An Exploration into Gender and Generational Differences in Mental Health Literacy in Aotearoa New Zealand and Australia

A thesis presented in partial fulfilment of the requirements for the degree of

Doctor of Clinical Psychology

at Massey University, Albany,

New Zealand.

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2025

Abstract

Mental distress touches the lives of many. Society could benefit from enhancing the public's ability to effectively assist in its identification, management, and prevention. Mental health literacy is a concept that assesses this capacity in the general population. Prior international research indicates that both gender and generational differences for this construct exist, with men and older adults typically exhibiting lower levels of mental health literacy. However, we currently lack an accurate understanding of why such patterns have emerged and an evaluation of whether these differences may be influenced by measurement bias. This study seeks to enhance our understanding of these differences.

Using a cross-sectional quantitative study design, a total of 830 participants aged 18 to 76 from Aotearoa New Zealand and Australia completed an online questionnaire measuring their mental health literacy and restrictive emotionality.

Men demonstrated lower levels of mental health knowledge and attitudes than women, while partial support was found for a linear pattern of differences across generations for mental health attitudes (with older generations exhibiting lower mental health attitude scores than younger generations). However, given the lack of evidence to support measurement invariance, it is possible that these observed differences were influenced by differences in measurement properties. The results did not support the assertion that younger generations would be more likely to falsely detect the presence of a mental health disorder when presented with a vignette describing normal levels of distress in a difficult situation. Additionally, the study did not find evidence that restrictive emotionality mediates the relationship between gender and mental health attitudes.

Overall, this study raises the possibility that gender and generational differences in mental health literacy may be influenced by measurement bias. The findings also suggest that the broad conceptualisation of mental health literacy as a multidimensional construct may fail

to adequately capture the nature and strength of the relationships between the variables that it is comprised of. Additionally, these results contrast voices from concept creep literature suggesting an expanding concept of harm concerning mental health terminology among younger generations. Rather, this study suggests that perceived generational differences within this area may be exaggerated.

Acknowledgements

Completing this thesis would not have been possible in the absence of my support network and loved ones. There are too many people to name individually, but I wish to express my immense gratitude to all those who have supported me on this journey. I would also like to add a special thank you to all the participants who graciously gave their time to take part in this project. I hope that this thesis accurately reflects your generous contributions.

I would like to thank my incredible supervisors: Dr Matt Williams, Dr Kirsty Ross, and Dr Ilana Seager van Dyk. Matt, I simply could not have asked for a more committed and supportive supervisor. I am so grateful for your guidance, expertise, patience, responsiveness, and kindness. Kirsty, I so appreciate your unwavering support and encouragement from the very initial stages of this project. Your kind words always helped me stay motivated during the most difficult patches. And Ilana, thank you so much for joining the team in the later stages of the journey. The expertise and insight that you have contributed has been invaluable. I am so grateful for the impact the three of you have had not only on the project itself but on my own ability as a researcher and a writer.

A special thank you to my amazing family: Mum, Michael, Al, Pilar, Boni, Jordi, and Mariona. Thank you so much for your patience and encouragement throughout this journey. Thank you to all my friends for your understanding and acceptance; it has been truly difficult not being able to see you all as often as I would like over these past few years.

Thank you to my wonderful clinical cohort, who have made this process so much more enjoyable. I feel immensely lucky to have laughed, cried, and grown with such a brilliant group of people who I will always be connected to.

Thank you to my Kari Centre DBT whānau. This last year has been incredibly challenging juggling the demands of the thesis, work, and parenting. Having such validating

colleagues who genuinely care about my wellbeing has made a world of difference and I feel so grateful to each of you.

Most importantly, thank you Laia. You have walked alongside me every step of the way and have always been my rock during the toughest of challenges. Undertaking this long process has undoubtedly come with sacrifices; without your willingness to tolerate them, this would never have been possible. Together, you and Liam have fuelled the sense of purpose and meaning behind this work, and I can never thank you enough. Liam, thank you for your infectious giggle and beaming smile that has the power to turn around even the most difficult days. I am so excited for the adventures we have ahead of us. And Lulu, you have been my constant four-legged companion, curled up by my feet or on my lap while I write. Your cuddles have been the ultimate antidote to periods of writer's block.

Lastly, I would like to acknowledge Massey University for its generous financial assistance through the Massey University Doctoral Scholarship. This has made a world of difference in allowing me to complete this thesis.

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1. Literature Review

1.1 Mental Distress in Aotearoa New Zealand and Australia

Mental distress touches the lives of many and consequently is a cause for global concern. The worldwide prevalence of mental health conditions is increasing, with mental and substance use disorders now representing the leading cause of disability around the world (World Health Organization, n.d.-a). Mental distress has a substantial impact on the lives of those directly affected, often limiting their involvement in the community, their ability to participate in school and work environments, and their capacity to form and maintain positive relationships. Moreover, suicide is a significant cause of death globally, with more than 700,000 people estimated to take their own lives each year (World Health Organization, 2021).

Antipodean countries such as Aotearoa New Zealand and Australia are no exception. In 2018, the He Ara Oranga inquiry into mental health highlighted numerous alarming statistics demonstrating the impact of mental distress in Aotearoa New Zealand. One in five New Zealanders suffers significant mental distress each year, while an estimated 50% to 80% will experience mental distress or addiction at some point in their lives (He Ara Oranga, 2018). The report also calls attention to the country's persistently high rates of youth suicide. Despite the Chief Coroner's annual report from July 1st, 2021 to June 30th, 2022 showing an improvement in the nation's suicide rate compared to the previous year (Chief Coroner's Office, 2023), the He Ara Oranga (2018) report highlights how Aotearoa New Zealand has one of the worst rates of youth suicide in the OECD.

Similarly, figures reveal that mental health difficulties are not uncommon in Australia. Using a series of open-ended questions that were subsequently coded, an estimated 22% of those aged between 16 and 85 reported experiencing a mental health disorder in the last 12 months from data collected between 2020 and 2022, while 43% reported that they had

experienced a mental disorder at some point in their lives (Australian Bureau of Statistics, 2022). In 2023, Australia's age-standardised suicide rate of 11.8 per 100,000 persons (Australian Bureau of Statistics, 2024) was higher than Aotearoa New Zealand's latest recorded rate of 10.6 per 100,000 in the 2022/23 financial year (Health New Zealand Te Whatu Ora, n.d.). These statistics serve as a sobering reminder of the prevalence of mental distress across Aotearoa New Zealand and Australia and its grave potential repercussions.

Given the overlap between the terms in this area, it is useful to establish how the terms 'mental disorder' and 'mental distress' will be used in this study. Consistent with the He Ara Oranga (2018) report, mental health problems are considered along a spectrum of severity. The term 'mental disorder' is used to specifically refer to the set of diagnosable mental health conditions identified by diagnostic manuals such as the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM–5; American Psychiatric Association, 2013). 'Mental distress' is used as a wider term that encompasses not only mental disorders but also psychological distress that may not fall under diagnosable criteria yet affects an individual's wellbeing (Health Navigator New Zealand, 2021).

Taking the prevalence of mental distress in Aotearoa New Zealand and Australia into account, it is important to carefully consider how this can be addressed. While efficacious psychotherapeutic and pharmacological treatments for mental health conditions exist (Kamenov et al., 2016), many members of the public are not in regular contact with mental health professionals. For this reason, it is important for the general population to be equipped with a degree of capacity to identify and seek appropriate help for mental health difficulties. One approach that has been put forth to help address this issue is enhancing the mental health literacy of the population, which will be discussed in the subsection that follows.

1.2 Mental Health Literacy

1.2.1 Health Literacy

It is generally accepted that society benefits at both the individual and societal level from informing members of the public about the signs and symptoms of physical disease (Freedman et al., 2009; Jorm, 2012; Nutbeam, 2000). Defined as "the degree to which individuals can obtain, process, understand, and communicate about health-related information needed to make informed health decisions" (Berkman et al., 2010, p. 16), health literacy equips with the capacity to take the necessary steps related to prevention, detection, early intervention, and treatment. For instance, public health campaigns often focus on communicating the risks of smoking to prevent lung cancer and encourage people to conduct self-examinations to detect breast and testicular cancer respectively. Regarding treatment, people are generally aware that they should seek out a dentist if they are experiencing a toothache or a physiotherapist if they are recovering from a muscle injury. In their systematic review of the topic, Berkman et al. (2011) found that low overall health literacy is associated with a poorer capacity to comprehend and abide by medical guidance, poorer health outcomes, and poorer use of medical care services. Additionally, the authors suggest that low health literacy can partially explain racial disparities in certain outcomes. Coupled with the range and prevalence of physical ailments, empowering the community with this type of knowledge plays an important role in the health and general wellbeing of society.

1.2.2 Mental Health Literacy

A specific form of health literacy that is important to consider with the prevalence and impact of mental distress on the community in mind is mental health literacy. The term was first introduced by Jorm et al. (1997), who initially defined the concept as "knowledge and beliefs about mental disorders which aid their recognition, management and prevention" (p. 182). The definition has since been expanded to outline the different components that comprise mental health literacy, including "(a) knowledge of how to prevent mental disorders, (b) recognition of when a disorder is developing, (c) knowledge of help-seeking

options and treatments available, (d) knowledge of effective self-help strategies for milder problems, and (e) first aid skills to support others who are developing a mental disorder or are in a mental health crisis" (Jorm, 2012, p. 231).

Until the introduction of the concept of mental health literacy in the mid-nineties, the primary focus of the mental health sector was the training of primary care professionals (Jorm, 2019). Mental health literacy shifts the focus of the sector away from the notion that members of the public are merely passive recipients of mental health care and towards improving their knowledge and ability to recognise the signs of mental distress in themselves and others and take appropriate steps to receive help (Jorm, 2000). In doing so, members of the public can take on a more active role in the symptom management of themselves and those around them.

1.2.3 Why Mental Health Literacy?

Mental health literacy represents an important concept to investigate considering the low rates of help-seeking for mental health difficulties. In their study investigating 17 countries, Wang et al. (2007a) found "disturbingly high levels of unmet need for mental health treatment worldwide" (p. 7), with approximately half of those with severe forms of mental distress receiving no treatment. Even for those who do receive treatment, substantial delays in seeking professional help from the time of onset are common. Wang et al. (2007b) found the median delay in seeking help ranged from 1 to 14 years for mood disorders, from 3 to 30 years for anxiety disorders, and from 6 to 18 years for substance use disorders. These delays in seeking treatment were particularly prominent among older cohorts and men. While there are numerous reasons why people do not seek help for mental distress, one of the most frequent is a lack of knowledge about mental disorders and the treatments available (Thompson et al., 2004). The importance of accurate recognition is further demonstrated in a study by Thompson et al. (2008), who found that the average delay in seeking help was 8.2

years. Of those 8.2 years, participants took an average of 6.9 years to recognise the problem and 1.3 years between recognition and help-seeking. From this, we can surmise that low mental health literacy may be associated with delays in help-seeking.

A focus on raising mental health literacy can assist in addressing this gap by empowering the community with an enhanced capacity to identify forms of mental distress that warrant help-seeking. Research into the area of mental health literacy has shown that correct labelling of mental disorders by the general public is associated with their ability to identify the appropriate forms of help and treatment (Wright et al., 2007). In a review of 12 studies by Kelly et al. (2007) and a systematic mapping review of 140 studies by Patafio et al. (2021), it was generally found that mental health literacy can be improved through planned intervention. Kelly et al. (2007) suggest that improved mental health literacy may lead to better outcomes for young people suffering from mental distress, either directly through the facilitation of help-seeking by the individual themselves, or by aiding adults in recognising the early signs and seeking help on their behalf. More recent research suggests that specific mental health literacy interventions at primary and secondary schools (Ma et al., 2023) and tertiary level institutions (Liang et al., 2023) can lead to outcomes such as increased mental health knowledge and reduced mental health stigma.

In summary, despite the prevalence of mental distress within modern society, there are people directly affected by distress who either do not seek the appropriate forms of support or experience significant delays in seeking help. A lack of knowledge about mental illness and effective forms of treatment represents a barrier to seeking timely and appropriate support, with the enhancement of mental health literacy representing one avenue that may assist in narrowing the treatment gap. Given that the research indicates that early recognition of mental distress can reduce delays in seeking treatment and that early intervention can

result in improved long-term outcomes (Clarke et al., 2006), mental health literacy represents an important area of research.

