	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	No. of relevant items	Item CVI
14	My parents want me to study in a high-ranking university.	X			X	X		3	0.5
15	**My parents always ask me about my grades.**	**X**	**X**	**X**		**X**	**X**	**5**	**0.83**
16	My parents always compare my academic achievement with other parents.	X			X			2	0.33
17	**I feel I have disappointed my parents when I do poorly in exams.**	**X**	**X**	**X**		**X**	**X**	**5**	**0.83**
18	I am doing/completed a course that my parents chose for me.	X				X	X	3	0.5
19	My parents want me to pursue their choice of a degree.	X				X	X	3	0.5
20	**My parents decided on the university I am studying/studied in.**	**X**			**X**	**X**	**X**	**4**	**0.67**
21	**My academic achievement makes my family proud.**	**X**	**X**	**X**		**X**	**X**	**5**	**0.83**
22	**My parents expect me to have a high-paying job when I complete my studies.**	**X**			**X**	**X**	**X**	**4**	**0.67**
23	**My parents expect me to further my education (i.e., Ph.D., Professional certification).**	**X**	**X**	**X**	**X**	**X**	**X**	**6**	**1**
24	**The university expects me to perform well.**	**X**	**X**		**X**	**X**		**4**	**0.67**
25	**I feel my lecturers have high hopes for me.**	**X**	**X**	**X**		**X**	**X**	**5**	**0.83**
26	**My lecturers expect me to get higher grades.**	**X**	**X**			**X**	**X**	**4**	**0.67**
27	**I feel I need to maintain the status of the university.**	**X**	**X**	**X**	**X**	**X**		**5**	**0.83**
28	**My academic success reflects the ranking of the university.**	**X**	**X**		**X**	**X**		**4**	**0.67**

Item	Description	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	No. of relevant items	Item CVI
29	**I do not think I can fulfil the expectations set by my lecturers.**	**X**		**X**	**X**	**X**	**X**	**5**	**0.83**
30	**When I do poorly in my exams, I feel I have disappointed my lecturers.**		**X**	**X**		**X**	**X**	**4**	**0.67**
31	**Performing well academically is my responsibility to the family.**	**X**	**X**	**X**		**X**	**X**	**5**	**0.83**
32	**In my culture, success in education is highly valued.**	**X**	**X**	**X**	**X**	**X**	**X**	**6**	**1**
33	In my culture, students enrolling in a high-ranking university are highly respected.			X	X	X		3	0.5
34	**I honour my culture by having high academic achievements.**	**X**	**X**	**X**		**X**	**X**	**5**	**0.83**
35	During large family gatherings (e.g., Chinese New Year, Christmas) academic achievement is always discussed.				X		X	2	0.33
36	**In my culture, I am expected to get a high paying job after completing my studies at university.**	**X**		**X**	**X**	**X**	**X**	**5**	**0.83**
37	Doing poorly in academics is embarrassing in my culture.	X					X	2	0.33
38	Comparing grades and academic achievements are common in my culture.	X			X		X	3	0.5
39	**In my culture, academic achievement is a way to repay my parents.**	**X**	**X**	**X**	**X**	**X**	**X**	**6**	**1**
40	**Culturally, I am obligated to do well in my studies.**	**X**		**X**	**X**	**X**	**X**	**8**	**0.83**
41	In my culture, failure in academic performance is shameful.					X	X	2	0.33

X indicates that the item was rated as relevant. Bolded items were retained.

Instruments

The Academic Expectation Stress Inventory. The properties of the AESI were described in Table 1. The scale has two dimensions: Expectations of parents/teachers and expectations from self. Items are rated on a 5-point Likert from 1 (*never true*) to 5 (*almost always true*) with a higher sum of scores indicating higher perceived academic expectation stress.

The Centre for Epidemiological Studies – Depression scale (CES-D; Radloff, 1977). The CES-D is a 20-item scale developed to screen for depressive symptoms experienced during the past week. Items are rated on a 4-point Likert scale that ranges from 0 (r*arely or none of the time*) to 3 (*most or almost all the time*). A higher sum of scores indicates greater depressive symptoms. The CES-D has been validated across multiple cultural groups and has a good internal consistency of Cronbach's $\alpha = .87$ (Yang et al., 2018).

Revised Test Anxiety Scale (RTA; Benson & Bandalos, 1992). The RTA is a 20-item scale developed to examine the multidimensional construct of test anxiety across four subscales; tension, worry, bodily symptoms, and test-irrelevant thinking. Each item is rated on a 4-point Likert scale that ranges from 1 (*almost never*) to 4 (almost always) and a higher sum of scores indicates a higher degree of test anxiety. The RTA has been validated cross-culturally and has a good internal consistency, ranging from Cronbach's $\alpha = .81$ to .91 (Benson & El-Zahhar, 1994).

Procedure

The study was cross-sectional and utilized self-report questionnaires. The information sheet, consent form, demographic sheet, instruments, and participant support sheet were hosted on Qualtrics (2020). Upon reading the information sheet and providing consent, participants

were invited to complete the demographic sheet and the four instruments which took about 10 minutes to complete. The study was approved by the James Cook University Human Research Ethics Committee (H8316) and the University of Reading Malaysia Human Research Ethics Committee (2021/02). Participation in the study was entirely voluntary and compensation was not provided to participants.

Data Analyses

Data were analyzed using the Statistical Package for Social Science (SPSS) 27 (IBM Corp, 2020). Exploratory factor analysis (EFA) using principal axis factoring (PAF) was conducted using SPSS to examine the number of factor loadings. Factor extraction was conducted using multiple approaches as recommended by Izquierdo et al. (2014) which included the Kaiser-Guttman criterion, Cattel's scree plot, and parallel analysis using a Monte Carlo simulation. A cut-off value of .35 and above was used to determine acceptable factor loading (Hair, 2009). Reliability tests were also conducted using SPSS. A cut-off value of Cronbach's α of .70 was appraised as the acceptable value of internal consistency (Nunnally, 1978).

Concurrent validity describes the extent of a test to effectively estimate the performance of a hypothesized outcome measure taken at the same time (Boateng et al., 2018). Concurrent validity was tested using the Pearson correlation coefficients between the HEES, the AESI, the CES-D, and the RTA as high educational expectations are known predictors of stress, anxiety, and depression among students (Costigan et al., 2010; Ritchwood et al., 2015; Shek, 1995; Tan & Yates, 2011). Moreover, measures of depression and anxiety were also used as validity tests in other expectation scales (see Table 1). A criterion of .50 and above was considered evidence for moderate concurrent validity (Portney & Watkins, 2007). A range of .30 to .49 has also been suggested as evidence for medium concurrent validity (Cohen 1988). A cut-off value of .30 for

acceptable concurrent validity was used in our study. Discriminant validity was tested using the Fornell-Larcker criterion by testing the average variance extracted (AVE) of each factor against the square of the factor correlations (Hair et al., 2009).

Results

Exploratory Factor Analysis

Initial inspection of the 30-item HEES revealed a Kaiser-Meyer-Olkin value of .871 which exceeded the recommended minimum value of .60 (Kaiser, 1970). Bartlett's test of sphericity was also statistically significant, $p < .05$. An inspection of the correlation matrix revealed many coefficients at .30 and above. Overall, these results suggest that the data were suitable for factor analysis (Pallant, 2013).

The Kaiser-Guttman criterion (Matsunaga, 2010) revealed seven factors with eigenvalues above 1.0 that explained 25.6%, 10.1%, 7.5%, 5.3% 4.7%, 3.9%, and 3.5% of variances, respectively. Using Cattel's (1966) scree plot approach, a clear break was identified at the fourth component, suggesting a four-factor solution instead of seven (see Appendix F). Parallel analysis using a Monte Carlo simulation (number of variables = 30, number of subjects = 302, number of replications = 100) (Çokluk & Koçak, 2016; Watkins, 2006) also revealed a four-factor solution. As the Kaiser-Guttman approach is known to overestimate the number of extracted components (Hayton et al., 2004), a four-factor solution based on the scree-plot test and parallel analysis was used.

A forced four-factor solution using a Promax (oblique) rotation (kappa = 4) explained 41% of the variance. We examined the factor loadings of each item with a .35 cut-off score (Hair, 2009). Pattern Matrix revealed that items 7, 13, and 15 did not load on any factor and were

omitted. Item 1 was cross-loaded on Factor 1 and Factor 4 and was omitted as the cross-loading difference was less than .15 (Worthington & Whittaker, 2006). An inspection of communalities, which indicates how well items fit with each other (Pallant, 2013), revealed that items 3, 5, 9, and 14 had poor communality (less than .30) and were omitted.

In total, eight items were omitted from the initial item pool, and 22 items were retained. The factor loading of each retained item and factor is illustrated in Table 3. Factor 1 contained items that reflected perceived expectations from culture and labeled Expectations from culture. Factor 2 contained items examining perceived expectations from educators and the university and labeled Expectations from educators/institutions. Factor 3 contained items testing perceived expectations from parents and labeled Expectations from parents. Factor 4 contained items reflecting personal standards and expectations and labeled as Expectations from self.

Table 3

The Factor Loadings and Internal Consistency of the 21-item HEES

Items	Structure Matrix				Pattern Matrix				h^2
	1	2	3	4	1	2	3	4	
Factor 1. Expectation from culture (Cronbach's α = .84)									
29. In my culture, academic achievement is a way to repay my parents.	.721	.298	.404	.088	**.809**	-.096	.021	-.156	.549
30. Culturally, I am obligated to do well in my studies.	.719	.410	.292	.188	**.779**	.096	-.157	-.083	.538
26. In my culture, success in education is highly valued.	.685	.160	.443	.193	**.734**	-.301	.192	.013	.543
28. In my culture, I am expected to get a high-paying job after completing my studies at university.	.659	.215	.366	.210	**.706**	-.182	.079	.015	.458
27. I honour my culture by having high academic achievements.	.686	.426	.421	.332	**.545**	.076	.107	.145	.500
25. Performing well academically is my responsibility to the family.	.599	.515	.341	.171	**.481**	.293	-.038	-.036	.420
Factor 2. Expectations from educators/institutions (Cronbach's α = .81)									
19. I feel my lecturers have high hopes for me.	.225	.709	.228	.208	-.229	**.800**	.001	.143	.545
20. My lecturers expect me to get higher grades.	.304	.699	.294	.091	-.070	**.732**	.010	-.013	.492
21. I feel I need to maintain the status of the university.	.628	.648	.203	.178	-.087	**.703**	-.057	.083	.435

Items	Structure Matrix				Pattern Matrix				h^2
	1	2	3	4	1	**2**	3	4	
24. When I do poorly in my exams, I feel I have disappointed my lecturers.	.354	.655	.335	-.087	.104	**.645**	-.007	-.233	.478
22. My academic success reflects the ranking of the university.	.326	.582	.318	.127	-.007	**.541**	.085	.037	.344
18. The university expects me to perform well.	.387	.569	.337	.100	.110	**.488**	.066	-.019	.340
Factor 3. Expectation from parents (Cronbach's α = .80)									
8. My parents expect me to perform extremely well in my studies.	.444	.325	.716	.262	-.020	-.044	**.753**	.293	.592
10. My parents want me to pursue careers of their choice.	.211	.114	.596	-.201	-.009	-.142	**.659**	-.159	.407
12. My parents always ask me about my grades.	.287	.305	.621	-.007	-.086	.065	**.638**	.024	.392
16. My parents expect me to have a high-paying job when I complete my studies.	.437	.342	.628	.049	.132	.034	**.544**	.012	.412
17. My parents expect me to further my education (e.g., Ph.D., Professional certification).	.287	.386	.564	.004	-.092	.202	**.524**	.011	.347
11. I must have excellent grades to make my parents proud.	.564	.489	.695	.058	.232	.156	**.505**	-.033	.556
Factor 4. Expectation from self (Cronbach's α = .70)									
4. I set high standards in my studies.	.398	.246	.047	.645	.229	.073	-.092	**.556**	.463
6. I know I can achieve higher grades.	.314	.246	.104	.564	.078	.102	.030	**.521**	.347
2. I expect to perform better than my peers academically.	.448	.290	.090	.625	.277	.097	-.085	**.517**	.468

Note. Major loadings for the item are bolded. h^2 = Communalities
Omitted item(s) were not included in the table.
A full factor loading for all the original 30 items, including items that have been omitted can be found in Appendix G.

Internal Consistency

Estimates of internal consistency were conducted using Cronbach's α coefficients with a cut-off value of .70 (Nunnally, 1978). All factors of the HEES had good reliability except for the Expectation from self which initially did not meet the cut-off value (Original Cronbach's α = .66). Based on reliability analysis for the Expectation from self factor, item-total statistics suggested that the removal of item 23 (*I do not think I can fulfil the expectations set by my lecturers*) will increase the internal consistency of the factor to .70 which met the cut-off score. Thus, item 23 was omitted resulting in a final 21-item scale (see Table 3).

Validity Tests

Pearson correlation coefficients were used to examine the concurrent validity between the 21-item HEES with the AESI, CES-D, and RTA scores (see Table 4) (Boateng et al., 2018; Swank & Mullen, 2017). All correlations between the HEES factors and the AESI were significant, supporting the concurrent validity of the 21-item HEES. The correlations for Expectations from parents, educators/institutions, and culture with the AESI ranged from medium to good. However, the correlation between the Expectation from self and overall AESI was below the cut-off (i.e., poor concurrent validity).

Results also indicated that depression and test anxiety were significantly correlated with Expectations from parents, educators/institutions, and culture. Among the significant correlations, only the Expectation from parents and culture were above the cut-off (.30), while the Expectation from educator/institution factor was slightly below the cut-off. Only Expectation from self was not significantly associated with depression and test anxiety. This suggests that greater expectations from parents, educators/institutions, and culture were moderately associated

with depressive symptoms and test anxiety but not educational expectations from oneself. As for discriminant validity, results show that all the HEES factors were distinct from each other. The AVEs for Expectations from self (.432), parents (.388), educators/ institutions (.422), and culture (.465) were higher than all the squared factors correlations (see Table 5).

Table 4

Pearson Correlation Coefficients for the 21-item HEES, AESI, CES-D, and RTA

		Concurrent validity				
		AESI			CES-D	RTA
		Self	Parents/Teachers	Total		
	M (SD) [Range of scores]	15.90 (3.43) [4 - 20]	17.44 (4.99) [5 - 20]	33.34 (7.41) [9 - 45]	25.32 (10.44) [4 - 58]	58.55 (17.41) [25 - 100]
HEES						
Self (3 items)	11.97 (2.23) [3 - 15]	.227**	.138*	.198**	.073	.082
Parents (6 items)	18.10 (5.23) [6 - 30]	.268**	**.511****	**.468****	**.393****	**.409****
Educators/institutions (6 items)	20.05 (4.70) [6 - 30]	.250**	**.579****	**.505****	.283**	.280**
Culture (6 items)	23.48 (4.49) [6 - 30]	**.379****	**.468****	**.490****	**.443****	**.391****

Note: HEES = Higher Education Expectation Scale. AESI = Academic Expectation Stress Inventory. CES-D = The Centre for Epidemiological Studies - Depression Scale. RTA= Revised Test Anxiety Scale. Bolded values indicate acceptable concurrent validity.
* $p < .05$, ** $p < .01$

Table 5

Factor AVEs against the Squared Factor Correlation of the 21-item HEES

Factors	Self	Parent	Educator/ Institutions	Culture
Self	**.432**	.059	.146	.236
Parent	.059	**.388**	.189	.327
Educator/Institutions	.146	.189	**.422**	.168
Culture	.236	.327	.168	**.465**

Note. Bolded values indicate the AVE for each factor.

Discussion

In this study, we outlined the development and initial psychometric testing of the HEES. Factor analysis revealed four sources of educational expectations and results from the psychometric tests demonstrated a good internal consistency for the overall 21-item HEES. Nonetheless, several issues were found regarding HEES at this stage that require attention.

First, concurrent validity was examined by correlating the HEES and the AESI with results showing an overall medium to good correlation. However, several correlations were below the cut-off value. In particular, the Expectation from the self had correlations less than .30 with the AESI when compared to other factors. This is contradictory to studies that found that students experience distress stemming from self-imposed educational expectations (Calaguas, 2012; Chong et al., 2014; Sun, 2012). Our findings failed to support the association between self-expectation and stress. We speculate that the poor correlation between the Expectation from self and stress points to the small number of items in the factor. While having three items per factor is considered the minimum (Pallant, 2015; Raubenheimer, 2004), we suspect that three items may be insufficient to capture the latent variable of educational Expectation from self. Additionally, the poor association between the expectation from self to academic expectation stress may reflect that merely perceiving high expectations does not necessitate distress and that the outcome of stress is dependent on one's appraisal of the stressor (Lazarus & Folkman, 1984).

Second, the Expectation from self was also the only factor that did not correlate with test anxiety and depressive symptom compared to the other factors of the HEES. This finding is inconsistent with the studies that found a positive association between high self-expectations and test anxiety (Celik & Yildrim, 2019). Similarly, a study among secondary students in China also found that self-expectation stress was significantly linked with depression (Sun, 2012). The

reason for the absence of an effect may be due to the small number of items in the factor as noted earlier. Additionally, we speculate that the absence of an effect may also be due to the poor correlation between the Expectation from self factor and stress reported earlier, as stress is a predictor of anxiety and depressive symptoms (Lew et al., 2019; Pascoe et al., 2020). The absence of an association between Expectation from self to anxiety and depression may be mediated by the presence of stress, or in our case the lack thereof.

In sum, the initial testing of the psychometric properties revealed a final 21-item HEES which has a good internal consistency and factor structure. The scale also showed discriminant validity. However, results for concurrent validity tests were mixed, especially for the Expectation from self. A further investigation into these limitations is warranted.

Study 2: Re-examination of the HEES

Study 2 improved on the limitations of the HEES highlighted in Study 1. First, we decided to add a test for convergent validity using the LPEI. The LPEI, although limited to parents, allowed us to examine the degree of expectation by utilizing the perceived parental expectation scale. This scale measures the extent of perceived educational expectations, which is analogous to the construct of the HEES. Second, in Study 1, there was poor validity for the Expectation from the self factor of the HEES. We postulated that this may be a result of the limited number of items which was not sufficient to examine the construct adequately. To address this limitation, new items were introduced into the factor and re-examined.

New Item Addition Generation

Nine new items derived from our review were added to the Expectation from self factor with consensus from the authors. The new items were similarly derived from further evaluation on self-expectation research and by widening the range of self expectations to include areas such as expectations on future careers, awards, and accomplishments. This resulted in a total of 12 items for the Expectation from self factor and a new total of 30 items for the HEES.

Method

Participants

For Study 2 a total of 314 participants responded to the survey. A total of 12 responses were removed for not meeting the inclusion criteria. A total of 302 tertiary students from Malaysia (*M*age = 21.7, *SD* = 2.23, 38.7% male, 58.9% female, and 2.3% not specified) were sampled using Qualtrics (2020) with similar inclusion and exclusion criteria described in Study 1. Participants were recruited via snowball sampling across higher education institutions in

Malaysia (58.9% from public institutions, 35.4% from private institutions, 5.6% did not specify, 18.5% pre-university students, 47.7% undergraduates, 33.8% diploma and polytechnic students).

Instruments

The Living up to Parental Expectation Inventory (LPEI). The properties of the LPEI were detailed in the introduction (see Table 1). The scale has three domains: personal maturity, academic achievement, and dating concerns. Each item is rated using three scales: the perceived parental expectation (PPE) scale, the perceived self-performance scale, and the living up to parental expectation scale. For this study, we only used the PPE scale as it measures the degree of perceived parental expectations and the scores from the academic achievement domain. Items are rated on a 6-point Likert scale from 1 (*not at all expected*) to 6 (*very strongly expected*). A higher PPE score in the academic achievement domain indicates higher perceived parental expectations.

Academic Expectation Stress Inventory (AESI). The properties of the AESI were described in Study 1.

Procedure

The study is cross-sectional and utilized self-report instruments. The procedure of Study 2 was similar to Study 1. The information sheet, consent form, demographic sheet, instruments, and participant support sheet were hosted on Qualtrics (2020). Upon reading the information sheet and providing consent, participants were invited to complete the demographic sheet and the three instruments. The study took about 10 minutes to complete, and participants were compensated for their time. The study was approved by the James Cook University Human Research Ethics Committee (H8698).

Data Analyses

As this was a re-examination of the scale, the four-factor solution was used in the EFA. The parameters used to determine acceptable factor loading, reliability, and validity were similar to that of Study 1. Additionally, we tested convergent validity by correlating the HEES with the LPEI's academic achievement dimension. Others have used a value of .40 to .20 for moderate convergent validity (Cohen, 1988; Nunnally & Bernstein, 1994; Peleg et al., 2016). In our study, a cut-off value of .30 was used. Concurrent validity was examined by correlating the HEES with the AESI and discriminant validity was tested using the Fornell-Larcker criterion using parameters similar to Study 1.

Results

Exploratory Factor Analysis

Inspection of the new 30-item HEES revealed that the Kaiser-Meyer-Olkin value of .939 exceeded the recommended minimum value of .60 (Kaiser, 1970), and that Bartlett's test of sphericity was statistically significant, $p < .05$. Correlation matrix revealed that most coefficients were above .30, suggesting suitability for factor analysis (Pallant, 2013).

Using the same parameters from study 1, a four-factor solution using a Promax (oblique) rotation (kappa = 4) was used which explained 40% of the total variance. Factor loading of each item was examined using a cut-off score of .35 (Hair, 2009). The pattern matrix revealed that item 23 (*My academic success reflects the ranking of the university*) did not load on any factor and was omitted. Results also found that item 13 (*My parents expect me to perform extremely well in my studies*) cross-loaded on Factor 2 and Factor 3 and was omitted. After the omission of items 23 and 13, the pattern matrix revealed that 12 items were loaded on Factor 1, six items

were loaded on Factor 2, five items were loaded on Factor 3, and five items were loaded on Factor 4 (see Table 6).

Factor 1 reflects personally held or self-imposed educational expectations and was labeled Expectations from self. Factor 2 reflects perceived expectations from one's cultural background and was labeled Expectations from culture. Factor 3 reflects the perceived expectations from parents and was labeled Expectations from parents. Factor 4 reflects the perceived expectations from educators and institutions and was labeled Expectations from educators/institutions. In sum, two items were omitted, and 28 items were retained in the HEES.

Internal Consistency

Reliability analysis was tested using Cronbach's α coefficients. Findings indicated that all the factors of the 28-item HEES have a good internal consistency which exceeded the cut-off value of .70 (Nunnally, 1978) (see Table 6).

Validity Tests

Convergent validity was tested by correlating the HEES with the LPEI's PPE scores on the academic achievement domain. Results revealed that all the factors of HEES significantly correlated with the academic achievement domain of the LPEI (see Table 7). All coefficients were above the cut-off value of .30, indicating a moderate to strong convergent validity. Concurrent validity was examined by correlating the HEES with scores from the AESI. Results revealed that all the factors of the HEES significantly correlated with the total AESI and its subdomains. The coefficients however were mixed with a range of poor (below the cut-off value of .30) to moderate concurrent validity (see Table 7). Discriminant validity shows that the AVEs for Expectation from self (.435), parents (.254), and educators/institution (.443) were higher than

all the squared factor correlations, suggesting that each factor is distinct. However, discriminant validity for the Expectation from culture was mixed. The AVE for Expectation from culture (.381) was higher than all the squared factor correlations except for the factor correlation between Expectation from culture and self (see Table 8).

Discussion

Study 2 improves on two major issues with the HEES that were highlighted in Study 1. First, we examined the convergent validity of the HEES scale with the LPEI as both scales measure the degree of perceived education-related expectations. The moderate to strong correlations support the convergent validity of the 28-item HEES. Second, we added and re-examined new items for the Expectation of self which produced a strong convergence with the LPEI. The correlation between the Expectation from self and the AESI was significant but poor, suggesting that perceived self-expectation is poorly associated with stress compared to other sources of expectation.

Table 6

The Factor Loadings and Internal Consistency of the Finalized 28-item HEES

Items	Structure Matrix				Pattern Matrix				h^2
	1	2	3	4	1	2	3	4	
Expectation from self (Cronbach's α = .92)									
1.I have high expectations of myself as a university student.	.636	.509	.143	.410	**.607**	.220	-.273	.030	.520
2.I expect to graduate with distinction.	.618	.386	.279	.394	**.638**	-.044	-.032	.040	.475
3.I expect to be the best student in my course/class	.708	.331	.481	.406	**.804**	-.301	.237	-.022	.553
4.I believe I must do my best in university.	.696	.565	.154	.464	**.647**	.249	-.307	.056	.566
5.I set higher academic goals than other students.	.729	.395	.550	.394	**.777**	-.206	.311	-.104	.619
6.I expect to have a prestigious job/career after graduation	.734	.504	.399	.452	**.706**	.025	.048	-.019	.567
7.I intend to accomplish many things in university.	.640	.492	.346	.436	**.540**	.108	.014	.035	.529
8.I expect to achieve something meaningful in university.	.661	.541	.242	.483	**.549**	.197	-.167	.105	.575
9.I expect to have an excellent academic performance in university.	.790	.609	.385	.499	**.706**	.169	-.034	-.018	.660
10.I expect to perform better than my peers academically.	.715	.489	.489	.415	**.670**	.002	.195	-.086	.568

Items	Structure Matrix				Pattern Matrix				h^2
	1	2	3	4	**1**	2	3	4	
11.I set high standards in my studies.	.753	.518	.421	.429	**.743**	.040	.073	-.085	.566
12.I know I can achieve higher grades.	.615	.559	.180	.554	**.404**	.260	-.261	.271	.504
Expectation from parents (Cronbach's α = .79)									
14. My parents want me to pursue careers of their choice.	.305	.347	.683	.310	-.097	.072	**.685**	.028	.440
15. I must have excellent grades to make my parents proud.	.516	.588	.601	.418	.107	.340	**.395**	-.017	.550
16. My parents always ask me about my grades.	.339	.390	.586	.345	-.048	.140	**.513**	.068	.410
17. My parents expect me to have a high-paying job when I complete my studies.	.452	.502	.662	.406	.028	.213	**.534**	.032	.502
18. My parents expect me to further my education (e.g., Ph.D., Professional certification).	.352	.387	.613	.449	-.099	0.066	**.524**	.242	.448
Expectations from educators/institutions (Cronbach's α = .80)									
19.My university expects me to perform well.	.330	.370	.310	.620	-.141	.062	.068	**.641**	.405
20.I feel my lecturers have high hopes for me.	.522	.343	.406	.790	.153	-.270	.104	**.805**	.678
21.My lecturers expect me to get higher grades.	.535	.454	.398	.883	.020	-.098	.034	**.912**	.712
22. I feel I need to maintain the status of my university.	.548	.482	.475	.624	.173	.044	.189	**.409**	.532

Items	Structure Matrix				Pattern Matrix				h^2
	1	2	3	4	1	2	3	**4**	
24. When I do poorly in my exams, I feel I have disappointed my lecturers.	.394	.496.	367	.579	-.105	.260	.098	**.451**	.419
Expectation from culture (Cronbach's α = .86)									
25. Performing well academically is my responsibility to my family.	.553	.697	.442	.490	.099	**.539**	.107	.073	.594
26.In my culture, success in education is highly valued.	.470	.688	.362	.350	.051	**.684**	.056	-.098	.521
27.I honour my culture by having high academic achievements.	.597	.664	.480	.501	.203	**.418**	.152	.069	.559
28.In my culture, I am expected to get a high paying job after completing my studies at university.	.446	.668	.451	.394	-.046	**.618**	.189	-.015	.570
29.In my culture, academic achievement is a way to repay my parents.	.453	.741	.452	.357	-.070	**.775**	.173	-.121	.555
30.Culturally, I am obligated to do well in my studies.	.529	.700	.404	.426	.101	**.609**	.074	-.019	.530

Note. New items are italicized. Major loadings for the items are bolded. h^2 = Communalities.
Omitted item(s) were not included in the table.
A full factor loading for all the new 30 items, including items that have been omitted can be found in Appendix H.

Table 7

Pearson Correlation Coefficients for the 28-item HEES, LPEI, and AESI

		Convergent Validity	Concurrent Validity AESI		
		LPEI (AA)	Self	Parents/ Teachers	Total
	M (SD) [Range of scores]	32.67 (3.79) [9 - 54]	14.53 (3.72) [4 - 20]	16.18 (4.74) [5 - 20]	30.71 (7.71) [9 - 45]
HEES					
Self (12 items)	45.02 (8.33) [12 - 60]	**.509****	.242**	.206**	.243**
Parents (5 items)	16.89 (4.25) [5 - 25]	**.647****	.202**	**.339****	**.306****
Educators/ institutions (5 items)	17.67 (3.79) [5 - 25]	**.392****	.188**	.219**	.226**
Culture (6 items)	22.79 (4.39) [6 - 30]	**.523****	**.395****	**.401****	**.437****

Note: HEES = Higher Education Expectation Scale. LPEI (AA) = Living up to Parental Expectation Inventory (Academic Achievement). AESI = Academic Expectation Stress Inventory.
Bolded values indicate acceptable convergent and concurrent validity, cut-off = .30.
** $p < .01$

Table 8

Factor AVEs against the Squared Factor Correlation of the 28-item HEES

Factors	Self	Parent	Educator /Institution	Culture
Self	**.435**	.203	.367	.403
Parent	.203	**.254**	.152	.157
Educator/ Institution	.367	.152	**.443**	.313
Culture	.403	.157	.313	**.381**

Note: Bolded values indicate the AVE for each factor.

Study 3: Confirmatory Factor Analysis of the HEES

Confirmatory factor analysis (CFA) tests how well a theorized model and its underlying constructs fit data (Matsunaga, 2010; Worthington & Whittaker, 2006). Findings from Study 2 produced a finalized 28-item HEES that has a four-factor structure representing the different sources of educational expectations. The HEES had good internal consistency and moderate to strong convergent and concurrent validity. The current study aimed to verify the four-factor structure of the 28-item HEES among a sample of Malaysian, Singaporean, and Australian tertiary students.

Method

Participants

A group of tertiary students from Malaysia, Singapore, and Australia were sampled for this study. The sample of tertiary students was chosen as the HEES was designed specifically to examine the weight of perceived educational expectations of students in higher education. For the Malaysian sample, 380 responses were collected. A total of 156 responses had missing data and were omitted, resulting in a final 224 responses (M_{age} = 21.14, *SD* = 2.59, 77.7% female, 21% male, and 13% unidentified). For the Singaporean sample, 261 responses were collected. A total of 61 responses had missing data and were omitted, resulting in a final 200 responses (M_{age} = 21.96, *SD* = 5.59, 77.5% female, 21.5% male, and 1.0% unidentified). For the Australian group, 428 responses were collected. A total of 211 responses had missing data and were omitted, resulting in a final 217 responses (M_{age} = 21.12, *SD* = 3.04, 74.2% female, 23.5% male, and 2.3% unidentified). Cumulatively, the total number of participants sampled for this study

was 641 tertiary students (M_{age} = 21.39, *SD* = 3.91, 76.4% female, 22% male, and 1.6% unidentified).

Measurement

The HEES is a 28-item scale that measures perceived educational expectations among students in tertiary education. The scale examines perceptions from four sources: self, parents, educator/institution, and culture. Items are rated on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*) with higher scores indicating higher perceived educational expectations.

Procedure

Tertiary students were invited to participate in the study through convenience and snowballing sampling. The information sheet, consent form, demographic, and instruments were hosted on Qualtrics (2020) and distributed to higher education institutions across Malaysia, Singapore, and Australia. The study took about 10 minutes to complete. The study was approved by the Human Research Ethics Committee of James Cook University (H8552).

Data Analysis

To confirm the four-factor model structure of the HEES, we conducted a confirmatory factor analysis (CFA) of the HEES in each group (Malaysian, Singaporean, Australian) independently and for the total sample. The JASP program (2023) was used to run CFA. To examine model fit, we used a series of the goodness of fit measurements including the Chi-square statistic (X^2), the X^2/df ratio, the comparative fit index (CFI), the standardized root means square residual (SRMR), and the root means square error of approximation (RMSEA) (Jackson et al., 2009). Acceptable model fit values for each indicator include a value below 5.0 for the

X^2/df, a value between .90 and .95 for the CFI, a value below .10 for the SRMR, and a value between .05 and .08 for the RMSEA (Hu & Bentler, 1998; Jackson et al., 2009; Matsunaga, 2010; Schumacker & Lomax, 2010).

Results

Confirmatory Factor Analysis

The construct of perceived educational expectations measured by the HEES is a four-factor structure comprised of expectation from self (EXS), expectation from parents (EXP), expectation from educator/institution (EXE), and expectation from culture (EXC). Multivariate normality using the standardized kurtosis index (β_2) for the items on the HEES where values equal to or greater than 7 indicate a departure from normality (Byrne, 2010). Data from the student samples from Malaysia, Singapore, and Australia all had a β_2 value below 7, indicating an assumption of normality. A review of the squared Mahalanobis distance values for the items in each sample showed minimal evidence for multivariate outliers.

CFA analysis using JASP was conducted for the Malaysian, Singaporean, and Australian samples, and the total sample (see Appendix I to L). The CFA results identified that all 28 observed variables corresponded to the hypothesized four latent variables consistently across samples. However, the initial test of model fit using a series of goodness of fit measurements for the models was less than optimal (see Table 9). Modifications were conducted by only covarying the residual error terms between items within corresponding latent factors based on the modification indices, starting from the largest indices (Byrne, 2009, Schumacker & Lomax, 2010). We performed several model modifications for the model in each sample until an acceptable model fit was achieved to avoid overfitting the model (see Table 9).

Table 9

Summary of Model Fit

Fit Indices	Malaysian Model		Singaporean Model		Australian Model		Total Sample Model	
	Initial	Modified[a]	Initial	Modified[b]	Initial	Modified[c]	Initial	Modified[d]
X^2	851.35	629.406	876.385	636.252	997.971	649.838	1900.338	1248.468
X^2/df	2.475	1.913	2.548	1.91	2.901	1.957	5.524	3.737
CFI	0.834	0.902	0.826	0.901	0.801	0.903	0.833	0.902
SRMR	0.075	0.069	0.087	0.081	0.08	0.079	0.074	0.066
RMSEA	0.081	0.064	0.088	0.067	0.094	0.066	0.084	0.065
90% CI [LL, UL]	[.075,.088]	[.056,.071]	[.081,.095]	[.060,.075]	[.087,.100]	[.059,.074]	[.080,.088]	[.062,.069]

Note. LL = Lower limit. UL = Upper limit.
[a]A total of 15 modifications were made for the Malaysian sample.
[b]A total of 11 modifications were made for the Singaporean sample.
[c]A total of 12 modifications were made for the Australian sample.
[d]A total of 10 modifications were made for the Total sample.

Internal Consistency

Reliability analysis for each model was also examined using Cronbach's α. Results revealed that all the models had excellent reliability with the Singaporean model having the highest score, $\alpha = .912$, followed by the Australian model, $\alpha = .910$, and the Malaysian model, $\alpha = .905$. Reliability analysis for the overall sample was excellent, $\alpha = .911$.

Discussion

The four-factor structure of the HEES was assessed using confirmatory factor analysis. The hypothesized four-factor structure of the HEES and the item-factor loadings were consistent across the Malaysian, Singaporean, Australian, and overall samples. The HEES was designed to examine perceived expectations from four distinct sources, therefore testing for competing models of the HEES was not conducted. The overall goodness-of-fit statistics obtained from the initial CFA models for each sample were poor. Note however that model indices such as the RMSEA and TLI both measure model fit differently and the cutoff values of 'good fit' is arbitrary (Kai & Green, 2016, Stone, 2021). Modifications were conducted to determine a 'good fit' for the Malaysian, Singaporean, Australian, and overall models. We respecified the models by covarying error terms based on modification indices. Modifications to model fit indicates an exploratory phase and is solely data-driven (Byrne, 2009). As such the confirmation of the HEES's factor structure will need to be re-examined with a new sample of tertiary students.

General Discussion

The purpose of the study was to develop a multidimensional scale measuring perceived educational expectations for students in higher education. Our findings demonstrated a strong internal consistency and support for the convergent, concurrent, and divergent validity of the 28-

item HEES as well as a consistent four-factor structure across student samples from Malaysia, Singapore, and Australia.

Results from Study 1 and Study 2 revealed an interesting trend regarding the Expectation of self factor. In Study 1, the Expectation from self was poorly associated with stress and was the only factor in the HEES that was not significantly associated with anxiety and depressive outcomes. In Study 2, despite increasing the number of items in the factor, the Expectation of self continued to be the only factor that had a poor but significant association with stressful outcomes. It appears that perceived expectations from external sources (i.e., parents, educators, institutions, culture) are more likely to be linked with poor psychological outcomes than perceived expectations derived from an internal source (i.e., self). The self-determination theory (Deci & Ryan, 2000) suggests that one's psychological well-being and growth are shaped by the fulfillment of three innate needs: competence, relatedness, and autonomy. Being highly autonomous or in control over one's choices and goals is associated with positive outcomes (Shih, 2015). As such, we speculate that self-imposed expectations which are internally derived, reflect a higher degree of autonomy and are therefore unlikely to be associated with negative psychological outcomes as compared to externally derived educational expectations which reflect a poorer sense of autonomy. Further investigation to support this speculation is required. Results from Study 3 revealed that the four-factor structure was present across three different samples of tertiary students. However, further examinations to confirm the model fit of the scale after modifications are necessary.

There were several limitations to the study. Firstly, we were not able to use an accurate measure to test convergent validity. We used the LPEI as a test convergent validity for the HEES, but the LPEI provided data on the extent of perceived educational expectations from

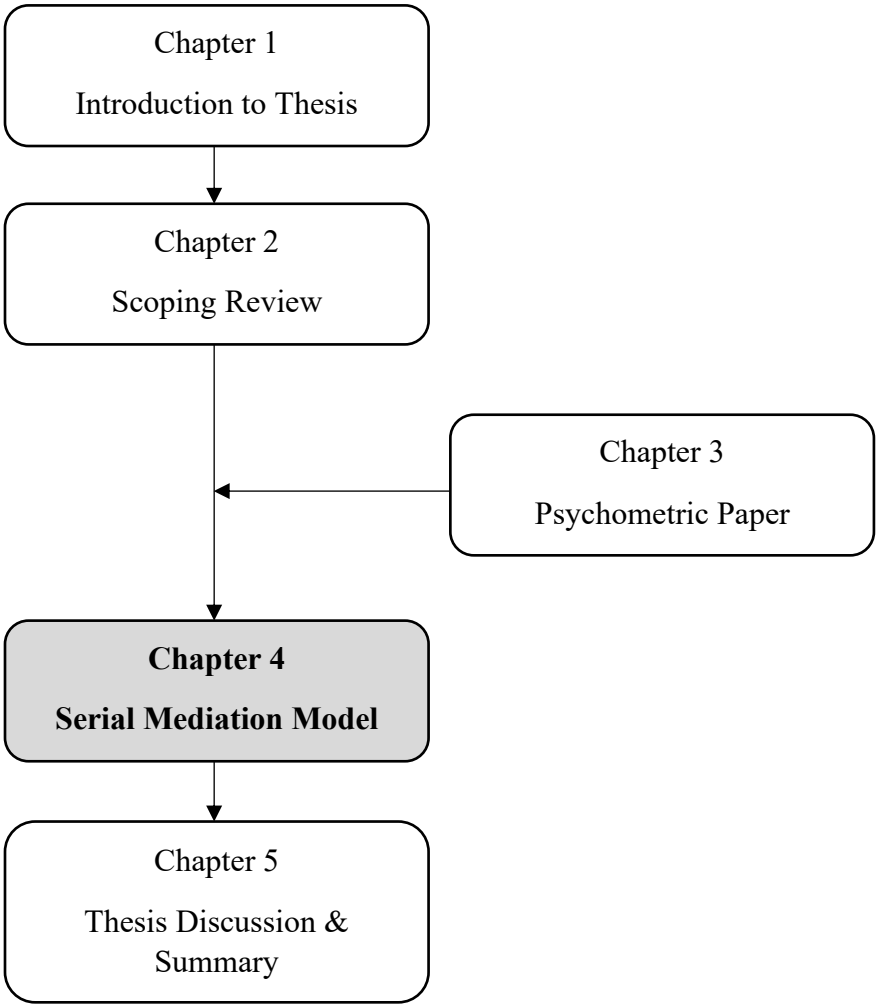
parents only. Ideally, a multidimensional scale measuring perceived educational expectations should be used to determine the convergent validity of the HEES. However, no such scale exists when this study was conducted. Secondly, the HEES was designed and tested among a sample of students of Malaysian nationality in Malaysian higher education institutions. Our CFA findings revealed that none of the CFA models met the acceptable level of model fit in the Malaysian, Singaporean, and Australian sample. This limits the generalizability of the scale which warrants further examinations of the HEES among students from different nationalities and cultural backgrounds.

The pursuit of higher education is ever more common and increasingly competitive. Students continue to be under pressure and shoulder expectations from various parties to excel, graduate, and attain noteworthy achievements in university. The study is the first known attempt in developing a multidimensional instrument that measures the extent of educational expectations perceived by students in higher education. We demonstrated that in addition to parents, educators, and oneself, students also reported perceiving expectations from their educational institutions and sociocultural environment. It is hoped that the HEES will be utilized in future research to gauge the degree of perceived educational expectations in higher education and examine its impact on academic performance, motivation, and psychological well-being. The psychometric properties of the HEES from our results are reassuring, but more can be done to examine the viability of the HEES as an effective tool for research.

The presence of the HEES was necessary for the progression of the research thesis. The next chapter of this thesis provides a thorough review of the literature and describes a test of a hypothesized model that examines the underlying mechanisms between educational expectations and suicide.

CHAPTER 4

EDUCATIONAL EXPECTATIONS AND SUICIDAL IDEATION: A SERIAL MEDIATION MODEL[12]



[12] A manuscript of this chapter has been submitted for publication to the Journal of Youth and Adolescents.

Educational Expectations and Suicidal Ideation: A Serial Mediation Model

Throughout the literature, students in higher education are known to be at risk of mental health disorders, substance misuse, and psychological distress (Bhujade, 2017; Eisenberg et al., 2007; Eisenberg et al., 2013; Lew et al., 2019; Reddy et al., 2018) than nonstudents (Hernandez-Torrano et al., 2020; Pariat et al., 2014). In addition to poor psychological well-being, the rate of suicidal tendencies among students in higher education is also alarming (Aloia & McTigue, 2019; Bedewy & Gabriel, 2015; Isralowitz & Hong, 1990; Lew et al., 2019).

In Chapter 2, we identified five themes that describe the risk factors associated with suicidal outcomes among youths within the Western Pacific as well as gaps in regional research. In particular, the thesis focused on the impact of academic factors such as high educational expectations on suicidal outcomes among students in the Western Pacific. The underlying mechanism that explains how educational expectations predicts suicide is remains unclear. The presence of the Higher Education Expectation Scale developed in Chapter 3 enabled us to examine the link between educational expectations and suicidal ideation.

Youth Suicide in Malaysia, Singapore, and Australia

Our review in Chapter 2 highlighted the worrying rates of suicide deaths among youths in the Western Pacific region. Suicide is recognized as a leading cause of mortality among youths in Japan (Lamis et al., 2014; Saito et al., 2013) and China (Chu et al., 2021; Zhang et al., 2012). WHO data shows that youth suicide is highest in Southeast Asia and the Western Pacific regions (Värnik, 2012). A study across five South East Asian countries reported a 9% prevalence of suicidal attempts among adolescents with a 49% prevalence of suicidal ideation over the past 12 months (Pengpid & Peltzer, 2019).

Malaysia, Singapore, and Australia are examples of multicultural societies within the Western Pacific. The Malaysian Ministry of Health's Mental Health Performance survey indicated an increased rate of suicide attempts, planning, and thoughts among adolescents between the years 2011 and 2012 (13 to 17 years old) (Malaysia Healthcare Performance Unit, 2017). Subsequent data from the Malaysian National Health and Morbidity Survey further revealed a rise in suicidal attempts, plans, and thoughts among young Malaysians (Institute for Public Health, 2018). In Singapore, suicide is the leading cause of death among those aged 10 to 29 years old with males accounting for over 66% of suicides in 2019 (Samaritans of Singapore, 2023). The rate of suicide among youths in Singapore (10 to 29 years of age) was the highest since 2015 with an estimated 112 cases in 2021 (Menon & Abdullah, 2022). Young male Singaporeans were more likely to die from suicide while young female Singaporeans were more likely to attempt suicide (Chia et al., 2011; Mak et al., 2015). Moreover, suicide continued to be the leading cause of death among Singaporean youths aged 10 to 29 years in the last four years (Keong, 2023).

In Australia, the Australian Institute of Health and Welfare (2021) noted that suicide was the leading cause of death among youths with 384 suicide deaths reported among 18 to 24-year-olds in 2019. Additionally, young male suicides outnumber female suicides in Australia between the years 2006 and 2015 (Hill et al., 2021). It should be noted that most suicide data are crude estimates gathered from official records by public hospitals, autopsy reports, and non-governmental organizations. It is plausible that the actual figures of youth suicide death, attempts, plan, and ideation may be greater than officially reported. For example, a suicidal attempt is a punishable offense in Malaysia and is often underreported or misclassified as 'accidental death' or 'undetermined', which compromise accurate reporting (Maniam, 1995).

Research among youths in Malaysia, Singapore, and Australia has highlighted several factors commonly attributed to suicidal ideation and behaviour. An examination of suicide notes in Singapore between the years 2000 and 2004 found that most suicide notes were left by younger victims (Chia et al., 2008). In these notes, difficulty in meeting parental expectations, overwhelming academic demands, and problems with interpersonal-romantic relationships were frequently cited as reasons for suicide (Chia et al., 2008). Another study on suicide deaths among Singaporeans aged 10 to 24 years found that most victims had difficulties with family, romantic relationship issues, academic stress, and pressures of academic expectations (Loh et al., 2012). In Malaysia, interpersonal conflict and academic difficulties were cited as prevalent reasons for suicide (Kok et al., 2015). In another study, Malaysian youths identified sexual abuse, interpersonal conflict, bullying, substance abuse, and academic-related difficulties as common risk factors for suicide (Chua & Rao, 2021).

Findings from Australian youths indicated interpersonal factors (e.g., parental conflict, abuse), psychopathological disorders, and unemployment as common risk factors for suicide (Beautrais, 2000). McNamara's (2013) review found that interpersonal conflict, academic misconduct, mental illness, and abuse were prevalent risk factors among adolescents in Queensland, Australia between 2004 to 2007. Additionally, a retrospective analysis of suicides among young Australians between 2006 to 2015 found that mental illness was the largest suicide risk factor followed by substance abuse, history of self-harm, neglect or abuse, and exposure to suicide (Hill et al., 2021).

Tertiary Student Suicide

The problem of youth suicide becomes even more troubling when we consider the rate of student suicides. A review by the UK Office for National Statistics (2022) UK identified 319 student suicide deaths between the 2017 to 2020 academic year based on data from England and Wales. In Japan, data from 82 participating universities reported a total of 76 student suicide deaths from the year 2020 to 2021, which was higher than the suicide death rates over the last six years (Fuse-Nagase et al., 2021).

The Big Ten study by Silverman et al. (1997) compared the prevalence of student suicide among American universities under the Big Ten Universities Athletic Association and the University of Chicago between 1980 to 1990. The study compared the rates of suicide deaths among these universities against the suicide rate of the national sample of the same age group. A total of 346,000 student suicides were recorded based on national records, of which only 261 cases met the inclusion criteria of the study. These criteria included suicide deaths that occurred within six months of being an active student on the main campuses. Findings revealed that the suicide rate of students across all campuses was 7.5 per 100,000 students and that the risk was higher among older students (25 years and older) as compared to younger students (under 25 years old) (Silverman et al., 1997). Additionally, the rate of college suicide was lower compared to the national sample which contradicts the findings in Atkinson (1969). Haas et al. (2003) argued that the contradiction found in the Big Ten study can be explained by the study's strict parameters such as i) using data on student suicide from students on the main campus and excluding data on students from branch campuses, ii) excluding suicide cases from student dropouts, and iii) only included suicide deaths of students within six months of being registered

as an active student which limited the comprehensiveness and breadth of data collection in the Big Ten study.

Research on the suicide rates of students in higher education has historically been inconsistent. The rate of suicide deaths among students according to the literature appears to vary from 5 to 50 deaths per 100,000 students (Lipschitz, 1990). The inconsistencies commonly point to poor reporting practices or the absence of suicide records in universities or colleges, which limits the quality of data that can be examined (McLaughlin & Gunnell, 2021; Westefeld et al., 2015). Moreover, records of student suicide may also jeopardize the status and reputation of institutions and are therefore not reported. While it is not practical or ideal to expect a high number of student suicide, the low base rate of suicide death among students complicates the analysis and power of any suicide death research as well (Stephenson et al., 2005). In response to these limitations, contemporary suicide research among students in higher education has shifted toward investigating alternative facets of suicide such as suicide ideation, planning, and attempts instead of suicide deaths. For this study, the focus will be on measuring suicidal ideation to prevent and reduce later suicide risk.

Findings from the College Health Intervention study in the USA and Canada with 1,622 college students found that 11% of students sampled reported having suicidal thoughts (Mackenzie et al., 2012). Likewise, Servaty-Seib et al. (2021) found that 11.3% of students in the USA have considered suicide and the risk is higher among first-year students than second or final-year students. O'Neill et al. (2018) found that among the 739 university students in Ireland, 24.3% reported having suicidal ideation. Among those endorsing suicidal thoughts, 12.1% reported having plans, and 4.3% have attempted suicide. An investigation among South African university students found that the lifetime prevalence rate of suicidal ideation, plans, and

attempts was 46.4%, 26.5%, and 8.6% respectively (Bantjes et al., 2021). Similarly, a study in Ghana found that 15.2% of students reported suicidal ideation followed by 6.3% of students reporting suicidal attempts (Owusu-Ansah et al., 2020). A cross-national study among colleges in 11 Muslim countries reported that 34% of students who participated in the study reported having suicidal ideation during their studies (Eskin et al., 2021). We can surmise that the risk of suicidal ideation and behaviour among students in higher education is ubiquitous and demands attention.

Several studies have reported that the risk of suicidal thoughts and behaviour is greater among students of ethnic minority and international students (Choi et al., 2020; Stephenson et al., 2005; Wang et al., 2013). A review of suicide deaths among youths (15 to 19 years) across 90 countries found that suicides in European nations were significantly lower than in non-European nations (Wasserman et al., 2005). In another comparison between Western and Eastern nations, Snowdon (2018) found that the rate of suicides among youths between the years 2009 and 2013 was higher in Japan than in the United States. The study also found that suicide rates among male students were higher in Australia than in Hong Kong, while suicide rates among female students were higher in Hong Kong than in Australia (Snowdon, 2018). The disparity between the East and West may point to the differences in the pressure to fulfill educational expectations, which are predominantly greater in Eastern regions as compared to Western regions (Cao et al., 2007; Israelowitz & Hong, 1990; Sue & Okazaki, 1990).

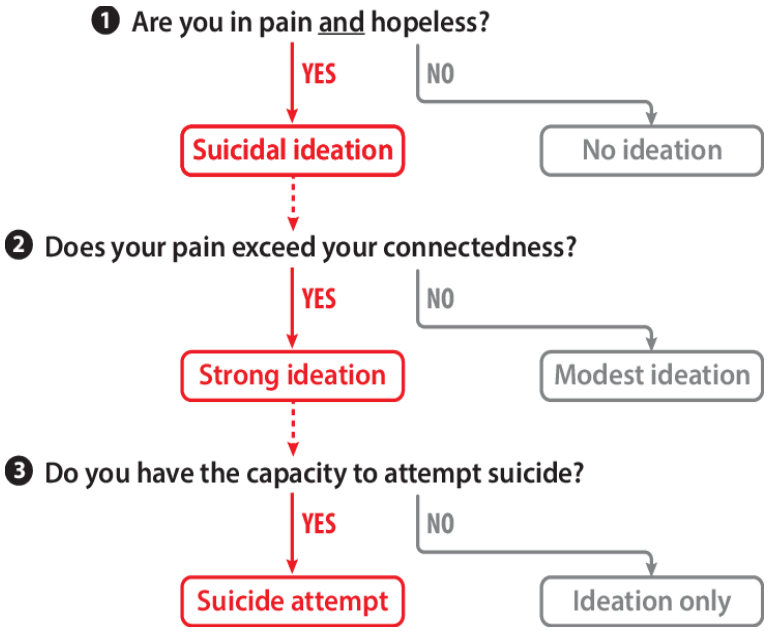
The Three-Step Theory of Suicide

The Three-step Theory (3ST) of suicide (Klonsky & May, 2015) was utilized in this thesis to investigate the relationship between high educational expectations on suicidal ideation. The theory is based on the ideation-to-attempt framework which explains that suicide is

multidimensional, starting with the formation of a passive suicidal thought (e.g., thinking of suicide), then into an active and intense suicidal thought (e.g., planning for suicide), and later into an actionable suicide attempt (Klonsky & May, 2015) (see Figure 5). The first step suggests that passive suicidal ideation is formed as a result of an intense experience of psychological pain along with a sense of hopelessness (Klonsky & May, 2015). The concept of psychological pain is similar to Shneidman's (1993) concept of *psychache* which refers to an unbearable intense psychological and emotional pain. According to the 3ST, the experience of psychache can take various forms (e.g., physical, emotional, psychological, social, and/or environmental) and manifest as feelings of depression, guilt, fear, shame, defeat, or fatigue. The intense emotional ache and anguish decrease the desire to continue living a painful existence and drive a person to consider suicide as an escape (Klonsky et al., 2018).