1.2.4 Mental Health Literacy Research

Research in this area has been growing steadily since its introduction in the mid-1990s. Australia has led the way, not only in terms of the studies being conducted but also the subsequent uptake and impact upon public policy and mental health initiatives within the country. For instance, the Australian organisation *Beyond Blue* has implemented education programmes targeted at the general population, with research suggesting that this may have raised awareness of depression and sensitivity to discrimination (Jorm et al., 2006). The advances made in Australia are largely thanks to the pioneering work in the field carried out by Anthony Jorm and colleagues, with Jorm now one of the most cited researchers in the field of mental health in the world (Hickie et al., 2005).

Overall, research suggests that many people struggle to correctly identify mental disorders. For instance, early findings from the initial Australian national survey of mental health literacy in 1995 showed that only 39% and 27% of people were able to correctly label the depression and schizophrenia vignettes respectively (Jorm et al., 1997). However, these figures showed considerable improvement when a similar Australian study was conducted a decade later; rates of correct recognition of depression and schizophrenia rose to 67.3% and 42.5% respectively using the same vignettes (Reavley & Jorm, 2012). Other studies have also found similar rates of correct identification of depression (Jorm et al., 2005; Swami et al., 2010). In terms of cross-country comparisons, a review conducted by Furnham and Hamid (2014) concluded that more developed countries tend to demonstrate greater mental health literacy among the general public compared to less developed countries.

While recognition of mental health disorders has been a key focus of research in this area, mental health literacy also comprises mental health knowledge and attitudes towards

help-seeking. A large-scale study carried out by Morgan et al. (2014) revealed that the general public tends to demonstrate different beliefs from professional practitioners regarding the efficacy of treatment methods for treating mental health conditions. Members of the public are more likely to believe in the effectiveness of options such as vitamins and minerals, special diets, and the occasional alcoholic drink. Conversely, professionals demonstrate a greater belief in approaches such as psychotherapy and medication for mental health disorders such as depression and schizophrenia (Morgan et al., 2014). Research in this area also examines the views of the public towards mental health services in general, which has revealed that many people hold negative views towards professional care. For instance, in a study assessing six European countries, it was found that nearly one-third of participants believed that professional help for mental distress was worse than or equal to no help at all (ten Have et al., 2010). However, research does suggest that the attitudes and beliefs of the public may have become more aligned with those of professionals over time. Reavley and Jorm (2012) found increased belief in the efficacy of treatment options such as health professionals, antidepressant and antipsychotic medication, psychiatrists, and telephone counselling among the Australian public between 1995 and 2011.

Studies in this area also indicate that important gender and age differences exist regarding the general public's mental health literacy. Research has consistently shown that men demonstrate lower levels of mental health literacy than women. In their study of young Australians aged between 12 and 25, Cotton et al. (2006) found that males (34.5%) were significantly less likely to correctly identify depression than females (60.7%). This difference between males and females has been consistently shown across various settings (Burns & Rapee, 2006; Coles et al., 2016; Deen & Bridges, 2011; Kaneko & Motohashi, 2007) and has shown to exist in the recognition of other disorders such as anxiety (Hadjimina & Furnham, 2017). Male respondents may also be more likely than female respondents to indicate that the

male protagonist in a vignette does not suffer from a mental disorder (Swami, 2012). While less is known about the mental health literacy of transgender and nonbinary individuals, emerging research suggests that they may have higher levels of mental health literacy than cisgender individuals. Brandt et al. (2023) found that sexual and gender minority (SGM) identity was associated with higher mental health literacy than non-SGM identity. The authors found this association was driven by the self-reported history of a psychological disorder of participants, which was more commonly reported by SGM individuals (Brandt et al., 2023).

In terms of attitudes and beliefs, women tend to be more likely to recommend professional help and evaluate treatment outcomes more favourably than men (Holzinger et al., 2012). In a study investigating gender differences in mental health literacy among young people aged 12 to 25 in Australia, men were more likely to believe in the helpfulness of sleeping pills and tranquillizers in treating depression (Cotton et al., 2006). Men were also more likely to endorse having the occasional alcoholic beverage to help in dealing with depressive symptoms and less likely to recommend a doctor or a psychologist/counsellor for the treatment of psychosis (Cotton et al., 2006). A recent study found a significant difference between the mental health attitudes of men and women, with men demonstrating more negative attitudes (Hee Yun Lee et al., 2020). Several authors have speculated that this disparity may be partially explained by adherence to the traditional male stereotypes and norms that shape a man's attitudes and behaviours towards mental health (Cotton et al., 2006; Swami, 2012).

Research in this area also indicates that there may be age differences in mental health literacy. Farrer et al. (2008) conducted a study using a robust sample size specifically investigating age differences in mental health literacy, finding that older adults (70+ years) were worse than younger age groups at correctly identifying depression and schizophrenia.

Interestingly, while younger adults were more accurate in correctly identifying depression, they were more likely to misdiagnose schizophrenia as depression. Older adults endorsed fewer treatment sources as helpful and were more likely to view schizophrenia as related to a weakness of character. Other studies have also produced similar findings suggesting that older adults exhibit lower levels of performance on measures of mental health literacy than younger adults (Fisher & Goldney, 2003; Hadjimina & Furnham, 2017; Hasin & Link, 1988). There is a lack of research exploring why this may be the case. However, researchers have speculated that this disparity may be due to several factors, including exposure to mental health education in schools that was unavailable in previous decades, the increase in media and public communication around mental health issues, and the greater accessibility of mental health information through the internet for younger generations (Farrer et al., 2008; Hadjimina & Furnham, 2017).

Overall, the extant research suggests that differences exist across both genders and generations regarding levels of performance on measures of mental health literacy. In particular, men and older adults appear to demonstrate poorer mental health literacy. However, it remains unclear whether these differences observed in the existing literature reflect actual differences between these groups or whether they could be artefacts of varying measurement properties across groups.

1.2.5 Challenges to Research on Mental Health Literacy

While research into the area of mental health literacy has grown substantially since its inception, it is not without its challenges. Originally born of the wider concept of health literacy, research on mental health literacy has since taken its own path and strong arguments can be made that this endeavour has led to attention being drawn to a previously neglected area. However, mental health literacy as a body of research has recently been subject to several important challenges regarding how our understanding of the concept should proceed

(Mansfield et al., 2020; Spiker & Hammer, 2019). A review of the literature reveals several concerns regarding its current status as a research construct, including the lack of consensus on how the term is defined, its violation of several of the basic principles of construct definition, and inconsistencies in the way it is measured. The nature of these concerns will be explored below.

Defining Mental Health Literacy. Jorm and colleagues (1997) initially defined mental health literacy as the "knowledge and beliefs about mental disorders which aid their recognition, management or prevention" (p. 182). This definition remains the most widely accepted and continues to be routinely adopted by recent studies in this area of research (Bullivant et al., 2020; Cheng et al., 2018; Mehrotra et al., 2018). However, this conceptualisation of the term has come under criticism for its focus on mental ill-health and relative neglect of promoting positive mental health (Bjørnsen et al., 2017). Kusan (2013) argues that the term's original definition "effectively translates to knowledge of the contents of the DSM and reflects the dominant biomedical orientation of the mental health field" (p. 14). As such, there has been a call for a shift towards the inclusion of positive psychology and resources that contribute to positive wellbeing within the conceptualisation of mental health literacy, such as mindfulness and resilience (Bjørnsen et al., 2017; Kusan, 2013).

With these criticisms in mind, alternative definitions have been suggested. For instance, Kutcher et al. (2016) define mental health literacy as encompassing the following components: "understanding how to obtain and maintain positive mental health; understanding mental disorders and their treatments; decreasing stigma related to mental disorders; and, enhancing help-seeking efficacy (knowing when and where to seek help and developing competencies designed to improve one's mental health care and self-management capabilities)" (p. 155). This definition of mental health literacy aligns more closely with the World Health Organisation's view on mental health, which claims that mental health is not

simply the absence of mental ill-health but rather encapsulates aspects such as wellbeing and coping (World Health Organization, 2022). In response to these criticisms, Jorm (2019) asserts that the knowledge related to 'positive mental health literacy' does actually overlap with knowledge and self-help strategies related to preventing depression (Cairns et al., 2015) and addressing mild anxiety (Morgan et al., 2016), which are typically associated with more traditional conceptions of mental health literacy. Overall, the literature reveals that the definition of mental health literacy is an ongoing debate that has yet to be resolved and continues to evolve with time.

Principles of Construct Definition. This lack of consensus regarding the definition of mental health literacy and the calls for it to encompass a wider array of components has cascading implications for its status as a research construct. Those voices advocating for concepts such as help-seeking efficacy, stigma, and positive mental health to be included under the umbrella of mental health literacy may be correct in their assertions that such variables can build on our understanding of the construct as a whole. However, Spiker and Hammer (2019) observe that the lack of agreement on a precisely defined term—coupled with suggestions to expand our conceptualisation of what that term encompasses—may lead to "confusion in the literature and risks violating principles of good construct definition" (p. 239). Specifically, the authors identify the four key principles that mental health literacy is currently guilty of breaching: 'construct travelling,' 'construct stretching,' 'construct proliferation,' and 'construct-irrelevant variance.'

Without a precise definition, mental health literacy suffers from an inconsistent understanding of what the construct is and what it is not. As a result, the concept is unable to appropriately 'travel' across different studies (i.e., 'construct travelling') without suffering from issues of measurement and conceptualisation. 'Construct stretching' refers to situations where constructs have been defined too broadly and often occurs when appropriate

boundaries have not been set (Wacker, 2004). While the aforementioned calls for mental health literacy to include aspects such as positive mental health and help-seeking efficacy are understandable in their intention, they may be at risk of 'stretching' an already loosely defined construct. Again, this can lead to inconsistencies in how the term is treated across studies (Spiker & Hammer, 2019). Including these additional concepts underneath the umbrella of mental health literacy further risks 'construct proliferation,' whereby existing and well-established constructs are simply repackaged under a new name. This can lead to situations where viewpoints that are similarly aligned in their desired direction for the concept of mental health literacy can draw different boundaries in terms of what they envision the construct including (Spiker & Hammer, 2019). For instance, Bjørnsen et al. (2017) have argued for connecting positive mental health literacy to the Basic Psychological Needs Theory, whereas Kusan (2013) suggests that it be expanded to include existing constructs of positive psychology such as mindfulness. Spiker and Hammer (2019) further call attention to how a particular concept that has been proposed to be included within the definition of mental health literacy—help-seeking efficacy—is similar to the perceived behavioural control construct within the Theory of Planned Behaviour (Ajzen, 1985). The authors argue that these two constructs have not been adequately distinguished in the literature and that, as a result, the existing correlation between the two may in reality represent a correlation of help-seeking efficacy with itself (i.e., 'construct-irrelevant variance'). Overall, Spiker and Hammer (2019) conclude that a significant amount of work is required to meaningfully advance our understanding of mental health literacy.

Measuring Mental Health Literacy. In addition to the number of concerns around how mental health literacy is conceptualised and defined as a construct, there is also a lack of consensus around its measurement. The first attempt to measure mental health literacy was the Vignette Interview, introduced by Jorm et al. (1997). This approach originally involved a

structured interview, in which participants read a case vignette describing an individual experiencing mental distress and subsequently answered a series of questions about the vignette. Since its introduction, the Vignette Interview has been frequently adapted and has emerged as the "standard for studying mental health literacy in community surveys in many countries" (Jorm, 2019, p.54). The majority of the focus of research in this area has tended to focus on an individual's capacity for mental disorder recognition, particularly depression and schizophrenia. Two examples of the type of vignettes used are shown in Table 1.

Table 1

Examples of vignettes used in the measurement of mental health literacy

Type of Problem	Vignette
Depression	John is 30 years old. He has been feeling unusually sad and miserable for the last few weeks. Even though he is tired all the time, he has trouble sleeping nearly every night. John doesn't feel like eating and has lost weight. He can't keep his mind on his work and puts off making decisions. Even day-to-day tasks seem too much for him. This has come to the attention of John's boss who is concerned about his lowered productivity.
Schizophrenia	John is 24 and lives at home with his parents. He has had a few temporary jobs since finishing school but is now unemployed. Over the last six months he has stopped seeing his friends and has begun locking himself in his bedroom and refusing to eat with the family or to have a bath. His parents also hear him walking about his bedroom at night while they are in bed. Even though they know he is alone, they have heard him shouting and arguing as if someone else is there. When they try to encourage him to do more things, he whispers that he won't leave home because the neighbour is spying on him. They realise he is not taking drugs because he never sees anyone or goes anywhere.

Source: Jorm et al. (1997)

While a recent review found that the vast majority of studies in the area continue to use some form of vignette to measure mental health literacy (O'Connor et al., 2014), the approach is not without its limitations (Kutcher et al., 2016; O'Connor et al., 2014). Firstly,

O'Connor et al. (2014) note that the question wording of the vignette methodology often does not adequately distinguish between knowledge and beliefs, which hinders the ability of studies to identify their individual contributions and the relationship they have with each other. For instance, the authors draw attention to a particular question in the vignette interview that asks participants how likely they think particular people that a person could go to for help (e.g., a counsellor, close friends, a psychologist) will be "helpful," "harmful," or "neither." They argue that while this question is designed to measure mental health knowledge, it appears more likely to prompt beliefs about helpfulness of individual sources (O'Connor et al., 2014). This is a particularly salient issue considering how five of the seven components of mental health literacy—as outlined by Jorm et al. (1997)—measure knowledge. Secondly, O'Connor et al. (2014) identify how a respondent's initial interpretation of the difficulty described in the case vignette colours their remaining answers, as they will subsequently be responding based on particular assumptions of what the protagonist is experiencing. As a result, respondents may be at risk of providing answers that reflect their knowledge of the causes and treatment of a different condition to the one in question. Finally, the variations of certain aspects (e.g., length of the case, symptoms included, gender of the protagonist, etc.) of the vignette cases used across studies may impact the validity and reliability of the approach (Sai & Furnham, 2013). Vignettes further tend to focus on a limited number of disorders (e.g., depression and schizophrenia) and often do not assess all the components of MHL as specified by Jorm et al. (1997).

Vignette case studies are not the only measurement approach with issues. In a comprehensive review of the psychometric properties of existing measures of mental health literacy, O'Connor et al. (2014) identified a range of concerns. Four of the 13 studies reviewed used the vignette methodology (with a total or sub-scale score calculation included), while other studies adopted approaches such as Likert-response questions (e.g.,

using a 5-point scale from “agree strongly” to “disagree strongly” to respond to items such as “most people with mental health problems want to have paid employment”; Evans-Lacko et al., 2010), multiple choice questions (e.g., selecting one of five possible response choices to the question: “some people with obsessive-compulsive disorder may benefit from which of the following?”; Compton et al., 2011), dichotomous-response questions (e.g., answering “yes” or “no” to questions such as “have you ever heard about this problem?” for a variety of mental health disorders; Furnham et al., 2011), and various combinations of these approaches. Using the Consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN) (Mokkink et al., 2010) guidelines to assess the psychometric rigour of each measurement approach, the authors found considerable variation across the studies. Of the nine COSMIN domains, the highest number of domains assessed across the 13 studies was five; 11 studies assessed two or fewer domains, with two studies failing to assess any of the COSMIN domains (O’Connor et al., 2014). The authors further identified a failure to adequately measure the attributes of mental health literacy. Using the seven attributes identified by Jorm et al. (1997) as a reference point, O’Connor et al. (2014) reported that none of the 13 studies measured all seven attributes. The highest number of attributes measured was four, with the vast majority of studies only measuring one attribute. Furthermore, almost all of the 13 studies included additional attributes that fall outside the definition of mental health literacy provided by Jorm et al. (1997). The authors also highlighted the general lack of psychometric data reported and the insufficient detail provided regarding the samples used, the questionnaire development process, and testing for validity and reliability (O’Connor et al., 2014). Interestingly, of the 13 studies assessed, each one used a unique methodological approach to measure mental health literacy.

Overall, this review revealed an inconsistency of approaches, limited psychometric rigour, and a lack of consensus regarding what the construct should be measuring. As such,

the authors concluded that there was substantial scope for the development of a consistent and psychometrically robust tool for accurately measuring mental health literacy (O'Connor et al., 2014).

1.2.6 The Mental Health Literacy Scale

In response to identifying the flaws evident in the measurement of mental health literacy, O'Connor and Casey (2015) set out to develop a psychometrically rigorous scale-based measure of mental health literacy: the Mental Health Literacy Scale (MHLS). The authors once more used the construct definition proposed by Jorm et al. (1997) to develop a measure capable of capturing all seven of the attributes of mental health literacy that this original definition encompasses. A thorough three-phase process was undertaken to develop the measure, which included a literature review, item development through discussion with a clinical panel and a research team, extensive use of feedback from a clinical panel, an iterative phase of pilot testing and measure refinement, and analysis of the results. The authors note that while operationally defining the seven attributes, it was decided that there was an insufficient level of knowledge within the field to adequately differentiate between the causes of mental illness and the risk factors of mental illness, so these two attributes were merged into "knowledge of risk factors and causes." In turn, these six attributes can be conceptually divided into overarching dimensions of mental health knowledge and mental health attitudes. The process resulted in a 35-item scale-based measure that demonstrated good validity and good internal and test-retest reliability (O'Connor & Casey, 2015).

Since its development, the MHLS has been translated and validated across different countries including Iran (Harouni et al., 2021; Heizomi et al., 2020; Nejatian et al., 2021), China (Chen et al., 2021), Vietnam (Dang et al., 2018), and France (Montagni & González Caballero, 2022). Additionally, the MHLS has been used across different populations, including Australian domestic and international university students (Clough et al., 2019),

university students in the United Kingdom (Gorczynski et al., 2017), medical students in the United Kingdom (Marwood & Hearn, 2019), perinatal Hispanic adolescents (Recto & Champion, 2017), and Australian high school students (Ratnayake & Hyde, 2019).

Mixed recommendations from several review studies examining the measurement of mental health literacy further reflect the lack of consensus on how to assess the construct. A systematic review of tools for measuring mental health knowledge by Wei et al. (2016) found that the MHLS demonstrates a "strong" level of internal consistency and content validity, a "moderate" level of reliability, and "limited" hypothesis testing. While the MHLS was the strongest of the 16 tools examined across the measurement properties, the authors did not feel it was appropriate "to conclude that one tool is better than the other" (Wei et al., 2016, p. 12). It is also important to note that this review only examined one component of mental health literacy: mental health knowledge. In a more recent review of the psychometric properties of global mental health literacy measures, Fulcher and Pote (2021) reported that the Mental Health Promoting Knowledge-10 (MHPK-10) (Bjørnsen et al., 2017) and the Multicomponent Mental Health Literacy measure (Jung et al., 2016) to be the most psychometrically robust tools. The MHPK-10 is a 10-item instrument designed to measure adolescents' knowledge of factors that promote good mental health. The items represent statements of factors important to positive mental health (e.g., "having good sleep routines"), with respondents asked to rate the items on a five-point scale from "completely wrong" to "completely correct" with a "don't know" option. The Multicomponent Mental Health Literacy measure is a 26-item measure designed to assess multiple components of mental health literacy. The response format is a five-point Likert scale from "strongly disagree" to "strongly agree" with an "I don't know" option, with items referring to statements about mental health knowledge, beliefs, and resources (e.g., "counselling is a helpful treatment for depression").

However, it is important to consider Fulcher and Pote's (2021) recommended tools alongside the limitations of these two measures. The MHPK-10 has had limited uptake within the body of research since its development and has not been extensively validated across other populations. This is particularly important to keep in mind considering it was initially developed using a sample of Norwegian adolescents. Additionally, in its attempt to expand the concept of mental health literacy to include aspects such as positive psychology, this proposed tool may be guilty of going against Spiker and Hammer's (2019) suggestion that this area of research may struggle to advance if the construct is continuously being widened. In terms of face validity, certain items such as "believing in yourself" and "experiencing school mastery" could be considered vague and subject to multiple interpretations by respondents. Like the MHLS, the Multicomponent Mental Health Literacy measure was developed with Jorm et al.'s (1997) original definition in mind. However, similar to the MHPK-10, this tool has not been widely used in the area and lacks validation across different populations.

As the points above demonstrate, critics have identified flaws in each of the measures and the construct of mental health literacy lacks a "gold standard" measurement approach. Considering this alongside the other issues with this body of research previously mentioned, the present study will use the MHLS as a tool to assess mental health literacy. This study aims to make a positive contribution to the literature and enhance our understanding of this area, not further muddy the waters and add to the existing lack of rigour and comparability between studies. While the definition used by O'Connor & Casey (2015) in the development of the MHLS has come under criticism, this definition by Jorm et al. (1997) remains the most widely used within the area. In their recent review of the measurement of mental health literacy in adolescent research, Mansfield et al. (2020) reported that less than half of the studies assessed defined mental health literacy; of those that did, 71% used Jorm et al.'s

(1997) definition. The authors' observation of how "the various adaptations and interpretations of the original definition has clearly led to a lack of construct travelling in the field" (Mansfield et al., 2020, p. 8) reiterates concerns regarding the violation of the principles of sound construct definition within this area of research. This provides some vindication for O'Connor and Casey's (2015) decision to adhere to Jorm et al.'s (1997) definition and develop a measure that addresses each of the components it outlines. With the debate still ongoing some ten years after the development of the MHLS regarding how the construct is defined, refusing to proceed until a consensus is reached may result in paralysis of the body of research into mental health literacy. Furthermore, while the scale was initially developed in part through the use of a sample of psychology students, it has since been validated and used across a variety of populations and languages; the same cannot be said for alternative measures such as the MHPK-10 and the multicomponent mental health literacy measure. Therefore, while the MHLS is not without its limitations, it does appear to represent the best available tool to measure mental health literacy.

1.2.7 Mental Health Literacy Initiatives in Aotearoa New Zealand and Australia

Several initiatives focused on raising the levels of mental health literacy of the general population in both Aotearoa New Zealand and Australia have emerged over the past few decades. Originally developed in Australia by Kitchener and Jorm (2002), perhaps the most prominent and directed of these initiatives is the 'Mental Health First Aid' (MHFA) programme. Recognising that many members of the general population have low levels of mental health literacy, this programme was specifically designed to address this issue. Unlike broad-scale initiatives and general mental health awareness campaigns, Kitchener and Jorm (2002) note that the MHFA programme "aims to give more intensive education to a smaller number of interested people rather than less intensive education of the whole community" (p. 6). MHFA is well established in Australia, with more than 1.2 million people trained in the

country as of 2022 (Mental Health First Aid Australia [MHFA Australia], 2022). The MHFA Australia organisation aims to build on this and has set the ambitious target of training 1 in 10 Australians in MHFA by 2030 (MHFA Australia, 2022). While not as widespread, the presence of MHFA continues to expand in Aotearoa New Zealand, with the Te Pou (n.d.) website listing 24 different MHFA providers as of 2025. The accessibility of these programmes has also increased in recent times, including the development of online versions in response to the COVID-19 pandemic (Havewala et al., 2023; Reavley et al., 2021). MHFA has also seen an uptake among grassroots organisations. Site Safe and St John collaborated to develop an MHFA course designed specifically for the construction industry in Aotearoa New Zealand (Site Safe 2024), while GoodYarn is a peer-delivered mental health literacy programme aimed specifically at farmers (GoodYarn, n.d.).

Research has established that MHFA trainees benefit from these courses and those benefits are maintained over time. For instance, a randomised control trial by Svensson and Hansson (2014) found that the improved knowledge and confidence in providing help for someone in need that MHFA trainees experienced were largely maintained in a follow-up assessment two years after receiving the training. Additionally, meta-analyses carried out by Maslowski et al., (2019) and Morgan et al. (2018) supported the effectiveness of MHFA training. Reflecting on the dissemination of the programme throughout the country, Jorm et al. (2019) observe how courses in Australia have been tailored across different age groups, professional roles, and cultural groups.