Figure 5

The Three-Step (3ST) Model of Suicide (Klonsky & May, 2015).



Psychache alone is not sufficient to form passive suicidal thoughts. A sense of hopelessness or the perceived inability to recover from the psychache is also required for passive suicidal ideation to develop (Klonsky et al., 2018). A sense of hopelessness is necessary as someone who perceives that the pain may eventually go away or improve will not develop thoughts of suicide as compared to someone who perceives that they will gain no respite from their psychache. An examination of the 3ST found that the interaction of psychache and hopelessness explained 56% of the variance in suicidal ideation among university students in the United Kingdom (Dhingra et al., 2019). Additionally, suicide ideation was greater among students who scored high on both psychache and hopelessness than students with lower scores on psychache and hopelessness (Dhingra et al., 2019). In another study among psychiatric inpatients, pain and hopelessness significantly predicted future suicidal ideation at four weeks and three months after discharge (Tsai et al., 2021).

The second step explains the progression from passive suicide ideation into active or strong suicidal ideation. According to the theory, suicidal ideation intensifies when one's sense of connectedness is poor. The term connectedness proposed by the 3ST has commonly been thought to refer to connections to people or interpersonal relationships (Dhingra et al., 2019; Yang et al., 2019). However, connectedness in the 3ST model takes a broader conceptualization and refers to any form of attachment that provides meaning to one's life and makes life worth living (Klonsky et al., 2016). These attachments to life can include but are not limited to connections and relationships with people (e.g., family, friends), a societal role, a personal goal, a connection with God, a passion project, or a career that provides a sense of purpose and makes life meaningful (Agarwal, 2020; Klonsky & May, 2015; Klonsky et al., 2016, 2018; Zareian &

Klonsky, 2020). The theory argues that suicidal ideation intensifies when perceived pain exceeds one's sense of connectedness and purpose of living.

The ameliorating effect of connectedness on suicide risk is well evidenced. In a study among high school students, Benatov et al. (2021) found that having a stronger sense of school connectedness, especially with peers and teachers, was negatively linked to suicidal ideation and behaviour among students. In another study among youths who were victims of bullying, Arango et al. (2019) found that connectedness to family, school, and the community was negatively associated with suicidal ideation. Connectedness to one's family and the presence of a supportive family moderated the relationship between anxiety and suicidal ideation among adolescents (Machell et al., 2016). Adolescents who were diagnosed with an anxiety disorder had a lower risk of suicidal ideation when family support was high as compared to when family support was low. Zhao et al. (2020) found that a thwarted sense of belonging mediated the relationship between maladaptive shame (a form of psychache) and suicidal ideation.

The third step explains that suicide ideation transitions into an attempt when the capacity for suicide is present. The capacity for suicide is broken into dispositional capacity (e.g., having high pain tolerance, low fear of death), acquired capacity (e.g., frequent exposure to death, history of abuse), and practical capacity (e.g., access to lethal means, knowledge of using firearms) (Klonsky & May, 2015). Findings from a community sample of suicide attempters found that handgun ownership (practical capacity) moderated the likelihood of future suicidal attempts (Houtsma & Anestis, 2017). In a separate study, Liu et al. (2018) reported that adolescents who have witnessed a suicide attempt or suicide death of a friend and/or family member (acquired capacity) have an increased risk of suicidal ideation, plan, and attempt compared to adolescents who have not had such exposure. As such, an individual with a capacity

for suicide is likely to transition from intense suicide ideation to attempting suicide compared to an individual who does not have the suicide capacity. Klonsky et al. (2021) further added that the presence of any type of suicide capability is sufficient and that the effect of suicide capacity is not cumulative (i.e., all capacity types need not be present or high). For example, the knowledge and access to firearms are sufficient practical capacities that can enable the transition from intense suicidal thoughts to a suicide attempt.

Educational Expectations

In Chapter 3, we provided an extensive review of the literature on educational expectations and their impact on students' psychological well-being, emotional distress, and reduced academic motivation (Hou & Leung, 2011; Liu & Tein, 2005; Ma et al., 2018; Park & Chung, 2014). Students who feel that they are incapable to fulfill educational expectations report an increased risk of psychological distress, shame, embarrassment, and hopelessness (Warikoo et al., 2020), burnout (Lee et al., 2020; Sorkkila et al., 2017), and suicide (Tateno et al., 2018; Wang et al., 2020).

We defined educational expectations as the belief and desire towards the accomplishment of academic short-term and long-term goals which are imposed by oneself and/or by others. In Chapter 3, we identified four main sources of educational expectations that were perceived by students in tertiary education; the self, parents, educators/institutions, and culture. We can also categorize the four sources of expectation into two distinct categories; internal expectations and external expectations. Internal expectations refer to expectations that are developed and imposed by oneself and external expectations refer to expectations that are developed and imposed by others such as family, educators, the academic institution, or the sociocultural environment.

In brief, educational expectations from parents and family members have been widely cited as the main source of expectations across the literature (Cao et al., 2007; Israelowitz & Hong, 1990; Sue & Okazaki, 1990). Unrealistic or excessive parental expectations have been associated with a myriad of negative psychological outcomes among students. For example, a review of academic achievements among immigrant Chinese students noted that a high degree of parental expectation contributed to a higher risk of psychological distress, depression, and perceived isolation from parents and peers (Costigan et al., 2010). A study among students in Saudi Arabia also found that students who reported higher perceived parental expectations showed higher stress and depressive symptoms (Ali et al., 2019). Additionally, students who enroll in university programs due to parental pressure report greater stress than those who enrolled willingly (Poots & Cassidy, 2020). Moreover, findings from Taiwan reported that suicidal tendencies among youths are attributed to the intense competitive academic environment and the subsequent greater pressure from parents (Chiu et al., 2017). Griffin and Hu (2019) found that high parental expectations positively predicted feelings of regret and burnout among medical students in Australia. The poor psychological outcomes can be attributed to the lack of perceived autonomy and motivation as their enrolment into medical school was largely influenced by their parents.

Educators may also impose unrealistic expectations that can burden students and negatively impact their self-esteem and motivation (Rubie-Davies et al., 2010). High teacher expectation is positively associated with academic distress and student burnout (Pariat et al., 2014; Wickramasinghe et al., 2018). Similarly, a study among Chinese university students showed that high teacher expectations and greater demand from the university were linked to academic burnout (Rahmatpour et al., 2019).

In Chapter 3, we also identified the sociocultural environment as a macro source of educational expectations. In South Korea, education fever, which refers to the pressure to be successful in academia is an example of a sociocultural norm that adds pressure and expectations onto students (Shin et al., 2019). According to Shin et al. (2019), education fever is largely motivated by the parents' concern over their children's survivability in a highly competitive environment like South Korea. Therefore, parents invest heavily in providing their children with the best private education or 'hagwons' from early childhood onwards and become heavily involved in their academic performance. Mothers are thought to be responsible for their children's education and the academic success or failure will reflect on the mother's image in South Korean society. The *education fever* is not unique to South Korea as the push for increasingly demanding academic performance can also be found in Japan and other East Asian countries (Nakamura, 2015). This *fever* is an example of how sociocultural environments impose undue academic pressure that is beyond a student's control.

Cultural norms regarding education also vary across cultures. For example, East Asian students in the United States are raised with an emphasis on academic success as a way to repay the sacrifices made by their families and bring honor to the family from a young age (Dundes et al., 2009). Oishi and Sullivan (2005) conducted two studies that examined cross-cultural differences in the fulfillment of parental expectations and students' subjective well-being. The first study compared Japanese and American college students and found that Japanese students reported greater parental expectations and significantly lower life satisfaction and self-esteem than American students. The second study compared Asian American and European American college students and found that Asian American students reported lower life satisfaction and poorer subjective well-being than European American students (Oishi & Sullivan, 2005). The

disparity between life satisfaction, self-esteem, and well-being was due to the degree of perceived parental expectations, which was greater among Japanese and Asian American students than American and European American students (Oishi & Sullivan, 2005). In most Western societies, parental expectations reflect parental or familial interests which foster confidence and autonomy while in Eastern societies, parental expectations are seen as an obligation or duty which often leads to negative outcomes (Lu et al., 2020).

Lastly, personal standards and expectations have been associated with better motivation and academic achievement among students (Rubie-Davies et al., 2010; Trinidad, 2019) but may also lead to distress (Ang & Huan, 2006; Saipanish, 2003). In Chapter 3 we found that expectations from self were poorly correlated with negative psychological outcomes across the Malaysian, Singaporean, and Australian tertiary student samples.

Academic Burnout

In recent years, the experience of burnout has been recorded among the student population (Kim et al., 2015; Reis et al., 2015; Ríos-Risquez et al., 2018; Robins et al., 2018; Yu et al., 2016). Academic burnout is defined as a state of psychological distress characterized by emotional exhaustion from being overloaded and drained by academic demands, feeling cynical or indifferent toward studying, and a perceived inadequacy or inefficiency as a student (Lee et al., 2020; Pagnin et al., 2013; Salmela-Aro & Read, 2017). The experiences of students in higher education mirror that of working employees such as having extensive workloads (e.g., projects, homework, assessments), scheduled lectures and meetings, increased self-dependency, having to meet targets and expectations, and production of satisfactory tasks or work outcomes (Lin & Huang, 2014; Pouratashi & Zamani, 2018; Rahmati, 2015). Therefore, it is plausible for students in higher education to be at risk of burnout as well.

Several studies have indicated a growing prevalence of academic burnout, in particular among students in the field of medicine and healthcare. A review of medical students noted that at least 50% of medical students in the United States are likely to experience academic burnout during their studies (Ishak et al., 2013). In Hong Kong, Lee et al. (2020) found a 27.9% rate of burnout among medical students. A similar study among medical students in China estimated that 1 out of 11 students is at risk of academic burnout, especially those in upper grades than those in lower grades regardless of gender (Liu et al., 2018). Findings among dentistry students in Spain noted a higher prevalence of academic burnout among second and fourth-year students than first-year students (Galán et al., 2014). A study by El-Masry et al. (2012) among medical students in Saudi Arabia also reported that 76.8% of students surveyed reported high levels of emotional exhaustion. Fitzpatrick et al. (2019) found that 35% of medical students in their clinical years and 26% of students in their preclinical years reported high burnout. Additionally, Roberts et al. (2020) found that the reported levels of burnout by first-year healthcare students were comparable to the level of burnout found among second-year students or those in clinical rotations. In sum, the risk of academic burnout appears to permeate different stages of higher education.

Academic burnout negatively impacts students' performance and their well-being. Increased academic burnout was found to be associated with poorer academic performance and cognitive functioning among a sample of American undergraduates (May et al., 2015). Jin et al. (2021) found that academic burnout was negatively predictive of psychological well-being and social adjustment among international students in South Korea. A meta-analysis examining the association between academic burnout and academic performance concluded that academic burnout is predictive of poor academic achievement and that the effect is robust across different

educational levels (Madigan & Curran, 2021). In addition to poor performance, students who report burnout report poorer quality of life and increased dependence on alcohol (Jackson et al., 2016). Exhaustion and poor academic performances further exacerbate feelings of inadequacy as a student resulting in dropouts. Students with a higher level of cynicism and perceived inadequacy are more likely to drop out of school than students with low levels of cynicism and inadequacy (Bask & Salmela-Aro, 2013). This is concerning as student dropout signifies a loss of professionals and skilled workers which is vital for a thriving society.

Several studies have found a positive association between academic burnout and suicidal ideation among students (Fitzpatrick et al., 2019; Galán et al., 2014; Ishak et al., 2013; Tateno et al., 2018; Van Der Heijden et al., 2008; Wang et al., 2020). A study among South Korean dentistry students found that student burnout was positively associated with depressive symptoms and hopelessness (Kwak et al., 2021). A similar finding was also reported where medical students who experienced a higher degree of burnout had a 66% prevalence of exhibiting depressive symptoms (Fitzpatrick et al., 2019). Moreover, medical students in the USA who reported burnout were three times more likely to report suicidal thoughts than students who did not experience burnout (Dyrbye et al., 2008). Academic burnout is characterized by emotional exhaustion, depersonalization, and a perceived inadequacy which indicates a degree of psychological pain (Maslach & Schaufeli, 2018) and is positively correlated with a greater sense of hopelessness (Çapri et al., 2013). Students who report burnout and are struggling to cope with a persistent painful experience of failure may turn to suicide as an escape.

In occupational literature, burnout is likely a result of a discrepancy or mismatch between a task and the capacity of the person to complete the said task (Rahmati, 2015; Yang, 2004). In other words, the risk of burnout is greater when there is a large gap between what is expected of

a task and whether a person is capable to fulfill the said task. Parallels in the task-person discrepancy can be applied to understand the link between educational expectations and academic burnout. Educational expectations that are unrealistic or too high often do not consider the true capabilities of the student or provide students with sufficient support to meet the demands (Neumann et al., 1990). The large disparity between educational demands and a student's capability adds undue pressure and emotional distress, resulting in frustration and exhaustion (Wickramasinghe et al., 2018).

The development of academic burnout can be traced back to high educational expectations. The increased pressure to fulfill high expectations and demands imposed by oneself and others requires the exertion of prolonged effort which can be emotionally, physically, and psychologically taxing to students (Bahar et al., 2015; Lee et al., 2020). An approach to understanding how different sources of educational expectation are linked to academic burnout is through the job demand-control (JDC) model (Karasek, 1979). The model postulates that an individual is likely to experience distress and negative psychological outcomes when there is high demand but low autonomy. A meta-analysis examining the JDC model among students reported that higher demand was predictive of emotional exhaustion, cynicism, and perceived inadequacy while greater control was negatively associated with burnout (Kim et al., 2021). Expectations that are imposed by others reflect a poor sense of student autonomy which is likely to cause exhaustion and cynicism and is negatively correlated with self-efficacy (Yu et al., 2016). Findings among Chinese college students reported a positive association between high parental expectations, emotional exhaustion, and cynicism (Zhang et al., 2007). Similarly, a survey of medical students in Saudi Arabia found that high parental expectations was one of the many significant reported sources of academic stress and burnout (El-Masry et al., 2012). A

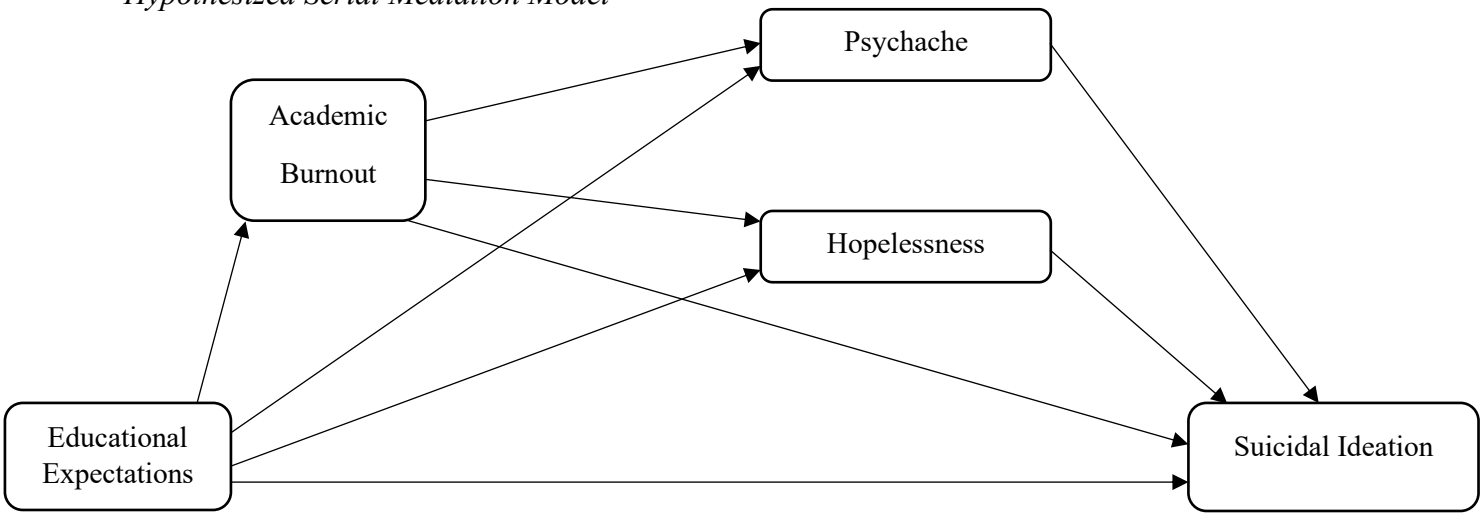
South Korean study found that parental and teacher academic pressure was positively correlated with emotional exhaustion, depression, and over-commitment among students (Lee et al., 2020). In contrast, expectations from the self reflect greater autonomy and therefore a reduced risk of distress and exhaustion (Kim et al., 2021).

The Current Study

The current study aims to address the gap in the literature by examining the underlying mechanism between educational expectations and suicidal ideation through a serial mediation model (see Figure 6) based on the first step of the 3ST (Klonsky & May, 2015).

Figure 6

Hypothesized Serial Mediation Model



According to the first step of the 3ST, the experience of psychache along with a sense of hopelessness predicts the development of suicidal ideation. Through our review, high educational expectations are linked to negative psychological outcomes which reflect an experience of psychache and a sense of hopelessness. Thus, we propose that psychache and hopelessness would mediate the relationship between high educational expectations and suicidal ideation. We also identified academic burnout as both an outcome of high educational

expectations and a predictor of suicide ideation. As academic burnout is characterized by feelings of emotional exhaustion, cynicism, and inadequacy, we propose that academic burnout also predicts psychache and hopelessness which subsequently predicts suicidal ideation.

Based on the hypothesized model, the study has five hypotheses. First, we predict that the relationship between educational expectations and suicide ideation is mediated by i) psychache, ii) hopelessness, and iii) academic burnout respectively. We also predict a serial mediating effect of iv) academic burnout and psychache and v) academic burnout and hopelessness on the relationship between educational expectations and suicide ideation. These hypotheses will be tested across the different sources of expectations (i.e., self, parents, educator/institution, and culture).

Method

Participants

A group of tertiary students representing the Western Pacific region were sampled from higher education institutions in Malaysia, Singapore, and Australia. A cumulative total of 641 tertiary students (M_{age} = 21.39, *SD* = 3.91, 76.4% female, 22% male, and 1.6% unidentified) were sampled for this study and represent the Western Pacific sample group.

For the Malaysian sample, 380 responses were collected. A total of 156 responses had missing data and were omitted, resulting in a final 224 responses (M_{age} = 21.14, *SD* = 2.59, 77.7% female, 21% male, and 13% unidentified). For the Singaporean sample, 261 responses were collected. A total of 61 responses had missing data and were omitted, resulting in a final 200 responses (M_{age} = 21.96, *SD* = 5.59, 77.5% female, 21.5% male, and 1.0% unidentified). For the Australian group, 428 responses were collected. A total of 211 responses had missing data

and were omitted, resulting in a final 217 responses (M_{age} = 21.12, *SD* = 3.04, 74.2% female, 23.5% male, and 2.3% unidentified). Further demographic details can be found in Table 10.

Table 10

Participant Demographic Information

Characteristics	Western Pacific (*n* =641)	Malaysia (*n* =224)	Singapore (*n* =200)	Australia (*n* =217)
Age (*M, SD*)	21.39 ±3.91	21.14 ±2.59	21.96 ±5.59	21.12 ±3.04
Birth Order				
Only Child	9.83%	7.10%	17%	6%
Eldest	37.75%	33.90%	42.50%	37.30%
Middle	17.01%	20.10%	10.50%	19.80%
Youngest	35.41%	38.80%	30.00%	36.90%
Type of Higher Education Institution				
Public	40.56%	18.30%	32%	72.80%
Private	58.81%	81.70%	68%	27.30%
Course of Study				
Foundation/Pre-University	10.30%	28.10%	1%	0.50%
Diploma/Polytechnic	4.68%	1.30%	7.50%	5.50%
Undergraduate/Bachelor's degree	81.75%	66.50%	90%	89.90%
Others (e.g., Master, Doctorate)	3.28%	4.00%	1.50%	4.10%
Study Discipline				
Humanities	7.64%	12.90%	5%	4.60%
Social Sciences	60.69%	45.10%	81%	58.10%
Natural Sciences	6.08%	5.40%	1%	11.50%
Formal Sciences	2.34%	4.50%	2%	0.50%
Applied Science	15.91%	21.40%	6.50%	18.90%
Others	7.33%	10.70%	4.50%	6.50%

Instruments

Perceived Educational Expectations

The Higher Educational Expectation Scale (HEES) is a 28-item scale that was developed to examine the degree of perceived educational expectations among students in higher education across four domains: self, parents, educators/institutions, and culture. Items are rated on a 5-point Likert scale ranging from 1 (*Strongly agree*) to 5 (*Strongly disagree*) with higher scores indicating higher perceived educational expectations.

Suicide Ideation

The Suicide Ideation Scale (Rudd, 1989) is a 10-item scale that examines the presence and intensity of suicidal ideation across two domains; passive (e.g., I feel life isn't worth living) and active (e.g., I told someone I want to kill myself). Items are rated on a 5-point Likert scale ranging from 1 (*Never or none of the time*) to 5 (*Always or a great many times*) with higher cumulative scores indicating more intense suicidal ideation. The scale has good internal consistency, Cronbach's α = .86, and high construct validity in predicting self-harm, r =.83, p <.001 (Luxton et al., 2011).The scale has also been validated in Singapore with a good internal consistency for the total scale, Cronbach's α = .95, and its subscales; passive ideation, Cronbach's α = .89, and active ideation, Cronbach's α = .89 (Teo et al., 2018).

Psychache

The Scale of Psychache (Holden et al., 2001) is a 13-item scale that examines the degree of psychological pain (e.g., I seem to ache inside). Items are rated on a 5-point Likert scale ranging from 1 (*Never or strongly disagree*) to 5 (*Always or strongly agree*) with higher scores indicating a greater degree of psychological pain. The scale has good internal consistency,

Cronbach's α = .92, and moderate concurrent validity in predicting suicide ideation, r = .52, p < .01, and suicide attempts, r = .30, p < .01 (Holden et al., 2001). The scale has been tested cross-culturally among the student population in the United Kingdom (Dhingra et al., 2019) and in China (Li et al., 2017).

Hopelessness

The Brief Hopelessness Scale (Bolland et al., 2001) is a 6-item scale that measures hopelessness (e.g., All I see ahead of me are bad things, not good things). Items are rated by either 'agree' (scored 1) or 'disagree' (scored 0). Responses are summed with higher scores indicating a higher degree of hopelessness. The scale has a good internal consistency, ranging from Cronbach's α = .75 (Bolland et al., 2001) to α = .85 (Li et al., 2016). The scale has moderate construct validity with self-esteem, r = -.53, p <.001, and depression, r =.50, p <.001 (Li et al., 2016).

Academic Burnout

Study Burnout Inventory (Salmela-Aro & Read, 2017) is a 9-item scale that examines the three components of study burnout in higher education: exhaustion in higher education (e.g., I feel overwhelmed by studying), cynicism towards the meaningfulness of studying (e.g., I feel that I am losing interests in studying), and a sense of inadequacy as a student in higher education (e.g., I often have feelings of inadequacy when studying). Items are rated on a 6-point Likert scale ranging from 1 (*Completely disagree*) to 6 (*Completely agree*) with higher scores indicating higher degrees of study burnout. The scale has a good internal consistency with ranges from Cronbach's α = .83 to .85 (Salmela-Aro & Read, 2017). The scale has moderate concurrent

validity with depression, r =.60, p <.001, and school engagement, r =-.30, p <.001 (Salmela-Aro et al., 2009).

Procedure

This cross-sectional study was hosted on the online platform Qualtrics (2020). Participants were first presented with the study information page and directed to the consent page. After the participant provided consent, participants were then asked to create a unique identification code that will allow them to withdraw from the study. Then, participants were directed to the demographic sheet and a battery of questionnaires which included the Higher Education Expectation Scale, the Suicide Ideation Scale (Rudd, 1989), the Scale of Psychache (Holden et al., 2001), the Brief Hopelessness Scale (Bolland et al., 2001), and the Study Burnout Inventory (Salmela-Aro & Read, 2017). Upon completion of the scales, participants were directed to a participant support document that provided contact details for free psychological support services in Malaysia, Singapore, and Australia respectively.

Students were invited to participate in the study through convenience and snowballing sampling. The study was advertised and disseminated using a poster with the link and QR code to the study through relevant online networks, student forums, social media(e.g., LinkedIn, Facebook, Reddit), and email correspondences to higher education institutions in Malaysia, Singapore, and Australia. The study was estimated to take about 10 minutes to complete. The study has been approved by the James Cook University Human Research Ethics Committee (H8552).

Proposed Analysis

The hypothesized serial mediation model was analyzed using the Statistical Package for Social Science (SPSS) 27.0 with the PROCESS Macro (Hayes, 2018) plugin. Model 6 of the PROCESS macro (Hayes, 2018) was used to test the model. A total of 16 (4-by-4) PROCESS macro was performed to test the model for each of the four sources of expectation (i.e., self, parents, educators/institutions, and culture) across four sample groups (i.e., Western Pacific, Malaysian, Singaporean, and Australian).

We first examined the models with the different sources of expectations on the Western Pacific sample which is the primary aim of the thesis and addresses the gap identified in Chapter 2 concerning educational expectations as a suicide risk factor among youths in the Western Pacific. We subsequently analyzed the models with the different sources of expectations across the Malaysian, Singaporean, and Australian samples independently.

Results

Preliminary Analysis

A one-way analysis of variance (ANOVA) was conducted to examine the differences between the Malaysian, Singaporean, and Australian samples on the study's variables (see Table 11). There was a significant difference between the samples for each source of expectation; expectation from self, $F(2,638) = 4.460$, $p = .012$, expectation from parents, $F(2,638) = 11.188$, $p < .001$, expectation from educators/institutions, $F(2, 638) = 9.556$, $p < .001$, and expectation from culture, $F(2,638) = 36.078$, $p < .001$.

Posthoc analysis using Bonferroni correction was performed for each source of educational expectations. For expectations from self, the mean for the Malaysian sample was

significantly higher than the Singaporean sample (t = 2.979, p =.009). There were no significant differences in mean expectation from self between the Malaysian and Australian samples (t = 1.622, p =.316) and between the Singaporean and Australian samples (t = -1.381, p =.503). For expectations from parents, the mean for the Malaysian sample was significantly higher than the Singaporean (t = 2.484, p =.040) and Australian sample (t = 4.724, p <.001). There were no significant differences in mean expectations from parents between the Singaporean and Australian samples (t = 2.125, p =.102). For expectations from educators/institutions, the mean for the Malaysian sample was significantly higher than the Singaporean (t = 2.904, p =.011) and the Australian sample (t = 4.263, p <.001). There were no significant differences in mean expectations from educators/institutions between the Singaporean and Australian samples (t = 1.259, p =.625). For expectations from culture, the mean for the Malaysian sample was significantly higher than the Singaporean (t = 2.929, p =.011) and Australian sample (t = 8.398, p <.001). Moreover, the mean expectation from culture for the Singaporean sample was significantly higher than the Australian sample (t = 5.254, p <.001).