1.2.8 Mental Health Literacy and the Present Study

As described above, existing research in this area suggests that older adults typically demonstrate lower mental health literacy than younger adults (Farrer et al., 2008; Fisher & Goldney, 2003) and men typically exhibit lower mental health literacy than women (Cotton et al., 2006; Furnham & Swami, 2018; Hadjimina & Furnham, 2017; Miles et al., 2020).

However, several methodological concerns have been raised concerning the measurement of mental health literacy. With this in mind, the present study seeks to enhance our understanding of whether or not these differences are influenced by measurement error. To provide a more thorough understanding of what factors could potentially contribute to differences in mental health literacy between these groups, the following sections will examine research relating to generational cohorts, concept creep, and masculinity in Aotearoa New Zealand and Australia.

1.3 Generational Cohorts

When considering how age disparities may have emerged for any given phenomenon, a useful concept to draw upon is generational cohorts. A generational cohort can be defined as an "identifiable group that shares birth years, age, location, and significant life events at critical developmental stages" (Tolbize, 2008, p.1). According to Generational Cohort Theory, members from the same generational cohort share common life experiences and influences upon their formative years that can lead to the cohesion of values and beliefs, resulting in a distinct social character that defines each cohort and can persist across the lifespan (Inglehart, 1997). Indeed, extant research has found generational differences across various domains including work values (Twenge et al., 2010), family values and attitudes (Thornton & Young-DeMarco, 2001), psychological traits (Twenge & Campbell, 2008), sexual attitudes and behaviours (Wells & Twenge, 2005), and mental health (Kessler et al., 2005). By considering how constructs are impacted by the complex interplay between the expected aging trajectory and respective cohort-shaping influences, we can further enhance our understanding of how differences across groups may emerge.

Cohorts refer to finite periods, with the Pew Research Center noting that "a generation typically refers to groups of people born over a 15–20-year span" (Pew Research Center, 2015). The present study considers four generational cohorts: Generation Z, Millennials,

Generation X, and Baby Boomers. Determining the cut-off birth years that define a cohort is not an exact science; while researchers in this area consider the span of years alongside the political, economic, and social factors that define a generation to reach meaningful cut-off points, there is no agreed upon formula underpinning such decisions (Dimock, 2019). While several different definitions exist, the present study will use the periods as defined by the Pew Research Center (see Table 2 below).

Table 2

Generational Timeframes According to the Pew Research Center

Generational Cohort	Generational Timeframe (Pew Research Center)	Age in 2021 (data collection year for the present study)
Baby Boomers	1946–1964	57–75
Generation X	1965–1980	41–56
Millennials	1981–1996	25–40
Generation Z	1997–2012	9–24

Source: Dimock, 2019

Using accepted generational cohorts as a basis for age group comparisons can be a useful tool in research. Given that there is an existing body of research examining the influences that have impacted each cohort, this provides additional context to enhance our understanding of potential differences that may exist between them across various constructs. As the Pew Research Center notes, cohorts provide a tool to observe changes in views over time; they can enhance the depth of our understanding of how specific formative experiences may interact with the aging process across the lifespan and shape how individuals view the world (Dimock, 2019). Generational cohorts also provide an opportunity to easily communicate research findings to the general public. As evidenced by the viral response to Aotearoa New Zealand politician and Millennial Chlöe Swarbrick's now-iconic retort of "OK

Boomer" within the parliamentary debating chamber in 2019, generational cohort terminology now forms common parlance. Whereas the age brackets of phrases such as "emerging adulthood" and "young adulthood" may be vulnerable to misinterpretation, many laypeople are aware of which generational cohort they fall within.

It is important to consider the complexities involved with exploring how differences in age groups have emerged on any given construct. In particular, isolating the impacts of age, period, and cohort effects presents a difficult challenge for researchers. Known as the age-period-cohort (APC) identification problem, these three influential effects are delineated by Bell (2014) as follows: age effects represent changes that occur as individuals grow older; period effects occur as a result of events specific to the time of measurement; cohort effects are the result of common factors that influence the formative years of a group of individuals born contemporaneously. Developmental psychologists have argued that cross-sectional research only provides a snapshot of a moment in time and that the 'motion picture' perspective provided by longitudinal research (i.e., studies that follow the same group of individuals over time) is required to determine within-person changes. Bell (2014) supports this assertion, arguing that cross-sectional studies confound age and cohort differences. While longitudinal and time-lag studies are designed to assist in isolating age, period, and cohort effects, these approaches are often costly both in terms of the time involved in conducting the study and the financial resources required. Additionally, these approaches can suffer from issues such as participant attrition over time and the unpredictability of world events that could impact on a number of variables instead of individual factors.

It is also important to consider the criticisms that have been directed at the use of generational cohorts in research. For instance, it should not be assumed that all members of a particular generational cohort will experience the same major sociocultural or socioeconomic events or navigate these events in the same way (Macky et al., 2008). This is a particularly

salient point concerning the present study, given that the majority of the literature in this area focuses on the formative experiences of North American birth cohorts (which may or may not apply to Aotearoa New Zealand and Australian cohorts). As Cogin (2012) observes, some critics also assert that observed differences between generations can be explained by life stage development. That is, this stance highlights the impact of age effects and emphasises the difficulty in isolating these from cohort effects.

While recognising the limitations and shortcomings of generational cohorts, the present study aims to use these descriptors to supplement our understanding of the results. In doing so, this study will consider two important markers concerning an individual's age: their current place in the human lifecycle, and their membership in a cohort of others born during the same period of time. By holding both age and cohort in mind, we will be able to acknowledge both developmental and generational models. Each of the four cohorts of interest to the present study will now be described and defined in terms of the major influences that took place during their formative years.

1.3.1 Generational Cohorts of Interest

Generation Z. Born between 1997 and 2012, Generation Z is the youngest cohort of interest included in the present study. At the time of data collection, those within this group were aged between 9 and 24, with the oldest members of this cohort representing contemporary society's youngest adults. Since children, adolescents, and young adults are all included within this cohort at present, our understanding of the characteristics and traits of this group is ongoing and evolving. As such, the present study is particularly interested in exploring how this group may exhibit different attitudes and behaviours concerning mental health and distress compared to previous generations.

Grubb (2017) notes that "technology is the hallmark of this group" (p. 20). While technological advances influence all generations, the exponential rate of technological

progress since the turn of the millennium has played a particularly central role in shaping the lives of Generation Z. Whereas previous generations have adapted to the introduction of smartphones and social media, these were already well-established by the time that even the oldest members of this cohort entered their formative years. It is also salient to recognise how behavioural phenomena such as excessive time spent on devices and cyberbullying may harm the mental health of adolescents (Nixon, 2014; Santos et al., 2023), and how Generation Z are the first cohort to experience these from such a young age. The implications of growing up amidst an "always on" technological environment with constant connectivity, entertainment on-demand, and social comparisons to peers via social media are yet to be fully understood.

Aside from influential technological advances, this cohort has also been shaped by economic uncertainty. The Great Recession of 2007-2008 impacted not only the socioeconomic status of the households within which this generation was raised, but growing up amidst a recession may have further shaped their general financial outlook.

Millennials. The Millennial cohort comprises those born between 1981 and 1996, who are aged between 25 and 40 at the time of data collection for this study. As such, this group are currently in a phase of life often characterised by key life events such as marriage, parenthood, and developing a career.

While Millennials did not receive the same levels of exposure to connectivity and social media as their successors during their upbringing, this cohort has still been labelled as 'digital natives' for whom the internet and personal computers played a central role during childhood. Ng and McGinnis Johnson (2015) note that Millennials have been impacted by trends that affected their Baby Boomer parents, including an increase in rates of divorce and the greater participation of women in the workforce. Baby Boomers as a cohort were more prosperous than their own parents (Osberg, 2003), which has led some to suggest that Millennials are spoiled and have developed a sense of entitlement (Howe and Strauss, 2000).

Notable events and trends that have impacted this cohort include financial uncertainty and global conflict. Regarding financial events, Millennials had already endured two financial recessions before the oldest members of this group had turned 40. Possibly influenced by the impact of their economic circumstances, Millennials are more likely to delay certain milestones compared to previous generations (e.g., marriage, parenthood, home ownership). For instance, the median age of marriage or civil union in Aotearoa New Zealand in 1970 was 23.6 and 21.3 for men and women respectively; 50 years later in 2020, those numbers had risen by nearly a decade each to 32.4 and 30.8 (Stats NZ, 2021). Debevec et al. (2013) also highlight significant global events that took place during this generation's formative years, including the terrorist attack of September 11th, the subsequent "War on Terrorism" and global tightening of security measures that followed, swine flu, the bursting of the dot-com bubble, increasing awareness of global warming, and the introduction of social media.

Generation X. Preceding the Millennial generation, Generation X refers to the cohort born between 1965 and 1980. Originally labelled the 'post-Baby Boom' generation' or the 'Baby Bust' generation, this particular cohort was characterised early on by its small size relative to the preceding generation of Baby Boomers (Tolbize, 2008).

Generation X is commonly known as the 'Latchkey Generation' who grew up amidst a time that Leidl (2013) characterises as the death of the family. Much more so than the generations that came before it, the cultural landscape during the upbringing of Generation X was marked by rising rates of divorce, dual-income or single-parent households, and an increasing emphasis on individuality (Tolbize, 2008). As a result, this Latchkey Generation learned to be self-sufficient, independent, and to fend for themselves from an early age (Grubb, 2017).

Landmark events that unfolded as Generation X grew up included global energy crises (e.g., the OPEC oil embargo of 1973) and environmental disasters (e.g., the Chernobyl disaster of 1986), acts of terrorism (e.g., the sinking of the Rainbow Warrior in 1985), constitutional changes (e.g., the signing of the Australia Act in 1986), and Aotearoa New Zealand's decision to go nuclear-free in 1987. Often characterised as the forgotten 'sandwich generation' between the larger Baby Boomer and Millennial cohorts, Katz (2017) highlights the complex dichotomies of this particular group by observing how Generation X has "bridged pre-digital digital cultures, liberal and neo-conservative political swings, material abundance and economic hardship, social engagement and cynical withdrawal, and class-based and non–class-based radicalism" (p. 16).

Baby Boomers. The Baby Boomer generation refers to those who were born between 1946 and 1964, with the oldest who fall within this cohort born in the years immediately following the Second World War. The name of this group derives from the sheer magnitude of its population size in comparison to cohorts that came before and after it (Katz, 2017). Baby Boomers from most Western countries have been described as a 'post-scarcity generation' (Inglehart, 1997). Unlike their predecessors, they did not face the same threats around unemployment and economic hardship and enjoyed a period characterised by prosperity and consumerism (Katz, 2017). Accordingly, Roberts (2012) observes how Baby Boomers have been described as "a lucky and privileged cohort" (p. 483) who were "the beneficiaries, but not the creators of the post-war social democracies" (p. 483). They have typically seen their standard of living improve throughout their adult lives and, at the present time of writing, are retiring with more wealth than any past generation and with pensions that may well exceed those of their successors (Roberts, 2012).

Several significant events and movements played important roles in shaping the values and outlooks of the Baby Boomer generation. This cohort came of age during a time

of heightened international tension. Indeed, the growing concern in the Western world about the spread of communism and increasing US-Soviet tension led to significant events such as the construction of the Berlin Wall in 1961, the Cuban Missile Crisis of 1962, and the Vietnam War (Grubb, 2017). Global conflict aside, several significant social movements also impacted the Baby Boomer cohort. The sexual revolution coincided with the end of this cohort's birth years, while the civil rights movement led to a fundamental shift in the way people related to one another (Grubb, 2017). The hippie movement of the late 1960s was another social phenomenon of significance that greatly impacted music, art, fashion, and youth culture (Levin & Spates, 1970). The late 1960s also saw the rise of the gay liberation movement, catapulted by the Stonewall riots of 1969 (Ashley, 2015). Overall, these significant social movements likely had a notable impact on shaping the views and values of Baby Boomers.

Regarding technology, the inclusion of the television and the telephone in the typical family household were significant influences on Baby Boomers (Venter, 2017). This cohort has also borne witness to the increasing accessibility of overseas travel and the introduction of the Internet. Contrasting the 'digital natives' label applied to more recent generations, Baby Boomers have been described as 'digital immigrants' for whom 'digital' represents a second language (Prensky, 2001).

1.3.2 Events Affecting All Cohorts

An example of a global event of unquestionable significance for all generational cohorts is the COVID-19 pandemic. This has yet to be mentioned directly and warrants discussing separately given both its global reach and the effects it has had on people of all ages and stages of life. Since the initial outbreak at the end of 2019, the pandemic has not only resulted in a dramatic loss of millions of lives worldwide, but has also had wide-ranging repercussions across major aspects of society including the economy, education, climate

change, and poverty (Aristovnik et al., 2020; Kupcova et al., 2023; Naseer et al., 2023; Yang et al., 2022). At the individual level, it appears that the pandemic—particularly in its early stages—may have negatively impacted the mental health of various groups (Aymerich et al., 2022; Elharake et al., 2023; Manchia et al., 2022). On the other hand, researchers have also highlighted the considerable resilience of the general population over a relatively short period of time as the pandemic has progressed. Indeed, a recent systematic review and meta-analysis of longitudinal cohort studies found that the increase in mental health symptoms shortly after the initial COVID-19 outbreak largely decreased to pre-pandemic levels by mid-2020 (Robinson et al., 2022). These initial findings notwithstanding, the pandemic will likely be considered one of the most significant and defining global events of the last few decades.

While the pandemic has impacted all cohorts, it can be argued that younger generations will be disproportionately affected for several reasons. Firstly, research indicates that major social events are more impactful when they occur during an individual's early adulthood compared to other life stages (Duncan & Agronick, 1995). In interpreting their results supporting this hypothesis, Duncan and Agronick (1995) suggest this may be due to the interaction between the significant event and a developmental stage that is defined by identity formation. Research indicates that the immediate effects of the pandemic on younger generations may already be apparent. In their systematic review and meta-analysis of longitudinal studies that included children and adolescents, Madigan et al. (2023) found good evidence for an increase in depression symptoms during the pandemic. This study was, however, using data from the first year of the pandemic; as previously noted, there is evidence suggesting that an increase in mental health symptoms may have been a temporary phenomenon (Robinson et al., 2022). Secondly, despite older generations being more at risk in terms of direct health outcomes during the pandemic, younger cohorts were disproportionately more likely to be more severely affected across several important domains.

For instance, given that younger age groups are more likely to be employed in lower wage industries such as hospitality, they were more likely to face unemployment during COVID-19 (Cortes & Forsythe, 2023). Additionally, research has shown that Generation Z and Millennials were more likely to report a greater increase in mental health symptoms and greater relative increases in maladaptive coping (e.g., substance use) during the initial stages of COVID-19 compared to Generation X and Baby Boomers (Grelle et al., 2023). Lastly, younger generations will bear the scars of the event for a longer proportion of their lives compared to older generations.

1.3.3 Changes in the Mental Health of Younger Generations Over Time

The significant impacts of COVID-19 on the mental health of younger age groups notwithstanding, research suggests that the mental health of younger generations has been steadily declining since the mid-2000s. One study found an increase in the 12-month prevalence of major depressive episodes from 8.7% in 2005 to 11.3% in 2014 among US adolescents and from 8.8% to 9.6% in young adults (Mojtabai et al., 2016). Another study found that the annual percentage of emergency encounters for suicidal ideation and suicide attempts at US children's hospitals between 2008 and 2015 almost doubled from 0.66% to 1.82% (Plemmons et al., 2018). A widescale study of US adolescents and adults by Twenge et al. (2019) used nationally representative data from 2005 to 2017 to assess age, period, and cohort trends in mood disorders and suicide-related outcomes. From the linear modelling analyses separating these effects, the authors concluded that the increases observed for Millennials and Generation Z in these variables are primarily due to cohort effects as opposed to simply an age effect. However, the specific causal influences and their respective magnitudes remain unclear and will be the work of future research to investigate. This point notwithstanding, it seems plausible that the influence of the COVID-19 pandemic may have

contributed to the existing trend of an overall decline in the mental health of younger generations.

1.4 Concept Creep

Given that research has found age differences in mental health literacy (Farrer et al., 2008), it is useful to consider what could be influencing this phenomenon. One possible influence is a relatively new term that is related to both generational differences and mental health: 'concept creep.' Introduced by Nick Haslam in 2016, this term represents the idea that the meaning behind concepts referring to particular aspects of the human experience has been expanded to encapsulate a far broader range of phenomena over time (Haslam, 2016). In a seminal article in this area, Haslam (2016) explores how the concepts of abuse, trauma, mental disorder, bullying, prejudice, and addiction have all had their boundaries stretched in different ways. Concerning mental disorders, Haslam (2016) points not only to the expanding register of new forms of mental disorder present in later editions of the *DSM* (i.e., 'horizontal creep') but also to the loosening of diagnostic thresholds for existing mental disorders (i.e., 'vertical creep'). With this in mind, Haslam (2016) argues that this reflects an increased sensitivity to harm and, as a result, an undesirable outcome of this trend may be that normal human experience becomes pathologised.

The recent coining of the term 'concept creep' sits neatly alongside an essay written by Lukianoff and Haidt (2015). In this piece, the authors observe a recent movement among tertiary institutions in America that prioritises emotional wellbeing, aims to protect students from any possible psychological harm, and, in doing so, "presumes an extraordinary fragility of the collegiate psyche" (Lukianoff & Haidt, 2015). The authors argue that the increasing usage of terms such as 'trigger warnings' (i.e., alerts that academics are expected to raise in cases where course material may potentially elicit a strong emotional response) and 'safe spaces' (i.e., spaces designed for marginalised individuals to convene to be shielded from

potential harm) on university campuses reflect this growing movement. Lukianoff and Haidt (2015) draw on several examples in this essay, including law professors who face difficulties in teaching rape law, with some students imploring professors to avoid teaching this component of the course entirely to protect both themselves and their classmates from potential harm. The authors contend that this movement contrasts several basic tenets of psychology, highlighting how cognitive behavioural therapy and exposure therapy assert that the complete avoidance of feared stimuli is misguided and potentially damaging to young people (Lukianoff & Haidt, 2015).

In considering how we have arrived at this juncture, Lukianoff and Haidt (2015) suggest that this movement may have been influenced by generational shifts in the way children are raised. The Baby Boomer and Generation X cohorts are perceived as having had "free-range" childhoods that included unsupervised time at a young age, the need to occupy themselves, and opportunities to learn from the experiences of 'minor scrapes'. This is contrasted against the childhoods of Millennials and Generation Z, whose parents—in response to surges in reported crime in the news between the 1960s to the 1990s—became increasingly protective of their children. This movement further extended to schools with the introduction of initiatives such as "zero tolerance" policies for bullying. Lukianoff and Haidt (2015) argue that this generational shift in approach conveyed a clear message to children that life is dangerous, but your parents will do their best to protect you from harm. While hesitant to attribute causality, the authors speculate as to whether this may assist us in understanding the rising rates of mental distress in young adults in recent decades. Overall, the assertions made by both Haslam (2016) and Lukianoff and Haidt (2015) appear to imply a certain fragility and greater sensitivity to harm among our younger generations of adults (i.e., Millennials and Generation Z) compared to their older predecessors.

Research in the area of concept creep is ongoing with studies seeking to investigate whether the claims made by these authors can be corroborated. In one such study, Haslam (2016) used the Google Books corpus to observe trends in how the usage of certain words has changed between 1960 and 2005. The author found that the terms “abuse”, “bullying”, “trauma”, “addiction”, and “racism” had all increased in their relative frequency of mentions across the millions of books in the corpus, with especially sharp increases in the 1980s and 1990s. Haslam (2016) contends that if the salience of these concepts can drive the broadening of concept meanings, these trends could plausibly support the existence of the concept creep mechanism. In a similar study using the Google Books corpus, Wheeler et al. (2019) found that the frequency of words related to harm-based morality (i.e., focusing on suffering and care) increased sharply at the end of the 20th century. The authors argue that this non-linear trend of the growing salience of harm-based morality supports Haslam's (2016) observation of a broadening of harm-related concepts in response to rising sensitivity.

Of relevance to the present study, researchers in this area have suggested there is evidence of concept creep within the field of mental health. For instance, a recent study by Baes et al. (2023) found that the use of the word “trauma” between 1970 to 2017 has increasingly been used in less severe contexts. Another study examined two corpora from a similar period and assessed whether words that collocate with mental health-related terms (e.g., stress, worry, anger, grief) have become less emotionally intense (Baes, Haslam, et al., 2023). The results supported this hypothesis, and it was also found that these words have increasingly co-occurred with pathology-related terms over time. The authors contend that this supports the concept creep hypothesis in mental health; that is, that these terms—which are not mental illnesses but rather reflect common emotional or behavioural states—have broadened and are used in both less emotionally intense contexts (i.e., normalisation) and more pathology-related contexts (i.e., pathologisation). The authors further suggest that this

tendency to view uncomfortable emotional experiences through a pathological lens may lead to inappropriate self-diagnosis and treatment-seeking (Baes, Haslam, et al., 2023).

From the semantic changes over time observed in the emerging research cited above, it may seem reasonable to assume that younger generations are more likely to adopt more expansive definitions of harm-related concepts. However, a recent study by McGrath et al. (2019) produced some unexpected findings. The study presented participants with a series of vignettes describing situations that were marginal or ambiguous examples of a particular harm-related concept (e.g., trauma, bullying, etc.), then asked participants to evaluate whether the vignette was an example of the concept in question. Against expectations, the authors did not observe a strong association between youth and concept breadth. The authors suggest that perhaps the expansion of harm-related concepts may be updated continuously throughout the lifespan, regardless of initial exposure during an individual's formative years (McGrath et al., 2019). The study also found a strong association between empathetic concern and concept breadth, with the authors arguing that holding broad concepts of harm may then be associated with desirable and prosocial traits (McGrath et al., 2019). This contrasts with much of the tone within this area of research, which tends to hold a critical view towards the apparent fragility and sensitivity of younger cohorts. These findings demonstrate that much is still unknown in this area and that there is room for nuanced discussion and exploration of generational differences in perceptions of distress.

Consideration of this recent theoretical body raises interesting questions concerning mental health literacy. Has the apparent 'concept creep' of the diagnostic criteria of mental disorders coupled with claims of an expanding sensitivity to harm impacted the way our youngest adults in society perceive signs of mental distress? Is this a movement reflected across the wider generational cohorts of Generation Z and Millennials, or has this association been largely exaggerated? The present study looks to investigate these questions.

1.5 Gender and Masculinity in Aotearoa New Zealand and Australia

The previous sections have considered the context within which age differences in mental health literacy have arisen. The section that follows will shift in focus to the area of gender and masculinity to provide an understanding of how differences in mental health literacy between men and women may have emerged. Given the population of interest for the present study, this section places a particular focus on the Aotearoa New Zealand and Australian context.

1.5.1 Gender and Mental Health

Men face multiple concerns regarding their general health, with women demonstrating higher rates of average life expectancy than men in nearly every country (World Health Organization, n.d.-b). This disparity remains consistent regardless of race, ethnicity, and geography (Pinkhasov et al., 2010). Of the top twenty leading causes of death with the largest contribution to gender differences in life expectancy, women are more negatively affected by only four: breast cancer, maternal conditions, cervix uteri cancer, and Alzheimer's disease (World Health Organization, 2019). While a range of cultural, biological, and social influences all contribute to this disparity (Lemaire, 2002; Rogers et al., 2010), one factor relevant to the present discussion is the difference in help-seeking behaviours and attitudes towards professional help between men and women (Galdas et al., 2005). A large body of research has indicated that men are less likely to use healthcare services and seek help from medical specialists compared to women (Bertakis et al., 2000; Cleary et al., 1982; Nabalamba & Millar, 2007; Pinkhasov et al., 2010), with further research demonstrating how this phenomenon is consistent across different ages, nationalities, and races (D'Arcy & Schmitz, 1979; Husaini et al., 1994; Neighbors & Howard, 1987).

This disparity is also apparent within the area of mental health, with research finding that men seek psychological help less often than women (Addis & Mahalik, 2003). Addis and

Mahalik (2003) observe that when the separate stages of the help-seeking process are examined, women display a greater capacity to recognise and label distressing feelings as emotional problems. Similarly, Corney (1990) found that while the presence of physical symptoms was predictive of help-seeking among both men and women, the presence of psychosocial problems was predictive of consultation in women but not men. Overall, we can see that a difference exists between men and women not just concerning their physical health, but also regarding their capacity to recognise mental distress and, subsequently, their likelihood of seeking psychological help.