There were no significant differences between the samples on measures of academic burnout, psychological pain, and suicide ideation. Only hopelessness was significantly different across samples, F(2, 638) =3.641, p =.027. Posthoc analysis using Bonferroni correction revealed that mean hopelessness was significantly higher for the Malaysian sample than the Australian sample (t = 2.569, p =.031). There was no significant difference in hopelessness between the Malaysian and Singaporean samples (t = 0.515, p =1.000) and between the Singaporean and Australian samples (t = 1.986, p =.142).

Table 11

Variables Differences across Samples

Variable	Sample group	*M*	*SD*	*F*
Self	Malaysia	**46.04**	8.498	4.460*
	Singapore	43.54	9.188	
	Australia	44.71	8.262	
Parents	Malaysia	**15.65**	4.315	11.188**
	Singapore	14.52	4.642	
	Australia	13.54	5.075	
Educators/ Institutions	Malaysia	**17.21**	3.658	9.556**
	Singapore	16.18	3.534	
	Australia	15.73	3.776	
Culture	Malaysia	**22.97**	4.525	36.078**
	Singapore	**21.46**	5.144	
	Australia	**18.73**	6.108	
Academic Burnout	Malaysia	32.27	9.588	.189
	Singapore	31.95	9.249	
	Australia	.31.71	9.838	
Psychache	Malaysia	20.03	12.160	.144
	Singapore	19.83	11.413	
	Australia	19.46	11.665	
Hopelessness	Malaysia	**1.46**	1.908	3.641*
	Singapore	1.37	1.857	
	Australia	**1.01**	1.637	
Suicide ideation	Malaysia	16.31	7.474	1.270
	Singapore	16.84	7.648	
	Australia	15.67	7.464	

Note. Bolded values indicate mean scores that are different. *p <.05, **p <.001

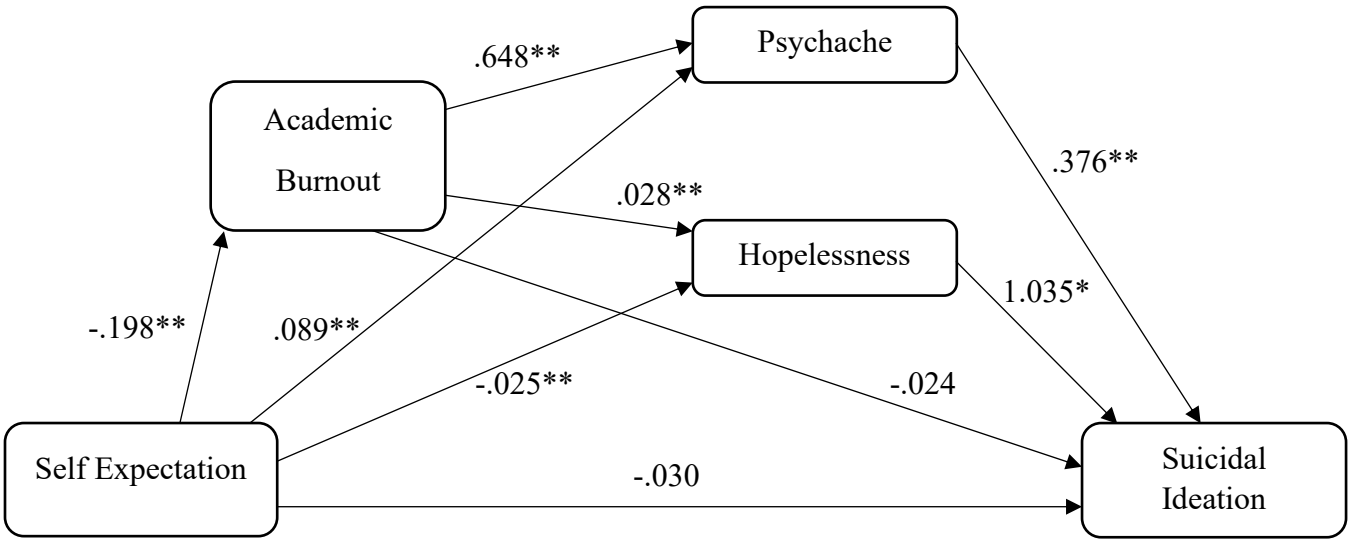
Serial Mediation Analysis

The Western Pacific Sample

Expectations from Self. A serial mediation analysis with the expectation from self was conducted (see Figure 7). Results from the analysis found that there was no significant indirect mediating effect of academic burnout, β = .005, 95% percentile CI [-.099, .013], and psychache, β = .033, 95% percentile CI [-.004, .073], on expectations from self to suicide ideation. However, there was a significant negative indirect mediating effect of hopelessness, β = -.026, 95% percentile CI [-.045, -.009]. Findings also revealed a significant negative indirect serial mediating effect of academic burnout through psychache, β = -.048, 95% percentile CI [-.074, -.042]. Results also show a significant negative serial mediating effect of academic burnout through hopelessness, β = -.006, 95% percentile CI [-.012, -.002].

Figure 7

Western Pacific Model with Expectation from Self

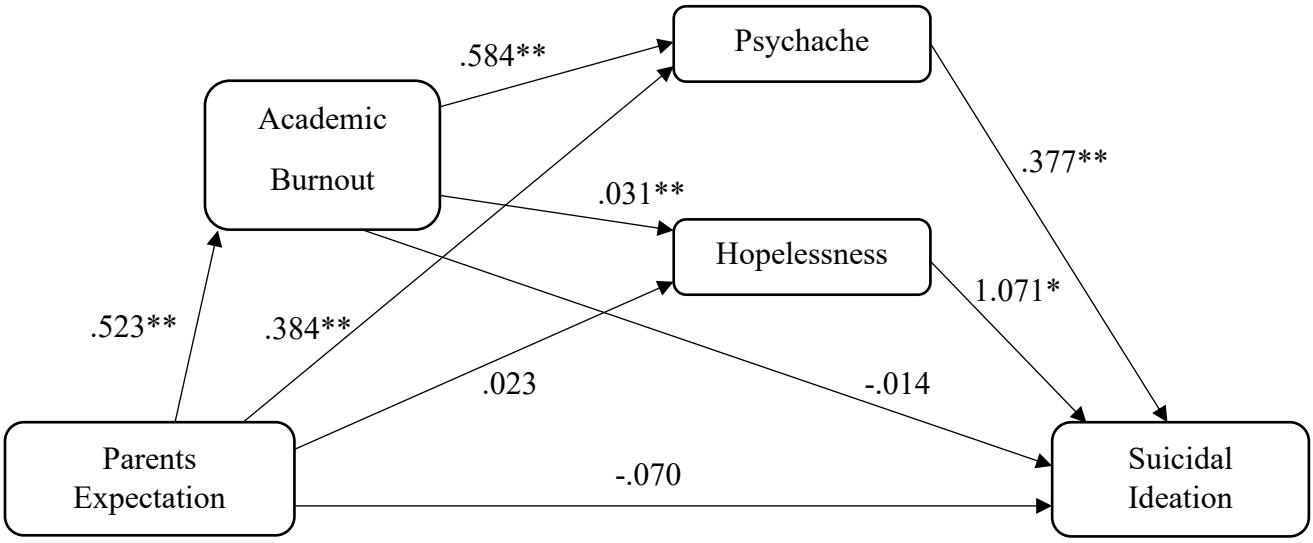


*p <.05, **p <.001

Expectations from Parent. Serial mediation analysis with the expectation from parents was conducted (see Figure 8). Results found no significant indirect mediating effect of academic burnout, β = -.007, 95% percentile CI [-.037, .021], and hopelessness, β = .025, 95% percentile CI [-.006, .056]. However, results found that psychache had a significant indirect mediating effect, β = .145, 95% percentile CI [.075, .219]. Findings also revealed that there was a significant serial mediating effect of academic burnout through psychache, β = .115, 95% percentile CI [.073, .162], and a significant serial mediating effect of academic burnout through hopelessness, β = .018, 95% percentile CI [.007, .032].

Figure 8

Western Pacific Model with Expectation from Parents

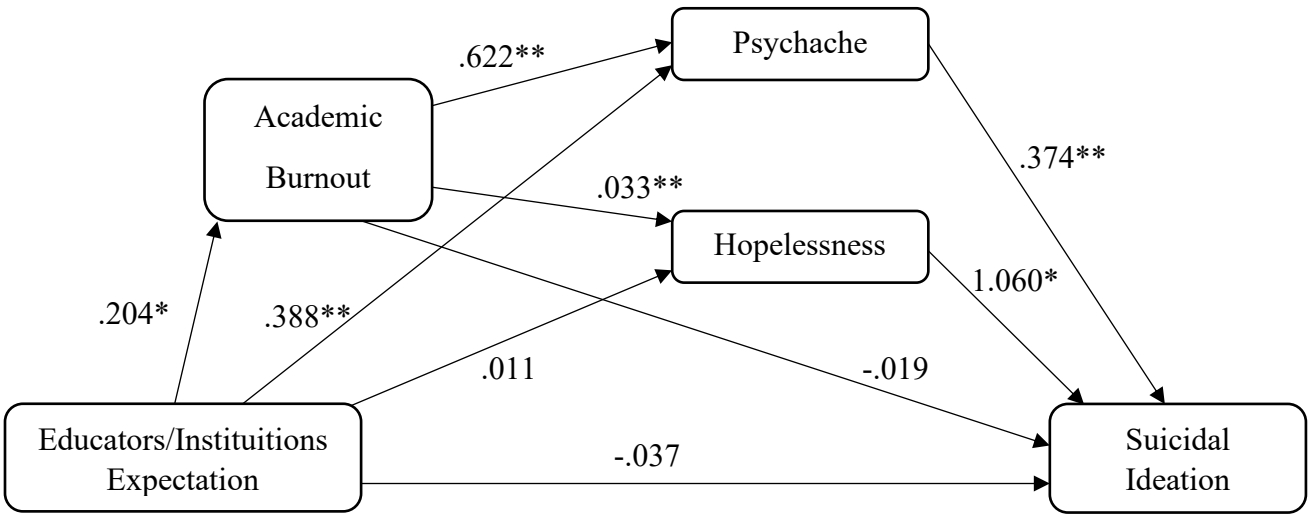


*p <.05, **p <.001

Expectations from Educators/Institutions. Serial mediation analysis with the expectation from educators/institutions was conducted (see Figure 9). Findings from the analysis found no significant mediating indirect effect of academic burnout, β = -.004, 95% percentile CI [-.020, .008], and hopelessness, β = .011, 95% percentile CI [-.022, .044]. However, results found that psychache had a significant indirect mediating effect, β = .145, 95% percentile CI [.061, .230]. Results also revealed no significant serial mediating indirect effect of academic burnout through psychache, β = .047, 95% percentile CI [.-005, .104], and academic burnout through hopelessness, β = .007, 95% percentile CI [-.001, .018].

Figure 9

Western Pacific Model with Expectation from Educators/Institutions

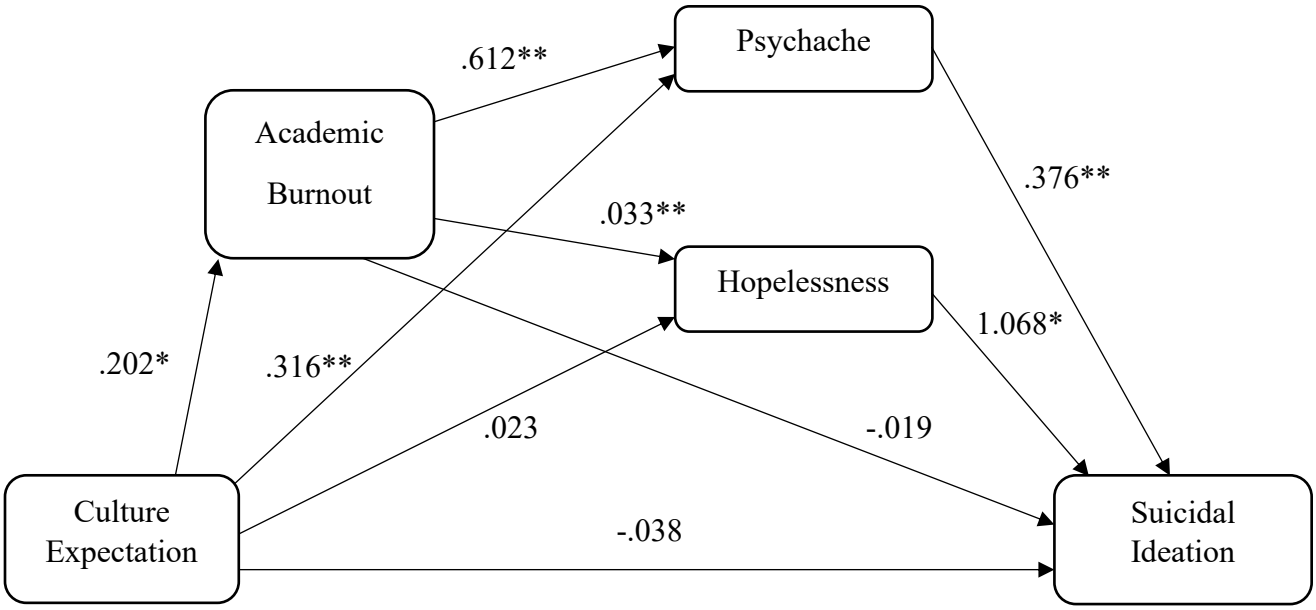


*p <.05,**p <.001

Expectations from Culture. Serial mediation analysis with the expectation from culture was conducted (see Figure 10). Results found no significant indirect mediating effect of academic burnout, β = -.004, 95% percentile CI [-.017, .298], and hopelessness, β = .024, 95% percentile CI [.000, .049]. However, findings revealed that psychache had a significant mediating effect, β = .119, 95% percentile CI [.069, .171]. Findings also revealed that there was a significant serial mediating effect of academic burnout through psychache, β = .046, 95% percentile CI [.014, .083], and a significant serial mediating effect of academic burnout through hopelessness, β = .007, 95% percentile CI [.002, .015].

Figure 10

Western Pacific Model with Expectation from Culture



*p <.05,**p <.001

In sum, academic burnout did not mediate the relationship between all sources of expectation on suicide ideation. Psychache significantly mediated the relationship between parental, educator/institution, and cultural expectations but not for self expectation. Hopelessness only mediated the relationship between self expectation and suicide ideation. A significant serial

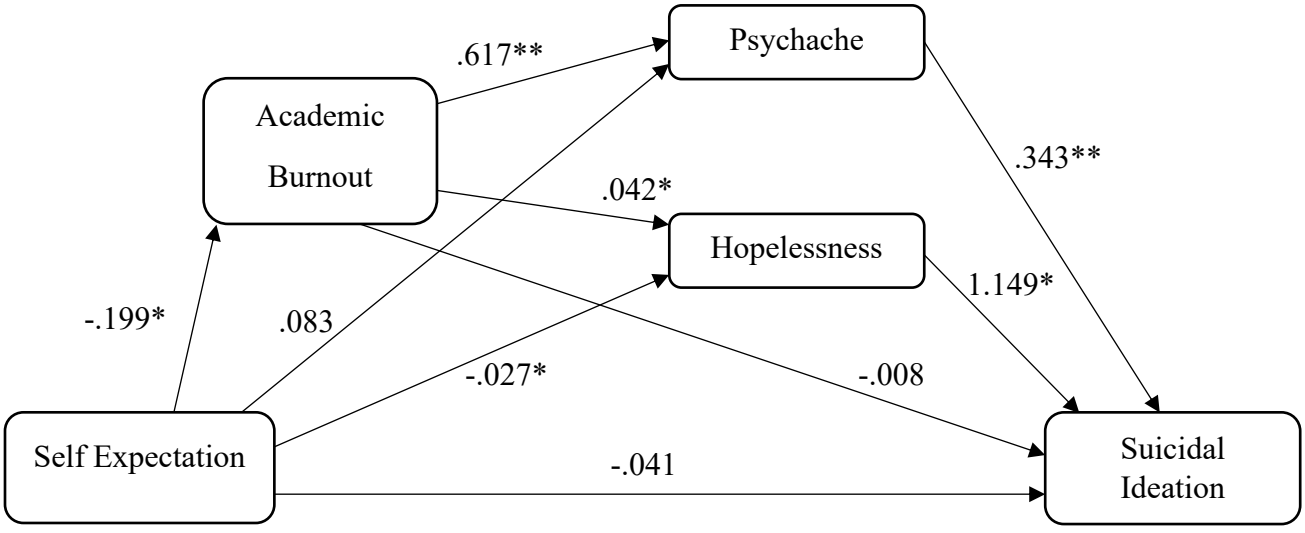
mediating effect of academic burnout and psychache was found for expectations from self, parents, and culture. Similarly, significant serial mediating effects of academic burnout and hopelessness were found for expectations from self, parents, and culture.

The Malaysian Sample

Expectations from Self. Serial mediation analysis with the expectation from self was conducted (see Figure 11). Results from the analysis found that there was no significant indirect mediating effect of academic burnout, β = .002, 95% percentile CI [-.020, .022], psychache, β = .029, 95% percentile CI [-.031, .095], and hopelessness, β = -.031, 95% percentile CI [-.076, -.003] on expectations from self to suicide ideation. However, there was a significant negative indirect serial mediating effect of academic burnout through psychache, β = -.042, 95% percentile CI [-.084, -.005], and a significant negative serial mediating effect of academic burnout through hopelessness, β = -.010, 95% percentile CI [-.025, -.001].

Figure 11

Malaysian Model with Expectation from Self

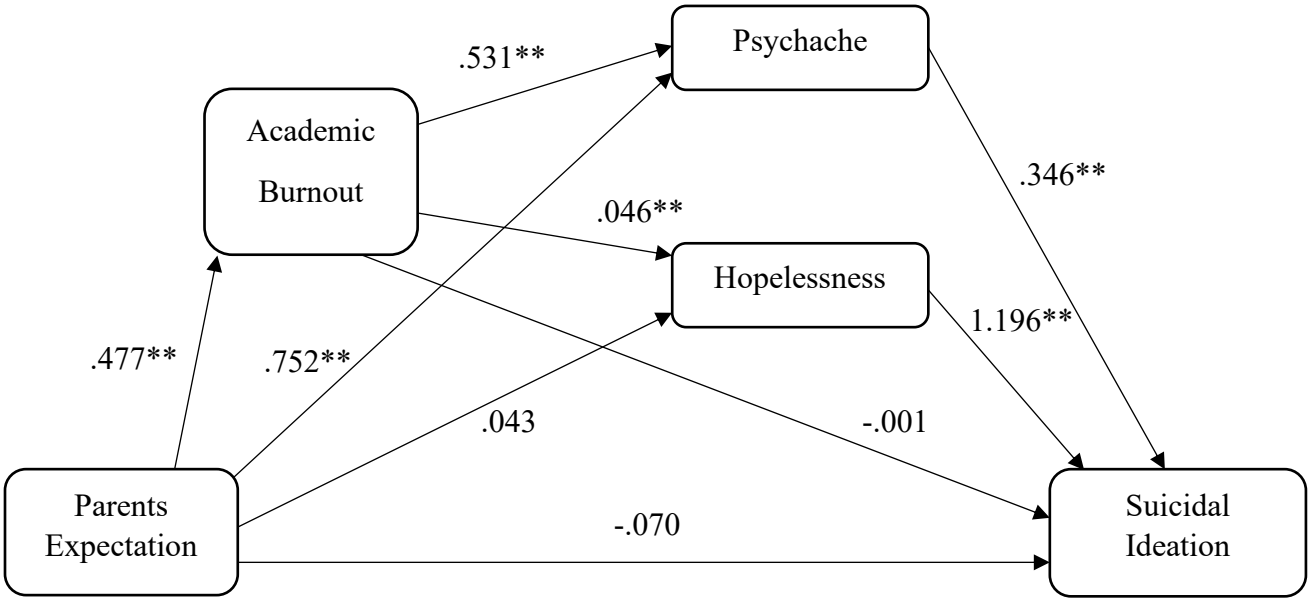


*p <.05,**p <.001

Expectations from Parent. Serial mediation analysis with the expectation from parents was conducted (see Figure 12). Results from the analysis found that there was no significant indirect mediating effect of academic burnout, β = .005, 95% percentile CI [-.052, .047], and hopelessness, β = .051, 95% percentile CI [-.021, .129], on expectations from parent to suicide ideation. However, there was a significant indirect mediating effect of psychache, β = .260, 95% percentile CI [.138, .396]. Findings also revealed a significant indirect serial mediating effect of academic burnout through psychache, β = .088, 95% percentile CI [.021, .171], Additionally, results show a significant serial mediating effect of academic burnout through hopelessness, β = .026, 95% percentile CI [.005, .057].

Figure 12

Malaysian Model with Expectation from Parents

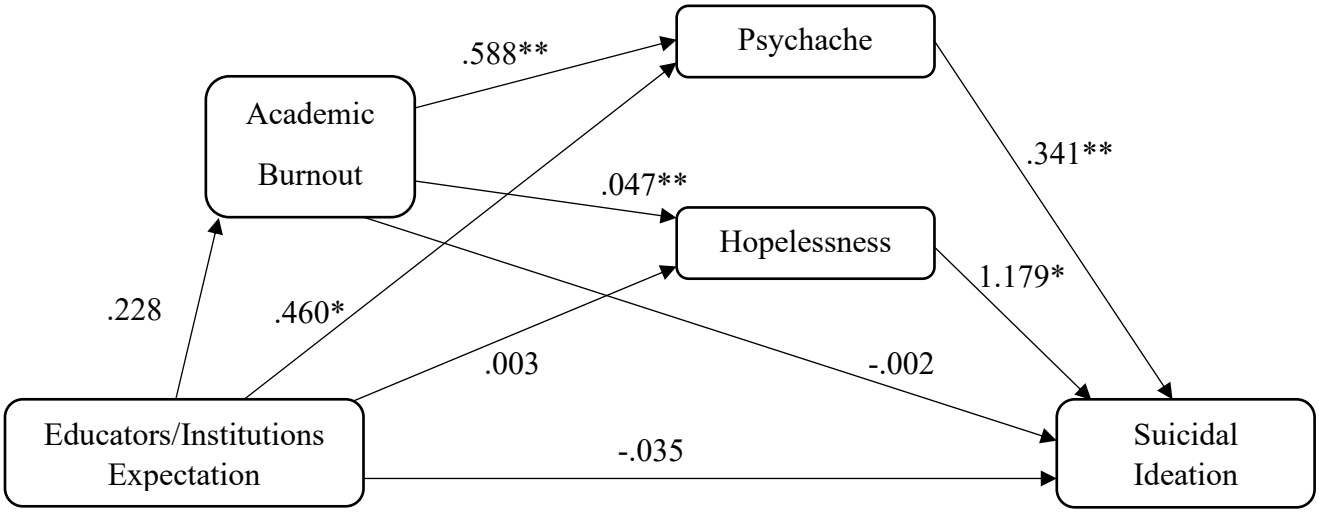


*p <.05, **p <.001

Expectations from Educators/Institutions. Serial mediation analysis with the expectation from educators/institutions was conducted (see Figure 13). Results from the analysis found that there was no significant indirect mediating effect of academic burnout, β = .000, 95% percentile CI [-.036, .026], and hopelessness, β = .004, 95% percentile CI [-.060, .063], on expectations from educators/institutions to suicide ideation. However, there was a significant indirect mediating effect of psychache, β = .157, 95% percentile CI [.008, .300]. Findings also revealed no significant indirect serial mediating effect of academic burnout through psychache, β = .046, 95% percentile CI [-.030, .136], and no significant indirect serial mediating effect of academic burnout through hopelessness, β = .013, 95% percentile CI [-.009, .038].

Figure 13

Malaysian Model with Expectation from Educators/Institutions

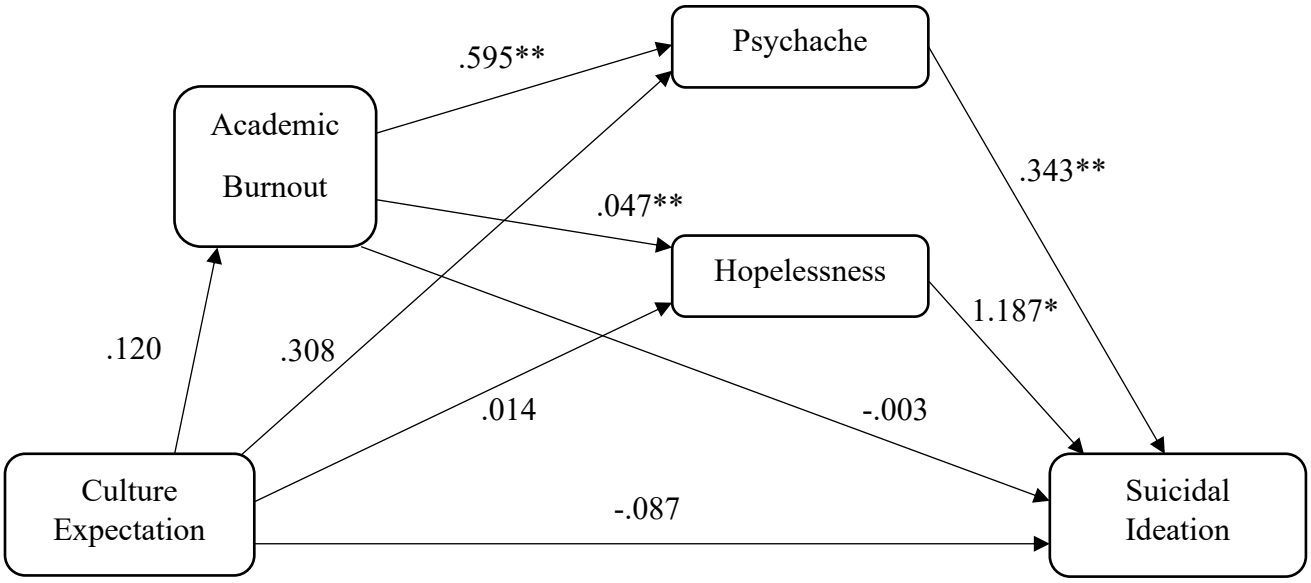


*p <.05,**p <.001

Expectations from Culture. Serial mediation analysis with the expectation from culture was conducted (see Figure 14). Results from the analysis found that there was no significant indirect mediating effect of academic burnout, β = .000, 95% percentile CI [-.024, .018], and psychache, β = .106, 95% percentile CI [-.006, .221], and hopelessness, β = -.017, 95% percentile CI [-.053, .094]. Findings also revealed no significant indirect serial mediating effect of academic burnout through psychache, β = .025, 95% percentile CI [-.037, .098], and no significant serial mediating effect of academic burnout through hopelessness, β = .007, 95% percentile CI [-.011, .031].