It has been suggested that this disparity we typically see between men and women regarding seeking appropriate support is influenced by gender role socialisation and particular constructions of masculinity (Courtenay, 2000). Gender role socialisation theories assert that men and women acquire gendered beliefs about help-seeking from their surrounding culture (Möller-Leimkühler, 2002). Levant and Richmond (2008) note that while masculine ideologies are diverse and differ between cultures, there is a common constellation of norms and expectations traditionally associated with what it means to be "a man" in Western society. Commonly labelled as "hegemonic masculinity", David and Brannon (1976) identified four norms that are typically associated with this concept: "no sissy stuff" (that men should avoid feminine things); "the big wheel" (that men should strive for success and achievement); "the sturdy oak" (that men should not show weakness); and "give 'em hell" (that men should seek adventure, even if violence is necessary). Regarding the "sturdy oak" norm in particular, boys have often been taught from a young age to handle difficulties on their own and ignore symptoms (epitomised by the phrase "boys don't cry") (Möller-Leimkühler, 2002).

It has been suggested that men who are raised amidst such norms and expectations may develop a particular set of beliefs around professional care and a reluctance to seek help

(Mahalik & Di Bianca, 2021; Piatkowski et al., 2024; Seidler et al., 2016). Research supports this assertion, with findings indicating that conformity to traditional masculine norms such as dominance, status, and self-reliance may discourage preventative self-care and the appropriate use of healthcare resources (Levant et al., 2011). McCusker and Galupo (2011) found that participants were significantly more likely to rate a fictional heterosexual male protagonist in a vignette as 'feminine' if he sought psychological help for depression compared to a version of the vignette where he does not seek help. Interestingly, 72.5% of the participants in this study were women, demonstrating how the "sturdy oak" mentality appears to hold regardless of gender. As Jeffries and Grogan (2012) observe, health research in this area has "indicated that men often subscribe to dominant hegemonic masculine ideals of toughness, robustness and stoicism. Men thus avoid healthcare services in order to demonstrate hegemonic masculine ideals" (p. 899).

1.5.2 Historic Perceptions of Traditional Masculinity in Aotearoa New Zealand and Australia

Concerning the status of men's mental health in Aotearoa New Zealand and Australia, it is useful to consider each country's traditional stereotypes around masculinity before proceeding to explore how such ideas may have been challenged in recent years. Drawing upon the nation's agricultural heritage, the archetype of the rugged, tough, and laconic "Southern Man" of Aotearoa New Zealand has historically been weaved into the country's conceptions around masculinity across generations (Law, 1997; Phillips, 1987). Further reference to the country's pioneering heritage is fused with traditional conceptions of masculine self-reliance through the nation's "number 8 wire" mentality. This iconic phrase refers to how New Zealand farmers in the nineteenth and early twentieth centuries used the ubiquitous "number 8" fencing wire to inventively solve a range of problems unrelated to fencing, which has since become a symbol of the resourcefulness of New Zealanders

(Mackay & Perkins, 2017). Traditional markers of masculinity in New Zealand have also typically included the excessive consumption of alcohol (Willott & Lyons, 2012) and the demonstration of physical prowess through participation in the national sport of rugby (Pringle, 2008).

Given its geographical proximity and colonial history, it is perhaps unsurprising that strong similarities can be drawn between the "Southern Man" of Aotearoa New Zealand and traditionally constructed notions of Australian masculinity. As Murrie (1998) observes, the Australian male ideal is "practical rather than theoretical, he values physical prowess rather than intellectual capabilities…he is common and earthy, so he is intolerant of affectation and cultural pretensions; he is no wowser, uninhibited in the pleasures of drinking, swearing and gambling" (p.68). Comparable to the agricultural heritage of the "Southern Man", the origins of this construction of masculinity can be traced back to a necessary adaptability to the harsh and unforgiving geographical landscape of Australia (Waling, 2019). Differences between the two nations across these traditional conceptions of masculinity do exist; for instance, greater focus is placed on the 'larrikin' character of the Australian male: humorous, mischievous, and with an eye for pulling pranks (Waling, 2019). However, the similarities largely outweigh the differences and clear parallels can be drawn between these two Antipodean constructions of masculinity.

This script of masculinity with its accompanying set of norms and expectations can be seen across decades of popular culture and mass media depictions of men in both countries. Speight's, a local New Zealand beer brewery, provides an apt example of this. The company has built its brand on a campaign based on the trope of the "Southern Man" since the 1980s, which included a series of prominent television advertisements in a rural setting featuring two Pākehā men dressed in attire suitable for outdoor, physical work. The dialogue between the two protagonists showcased humour based on various themes related to this particular

construction of Pākehā masculinity: the importance of male friendship, heterosexuality, hard and physical work, the consumption of alcohol, a rejection of 'yuppie' urban in favour of rural settings, and the prioritisation of male bonds over romantic relationships. In their analysis of this branding exercise, Jackson et al. (2009) describe the campaign as a "seemingly unapologetic celebration of its interpretative representation of what it means to be a real man" (p. 182). Similarities can be drawn here to depictions of masculinity in Australian popular culture. The 1980s saw films such as Crocodile Dundee and The Man From Snowy River reflect characteristics of the quintessential "Australian Man": physical prowess, adaptability to the harsh Australian landscape, and a "backlash against consumerist ideals of yuppiedom" (Waling, 2019, p.57). More recently, internationally recognised shows such as Bondi Rescue serve to maintain and reinforce a particular global image and idea of Australian masculinity.

Sport is another site through which masculinity has historically been constructed and consolidated across both countries. In Aotearoa New Zealand, the country's national rugby team—The All Blacks—are revered by the public and the media alike. In their analysis of the press narratives during the English Lions' tour of New Zealand in 2005, Falcous and West (2009) observe how local media were prone to the "romantic idealisation of rural masculinity" (p. 164). The authors note how former players such as Colin Meads who embodied the rural hyper-masculine Pākehā stereotype of masculinity were lionised, while a nostalgic yearning for a bygone era of New Zealand "when men were men" was also romanticised by the media. In Australia, too, sporting culture is imbued with constructions of traditional masculinity. Sports such as Australian Rules Football (AFL), rugby league, and cricket are considered national pastimes that epitomise the outdoor Australian lifestyle. Burgess et al. (2003) observe that for an overtly physical sport such as AFL, there exists a

"seductive resonance in the narrative that violence and toughness in sport is indicative of a natural predisposition in 'real' males" (p. 210).

Overall, it is possible to suggest that these traditional stereotypes around what it means to be a man—strong, physical, self-reliant—may have marginalised generations of Kiwi and Australian men who were raised among such expectations and experienced mental distress and emotional hardship. While the general differences in help-seeking we typically see between men and women have already been highlighted, it is also important to consider the association between conformity to masculine norms and important attitudinal and behavioural components of mental health literacy. Compared to women, men have been found to demonstrate less favourable attitudes towards help-seeking and a stronger attitudinal alignment towards traditional male norms (Yousaf et al., 2014). Furthermore, men who conform more strongly to traditional masculine norms compared to other men have been shown to exhibit attitudes that are less positive towards help-seeking and to be less willing to seek help (Seidler et al., 2016), while also demonstrating lower levels of health literacy (Milner et al., 2019).

1.5.3 Changing Perceptions of Masculinity in Aotearoa New Zealand and Australia

These norms and expectations associated with the traditional constructions of masculinity in Aotearoa New Zealand and Australia have, however, evolved considerably over time. Keppel (2014) observes how a repackaged ideal of Kiwi masculinity is emerging where the 'new man' is "gentle, caring and self-confident in his masculinity as he embraces new emerging gender performances" (p. 373). This changing landscape is also reflected in the statements of public figures and the recent emergence of organisations that encourage men to express their emotions and seek help when experiencing mental distress. In Aotearoa New Zealand, perhaps the most prominent public figure in this space has been Sir John Kirwan. Kirwan—a former All Black who is held in high regard within the traditionally

masculine rugby world—released a book titled "All Blacks Don't Cry" in 2010 that documents his battle with depression. Recent years have also seen the emergence of numerous organisations and campaigns promoting awareness of men's mental health in both Aotearoa New Zealand and Australia, such as the Movember Foundation. Well-known for its annual moustache growing event in November to promote awareness of men's mental health and suicide prevention, the international organisation also collaborates with local initiatives designed to address the state of men's mental health in both countries. In Australia, a national media campaign called "Boys Do Cry" was launched in 2021, showcasing a video encouraging men to seek help and speak about mental health difficulties. The video, based on The Cure song "Boys Don't Cry", was retweeted by the band's frontman Robert Smith. While the impact of the media and celebrity self-disclosure has been heralded as a potentially powerful mechanism to increase awareness of mental health difficulties and reduce stigma (Calhoun & Gold, 2020), Gronholm and Thornicroft (2022) acknowledge that future research is required to accurately understand the impact and nature of celebrity disclosure on mental health knowledge, attitudes and behaviours. For instance, it is unclear whether there exists a 'Kylie effect'[1] of significantly more Kiwi men seeking mental health support due to John Kirwan's book or not.

Together, the emergence of such public figures, national campaigns, and the advocacy of international organisations reflect a growing concern for the state of men's mental health in both Aotearoa New Zealand and Australia. Instead of reinforcing hegemonic masculinity norms that may discourage men from appropriately seeking help for psychological distress and the healthy expression of emotion, this movement is inclusive of men's experiences with mental ill-health. This shift in discourse contrasts and challenges traditional perceptions of

[1] In 2005, Kylie Minogue's breast cancer diagnosis was widely covered by the mainstream Australian news media. Research has shown this led to a 20-fold increase in media coverage of breast cancer and the importance of early detection, while also leading to an increase of 40% of breast cancer screenings across the country in the two weeks after the news on Minogue's diagnosis broke (Chapman et al., 2005).

masculinity and raises the question of whether our latest generation of young men may hold different beliefs regarding the behaviours and attitudes that constitute what it means to be a man.

1.5.4 Alternative Constructions of Masculinity in Aotearoa New Zealand and Australia

While recognising the existence of pervasive stereotypes regarding Kiwi and Australian masculinity and what it means to be "a man," it is important to acknowledge that such perceptions do not define all forms of masculinity across all communities. This is a particularly salient point considering the colonial histories of both nations and the co-existence of a dominant Western culture with indigenous Māori (in Aotearoa New Zealand) and Aboriginal and Torres Strait Islander (in Australia) cultures. For instance, Hokowhitu (2004) observes that the dominant discourse projected by the mainstream media in Aotearoa New Zealand characterises Māori tāne (men) as inherently physical, hypermasculine, and violent. The author contends that this image belies the reality of many tāne who live outside the constrictions of this hypermasculine construction, and argues that the supposedly intrinsic violent nature of Māori men projected by mainstream media "is naturalised and sanctioned within acceptable, colonised roles" (p. 264). Similarly, Paisley (2005) observes how indigenous Australian men were characterised as savages by early European settlers. The author posits that this representation was perhaps more palatable to evidence that indigenous men were motivated to take revenge on white settlers who had sexually assaulted indigenous women. Moreover, the dominant Western representations of indigenous masculinity in Aotearoa New Zealand and Australia ignore and dismiss pre-colonial constructions of masculinity within Māori and Aboriginal and Torres Strait Islander cultures. For instance, Kerekere (2021) asserts that European colonisers were surprised that open sexuality was enjoyed by both Māori men and women and that those who engaged in same-sex practices or those who were perceived as gender non-conforming were not punished. Taken as a whole, it

is clear that the dominant Western construction of masculinity is not an accurate representation of either pre-colonial or modern indigenous cultures in Aotearoa New Zealand and Australia.

Similarly, dominant representations of Kiwi and Australian masculinity are not reflective of how masculinity is constructed and practiced in rainbow communities. As Anzani et al. (2023) posit, both literature and the wider media have traditionally defined masculinity in contrast to femininity in a direct manner. Recently, however, this binary perspective has been challenged alongside a consideration of the possible overlap and fluidity between social categories such as gender. A recent study investigating how gay and queer men in Aotearoa New Zealand contest and move beyond heteronormativity supports this notion. In exploring how participants construct a sense of homomasculinity (i.e., *not* traditional heterosexual masculinity characterised by toughness, aggression, independence and dominance), Kaulback and Maydell (2023) found that while this construct played a significant role in their lives and identity, there was a diverse and subjective range of interpretations as to what it meant. The authors argue this bolsters the notion that there is no original gender, nor an authentic way that gender is 'performed'.

The points raised above confirm the importance of recognising the plurality of different constructions of masculinity in Aotearoa New Zealand and Australia and the way these contrast against the dominant representation of the construct. The typical "Kiwi bloke" and "Aussie bloke" masculinities have primarily been conceived through the dominant cultural lens of Western, heterosexual, and cisgender values, with Rushton et al. (2021) observing that this represents "a privileged form of masculinity that excludes Māori and other masculine identities while objectifying women and demeaning gay men" (p. 5). The focus of the present study on exploring adherence to traditionally defined masculinity is not intended to undermine the experiences of indigenous and rainbow groups within these nations,

particularly considering research identifying poor mental health outcomes for these communities (Dudgeon et al., 2014; Plöderl & Tremblay, 2015; He Ara Oranga, 2018; Smith et al., 2014; Tan et al., 2019). However, these traditional constructions of masculinity continue to permeate the social fabric of both nations and, whilst many do not ascribe to these ideals, they continue to prescribe and proscribe particular attitudes and behaviours to men and boys in both nations. As such, the present study seeks to understand whether attachment to traditional norms of masculinity may mediate the relationship between gender and attitudes towards mental health.

2. The Present Study

2.1 Aims and Rationale for the Present Study

Existing research has indicated that there are both gender and age gaps in levels of mental health literacy, with men and older adults typically exhibiting lower levels on this measure (Cotton et al., 2006; Farrer et al., 2008). However, there is a lack of research investigating what may underlie these differences. This gap is important to address. If certain groups are less capable of accurately evaluating when mental distress warrants support, they may be less likely to seek or recommend help when it would be appropriate to do so. Investigating the nature of these differences and exploring why they exist is important and may provide us with an enhanced understanding of certain vulnerabilities concerning these groups. For instance, lower levels of mental health literacy among men may plausibly be contributing to the significantly higher rate of suicide among men compared with women.

The present study seeks to address this gap in several ways. The study will initially explore whether previously established patterns in performance on measures of mental health literacy across gender and generation hold in an Australasian context. The study will also test for measurement invariance to investigate whether any observed differences may be influenced by varying measurement properties across groups. Additionally, the study will explore how variables such as restrictive emotionality and perceived exposure to mental health messaging may be associated with the knowledge and attitudinal components that comprise mental health literacy. By estimating the relationships between these variables, this study seeks to enhance our understanding of why we typically observe lower mental health literacy among men and older generations. This study looks to further enhance our understanding of this area by exploring how greater mental health knowledge and attitudes may predict the correct detection and rejection of the signs of mental distress presented in vignette case studies.

Additionally, the present study seeks to add to the burgeoning body of research on 'concept creep,' which refers to the broadening of aspects of the human experience to include a wider range of phenomena over time. Contributors to this area of research have suggested that there is evidence of this occurring within the field of mental health alongside implications that younger generations may be more likely to use more expansive definitions of mental health terminology. With this in mind, the present study will investigate whether younger generations are more likely to perceive the presence of a mental health disorder when faced with a vignette scenario that depicts a normal emotional response to a difficult situation.

Lastly, the present study aims to contribute to the body of local research in this area. While considerable research regarding mental health literacy exists within an Australian context (Jorm, 2015; Jorm et al., 2006), the same cannot be said of Aotearoa New Zealand. These two Antipodean nations represent appropriate settings to conduct research investigating potential influences on gender differences in mental health literacy. Firstly, the archetypal constructions of the 'Kiwi bloke' and 'Aussie bloke' exhibit similar idiosyncratic characteristics that are aligned with the dominant concept of masculinity, emphasising qualities such as toughness, practical prowess, and prizing physical over intellectual capabilities. Coupled with the potential link between conformity to the traditional masculinity norm of restrictive emotionality and mental health attitudes, local research is important. Secondly, both Aotearoa New Zealand and Australia exhibit unacceptably high rates of youth suicide compared to other OECD countries. Through local research, the present study aims to enhance our understanding of this vulnerable group.

2.2 Hypotheses and Exploratory Research Questions

The following hypotheses are proposed:

Existing research has indicated that older adults tend to exhibit lower mental health literacy in terms of both its attitudinal and knowledge components (Farrer et al., 2008; Fisher & Goldney, 2003). Therefore, I hypothesise that:

H1: Younger generations will demonstrate higher mental health knowledge than older generations

H2: Younger generations will demonstrate more positive attitudes towards mental health and help-seeking than older generations

Research has consistently found that men demonstrate lower levels of mental health literacy than women (Cotton et al., 2006; Furnham & Swami, 2018; Hadjimina & Furnham, 2017). Therefore, I hypothesise that:

H3: Women will demonstrate higher mental health knowledge than men

H4: Women will demonstrate more positive attitudes towards mental health and help-seeking than men

Several of the assertions made by Lukianoff and Haidt (2015) and Haslam (2016) suggest that younger generations may hold broader concepts of harm compared with older generations. Therefore, I hypothesise that:

H5: Younger generations will be more likely to provide 'false positive' responses to vignette cases (i.e., incorrectly identifying the presence of a mental disorder when presented with a vignette describing normal levels of distress to a difficult situation) than older generations

The concept of restrictive emotionality has demonstrated associations with attitudes towards psychotherapy and help-seeking (Blazina & Watkins Jr, 1996; Tsan et al., 2011), willingness to refer family members and friends who are experiencing mental distress to seek treatment (Vogel et al., 2014), and self-stigma towards seeking help (Pederson & Vogel,

2007). As such, differences in restrictive emotionality may help to partially explain the gender difference typically observed in mental health literacy. Therefore, I hypothesise that:

> **H6:** Restrictive emotionality partially mediates the relationship between gender and attitudes towards mental health and help-seeking (with men having higher scores for restrictive emotionality, and restrictive emotionality being negatively related to attitudes towards mental health and help-seeking)

The MHLS was designed specifically as a measure of mental health literacy (O'Connor & Casey, 2015). One of the core components of mental health literacy is the recognition of mental disorders, which the MHLS measures. It would therefore be reasonable to posit that those with higher scores on the measure will be more likely to correctly identify and reject examples of mental disorders described in the vignettes. This provides an opportunity to evaluate the convergent validity of the MHLS by comparing overall MHLS scores with the commonly used vignette methodology to assess mental health literacy. Therefore, I hypothesise that:

> **H7:** Higher overall MHLS scores will be associated with higher Overall Recognition Accuracy in response to the vignette cases

Research indicates that both a gender gap (Cotton et al., 2006; Fisher & Goldney, 2003; Furnham & Swami, 2018) and a generational gap (Farrer et al., 2008; Fisher & Goldney, 2003) exist concerning levels of mental health literacy. As such, it would be reasonable to assume the gender gap may be more pronounced when measured for older compared to younger generations. Therefore, I hypothesise that:

> **H8:** The gender gap in mental health literacy will be smaller for younger generations

In addition to the hypotheses proposed above, the present study puts forth an exploratory research question:

While studies indicate that older adults exhibit lower levels of mental health literacy, there is a lack of research exploring why this might be the case. The inclusion of an open-ended question regarding perceived changes in exposure to mental health messaging may enhance our understanding of why this disparity exists. Therefore, the following research question is asked:

RQ1: Do Baby Boomers in Aotearoa New Zealand and Australia feel that messaging around mental health (e.g., through public health campaigns, school curriculums, popular culture, etc.) has changed in the past 10-20 years, and in what ways?

3. Methods

3.1 Design

The design of the present study is cross-sectional using an online survey hosted on the Qualtrics platform. Given the focus of the study, it would have ideally been conducted using a time-lag approach where the responses of one generational cohort at a particular age were captured (e.g., Baby-Boomers when they were aged between 20 and 40) and compared against the responses of other generational cohorts when they reach the same age. However, given the financial cost and time involved in this approach, a cross-sectional design has been deemed the most appropriate for this study. While ideally the present study would be equipped to isolate age, period, and cohort effects, it does make a unique contribution to existing research by examining whether previously established differences between generations in mental health literacy could be due to measurement bias.

3.2 Participants

Eligible participants needed to be living in either Aotearoa New Zealand or Australia at the time the data was collected and were required to be fluent English speakers. It was also required that participants were aged 18 and over and were born after 1945. In this way, the four generational cohorts[2] of interest—Generation Z (i.e., those born between 1997 and 2012), Millennials (i.e., those born between 1981 and 1996), Generation X (i.e., those born between 1965 and 1980), and Baby Boomers (i.e., those born between 1946 and 1964)—were all captured in the data. A total of $N = 830$ participants (after exclusions) took part in the present study. A power analysis was initially conducted to determine the sample size required to adequately test the proposed hypotheses. The multigroup confirmatory factor analysis (CFA) was considered the statistical test requiring the largest sample size, but unfortunately

[2] Given that the present study is unable to isolate age, period, and cohort effects, the term 'generational cohorts' is used for convenience. It is not used to suggest that this study is attempting to identify cohort effects.

at the time I was unable to locate a calculator that was capable of providing a power analysis on this particular test. As such, a one-way ANOVA test with four evenly sized groups was deemed the closest alternative considering the conceptual similarities it shares with the multigroup CFA. Therefore, a power analysis was calculated for a one-way ANOVA at 5% significance, a 90% level of power, and a relatively small effect size of Cohen's $f = 0.15$. The required sample size with these parameters is $N = 636$. Given that it was not feasible to conduct a power analysis on a multigroup CFA, the target sample size was increased by 200 to a total of $N = 836$ to account for any uncertainty, providing a total of $n = 209$ for each of the four generational groups. This notably exceeds the general guidelines for a multigroup CFA, which suggests that "a general rule of thumb is 100 participants in each group" (Kyriazos, 2018). While the target sample was not quite reached, the total sample of $N = 830$ was considered an appropriate sample size. Table 3 shows the breakdown of the sample by gender, generational cohort, country, and ethnicity.

Table 3

Sample Demographic Characteristics

Demographic Characteristic	*n*	*%*
Gender		
Men	418	51%
Women	401	48%
Gender Diverse	11	1%
Generational Cohort		
Generation Z	184	22%
Millennial	213	26%
Generation X	191	23%
Baby Boomer	242	29%
Country		
Aotearoa New Zealand	274	33%
Australia	556	67%
Ethnicity		
Australian	378	46%
Pākehā / New Zealand European	219	26%
English	101	12%
Middle Eastern	92	11%
Other European	77	9%
Asian	44	5%
Māori	22	3%
Indian	19	2%
Indigenous Australian or Torres Strait Islander	5	1%
Other	29	3%

Note. Total sample (N = 830)

Participants were recruited through a combination of the Prolific research platform and Facebook advertising. Prolific is an online research platform that allows researchers to reach a diverse range of participants who have registered to take part in online research studies. In a recent study comparing data quality across online research platforms, Prolific was the only platform to produce high quality data when tested both with data quality filters and without data quality filters applied (Peer et al., 2022). This builds on previous research in this field that found Prolific to produce higher data quality than CrowdFlower and provided a base of participants that was both more diverse and who were less likely to provide dishonest

responses than that of MTurk[3] (Peer et al., 2017). With this in mind, the Prolific platform was deemed to be an appropriate source to recruit the majority of the participants for the present study. At the time of data collection, an insufficient number of Baby Boomer participants residing in Australia and Aotearoa New Zealand were registered with Prolific (i.e., below n = 100 in total across both men and women). As such, Facebook advertising was used to recruit participants from this age cohort for the present study (see advertisements in Appendix E). In total, n = 588 participants were recruited through Prolific and n = 241 participants were recruited through Facebook. To recruit the cohorts of interest to the present study, three separate studies were launched through Prolific: one recruiting Generation Z participants, one recruiting Millennial participants, and one recruiting Generation X participants (see study description provided to participants in Appendix D). Across all three of these studies, an even gender split was specified, and eligible participation was limited to those living in either Aotearoa New Zealand or Australia.