Figure 14

Malaysian Model with Expectation from Culture



*p <.05,**p <.001

In sum, academic burnout and hopelessness did not mediate the relationship between all sources of expectation to suicide ideation. Psychache significantly mediated the relationship between parental and educator/institutional expectations on suicide ideation. A significant serial mediating effect of academic burnout and psychache was only found for expectations from self

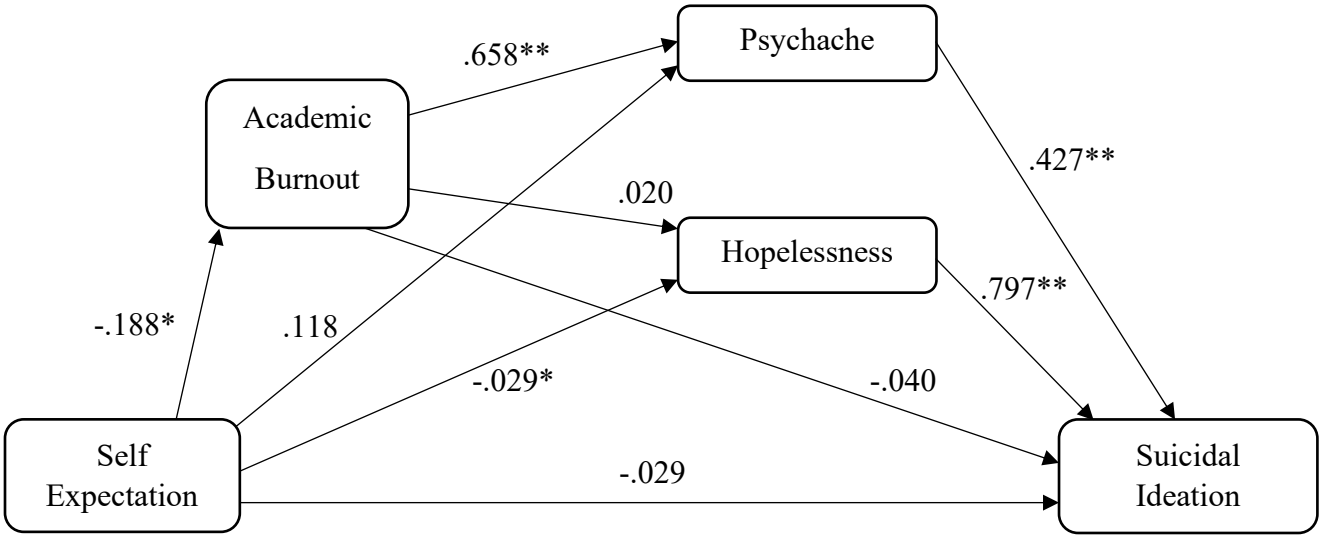
and parents. Similarly, significant serial mediating effects of academic burnout and hopelessness were only found for expectations from self and parents.

The Singaporean Sample

Expectations from Self. Serial mediation analysis with the expectation from self was conducted (see Figure 15). Results from the analysis found that there was no significant indirect mediating effect of academic burnout, β = .008, 95% percentile CI [-.010, .032], psychache, β = .050, 95% percentile CI [-.019, .135], and hopelessness, β = -.023, 95% percentile CI [-.054, .000] on expectations from self to suicide ideation. However, there was a significant negative indirect serial mediating effect of academic burnout through psychache, β = -.053, 95% percentile CI [-.108, -.010], but no significant serial mediating effect of academic burnout through hopelessness, β = -.003, 95% percentile CI [-.013, .002].

Figure 15

Singaporean Model with Expectation from Self

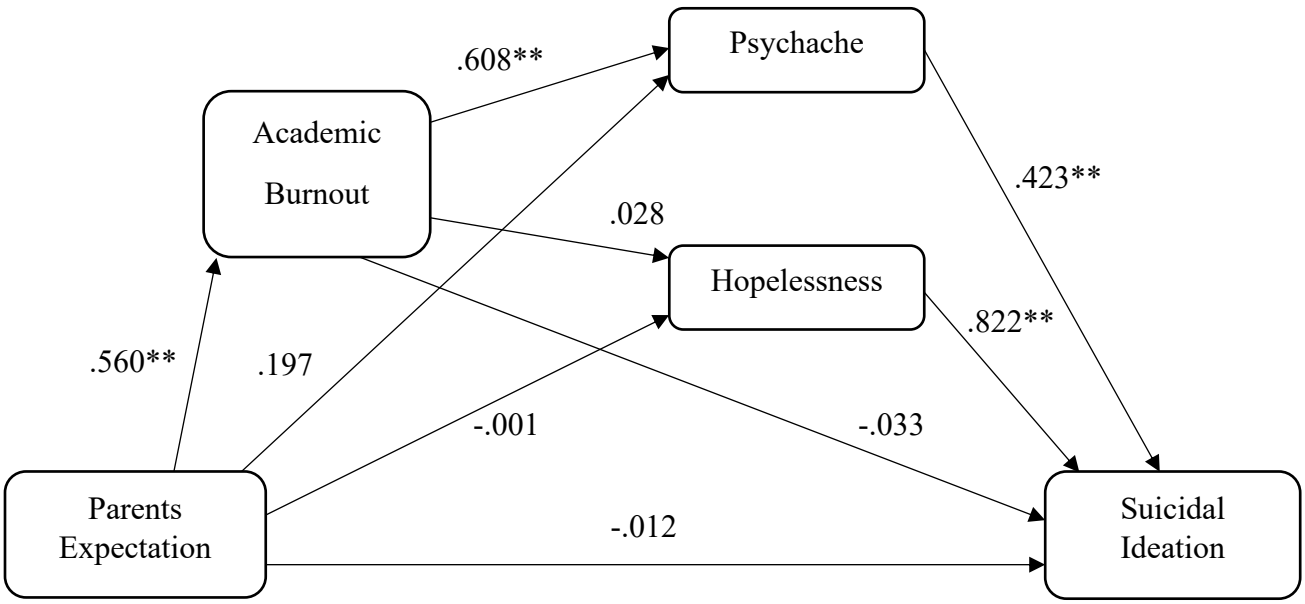


*p <.05,**p <.001

Expectations from Parent. Serial mediation analysis with the expectation from parents was conducted (see Figure 16). Results from the analysis found that there was no significant indirect mediating effect of academic burnout, β = -.018, 95% percentile CI [-.075, .036], psychache, β = .083, 95% percentile CI [-.060, .226], and hopelessness, β = -.001, 95% percentile CI [-.055, .045], on expectations from parent to suicide ideation. Findings also revealed a significant indirect serial mediating effect of academic burnout through psychache, β = .144, 95% percentile CI [.066, .242], but no significant serial mediating effect of academic burnout through hopelessness, β = .013, 95% percentile CI [-.002, .043].

Figure 16

Singaporean Model with Expectation from Parents

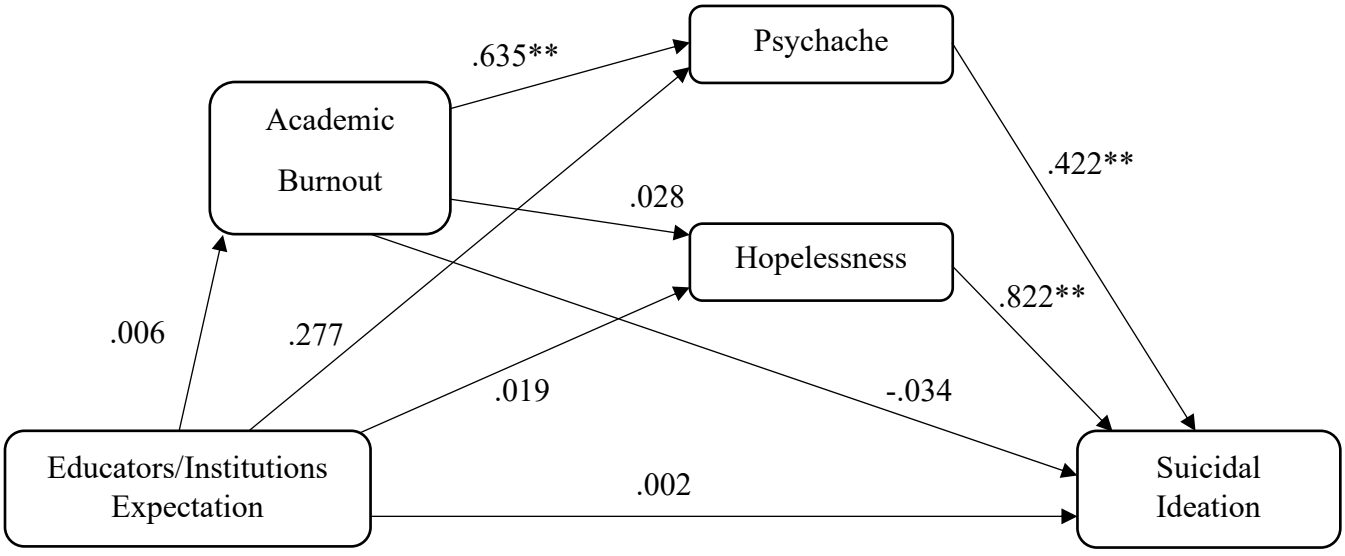


**p <.001

Expectations from Educators/Institutions. Serial mediation analysis with the expectation from educators/institutions was conducted (see Figure 17). Results from the analysis found that there was no significant indirect mediating effect of academic burnout, β = .000, 95% percentile CI [-.029, .028], psychache, β = .117, 95% percentile CI [-.054, .320], and hopelessness, β = .016, 95% percentile CI [-.037, .075], on expectations from educators/institutions to suicide ideation. Findings also revealed no significant indirect serial mediating effect of academic burnout through psychache, β = .002, 95% percentile CI [-.114, .117], and no significant indirect serial mediating effect of academic burnout through hopelessness, β = .000, 95% percentile CI [-.012, .016].

Figure 17

Singaporean Model with Expectation from Educators/Institutions

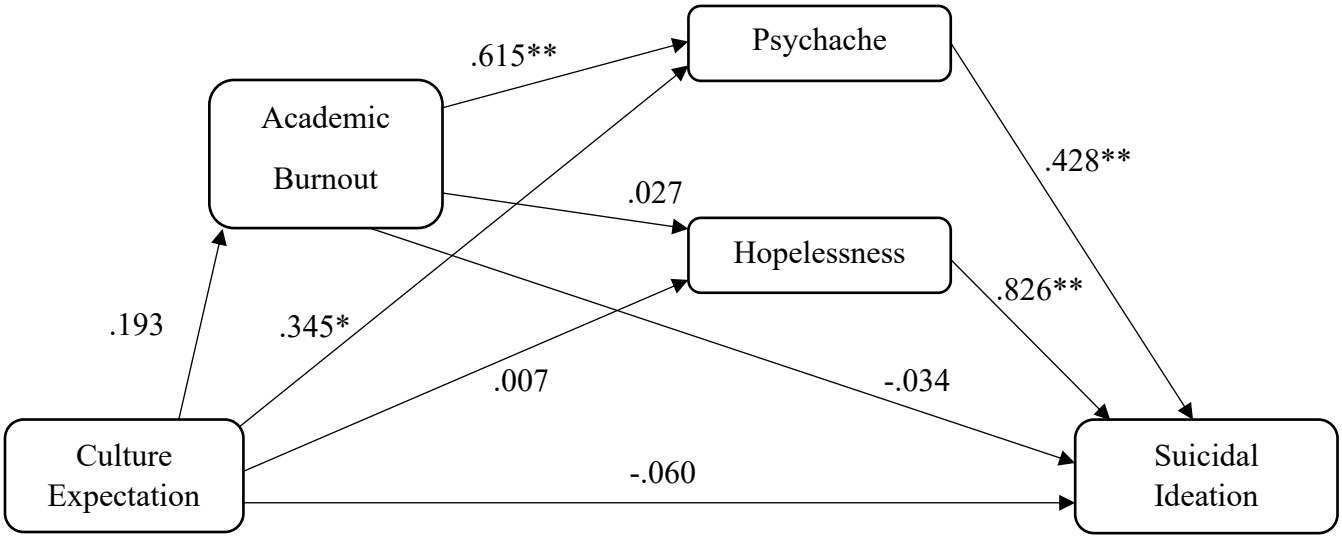


**p <.001

Expectations from Culture. Serial mediation analysis with the expectation from culture was conducted (see Figure 18). Results from the analysis found that there was no significant indirect mediating effect of academic burnout, β = -.007, 95% percentile CI [-.034, .015], and hopelessness, β = .006, 95% percentile CI [-.031, .046]. However, there was a significant indirect mediating effect of psychache, β = .148, 95% percentile CI [.049, .256]. Findings also revealed no significant indirect serial mediating effect of academic burnout through psychache, β = .051, 95% percentile CI [-.021, .128], and no significant serial mediating effect of academic burnout through hopelessness, β = .004, 95% percentile CI [-.002, .018].

Figure 18

Singaporean Model with Expectation from Culture



*p <.05,**p <.001

In sum, academic burnout and hopelessness did not mediate the relationship between all sources of expectation to suicide ideation. Psychache significantly mediated the relationship between cultural expectations on suicide ideation. A significant serial mediating effect of

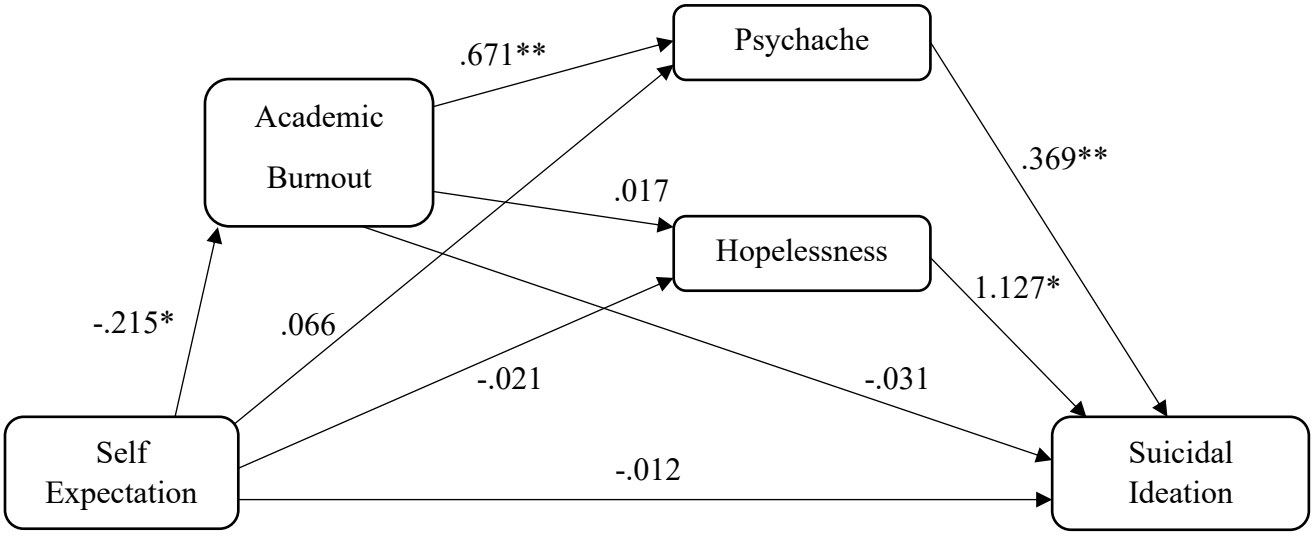
academic burnout and psychache was only found for expectations from self and parents. No significant serial mediating effects of academic burnout and hopelessness were found for each source of expectations.

The Australian Sample

Expectations from Self. Serial mediation analysis with the expectation from self was conducted (see Figure 19). Results from the analysis found that there was no significant indirect mediating effect of academic burnout, β = .007, 95% percentile CI [-.012, .032], psychache, β = .024, 95% percentile CI [-.040, .090], and hopelessness, β = -.024, 95% percentile CI [-.062, .003], on expectations from self to suicide ideation. However, there was a significant negative indirect serial mediating effect of academic burnout through psychache, β = -.053, 95% percentile CI [-.104, -.011], but no significant serial mediating effect of academic burnout through hopelessness, β = -.004, 95% percentile CI [-.016, .001].

Figure 19

Australian Model with Expectation from Self

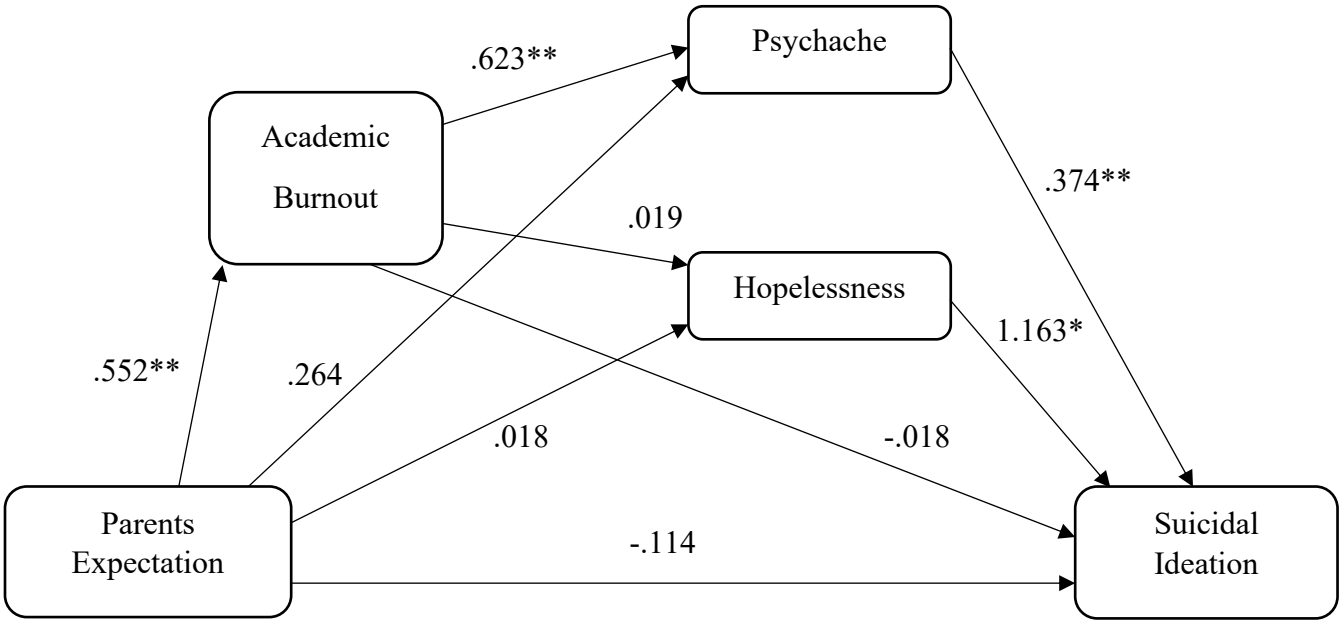


*p <.05,**p <.001

Expectations from Parent. Serial mediation analysis with the expectation from parents was conducted (see Figure 20). Results from the analysis found that there was no significant indirect mediating effect of academic burnout, β = -.010, 95% percentile CI [-.067, .037], psychache, β = .099, 95% percentile CI [-.016, .221], and hopelessness, β = .021, 95% percentile CI [-.032, .077], on expectations from parent to suicide ideation. Findings also revealed a significant indirect serial mediating effect of academic burnout through psychache, β = .128, 95% percentile CI [.063, .214], but no significant serial mediating effect of academic burnout through hopelessness, β = .012, 95% percentile CI [-.003, .042].

Figure 20

Australian Model with Expectation from Parents

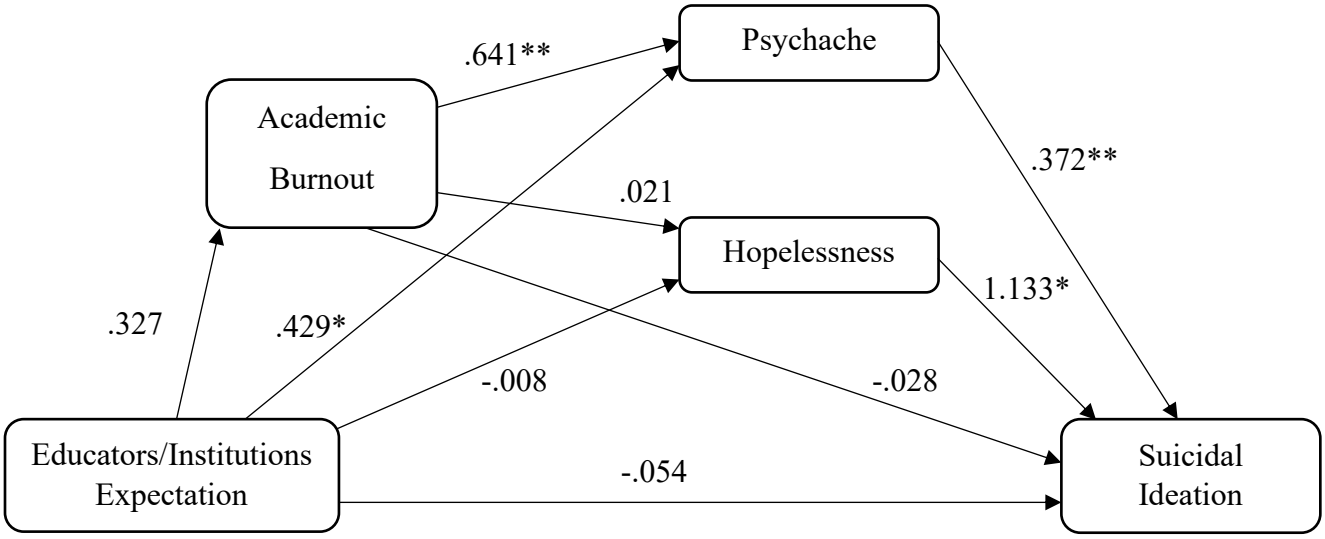


*p <.05,**p <.001

Expectations from Educators/Institutions. Serial mediation analysis with the expectation from educators/institutions was conducted (see Figure 21). Results from the analysis found that there was no significant indirect mediating effect of academic burnout, β = -.009, 95% percentile CI [-.050, .022], and hopelessness, β = -.009, 95% percentile CI [-.088, .052], on expectations from educators/institutions to suicide ideation. However, there was a significant mediating effect for psychache, β = .159, 95% percentile CI [.047, .291]. Findings also revealed no significant indirect serial mediating effect of academic burnout through psychache, β = .078, 95% percentile CI [-.013, .191], and no significant indirect serial mediating effect of academic burnout through hopelessness, β = .008, 95% percentile CI [-.002, .031].

Figure 21

Australian Model with Expectation from Educators/Institutions

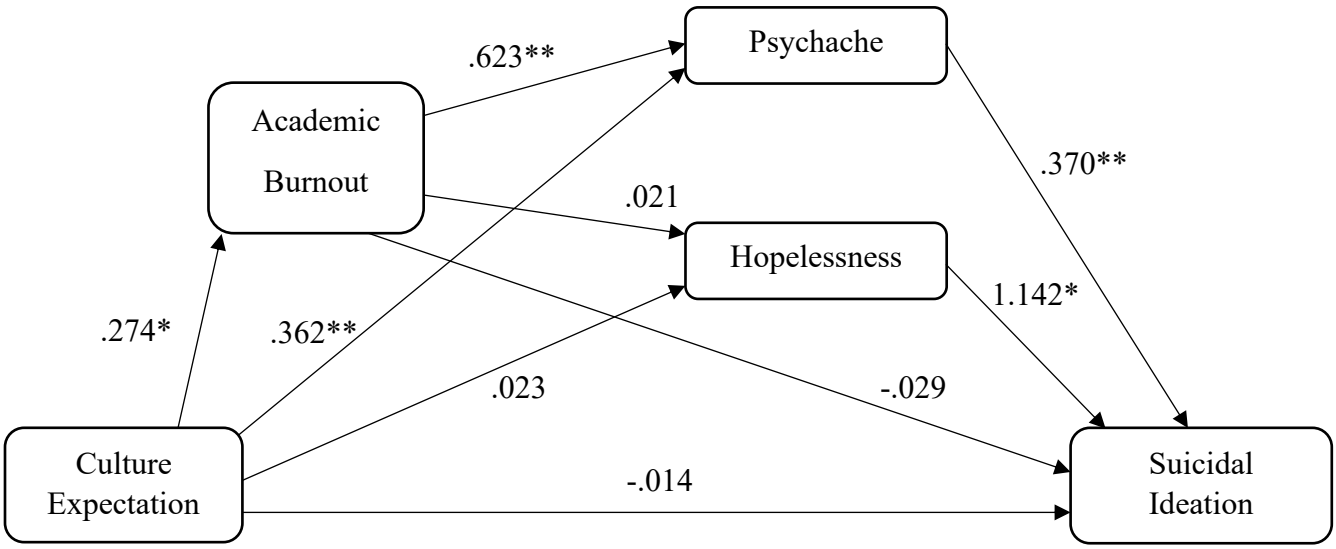


*p <.05,**p <.001

Expectations from Culture. Serial mediation analysis with the expectation from culture was conducted (see Figure 22). Results from the analysis found that there was no significant indirect mediating effect of academic burnout, β = -.008, 95% percentile CI [-.038, .017], and hopelessness, β = .022, 95% percentile CI [-.014, .062]. However, there was a significant indirect mediating effect of psychache, β = .134, 95% percentile CI [.051, .224]. Findings also revealed a significant indirect serial mediating effect of academic burnout through psychache, β = .063, 95% percentile CI [.012, .127], and no significant serial mediating effect of academic burnout through hopelessness, β = .007, 95% percentile CI [-.001, .021].

Figure 22

Australian Model with Expectation from Culture



*p <.05,**p <.001

In sum, academic burnout and hopelessness did not mediate the relationship between all sources of expectation. Psychache significantly mediated the relationship between educator/institutional and cultural expectations on suicide ideation. A significant serial mediating effect of academic burnout and psychache was only found for expectations from self, parents,

and culture. No significant serial mediating effects of academic burnout and hopelessness were found in all sources of expectation on suicide ideation.

Summary of Results

We hypothesized that educational expectations predict suicide ideation through the mediating effect of i) academic burnout, ii) psychache, iii) hopelessness, iv) academic burnout and psychache, and v) academic burnout and hopelessness. Table 12 summarizes the results for each model and indicates whether our hypotheses were supported.

Table 12

Summary of the Serial Mediation Analysis

Hypothesis	Mediating path	Sample	Source of expectation			
			Self	Parents	Educator/ Institution	Culture
1	Expectation > Academic burnout > Suicide ideation	Western Pacific Malaysia Singapore Australia				
2	Expectation > Psychache > Suicide ideation	Western Pacific Malaysia Singapore Australia		* *	* * *	* * *
3	Expectation > Hopelessness > Suicide ideation	Western Pacific Malaysia Singapore Australia	*			

Hypothesis	Mediating Path	Sample	Source of Expectation			
			Self	Parents	Educator/ Institution	Culture
4	Expectation > Academic burnout > Psychache > Suicide ideation	Western Pacific	*	*		*
		Malaysia	*	*		
		Singapore	*	*		
		Australia	*	*		*
5	Expectation > Academic burnout > Hopelessness > Suicide ideation	Western Pacific	*	*		*
		Malaysia	*	*		
		Singapore				
		Australia				

Note. *Indicates a significant indirect effect, supporting the hypothesis. A detailed result for each model can be found in Appendix M.

Discussion

The purpose of the study was to examine the underlying mechanism that links high educational expectations with suicidal ideation among students in higher education. We examined a serial mediation model with academic burnout, psychache, and hopelessness as mediators in the relationship between the different sources of educational expectations and suicide ideation. This section discusses the results from the analysis of the hypothesized serial mediation model with the Western Pacific sample and is followed by an examination of the analyses across the Malaysian, Singaporean, and Australian samples.

Preliminary Analysis

Preliminary findings revealed an overall significant difference between the Malaysian sample against the Singaporean and Australian samples across all four sources of expectations. The mean scores for the Malaysian sample on all four sources of expectations were higher than that of students in Singapore and Australia. However, differences between the Singaporean and Australian samples were not found for expectations from self, parents, and educators/institutions. Malaysia is a developing and industrial nation where acquiring tertiary education is vital for upward social progression and serves as a minimum requirement for employment in numerous sectors (The World Bank, 2022). Chang et al. (2018) explain that part of Malaysia's path toward a developed nation is the building of 'human capital', which involves fostering a highly skillful workforce through quality (higher) education. As such, there is greater pressure on students in Malaysia to be successful in attaining a university degree and entering into a skilled career. The race toward a developed nation may explain why students in Malaysia report greater educational expectations than the developed nations of Singapore and Australia.

Expectation from culture was significantly different between the sample groups. Malaysia had the highest mean score followed by Singapore and then Australia with the lowest score. The result supports the argument in literature that Eastern Confucian cultures (e.g., Malaysia and Singapore) place a greater emphasis on academic success and therefore impose greater expectations on students than Western cultures (e.g., Australia) (Oishi & Sullivan, 2005; Lu et al., 2020; Tan & Yates, 2018).

Analysis with the Western Pacific Sample

The first hypothesis predicted that academic burnout mediates the relationship between educational expectations and suicide ideation. None of the models tested across the different sources of expectation provided evidence to support the mediating effect of academic burnout. Thus, the first hypothesis was not supported.

Upon further examination of the model, each source of educational expectations was predictive of academic burnout. Self-expectation was negatively linked to academic burnout while parental, educator/institutional, and cultural expectation was positively linked to academic burnout. The link between external sources of expectation and academic burnout supports the postulation that increased pressure to meet expectations and demands is emotionally and psychologically taxing (Bahar et al., 2015; El-Masry et al., 2012; Yu et al., 2016). Our finding also supports the JDC theory (Karasek, 1979) where external expectations reflect poorer autonomy and therefore likely to lead to burnout as compared to internal expectations. However, our results did not find a significant link between academic burnout and suicidal ideation. This contradicts findings from studies that have found a positive association between academic burnout and suicidal ideation (Dyrbye et al., 2008; Ijaz & Ahmed, 2018). The contradiction in the predictive relationship between academic burnout and suicide ideation may be explained by

the influence of a mediating variable (i.e. hopelessness, psychache). As such academic burnout is not a simple mediator between educational expectations and suicide ideation.

In the second hypothesis, psychache was hypothesized to mediate the relationship between educational expectations and suicide. There was no significant mediating effect for psychache in the model with expectations from the self. Psychache was a significant mediator in models with the expectation from parents, educators/instructors, and culture. Therefore, there was partial evidence to support the second hypothesis, especially in models involving expectations from an external source (i.e., parents, educators/institutions, and culture) but not from an internal source (i.e., self).

Our findings are in line with other research that has demonstrated the link between poor psychological outcomes with greater parental (Costingan et al., 2010; Poots & Cassidy, 2020), and educator/institutional (Pariat et al., 2014; Rubie-Davies et al., 2010). This suggests that expectations and pressure from an external source are likely to increase the risk of psychache compared to an internal source. The significant associations between psychache and suicide ideation revealed in our findings also support the salient role of psychache in predicting suicidal ideation as postulated in the first step of the 3ST (Dhingra et al., 2019; Klonsky & May, 2015).

The third hypothesis predicted that hopelessness would mediate the relationship between expectations and suicide ideation. Results largely found no evidence for the mediating effect of hopelessness when examined with external sources of expectation. A significant mediating effect of hopelessness was only found with the expectation from the self. Therefore, there was partial evidence supporting the third hypothesis, in particular for the model with internal expectations but not for the model with external expectations.

Upon further examination, it appears that there was no significant association between the external sources of expectations on hopelessness. Our findings suggest that, unlike psychache, external educational expectations do not necessarily induce a sense of hopelessness among students. Rather, studies have suggested that a sense of hopelessness is only noticeable upon the experience of failure or unsatisfactory academic outcomes (Au, 1995; Shek & Li, 2016). Au (1995) found that high-achieving students with more academic failures displayed greater learned hopelessness than students with low achievements and fewer academic failures. The relationship between external educational explanations and hopelessness may be explained by the experience of failure or perceived inability to meet expectations. The significant association between hopelessness and suicide ideation across all models also supports the role of hopelessness in predicting suicidal ideation as theorized in the first step of the 3ST model (Klonsky & May, 2015) as well as the literature on hopelessness and suicide ideation among students (Lamis et al., 2014; Page et al., 2011; Stewart et al., 2005).

The fourth hypothesis predicted a serial mediating effect of academic burnout through psychache. Results found evidence for the serial mediating effect for the models with expectations from self, parents, and culture but not for expectations from educators/institutions. Given the mixed evidence for the serial mediating effect across the sources of expectations and sample groups, the fourth hypothesis was partially supported. The fifth hypothesis predicted a serial mediating effect of academic burnout through hopelessness. Results found a significant serial mediating effect with expectations from self, parents, and culture but not for educators/institutions. Given mixed evidence, the fifth hypothesis was partially supported.

Our findings revealed that academic burnout alone did not mediate the relationship between educational expectations and suicide ideation across all models. In both models, the

presence of psychache and hopelessness was necessary for a significant serial mediating effect between educational expectations, academic burnout, and suicide ideation. Models with self-expectation had a negative serial mediating effect on suicide ideation while the models with expectations from parents and culture had a positive serial mediating effect on suicide ideation. When psychache and hopelessness were added as an outcome of academic burnout, a significant indirect serial mediating effect was found for expectations from parents and culture, and a negative serial mediating effect was found for expectations from self. These findings affirm the necessity of psychache and hopelessness in the development of suicidal ideation as postulated by the 3ST (Klonsky & May, 2015). Therefore, students who experience academic burnout are not necessarily at risk of suicide ideation unless the experience of burnout develops into an experience of intense psychache and hopelessness.

A key factor that might explain the differential mediating effect of psychache and hopelessness between internal sources of expectation (i.e., self) versus an external source of expectation (i.e., parents, culture) on suicide ideation is the student's autonomy. According to the self-determination theory (SDT; Ryan & Deci, 2000), an optimal state of psychological well-being, functioning, growth, and intrinsic motivation is determined by the fulfillment of three innate psychological needs; connectedness, competence, and control. The sense of control or autonomy involves having ownership and freedom over choices in life guided by personal values and interests (Ryan & Deci, 2000). The expectations from parents, educators, institutions, and cultures are developed externally which constitutes a lack of autonomy for the student. Often, externally sourced expectations do not accurately reflect the capabilities of the student and are not in sync with the desires of the student. For example, a qualitative study of final-year nursing students found that most students were pursuing their degree not out of personal interest but

through recommendations by their parents and other family members (Dos Santos, 2020). Some also noted that they were pursuing their degree due to the obligation to maintain the family's reputation (e.g., a student from a family of doctors and nurses).

The lack of autonomy reflected in external educational expectations signifies an unmet basic psychological need which is likely to increase the risk of poor psychological outcomes as compared to self-expectations that reflects a higher degree of autonomy (Ryan & Deci, 2000). According to Shneidman (1993), psychache is often the result of an unmet or obstruction in fulfilling a psychological need. Students who enroll in university due to parental pressure reported greater emotional distress than those who enrolled in university willingly (Poots & Cassidy, 2020). Similarly, students who pursued a medical degree due to the influence of their parents reported more regret and burnout as a result of poor autonomy and motivation (Griffin & Hu, 2019). Pisarik (2009) noted that students who are pressured to comply with external academic demands were more likely to report high levels of academic burnout than students who had greater intrinsic control. External expectations strip away a student's control in shaping their academic interests and goals. Instead, they are forced to fulfill the needs and desires of others (i.e. parents, educators).

The lack of autonomy also influences the perceived sense of hopelessness. Robins et al. (1997) suggest that having low autonomy is predictive of hopelessness. A study among college students found that students with a greater sense of autonomy and self-determination are less likely to report hopelessness and suicidal ideation when faced with negative life events (Bureau et al., 2012). As such, the lack of autonomy or control over the external sources of expectations leaves a student helpless as they are not able to influence the expectations imposed on them. In sum, external educational expectation obstructs the fulfillment of the basic psychological need

for autonomy which can lead to feelings of frustration, regret, emotional distress, intense feeling of psychache, and hopelessness. This explains the mediating effect of psychache and hopelessness on the relationship between each external expectation and suicide ideation.

Models with expectations from self however show that psychache and hopelessness did not mediate the relationship between self-expectations, academic burnout, and suicide ideation. Expectations that are developed and imposed by oneself reflect a high degree of autonomy. Therefore, students can accurately gauge their academic capacity and ensure that their goals fit their values and interest (Ryan & Deci, 2000). Studies have shown that having greater autonomy is associated with better psychological well-being and resilience (Manzano-Sánchez et al., 2021). For example, a study among Chinese international students in South Korea found that greater intrinsic motivation was positively associated with better psychological well-being and negatively associated with academic burnout and difficulty in adjusting to a new environment (Jin et al., 2021). Larcombe et al. (2012) found that students who pursued a law degree out of personal interest had significantly lower depressive symptoms than students who enrolled for other reasons.

Having a high intrinsic motivation negatively predicted academic burnout as students are better able to adapt to challenging educational demands due to a greater perceived self-efficacy (Karimi & Fallah, 2019; Rubino et al., 2009). Furthermore, students with greater intrinsic motivation and esteem were less likely to drop out of school (Fan & Wolters, 2014). These studies demonstrate that students with a greater sense of autonomy are adaptable and able to overcome feelings of being trapped (hopelessness) when faced with challenges in higher education. Thus, expectations from the self which reflect a high degree of autonomy are unlikely to predict suicide ideation through psychache and hopelessness.

Cross-sample Findings

After examining the serial mediating model for each source of educational expectations on the Western Pacific sample, we successively examined the models between samples from Malaysia, Singapore, and Australia. Two significant mediating models were found to be consistently significant among Malaysian, Singaporean, and Australian samples. The first model was the serial mediating model with self-expectations and suicide ideation through academic burnout and psychache. The model suggests that expectations from self negatively predicts academic burnout which subsequently reduces the risk of psychache and later suicide ideation. This supports our initial argument that internal sources of expectations reduce the risk of poor psychological outcomes such as academic burnout and psychache because students have more autonomy over their goals and academic pursuits. The consistency in the significant negative serial mediating effect of academic burnout and psychache across the different samples demonstrates the universal need for autonomy as a precursor of psychological well-being as theorized by the SDT (Ryan & Deci, 2000). This also suggests that the need for autonomy among students in framing their educational expectations is common and that the sociocultural environment does not influence the negative effect of expectations on self onto adverse psychological outcomes among tertiary students.

The second model was the serial mediation model with expectations from parents and suicide ideation through academic burnout and psychache. The model suggests that greater expectation from parents predicts burnout which increases the risk of psychache and later suicide ideation. As evidenced across literature, parents continue to be the predominant source of educational expectations perceived by students (Cao et al., 2007; Israelowitz & Hong, 1990; Sue & Okazaki, 1990; Tan & Yates, 2011). The consistency of this effect across the different samples

affirms that students universally perceive that their parents are the main contributors to educational expectations and that parental high expectations are likely to lead to negative psychological outcomes. This finding also argues against the narrative that students from an Eastern and Asian sociocultural background are more likely to feel pressured by their parents than students from a Western or European sociocultural background (Crystal et al., 1994; Mau, 1997; Saw et al., 2013). Several studies have noted that the perception of parental expectation and its impact on psychological well-being does not significantly differ across cultures. In a study comparing Asian American and White American youths on the influence of parental expectations and mental health, (Warikoo et al., 2020) found that there were no significant racial differences in internalizing symptoms (i.e. anxiety, social withdrawal, depression) when regressed against parental expectation. This suggests that the negative impact of parental expectation on a student's psychological well-being was not influenced by ethnicity or culture.

Additionally, a family's circumstances may also influence parental expectations irrespective of culture. A study among children of immigrants in Canada found that children of immigrant parents who report greater parental expectations performed better academically than peers with parents that have lower expectations (Areepattamannil & Lee, 2014). Note however that this study did not examine how high expectations from immigrant parents influence the psychological well-being of the students. The authors highlight that immigrant parents impose high expectations on their children due to the belief that successful academic performance is a pathway to thrive in a new environment. A similar outcome was found in a study among Latino adolescents in the USA which found a significant association between parental expectation and academic efficacy after controlling for parent education and the student's immigration status (i.e., Born in the USA or outside the USA) (Cross et al., 2019). These studies highlight that high

parental expectations are universally perceived by students across cultures and are not solely determined by sociocultural values (i.e. Confucian value on education in the East). We also observed in our preliminary results a significant difference in perceived expectations from parents across samples. The difference was only significant between the Malaysian sample against the Singaporean and Australian samples respectively but no differences were found between the Singaporean and Australian samples. We argued that the disparity in perceived parental expectation may be explained by Malaysia's aspiration to be a developed nation which may influence many aspects of a student's academic pursuit, including increased pressure from parents onto their children to acquire tertiary education and successful career. Nonetheless, further research examining sociocultural variance in parental expectations and its psychological impact should go beyond the Eastern-Western cultural dyad and explore other sociocultural elements (e.g., immigration status).

Strengths

The first strength of the study can be found in the use of a multidimensional scale to measure perceived educational expectations from tertiary-level students. The use of the Higher Education Expectation Scale allowed us to advance the literature on educational expectations by examining the effect of different sources of educational expectations on psychological outcomes. Moreover, the scale is suited for use with tertiary-level students as it encompasses elements of educational expectations that are relevant for students in higher education such as expectations regarding a course of study and future careers.

The second strength of this study is the utilization of the 3ST to demonstrate how educational expectations are linked to suicidal outcomes among students in the Western Pacific. Multiple suicide studies in the past have drawn associations either quantitively or qualitatively

between high perceived educational expectations and suicidal outcomes among students but lack a theoretical foundation. Our study demonstrated how psychache and hopelessness mediated the association between different sources of expectations and suicidal ideation based on theory.

Limitations

The current study is not without its limitations. Firstly, the student samples for this study were collected from tertiary institutions in Malaysia, Singapore, and Australia. The ethnic, racial, and cultural demography of the students were not taken into account as our study was only interested in the perceived expectations of tertiary students. Secondly, as suicidal ideation was the key outcome variable in the study, there may be inaccuracy or underreporting in the suicidal ideation scale. We suspect that this may be plausible as suicide is considered a social taboo in Malaysia and Singapore (Chia et al., 2010; Foo et al., 2014; Ibrahim et al., 2014). Thirdly, the study utilized a cross-sectional approach therefore causal relationship cannot be informed from our findings. Solem (2015) notes that temporal relationship between the variables cannot be determined using cross-sectional design as data for each variable was collected at the same time.

Future Directions

The current study advances our understanding regarding the association between high expectations and suicide ideation through the mediating effect of academic burnout, psychache, and hopelessness. Firstly, future research can expand on this interaction by examining the role of perceived autonomy. We argue that a student's sense of autonomy over educational expectations is key in determining the risk of academic burnout, psychache, and hopelessness. We recommend future studies to examine the perceived sense of autonomy across different sources of educational expectations and how they interact to predict negative psychological outcomes

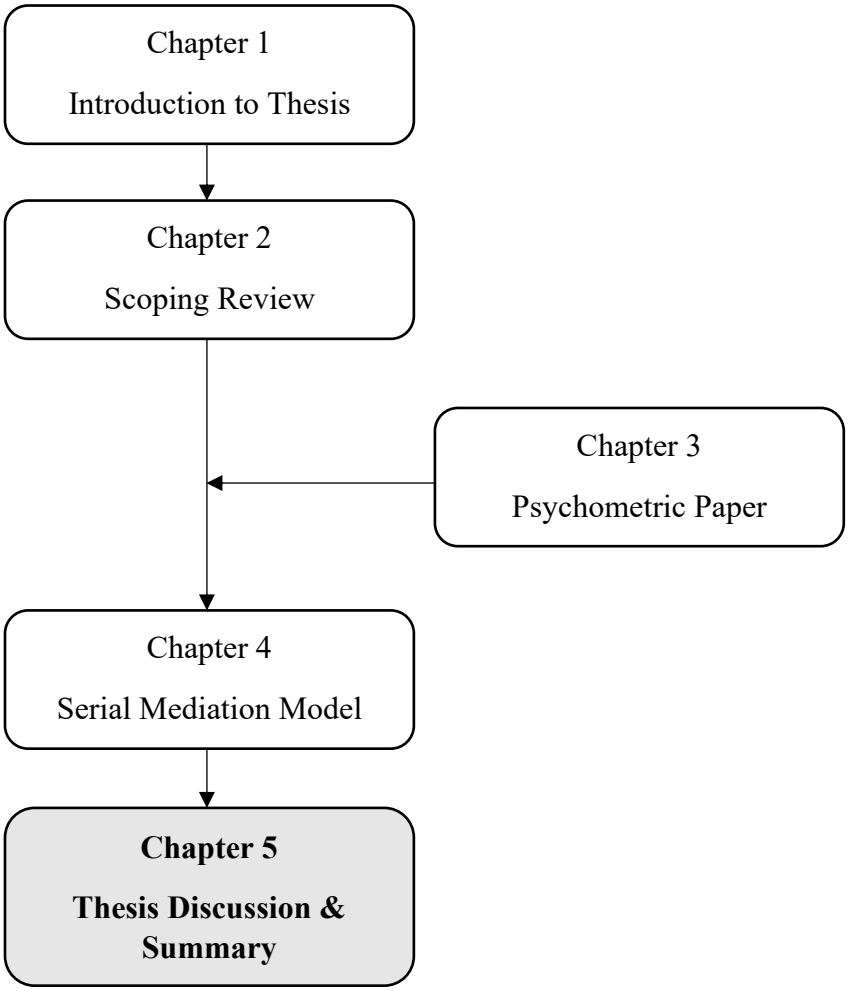
among students. Secondly, as our models examined the mediating role of suicide risk factors, future studies should consider testing for protective factors such as connectedness or meaning in life as a buffer toward the development of suicidal ideation. Students pursuing higher education are in transition into adulthood which often involves an exploration of personal goals and purpose in life (Arslantürk & Öz, 2020; van der Walt, 2019). Studies have found that having a purpose and meaning in life aids in adaptive coping strategies, motivation, commitment, and resilience among students (Barnett et al., 2019; Sharma et al., 2018; Steger et al., 2006; van der Walt, 2019). A study on psychiatric patients found that having a greater meaning in life weakened the association between hopelessness and suicide risks as compared to having low meaning in life (Marco et al., 2016). Therefore, we recommend that future research on our models also include a measure of connectedness as moderators in the link between high educational expectations and suicide ideation among tertiary students.

Conclusion

This study aimed to examine the relationship between different sources of expectations and suicidal ideation through a proposed serial mediation model with academic burnout, psychache, and hopelessness. Findings from this research primarily demonstrated that psychache fully mediated the relationship between external sources of expectations (i.e., parents, educators, institutions, and culture) and suicide ideation. We also demonstrated how expectations from self, which reflect a higher degree of autonomy, negatively predicted academic burnout, psychache, hopelessness, and subsequent suicide ideation. It is hoped that this study will stimulate future investigations into the link between high educational expectations and adverse psychological outcomes to better inform suicide prevention efforts among tertiary students.

CHAPTER 5

THESIS DISCUSSION & SUMMARY



Thesis Discussion and Summary

The Western Pacific region has one of the highest rates of youth suicide globally. This thesis attempts to address the issue of tertiary student suicide in the region. High educational expectations are commonly attributed as a suicide risk factor among tertiary students. Thus, the overarching aim of the thesis was to uncover the underlying mechanism between educational expectations and suicidal ideation among tertiary students in the region. The thesis was organized into a series of chapters that progressively builds and informs a series of studies that were designed to address the thesis's research questions. The following section provides a summary of each chapter and a discussion of the thesis's contributions, limitations, strengths, and recommendations for future research.

Summary of Chapters

Chapter 1 introduced the reader to the scope and problem of youth and student suicide, which is the core issue of this thesis. An overview of the current state of youth suicide and key variables of this thesis were briefly described. Upon identifying the research hypotheses, the next step was to build an understanding of the literature on youth and student suicide along with its associated risk factors.

Chapter 2 was a scoping review aimed to identify the psychosocial risk factors associated with youth suicide in the Western Pacific. This chapter and its findings situate the thesis and argument for the exploration on academic expectations. Publications on youth suicide in the Western Pacific between 2010 and 2021 were reviewed. Psychosocial risk factors associated with suicide in each publication were identified and thematically classified into five themes: interpersonal factors, history of abuse, academic factors, work factors, and minority status.

Moreover, gaps in regional suicide research were also highlighted. Among the themes identified, the academic-related risk factors were of interest to this thesis. We noted that studies on educational expectations and suicide among tertiary students in the region were scarce. This became the focus of this thesis which attempts to demonstrate how high educational expectations are linked to suicidal outcomes among students in higher education. Before we could begin an examination of educational expectations, an instrument that measured perceived educational expectations was necessary. Unfortunately, current instruments measuring educational expectations have largely been for primary and secondary students with a focus on parental expectations and were not suitable for our thesis.

Chapter 3 was a psychometric paper comprised of three studies that described the development and testing of the Higher Education Expectation Scale. The chapter advances the thesis by providing it with an instrument to empirically examine the variable of interest – educational expectations. The scale measures the degree of educational expectations perceived by college and university students from multiple sources. The first study detailed the design, validity tests, and initial exploratory factor analysis with a sample of Malaysian tertiary students. Results from the factor analysis showed that students perceived expectations from four distinct sources; self, parents, educators/institutions, and culture. The initial scale had adequate to good reliability but poor validity. The second study addressed the limitations identified in the first study with a new sample of Malaysian tertiary students. A similar four-factor structure was found and had good to excellent reliability and moderate validity. The third study tested the four-factor structure of the scale through confirmatory factor analysis. Results confirmed the four-factor structure but had a less-than-optimal model fit. Overall, the chapter produced a final 28-item multidimensional scale that quantifies the weight of perceived educational expectations

among tertiary students. The presence of this scale enabled us to progress with investigating the link between educational expectations and suicide ideation among tertiary students.

Subsequently, Chapter 4 demonstrated how educational expectations are linked to suicide ideation through a serial mediation model with academic burnout, psychache, and hopelessness. This chapter culminates the findings from Chapter 2 regarding the link between educational expectations and suicide risk and utilizing the scale developed in Chapter 3. Here, we used the Higher Education Expectation Scale developed in the previous chapter and tested a hypothesized serial mediation model across different sources of expectations on a sample of tertiary students in the Western Pacific. The findings highlight the robust role of psychache as a significant mediating factor in the relationship between external educational expectations and suicidal ideation. Results also showed how internal expectation buffers the development of academic burnout, psychache, hopelessness, and subsequent suicide ideation. The study concluded by suggesting that a student's sense of autonomy is a key factor that influences the impact of educational expectations on the risk of poor psychological outcomes among tertiary students in the region.

Contributions of the Thesis

To Literature and Research

The contribution of this thesis to literature and research is twofold. Firstly, the thesis advances the field of higher education research. In Chapter 3, we provided a comprehensive conceptualization of educational expectations and provided the literature with a multidimensional instrument to examine the weight of expectations by students in higher education. Our conceptualization of educational expectation is the first in the literature to

account for expectations imposed by multiple sources (i.e. self, parents, educators/institutions, culture) among students pursuing higher education. We also confirmed in the Study 1 of Chapter 3, that students do indeed perceive expectations from their institution which has never been quantified in the literature. Additionally, our conceptualization of educational expectations broadens the interpretation of educational expectations and the Higher Education Expectation Scale expands the possible scope of research in the field of higher education. Future research can now examine how different sources of expectations independently or interact with each other to predict a myriad of outcomes among tertiary students.

Secondly, the thesis advances research on youth and student suicide. Our thesis utilized a contemporary theory of suicide, the 3ST (Klonsky & May, 2015), in the development of a model that attempts to examine the mechanisms linking educational expectation and suicide ideation. Our research contributes a framework that outlines how educational expectations are linked to suicidal ideation among students in higher education. Youth suicide is preventable and suicide research should not be limited to just identifying correlations between risk factors and suicide outcomes. Rather, research should examine the mechanisms through which risk factors influence suicide ideation or suicide attempt. As we have demonstrated in our model, future suicide research should also be guided by theory. Recognizing the underlying mechanisms involved in the development of suicidal outcomes that are grounded in theory is necessary to better inform suicide research and interventions for suicide prevention.

To Theory

In Chapter 4 of the thesis, we tested a serial mediation model between educational expectations and suicide ideation that utilized the first step of the 3ST (Klonsky & May, 2015). The predictive link between psychache and hopelessness to suicide ideation was significant in all

the models tested irrespective of the source of expectations. Our findings offer further evidence to the premise of the first step of the 3ST which suggests that psychache and hopelessness are key factors in the development of suicidal ideation. The consistency found in the link between psychache and hopelessness to suicide ideation across different student samples (i.e., Malaysia, Singapore, and Australia) further suggests that the postulations for the first step of the 3ST are possibly ubiquitous across different cultures.

To Parents and Educators

A key finding in Chapter 4 revealed the impact of external educational expectations on the risk of academic burnout, psychological pain, and suicide risk as compared to internal educational expectations. We argued that external expectations reduce and remove any form of student autonomy over their academic pursuits and goals whereas internal expectations provide a greater sense of autonomy. To reduce the risk of poor psychological outcomes due to external expectations, we propose that students be part of the conversation and development of expectations. This approach provides them with a sense of autonomy to adapt the expectations according to their academic capacities and personal goals.

On a familial level, parents can initiate and continue to have conversations about educational expectations with their children. These conversations should consider the child's academic performance, academic capacity, and interests. Parental expectations regarding academic performance, choice of a degree or university, or even future career options should be openly discussed with the child as these demands and decisions impact them the most. Note however that we are not suggesting that parents should lower their expectations for their child's academic pursuit. Rather, they should continue to adjust their expectations realistically and communicate their expectations by involving their children in the process. Being transparent and

having a conversation about educational expectations with the child reduces incongruency between the external expectations which reduces the risk of poor psychological outcomes (Hausmann-Stabile et al., 2013).

On an institutional level, educators should be aware of how their expectations are communicated to students. Pedagogical approaches such as providing students assessment or exam marking rubrics, detailed learning outcomes, and supportive feedback can relay an educator's expectations regarding their academic performance to students. These approaches can reduce ambiguity and anxiety among students regarding the expectations of their academic performance. However, Tsiplakides and Keramida (2010) noted that educators often communicate their expectations to students unconsciously through their interactions, the choice of words used, the amount of attention, and seating arrangements in a classroom. For example, educators unconsciously provide more support to students who they expect to do well compared to those who perform poorly. Thus, educators should try at best to be aware of how they interact with students to avoid putting undue pressure and expectations on students.

To Institutions of Higher Learning

Throughout this thesis, it is clear that students in higher education are at risk of poor psychological outcomes, academic burnout, and suicide risk. In Chapter 2 we identified academic-related suicide risk factors which included academic stress, high educational expectations, adjustment problems, and peer bullying. Subsequently, in Chapter 4, the sampled tertiary students in Malaysia, Singapore, and Australia all reported some degree of academic burnout, psychache, and suicidal ideation. Our findings highlight the dire need for institutions of higher learning to provide greater support to students. This may take the form of having a team

of on-campus counselors for students, improving access and use of student support services and counseling services, and fostering better teacher-student and peer interactions (Baik et al., 2018).

In addition to providing support systems, institutions also have a role in fostering resilience among students as a protective shield against psychological distress and psychache. Stress is a natural part of pursuing higher education as students are made to challenge themselves intellectually while transitioning into adulthood. Brewer et al. (2019) suggest that universities can introduce opportunities for students that focus on developing emotional intelligence and a growth mindset among students, facilitate social connections and a sense of belonging, and provide problem-solving skills training through on-campus programs. For example, Ang et al. (2022) introduced a six-week digital resilience skills enhancement training program to undergraduate students. The program involved sessions focused on coping strategies, developing growth and future-oriented mindset, building social skills, and emotional regulation to build greater resilience among the students.

Limitations

The thesis as a whole has several limitations. Firstly, the thesis relied on the use of self-reported instruments to measure its variables across the different sets of studies. Self-reported instruments are susceptible to distorted responses and social desirability bias which is defined as the tendency for participants to respond in a way that presents themselves as favorable (Edwards, 1953). Moreover, the thesis involved testing variables and the use of instruments that measured constructs such as perceived parental expectations, academic burnout, psychache, hopelessness, and suicide ideation which may prompt participants to respond unfavorably or resist being truthful in their responses due to discomfort or stigma.

Secondly, the findings from Chapter 4 were based on a sample of students who were, at the moment of recruitment, actively enrolled in higher education institutions in Malaysia, Singapore, and Australia respectively. We did not account for the possibility of international students in the mix which may influence the results due to possible sociocultural differences between local and international students. However, we argue that the presence of international students in the sample does not significantly influence the results. This is because the thesis is primarily aimed at demonstrating the link between perceived educational expectations and suicide ideation among tertiary students irrespective of the student's demographic status.

Strengths

Firstly, the thesis proposed a comprehensive definition of educational expectations which considers the different sources of expectations that are imposed onto students. This new conceptualization shaped the development of a multidimensional scale that was capable of quantifying the weight of educational expectations perceived by students from different sources. The new scale produced in this thesis requires further testing but is poised to advance research by providing greater insight into the experience of educational expectations among students and introducing new opportunities in higher education research.

Secondly, the thesis proposed a mechanism linking educational expectations to suicide ideation using a serial mediation model based on the first step of the 3ST model of suicide (Klonsky & May, 2015). The 3ST provided a theoretical framework that demonstrated how high educational expectations and academic burnout are connected to suicidal ideation through academic burnout, psychache, and hopelessness. The thesis is grounded in theory and as such, we are able to discern and explain the mediating factors that significantly predicted the

development of suicidal ideation. This model can go on to inform targeted suicide prevention research and efforts among tertiary students.

Recommendations

Firstly, the thesis provided a review of the risk factors associated with youth suicide in the Western Pacific in Chapter 2 and its findings should guide and stimulate research on youth suicide in the region. The review also highlighted several gaps in youth suicide research that should be examined such as the increasing rate of self-isolationism and cyberbullying among youths in the Western Pacific region. Future research should venture into examining the mechanisms linking the psychosocial suicide risk factors identified in the review to suicide risk. As suicide research in the Western Pacific is disproportionate and scarce in several member nations, more research is necessary to better inform how the region as a whole should respond to reduce the risk of youth suicide.

Secondly, future research in the field of educational expectations should consider a multidimensional construct when testing perceived educational expectations among students. As demonstrated in Chapter 3, tertiary students do indeed perceive expectations from several different sources. The thesis introduced the Higher Education Expectation scale which is hoped to drive further research on the impact of different sources of expectations and how it impacts a student's psychological and academic well-being. Future examinations in the field of educational expectations should clarify their definition of expectations and be clear in terms of what source of expectations they intend to measure. Research should also consider how different sources of expectations influence each other and their distinct effects on physical, psychological, and academic outcomes. Studies can also examine how different demographic factors influence the

weight of perceived expectations among tertiary students such as parental educational level or institutional rank.

Thirdly, in Chapter 4, we postulated that the sense of control was key in the interaction between high educational expectations and the risk of poor psychological outcomes. Future research should therefore test this assumption by examining the association between different sources of expectations and a student's perceived sense of autonomy or control over their academic endeavour.

Lastly, in Chapter 4, the study demonstrated how high educational expectations are associated with suicide through the mediating role of academic burnout, psychache, and hopelessness. Future research should examine how protective factors such as meaning in life, social support, or coping ability can ameliorate the risk of poor psychological outcomes and suicide risk. These findings can be applied to interventions to build resilience among students in facing the many challenges of higher education.

Conclusion

The role of a tertiary student is an undeniably challenging and stressful experience. The thesis is motivated by the desire to understand what drives tertiary students to suicide and the factors linked to its development. High educational expectations are known contributors to psychological distress and suicide risk, but the link between expectations and poor psychological outcomes is not as straightforward. The thesis has revealed a series of factors that explain how educational expectations are linked to suicide ideation. We concluded that the link between expectations and suicide is mediated by the presence of psychache. Furthermore, different types of expectations also appear to affect the risk of suicide differently. It is hoped that our findings

provide new insight into research on educational expectations and how to strike a balance between an optimal level of expectations and positive psychological well-being among tertiary students.

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Appendix A

Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	22
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	na
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	23
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	23
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	na
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	27
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	27
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Appendix C

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	29
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	28
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	27
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	na
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	30
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	30
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	30
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	na
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	30
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	30
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of	39

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
		evidence available), link to the review questions and objectives, and consider the relevance to key groups.	
Limitations	20	Discuss the limitations of the scoping review process.	43
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	44
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	na

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.
* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.
† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).
‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.
§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

Appendix B

Literature Search Terms

Database: SCOPUS

TITLE (suicid* AND NOT prevention) AND singapore AND (LIMIT-
TO (AFFILCOUNTRY , "Singapore")) AND (LIMIT-
TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-
TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-
TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-
TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-
TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-
TO (PUBYEAR , 2011) OR LIMIT-TO (PUBYEAR , 2010) OR LIMIT-
TO (PUBYEAR , 2009) OR LIMIT-TO (PUBYEAR , 2008) OR LIMIT-
TO (PUBYEAR , 2007) OR LIMIT-TO (PUBYEAR , 2006) OR LIMIT-
TO (PUBYEAR , 2005) OR LIMIT-TO (PUBYEAR , 2004) OR LIMIT-
TO (PUBYEAR , 2003) OR LIMIT-TO (PUBYEAR , 2002) OR LIMIT-
TO (PUBYEAR , 2001) OR LIMIT-TO (PUBYEAR , 2000)) AND (LIMIT-
TO (DOCTYPE , "ar"))

Appendix C

Data Charting Form based Arksey & O'Malley (2005)

i. Name of author(s)

ii. Year of publication

iii. Sample nationality

iv. Sample age (mean)

v. Suicide outcome

vi. Sample size

vii. Study design

viii. Summary of findings

ix. Risk factor theme

Appendix D

Summary of the 43 Studies included in the Scoping Review

Author(s)	Country	Age range/ group	Outcome	Sample size/cases	Study design	Summary of findings	Theme
Chan et al., 2013	Malaysia	17 - 18 years old Mean age = 17.68	SI & SA	N = 4 581	Cross-sectional	Female gender, use of illicit drugs, and history of sexual abuse are significantly associated with SI and self-harm.	Abuse
Chen et al., 2014	Taiwan	15 - 24 years old	SA & SD	N = 7 313 (SA) N = 39 (SD)	Descriptive	Participation in the labour force increases the risk of repeated SA for males. For females, poor family backgrounds have a two-fold increase in SA.	Interpersonal, Work
Chen et al., 2013	Taiwan	15 -30 years old	SD	N = 3 984 cases	Case-control	Single parenthood and low paternal education are associated with a higher risk of SD.	Interpersonal
Denny et al, 2016	New Zealand	13 - 17 years old	SI & SA	N = 9 107	Cross-sectional	Depression and suicide risks were higher among same-sex and both-sex-attracted students than opposite-sex-attracted students.	Status

Author(s)	Country	Age range/ group	Outcome	Sample size/cases	Study design	Summary of findings	Theme
Grimmond et al., 2019	Australia	25 years and younger	General	N = 27 studies	Systematic review	The common risk factors include family influences (death of a loved one, family conflict, violence, poor living conditions) and peer influences (academic stress, romantic relationship failure, and difficult peer relationships).	Interpersonal, Academic
Jia et al., 2016	China	Grades 1 to 3 Mean age 16.2 to 17.9 years old	SI	N = 1378	Cross-sectional	An unharmonious family environment and lower parental education were positively associated with SI.	Interpersonal
Jo et al., 2017	South Korea	19-39 years old (Young adult), 40-64 (Middle age)	SI	N = 5 214	Descriptive	Young adults with low-middle income have 1.87 times more risk of suicide ideation than those with high income.	Work
Kim & Cha, 2018	South Korea	18 - 30 years old Mean age = 22.16	SI	N = 291	Cross-sectional	College adjustment stress and belongingness have an indirect effect on SI. Lack of belongingness was a robust predictor, explaining 37% of SI.	Academic
Kim & Yoon, 2018	South Korea	18 - 35 years old	SI	N = 1 500	Descriptive	For young adults, SI risk was higher for those in the labour force compared to waged employment. No significant difference was found in suicide risk between unemployed and waged young adults.	Work

Author(s)	Country	Age range/ group	Outcome	Sample size/cases	Study design	Summary of findings	Theme
Kwok, 2011	Hong Kong	18-25 years old Mean age = 21.14	SI	N = 350	Cross-sectional	Perceived family functioning was negatively associated with SI after controlling for hopelessness. Being in a single-parent family was predictive of SI.	Interpersonal
Lea et al., 2014	Australia	18-25 years old Mean age = 21.7	SI	N = 572	Cross-sectional	Higher internalized homophobia, perceived stigma, and experience of homophobic physical abuse were associated with higher levels of psychological distress and self-reported SI.	Status
Lee et al., 2010	South Korea	Youth suicide	SI, SA. & SD	Not available	Review	Youth suicide risk factors include high academic stress, poor academic performance, internet addiction, negative parent-child relationship, and peer victimization.	Academic, Interpersonal
Li et al., 2020	Australia	College students	SI & SA	N = 11 557	Systematic review	The review identified psychological factors which included depression, stressful life events, sleep difficulties, disconnection from others, and hopelessness which were significantly associated with heightened suicide risk.	Interpersonal

Author(s)	Country	Age range/ group	Outcome	Sample size/cases	Study design	Summary of findings	Theme
Lian et al., 2014	China, Vietnam, Taiwan	15 - 24 years old	SI & SA	N = 17 016	Cross-sectional	LGB youths were 1.4 times more likely to report SI than heterosexual youths. Family history of suicide was predictive of SI and SA.	Status
Loh et al., 2012	Singapore	10 - 24 years old	SD	N = 188 cases	Descriptive	Significant psychosocial factors include academic stress (i.e., difficulties in school, exam stress, failure to meet own, teacher, and parental expectations), family problems, and job or financial problems.	Academic, Interpersonal
Low et al., 2017	Hong Kong	19 - 57 years old Mean age = 25.9	SI	N = 268	Cross-sectional	Physical aggression positively correlated with SI. Students with high emotional competency had lower SI than those with lower emotional competency, but the difference is non-significant as the level of aggression increases.	Abuse
Luke et al., 2013	Australia	12 - 26 years old	SI & SA	N = 172	Cross-sectional	Youths who experienced sexual abuse, physical abuse, loneliness, poor relationship with family, and having been discriminated against for being Koori were more likely to develop SI and lifetime SA.	Abuse, Interpersonal, Status

Author(s)	Country	Age range/ group	Outcome	Sample size/cases	Study design	Summary of findings	Theme
Manalastas, 2016	Philippines	15 - 24 years old Mean age = 18.9	SI & SA	N = 8 891	Cross-sectional	Self-reported same-sex attraction, behaviour, and romantic relationship had higher rates of SI and SA than heterosexual peers. Also, victimization and experience of threat were predictive of SI and SA.	Status
Milner et al., 2014	Australia	18 - 34 years old	SA & SD	N = 84 SD N = 101 SA	Case-control	Involuntary job loss was associated with significantly higher odds of SI and SA. Those of lower socioeconomic status were four times likelier to develop SI and SA.	Work
Ohtaki et al., 2019	Japan	Callers under 20 years old	SI & SA	N = 24 333	Cross-sectional	SI was highest among those with experience of abuse, family breakdown, and domestic violence. Those with experience of abuse also had the highest SA rate.	Interpersonal
Otsuka & Anamizu, 2019	Japan	18 - 26 years old Mean age = 19.22	SI	N = 547	Cross-sectional	A higher feeling of self-insufficiency (e.g., loneliness, feeling like a burden, inferiority) and emptiness were likely to lead to SI.	Interpersonal

Author(s)	Country	Age range/ group	Outcome	Sample size/cases	Study design	Summary of findings	Theme
Park et al., 2014	South Korea	18-24 years old	SI	N = 172	Cross-sectional	High levels of depression, acceptability of suicide, strain in the family, and knowing someone who has died by suicide were predictive of SI.	Interpersonal
Park, 2017	South Korea	First-year college students Mean age = 20.2	SI	N = 1 537	Cross-sectional	Family functioning was significantly negatively correlated with depression and SI.	Interpersonal
Peltzer et al., 2017	ASEAN (Cambodia, Indonesia, Malaysia, Myanmar, Thailand, & Vietnam)	18-30 years old Mean age = 20.6	SI & SA	N = 4 675	Cross-sectional	SI was significantly associated with childhood sexual abuse, involvement in physical fights, poor academic performance, and living away from parents. SA was significantly associated with childhood sexual abuse, depression, and being overweight.	Abuse, Academic, Interpersonal
Uchida & Uchida, 2017	Japan	College students	SD	N = 8 262 314	Descriptive	Medicine majors, students in the final year of their program, and students who completed extra years of schooling or took more academic leaves of absence were at higher risk for suicide.	Academic

Author(s)	Country	Age range/ group	Outcome	Sample size/cases	Study design	Summary of findings	Theme
Wang et al., 2019a	China	University students Mean age = 19.92	SI	N = 853	Cross-sectional	Impulsivity, interpersonal problems, and family conflict positively correlated with SI. Family environment moderated the path between impulsivity and interpersonal problems with SI.	Interpersonal
Wang et al., 2019b	China	17 - 25 years old	SI & SA	N = 989	Cross-sectional	The strongest predictor of SI was peer isolation/rejection, emotional neglect, and low socioeconomic status. The greater the number of adverse childhood experiences, the greater the likelihood of SI. Other significant factors include abuse, parental separation, incarceration of a family member, and bullying.	Abuse, Interpersonal
Yao et al., 2014	China	11 - 23 years old Mean age = 16.10	SI	N = 5 248	Cross-sectional survey	Lower family and school satisfaction were predictive of an increased risk of SI.	Interpersonal
Zaroff et al., 2014	Macao	Mean age = 18.85	SI	N = 284	Cross-sectional survey	Perceived burdensomeness and relationship status made significant contributions to the presence of suicidality.	Interpersonal

Author(s)	Country	Age range/ group	Outcome	Sample size/cases	Study design	Summary of findings	Theme
You et al., 2014	China	College students	SI & SA	N = 5 989	Cross-sectional survey	Recent stressful life events and childhood adversity were associated with an increased risk for suicidal behavior.	Academic, Interpersonal, Abuse
Zhai et al., 2015	China	Mean age = 21.32	SI	N = 5 183	Cross-sectional survey	Students with SI had poor family structures and relationships, parents who have unstable work, and parents who used improper parenting styles.	Interpersonal
Wang et al., 2020	China	18 - 23 years old Mean age = 20.38	SI & SA	N = 4 034	Cross-sectional survey	Victimization during primary and secondary school was associated with SI among university students. Persistent victimization was associated with a higher risk of SI, SP, and SA.	Abuse
Mohan et al., 2019	China	15 - 25 years old	SI	N = 6 284	Cross-sectional survey	Frequent parental quarrels, parental separation, low level of satisfaction with motherly love, having only one or two friend(s), and frequent excursions with friends to bars and clubs were risk factors for SI.	Interpersonal

Author(s)	Country	Age range/ group	Outcome	Sample size/cases	Study design	Summary of findings	Theme
Blum et al., 2012	Vietnam, China, Taiwan	15 - 24 years old	SI	N = 170 016	Cross-sectional survey	SI and SA were highest in Taipei, followed by Shanghai, and Hanoi. 15–19-year-olds were more likely to report SI and SA compared with 20 –24-year-olds.	Interpersonal
Zhang & Ma, 2012	China	15 - 34 years old	SD	N = 392 cases	Psychological autopsy	The three most common negative life events linked to the suicide of young rural Chinese in the past year were family/home, health, and marriage/love issues.	Interpersonal, Work
Zhang et al., 2011a	China	15 - 34 years old	SD	N = 392 cases	Descriptive	Psychological strains, unrealized aspiration, and lack of coping skills were significantly associated with suicide.	Work
Dai et al., 2011	China	16 - 34 years old	SI & SA	N = 1654	Qualitative study	SI was associated with lower education, poorer financial perception, and marital status of “never married” or “others”.	Work

Author(s)	Country	Age range/ group	Outcome	Sample size/cases	Study design	Summary of findings	Theme
Zhang et al., 2011b	China	15 - 34 years old	SD	N = 392	Case-control	Suicide risk factors among were negative life events, never married but dating, suicide history in the family, lack of positive coping skills, lack of social support, impulsivity, and not being a Communist Party.	Interpersonal
Lee et al., 2020	South Korea	Elementary. Middle, and High school students	SD	N = 308	Descriptive	Academic stress was more common among middle school students and high school than in elementary. Suicide among high school students increased notably in March, which is when the new semester starts in South Korea.	Academic, Interpersonal
Kok et al., 2015	Malaysia	15 - 25 years old	General	N = 625	Qualitative study	Relationship problems, family problems, academic issues, and emotional problems were the top four perceived stressors for suicidality	Interpersonal, Academic
Gibson et al., 2021	Australia	15 - 24 years old	SD	N = 231 cases	Descriptive	Low socioeconomic status increased the risk of suicide by 48%. High levels of perceived discrimination also increased the risk of suicide rate by 18%.	Status

Author(s)	Country	Age range/ group	Outcome	Sample size/cases	Study design	Summary of findings	Theme
Hill et al., 2021	Australia	Under 25	SD	N = 3 027 cases	Descriptive	4.7% had experienced the deaths of parents, and 6.7% had been exposed to the suicides of relatives, friends, or acquaintances. A history of abuse and neglect was reported in 223 cases and 76 people had been exposed to domestic violence.	Abuse, Interpersonal
Petrie et al., 2021	Australia	26 - 30 years old	SI	N = 3053	Descriptive	Common risk factor includes conflict with study/career and family/ personal responsibility. Work conflict, bullying, and fear of litigation were strongly associated with SI in the last 12 months.	Work

Note: SI = Suicide ideation, SP = Suicide planning, SA = Suicide attempt, SD = suicide death.

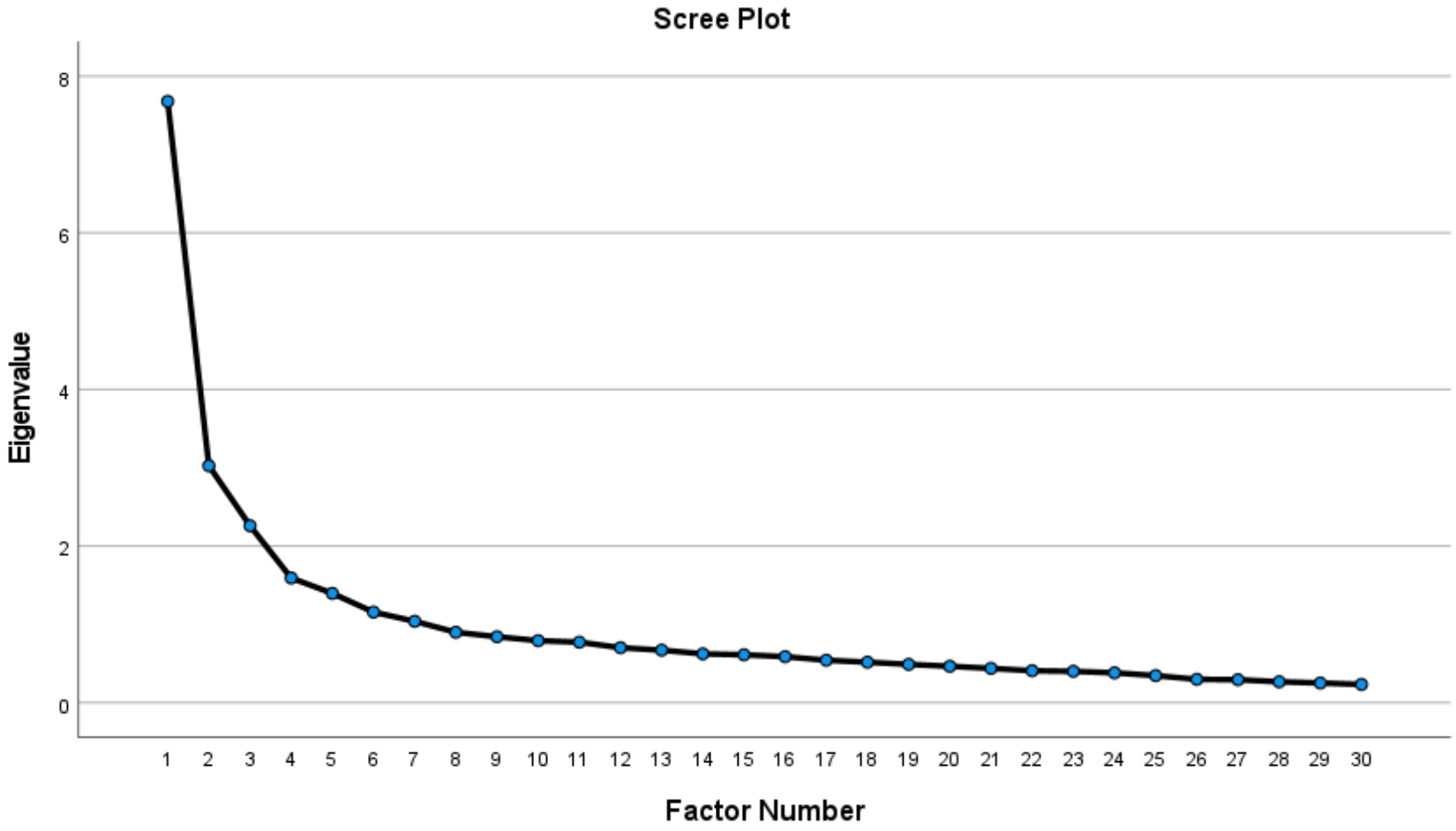
Appendix E

Initially Generated Items through Modification of Existing Items

HEES item		Original item (Source)
My academic performance is very important to me.		Academic grade is very important to my future and even can determine my whole life (ESSA; Sun, 2012)
When I do not meet my target grades I get upset.		I feel stressed when I do not live up to my own standard (AESI; Ang & Huan, 2006)
My parents expect me to perform extremely well in my studies.		Parents expect me to have excellent academic performance (LPEI; Wang & Heppner, 2002)
My parents want me to pursue careers of their choice.		Parents expect me to pursue their ideal careers (doctors, teachers,...) (LPEI; Wang & Heppner, 2002)
My parents always compare my academic achievement with other parents.		My parents compare my school success with others (PPAPS; Kaynak et al., 2021)
I feel I have disappointed my parents when I do poorly in exams.		I feel that I have disappointed my parents when my test/exam results are poor (ESSA; Sun, 2012)
I am doing/completed a course that my parents chose for me.		Parents expect me to study their ideal program/major (LPEI; Wang & Heppner, 2002)
My parents want me to pursue their choice of a degree.		Parents expect me to study their ideal program/major (LPEI; Wang & Heppner, 2002)
My parents decided on the university I am studying/studied in.		Parents expect me to study at their ideal college/university (LPEI; Wang & Heppner, 2002)
My academic achievement makes my family proud.		Parents expect my academic performance to make them proud (LPEI; Wang & Heppner, 2002)
My parents expect me to have a high-paying job when I complete my studies.		Parents expect me to study hard to get a high-paying job in the future (LPEI; Wang & Heppner, 2002)
When I do poorly in my exams, I feel I have disappointed my lecturers.		I feel that I have disappointed my teacher when my test/exam results are not ideal (ESSA; Sun, 2012)

Appendix F

Scree plot for the Initial HEES



Appendix G

The Full Factor Loadings 30-item HEES in Study 1

Items	Structure Matrix				Pattern Matrix				h^2
	1	2	3	4	1	2	3	4	
Factor 1. Expectation from culture									
29. In my culture, academic achievement is a way to repay my parents.	.721	.298	.404	.088	**.809**	-.096	.021	-.156	.549
30. Culturally, I am obligated to do well in my studies.	.719	.410	.292	.188	**.779**	.096	-.157	-.083	.538
26. In my culture, success in education is highly valued.	.685	.160	.443	.193	**.734**	-.301	.192	.013	.543
28. In my culture, I am expected to get a high-paying job after completing my studies at university.	.659	.215	.366	.210	**.706**	-.182	.079	.015	.458
27. I honour my culture by having high academic achievements.	.686	.426	.421	.332	**.545**	.076	.107	.145	.500
25. Performing well academically is my responsibility to the family.	.599	.515	.341	.171	**.481**	.293	-.038	-.036	.420
Factor 2. Expectations from educators/institutions									
19. I feel my lecturers have high hopes for me.	.225	.709	.228	.208	-.229	**.800**	.001	.143	.545
20. My lecturers expect me to get higher grades.	.304	.699	.294	.091	-.070	**.732**	.010	-.013	.492
21. I feel I need to maintain the status of the university.	.628	.648	.203	.178	-.087	**.703**	-.057	.083	.435
24. When I do poorly in my exams, I feel I have disappointed my lecturers.	.354	.655	.335	-.087	.104	**.645**	-.007	-.233	.478
22. My academic success reflects the ranking of the university.	.326	.582	.318	.127	-.007	**.541**	.085	.037	.344
18. The university expects me to perform well.	.387	.569	.337	.100	.110	**.488**	.066	-.019	.340
23. I do not think I can fulfil the expectations set by my lecturers.	*.119*	*.281*	*.262*	*-.521*	*.147*	***.295***	*.042*	*-.619*	*.434*

Items	Structure Matrix				Pattern Matrix				h^2
	1	2	3	4	**1**	2	3	4	
Factor 3. Expectation from parents									
8. My parents expect me to perform extremely well in my studies.	.444	.325	.716	.262	-.020	-.044	**.753**	.293	.592
10. My parents want me to pursue careers of their choice.	.211	.114	.596	-.201	-.009	-.142	**.659**	-.159	.407
12. My parents always ask me about my grades.	.287	.305	.621	-.007	-.086	.065	**.638**	.024	.392
16. My parents expect me to have a high-paying job when I complete my studies.	.437	.342	.628	.049	.132	.034	**.544**	.012	.412
17. My parents expect me to further my education (e.g., Ph.D., Professional certification).	.287	.386	.564	.004	-.092	.202	**.524**	.011	.347
11. I must have excellent grades to make my parents proud.	.564	.489	.695	.058	.232	.156	**.505**	-.033	.556
9. When I do well in my studies, I get my parent's approval.	*.375*	*.350*	*.472*	*.105*	*.102*	*.129*	*.364*	*.058*	*.261*
13. I feel I have disappointed my parents when I do poorly in exams.	*.434*	*.466*	*.438*	*-.041*	*.246*	*.292*	*.178*	*-.167*	*.328*
14. My parents decided on the university I am currently studying in.	*.137*	*.104*	*.424*	*-.216*	*-.005*	*-.055*	*.447*	*-.195*	*.225*
15. My academic achievement makes my family proud.	*.418*	*.367*	*.269*	*.274*	*.231*	*.190*	*.070*	*.168*	*.231*
Factor 4. Expectation from self									
4. I set high standards in my studies.	.398	.246	.047	.645	.229	.073	-.092	**.556**	.463
6. I know I can achieve higher grades.	.314	.246	.104	.564	.078	.102	.030	**.521**	.347
2. I expect to perform better than my peers academically.	.448	.290	.090	.625	.277	.097	-.085	**.517**	.468
1. My academic performance is very important to me.	*.556*	*.290*	*.109*	*.591*	*.475*	*.037*	*-1.44*	*.428*	*.512*

Items	Structure Matrix				Pattern Matrix				h^2
	1	2	3	4	1	2	3	4	
3. When I do not meet my target grades I get upset.	*.528*	*.342*	*.224*	*.256*	*.484*	*.115*	*-.076*	*.079*	*.298*
7. Failure in exams is not an option for me.	*.332*	*.156*	*.121*	*.375*	*.240*	*-.025*	*.014*	*.303*	*.191*
5. I am fully satisfied with my current grades.	*-.090*	*-.013*	*-.060*	*.372*	*-.302*	*.015*	*.101*	*.469*	*.195*

Note. Major loadings for the retained item are bolded. Omitted items are italicized.
h^2 = Communalities.

Appendix H

The Full Factor Loadings of the 30-item HEES in Study 2

Items	Structure Matrix				Pattern Matrix				h^2
	1	2	3	4	1	2	3	4	
Expectation from self (Cronbach's α = .92)									
1. I have high expectations of myself as a university student.	.636	.509	.143	.410	**.607**	.220	-.273	.030	.520
2. I expect to graduate with distinction.	.618	.386	.279	.394	**.638**	-.044	-.032	.040	.475
3. I expect to be the best student in my course/class	.708	.331	.481	.406	**.804**	-.301	.237	-.022	.553
4. I believe I must do my best in university.	.696	.565	.154	.464	**.647**	.249	-.307	.056	.566
5. I set higher academic goals than other students.	.729	.395	.550	.394	**.777**	-.206	.311	-.104	.619
6. I expect to have a prestigious job/career after graduation	.734	.504	.399	.452	**.706**	.025	.048	-.019	.567
7. I intend to accomplish many things in university.	.640	.492	.346	.436	**.540**	.108	.014	.035	.529
8. I expect to achieve something meaningful in university.	.661	.541	.242	.483	**.549**	.197	-.167	.105	.575
9. I expect to have an excellent academic performance in university.	.790	.609	.385	.499	**.706**	.169	-.034	-.018	.660
10. I expect to perform better than my peers academically.	.715	.489	.489	.415	**.670**	.002	.195	-.086	.568
11. I set high standards in my studies.	.753	.518	.421	.429	**.743**	.040	.073	-.085	.566
12. I know I can achieve higher grades.	.615	.559	.180	.554	**.404**	.260	-.261	.271	.504

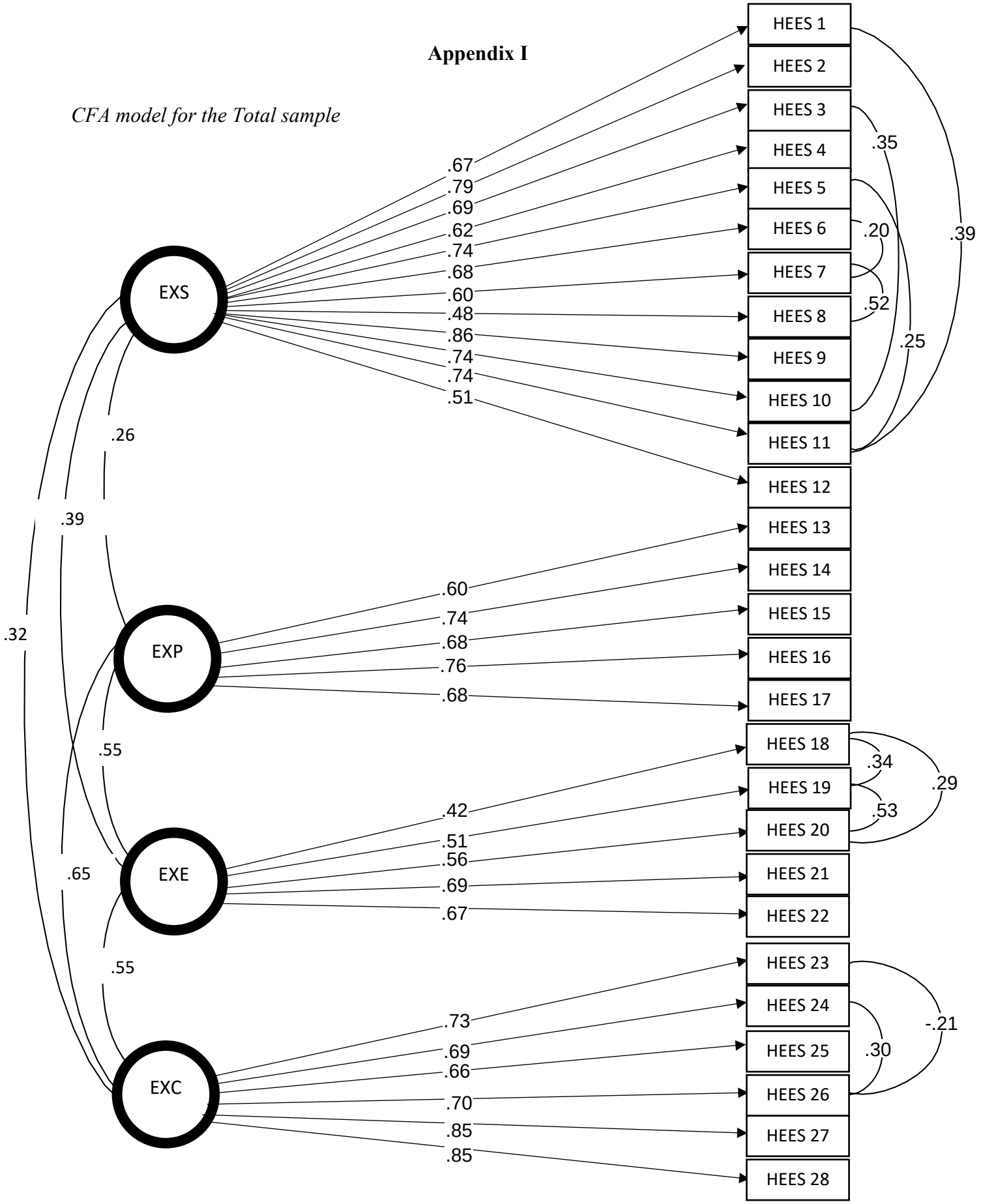
Items	Structure Matrix				Pattern Matrix				h^2
	1	2	3	4	1	2	3	4	
Expectation from parents (Cronbach's α = .79)									
14. My parents want me to pursue careers of their choice.	.305	.347	.683	.310	-.097	.072	**.685**	.028	.440
15. I must have excellent grades to make my parents proud.	.516	.588	.601	.418	.107	.340	**.395**	-.017	.550
16. My parents always ask me about my grades.	.339	.390	.586	.345	-.048	.140	**.513**	.068	.410
17. My parents expect me to have a high-paying job when I complete my studies.	.452	.502	.662	.406	.028	.213	**.534**	.032	.502
18. My parents expect me to further my education (e.g., Ph.D., Professional certification).	.352	.387	.613	.449	-.099	0.066	**.524**	.242	.448
13. My parents expect me to perform extremely well in my studies.	*.582*	*.667*	*.651*	*.454*	*.138*	*.408*	*.410*	*-.046*	*.651*
Expectations from educators/institutions (Cronbach's α = .80)									
19.My university expects me to perform well.	.330	.370	.310	.620	-.141	.062	.068	**.641**	.405
20.I feel my lecturers have high hopes for me.	.522	.343	.406	.790	.153	-.270	.104	**.805**	.678
21.My lecturers expect me to get higher grades.	.535	.454	.398	.883	.020	-.098	.034	**.912**	.712
22. I feel I need to maintain the status of my university.	.548	.482	.475	.624	.173	.044	.189	**.409**	.532
24. When I do poorly in my exams, I feel I have disappointed my lecturers.	.394	.496.	367	.579	-.105	.260	.098	**.451**	.419
23. My academic success reflects the ranking of the university.	*.546*	*.555*	*.495*	*.540*	*.155*	*.224*	*.215*	*.221*	*.480*
Expectation from culture (Cronbach's α = .86)									
25. Performing well academically is my responsibility to my family.	.553	.697	.442	.490	.099	**.539**	.107	.073	.594

Items	Structure Matrix				Pattern Matrix				h^2
	1	2	3	4	1	**2**	3	4	
26.In my culture, success in education is highly valued.	.470	.688	.362	.350	.051	**.684**	.056	-.098	.521
27.I honour my culture by having high academic achievements.	.597	.664	.480	.501	.203	**.418**	.152	.069	.559
28.In my culture, I am expected to get a high paying job after completing my studies at university.	.446	.668	.451	.394	-.046	**.618**	.189	-.015	.570
29.In my culture, academic achievement is a way to repay my parents.	.453	.741	.452	.357	-.070	**.775**	.173	-.121	.555
30. Culturally, I am obligated to do well in my studies.	.529	.700	.404	.426	.101	**.609**	.074	-.019	.530

Note. Major loadings for the retained items are bolded.
Omitted items are italicized. New items are highlighted. h^2 = Communalities

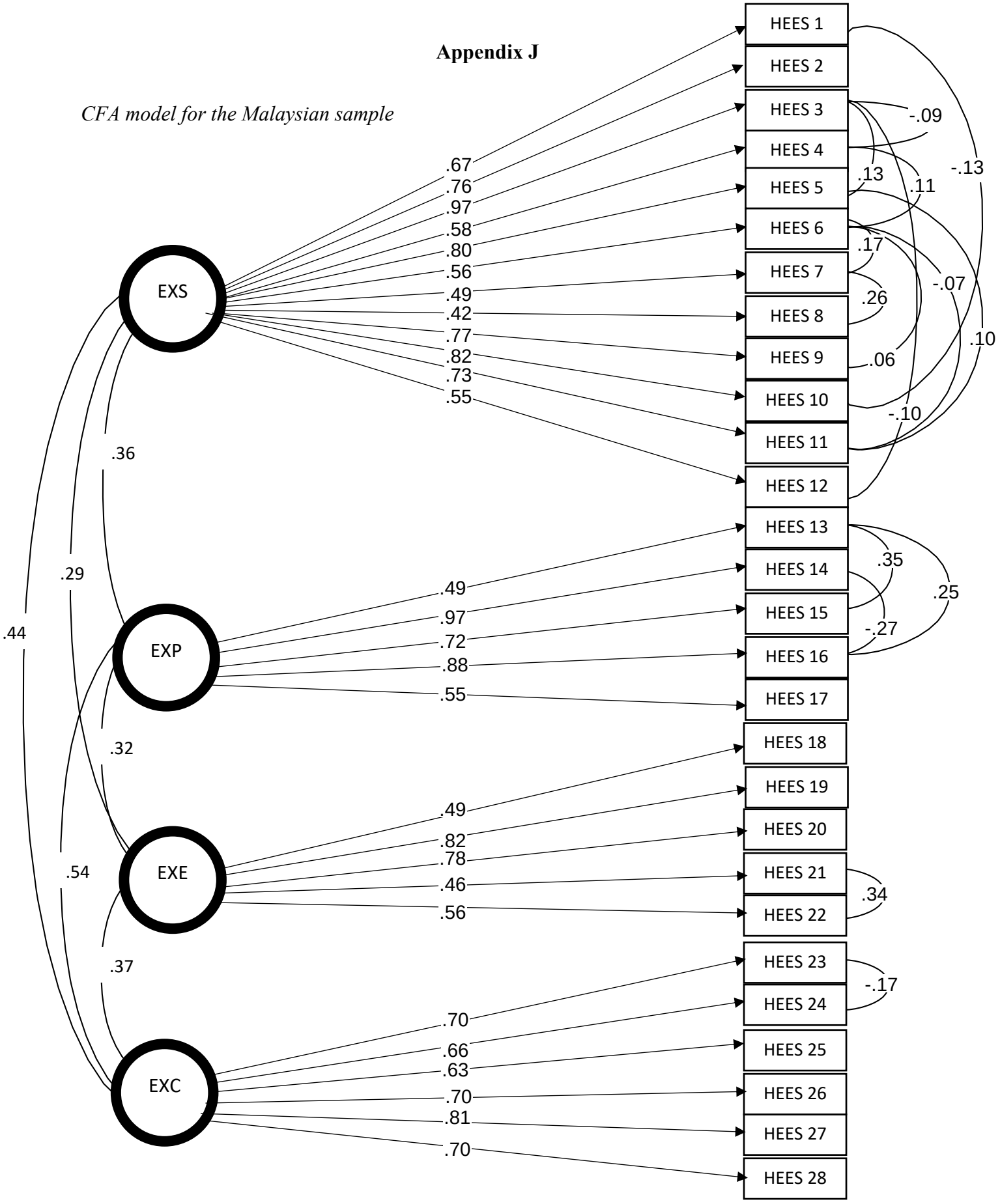
Appendix I

CFA model for the Total sample



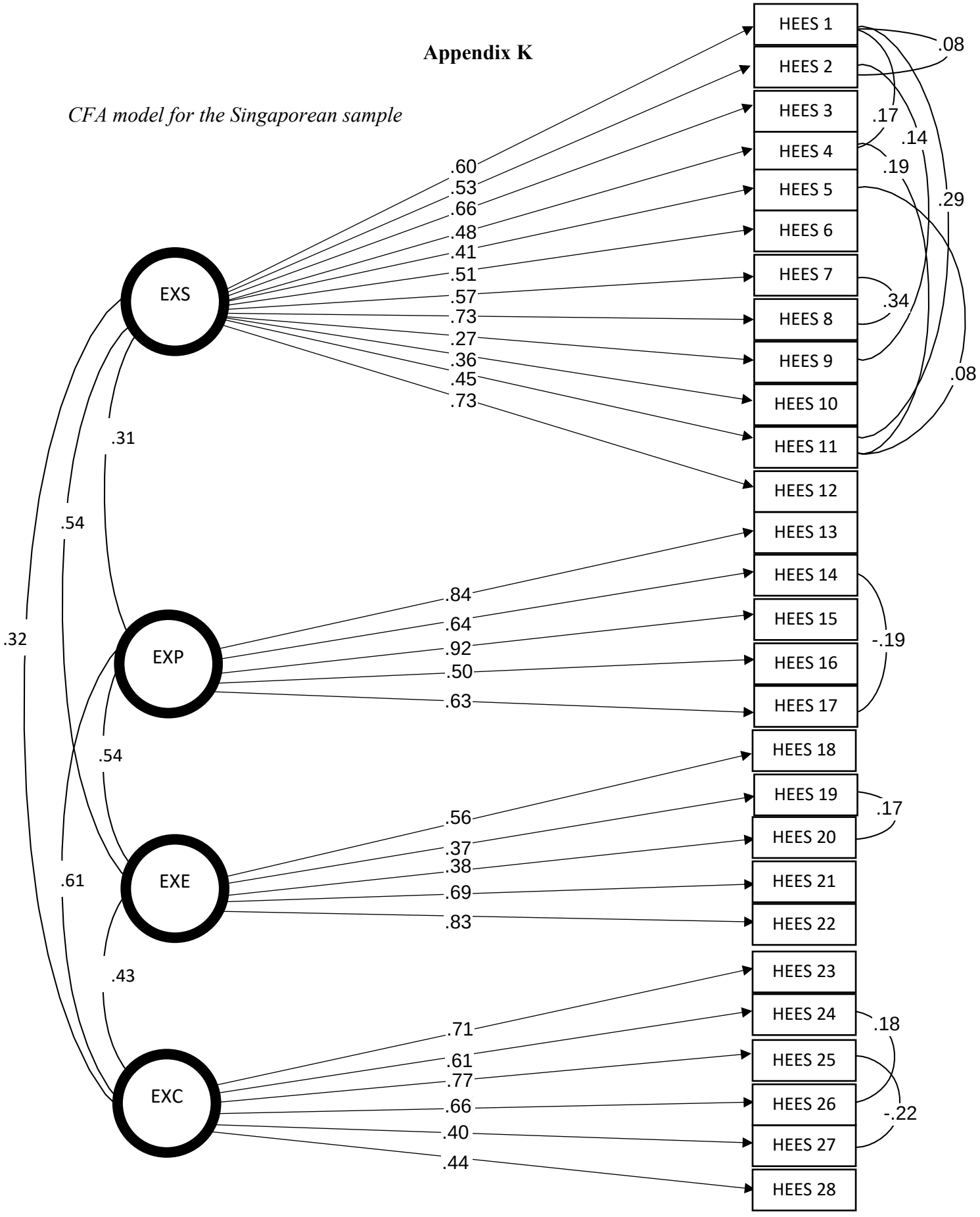
Appendix J

CFA model for the Malaysian sample



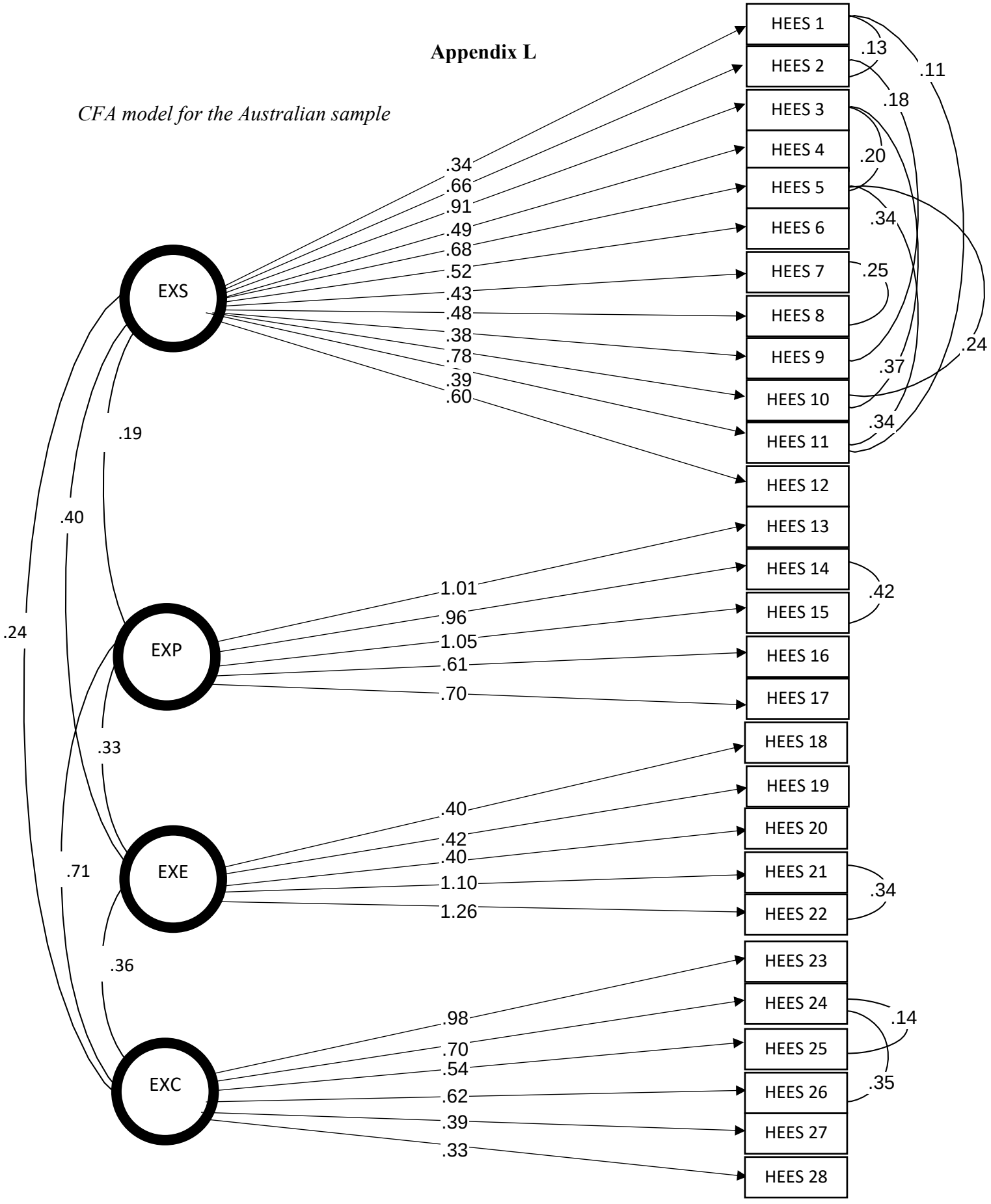
Appendix K

CFA model for the Singaporean sample



Appendix L

CFA model for the Australian sample



Appendix M

Overall Results from the Serial Mediation Model.

Mediating Paths	Sample	Source of Expectation							
		Self		Parent		Educator/Institution		Culture	
		β	95% CI [LLCI, ULCI]	*β*	95% CI [LLCI, ULCI]	*β*	95% CI [LLCI, ULCI]	*β*	95% CI [LLCI, ULCI]
Academic Burnout	Total	.005	[-.099, .013]	-.007	[-.037, .021]	-.004	[-.020, .008]	-.004	[-.017, .298]
	Malaysia	.002	[-.020, .022]	.000	[-.052, .047]	.000	[-.036, .026]	.000	[-.024, .018]
	Singapore	.008	[-.010, .032]	-.018	[-.075, .036]	.000	[-.029, .028]	-.007	[-.034, .015]
	Australia	.007	[-.012, .032]	-.010	[-.067, .037]	-.009	[-.050, .022]	-.008	[-.038, .017]
Psychache	Total	.033	[-.004, .073]	**.145**	[.075, .219]	**.145**	[.061, .230]	**.119**	[.069, .171]
	Malaysia	.029	[-.031, .095]	**.260**	[.138, .396]	**.157**	[.008, .300]	.106	[-.006, .221]
	Singapore	.050	[-.019, .135]	.083	[-.060, .226]	.117	[-.054, .320]	**.148**	[.049, .256]
	Australia	.024	[-.040, .090]	.099	[-.016, .221]	**.159**	[.047, .291]	**.134**	[.051, .224]
Hopelessness	Total	**-.026**	[-.045, -.009]	.025	[-.006, .056]	.011	[-.022, .044]	.024	[.000, .049]
	Malaysia	-.031	[-.076, .003]	.051	[-.021, .129]	.004	[-.060, .063]	.017	[-.053, .094]
	Singapore	-.023	[-.054, .000]	-.001	[-.055, .045]	.016	[-.037, .075]	.006	[-.031, .046]
	Australia	-.024	[-.062, .003]	.021	[-.032, .077]	-.009	[-.088, .052]	.022	[-.014, .062]

Mediating Paths	Sample	Source of Expectation							
		Self		Parent		Educator/Institution		Culture	
		β	95% CI [LLCI, ULCI]	*β*	95% CI [LLCI, ULCI]	*β*	95% CI [LLCI, ULCI]	*β*	95% CI [LLCI, ULCI]
Academic Burnout > Psychache	Total	**-.048**	[-.074, -.042]	**.115**	[.073, .162]	.047	[-.005, .104]	**.046**	[.014, .083]
	Malaysia	**-.042**	[-.084, -.005]	**.088**	[.021, .171]	.046	[-.030, .136]	.025	[-.037, .098]
	Singapore	**-.053**	[-.108, -.010]	**.144**	[.066, .242]	.002	[-.114, .117]	.051	[-.021, .128]
	Australia	**-.053**	[-.104, -.011]	**.128**	[.063, .214]	.078	[-.013, .191]	**.063**	[.012, .127]
Academic Burnout > Hopelessness	Total	**-.006**	[-.012, -.002]	**.018**	[.007, .032]	.007	[-.001, .018]	**.007**	[.002, .015]
	Malaysia	**-.010**	[-.025, -.001]	**.026**	[.005, .057]	.013	[-.009, .038]	.007	[-.011, .031]
	Singapore	-.003	[-.013, .002]	.013	[-.002, .043]	.000	[-.012, .016]	.004	[-.002, .018]
	Australia	-.004	[-.016, .001]	.012	[-.003, .042]	.008	[-.002, .031]	.007	[-.001, .021]

Note: LLCI – Lower Limit Confidence Interval, UCLI – Upper Limit Confidence Interval. Bolded items indicate significant indirect effects.