To encourage participation for those recruited through Prolific, participants were offered a financial incentive to take part in the study. To assist researchers in deciding on an incentive amount that is affordable yet a fair reward for the time of participants, Prolific offers a sliding scale tool on its website that evaluates the estimated hourly rate payment being offered by a study. The present study used Prolific's recommended "good" hourly rate at the time of data collection, which was £7.52 per hour (or $14.68 NZD). Informal pilot testing was conducted by several individuals within the researcher's social network, with survey responses taking between 10 to 15 minutes to complete. With this in mind, a conservative estimated survey completion time of 15 minutes was considered appropriate. For a 15-minute survey using Prolific's recommended rate, this equated to an estimated cost

[3] Crowdsourcing is the practice of obtaining services or contributions from a large group of people, often drawing on the online community to do so. Cloudflower and MTurk and two popular crowdsourcing platforms that organisations, researchers, and individuals can use for this purpose.

of $3.67 per participant recruited through Prolific (exclusive of Prolific's 33.33% service fee). Median completion times across the three cohort groups, however, were notably lower than the conservative original estimate of 15 minutes (8:31 minutes, 9:17 minutes, and 10:33 minutes for Generation Z, Millennials, and Generation X respectively). As a result, participants within each group were ultimately paid a higher hourly rate than was advertised; Generation Z, Millennials, and Generation X were reimbursed at £13.32 per hour, £12.22 per hour, and £10.75 per hour respectively).

To encourage participation for those recruited through Facebook, respondents were offered a $5 GiftPay voucher ($5 NZD for Aotearoa New Zealand participants; $5 AUD for Australian participants). Four separate advertisements were created: one aimed at Aotearoa New Zealand men born between 1946 and 1964; one aimed at Aotearoa New Zealand women born between 1946 and 1964; one aimed at Australian men born between 1946 and 1964; and one aimed at Australian women born between 1946 and 1964. Facebook's Ad Manager tool was used to apply the appropriate specifications to ensure the advertisements were displayed to the correct demographic and to manage the quotas. An initial amount of $5 per advertisement ($20 in total) was considered an appropriate daily limit, with the scope to increase or decrease this value depending on the response rate. Given the fast response rate, the $5 daily limit was used until the respective gender quota had been reached. A total of $86.56 NZD was spent on Facebook advertising during the fieldwork period.

Data collection commenced on May 27th 2022 and closed on June 28th 2022. In accordance with the preregistration document submitted to the Center for Open Science (https://osf.io/vequ6), the stopping rule stated that the advertisement would be left "running until either 200 submissions with completion codes are received for each age group or 30 days pass (whichever comes sooner)". In total, n = 184 Generation Z participants, n = 213 Millennial participants, and n = 191 Generation X participants were recruited across the three

Prolific studies. While it was the most precise tool available, a flaw in the sampling approach led to the distribution of responses across the three generational cohorts being less even than intended. Participants were recruited for each of the three separate studies based on their age as recorded in their Prolific profile, while responses for the data analysis were classified by the participant's year of birth as recorded in the survey itself. However, this led to instances where participants who were on the borderline of two generational cohorts were classified into a different generational cohort than the cohort for which they were originally recruited Therefore, while the quota for $n = 200$ Generation Z participants was reached for the Prolific study, some of those who were recruited for this study were later categorised as Millennials due to their year of birth.

The Facebook advertisements were published on May 28th 2022 and ran until June 2nd 2022. Partway through the data collection period for the Facebook sample, it became apparent when monitoring the data that numerous responses were likely bots (or possibly low-effort responses from humans) instead of legitimate participants. The vast majority of these bot responses would complete the demographic questions adhering to the eligibility criteria outlined in the Facebook advertisement (i.e., those who were born between 1946 and 1964 and living in Aotearoa New Zealand or Australia), but would then leave the remaining questions of the survey blank (thus failing to meet the criteria to be included in the study). Quotas were initially set in Qualtrics before launching the survey to avoid oversampling and to ensure an equal gender split of $n = 100$ Baby Boomer men and $n = 100$ Baby Boomer women. The presence of bot responses caused difficulties in this respect, as the pre-determined quotas were being met by illegitimate responses. Once these bot responses were detected, the decision was made to temporarily pause the Facebook advertisements and create a duplicate version of the Qualtrics survey. The link to this new version of the survey was subsequently attached to the advertisements, which were then republished. This approach was

successful, indicating that the initial link to the survey had become compromised. However, the legitimate responses from the first survey launch were still included in the study. The sample for women reached the n = 100 quota by May 31st 2022, while the sample for men reached the n = 100 quota by June 2nd 2022. Given the infiltration of illegitimate responses and the anticipation that many responses would need to be excluded from the data analysis, a conservative over-sampling approach was taken. Across the two versions of the Facebook survey, a total of n = 453 responses were collected. Of these responses, only n = 241 responses were included in the data analysis, with the remaining responses meeting the exclusion criteria (further details about the exclusions made can be found in section 3.8.1).

3.3 Procedure

Participants were initially shown an information sheet providing details about the study itself, potential risks involved, data management, and participant rights (see information sheets provided for Prolific and Facebook participants in Appendix B and Appendix C respectively). After providing informed consent to commence the survey, participants completed several demographic questions before responding to a series of questions relating to three vignette case studies. Following this, participants completed the 35-item MHLS and the 10-item sub-scale for restrictive emotionality. Before closing, participants were presented with the contact details of several local, free-to-use services that can be accessed if they or someone around them is experiencing mental distress (e.g., Lifeline Aotearoa). These details were either Aotearoa New Zealand services or Australian services, depending on where the participant was living. Before closing, those participants recruited through Facebook were provided with an open-ended textbox to type in their email address to receive a $5 GiftPay voucher if they wished. The survey was administered online and was accessible through both desktop and mobile devices (see Appendices F and G for the survey questions asked of participants).

3.4 Materials and Measures

The questionnaire for the present study included the following key sections: demographic information, vignette case studies, the MHLS (O'Connor & Casey, 2015), and the restrictive emotionality subscale of the Gender Role Conflict Scale (GRCS) (O'Neil et al., 1986). Two versions of the questionnaire were created: one for participants recruited through Prolific and one for participants recruited through Facebook. The differences between the two versions were as follows:

- Slight differences in the wording of the information sheet. Since only Baby Boomers were recruited through Facebook, the participant criteria outlined were specific to this group. Also, the incentive offered for participation differed between the two recruitment groups and their respective information sheet reflected this.
- To correctly reward those participants recruited through Prolific, an additional question was included to record the participant's Prolific ID. This was designed so that the participant's ID would autofill in the field provided upon reaching this question.
- The Facebook version of the questionnaire included the two aforementioned questions about mental health messaging that were asked only to Baby Boomer participants.
- Given that participants recruited through Facebook were rewarded with a $5 GiftPay voucher, an additional question was included in this version of the survey with a field to provide an email address through which this voucher could be sent. Providing an email address for this purpose was optional.
- The 'end of survey' message was slightly different between the two versions, with the Prolific version instructing participants to click on the arrow button to be redirected to Prolific to register their submission.

The key sections of the survey are outlined in further detail below:

3.4.1 Demographics

Participants were asked to complete a section with several key demographic questions. The question wording and response options for these questions were carefully considered. For instance, the guidance outlined in the findings of a comprehensive consultation initiative conducted by Statistics New Zealand (Stats NZ, 2020) informed how the gender question was asked and the response options provided. For the ethnicity and region questions, the census data from both Aotearoa New Zealand and Australia assisted in informing the most appropriate response options to provide participants. Given the focus on generational cohorts, year of birth was considered the most appropriate question to capture the participant's age. For this question, participants could select their year of birth using a dropdown menu. The following demographic details were recorded in the demographic section of the survey:

- Year of birth
- Gender
- Ethnicity
- Country
- Region

3.4.2 Vignette Case Studies

Vignette case studies were included in the present study to observe whether higher scores on the MHLS are associated with a greater capacity to correctly distinguish between the signs of a mental disorder and an expected level of distress in response to a difficult situation. In doing so, this study evaluated the convergent validity of the MHLS. To achieve this, participants were shown three vignette case studies. In one of these vignettes, the protagonist exhibited a sufficient number of symptoms to meet the *DSM-V* diagnostic criteria for major depressive disorder; in another, the *DSM-V* diagnostic criteria for schizophrenia

were met. In the last vignette, the protagonist exhibited what would be considered a normal level of distress in response to a difficult situation. In this case, the protagonist's response to a relationship breakup was depicted. The order in which participants were shown these vignettes was randomised.

Previous research has indicated that the gender of the protagonist in vignettes concerning mental health can influence participant responses (Davies et al., 2016). To reduce the possibility of gender bias, participants were randomly assigned to a set of three vignettes that either had a man as the protagonist for all three or a woman as the protagonist for all three. Research also indicates that racial bias exists in the diagnosis of a range of mental health conditions (Garb, 2021; Hairston et al., 2019). If such biases exist among professionals with extensive training in this area, it seems plausible that similar biases may exist among the general population. With this in mind, names that are relatively common across different ethnicities in Aotearoa New Zealand and Australia were deliberately selected (Niko, Xavier, and Caleb for the man as the protagonist vignettes and Rita, Talia, and Mia for the woman as the protagonist vignettes). In this way, the possibility of a bias related to ethnicity was reduced.

The present study used Jorm et al.'s (1997) original vignettes for the major depressive disorder and schizophrenia cases as a foundation. However, slight modifications were made to ensure that: a) the criteria of both major depressive disorder and schizophrenia were clearly met in the vignette, and b) the content was appropriate for an Australasian audience. The last vignette depicting the protagonist's response to a relationship breakup was designed by the researcher. The three vignettes are shown in Figure 1.

After reading a vignette, participants were asked to respond to the same set of three questions for each case. Firstly, they were asked whether they think it is likely that the protagonist meets the criteria for a diagnosable mental health condition. If they responded

"yes" to this, they were then provided with an open textbox and asked which diagnosable mental health condition they believe the protagonist is experiencing. The approach used for the coding of these responses is outlined later in this section. Finally, participants were asked whether they think the protagonist should seek professional help ("yes," "no," or "I don't know"). These vignettes provide one way to measure participants' capacity to recognise mental health disorders when provided with a case study containing information pertaining to symptomology. However, it should be noted that the generalisability of the findings is limited due to the nature of the measure and the fact that only two mental health disorders (i.e., major depressive disorder and schizophrenia) have been included.

Figure 1

Case Vignettes

Vignette 1: Major Depressive Disorder

Niko is 30 years old. He has been feeling deeply sad and miserable almost every day for the last few weeks. Even though he is tired all the time, he has trouble sleeping nearly every night. Niko doesn't feel like eating and has lost weight. He can't keep his mind on his work and puts off making decisions. Even day-to-day tasks seem too much for him. This has come to the attention of Niko's boss who is concerned about his lowered productivity. Niko's family and friends are also concerned about him and worry that he has turned down invitations to family get togethers. He no longer attends indoor cricket which he used to really enjoy doing with his friends, who feel they haven't seen him in a while.

Vignette 2: Schizophrenia

Xavier is 24 and lives at home with his parents. He has had a few temporary jobs since finishing school but is now unemployed. Over the last six months he has stopped seeing his friends and has begun locking himself in his bedroom and refusing to eat with the family or to have a bath. His parents also hear him walking about his bedroom at night while they are in bed. Even though they know he is alone, they have heard him shouting and arguing as if someone else is there. When they try to encourage him to do more things, he whispers that he won't leave home because the neighbour is spying on him. They realise he is not taking drugs because he never sees anyone or goes anywhere.

Vignette 3: Relationship Breakup

Caleb is 33 years old. After being together for four years, his partner ended their relationship a month ago. Since that time, Caleb sometimes feels down when thinking about their relationship and feels tearful when looking at photos of the two of them together. Some days he doesn't feel like eating as much as usual, although he has not lost weight. He initially had a few nights when it was hard to sleep, but this is improving slowly. Last week after rugby practice, he mentioned to some of his teammates that he is worried he won't be able to meet someone like his ex-partner again.

3.4.3 Mental Health Literacy Scale

The MHLS assesses all six of the attributes of mental health literacy: the ability to recognise mental disorders (items 1-8), knowledge of risk factors and causes (items 9-10), knowledge of self-treatment (items 11-12), knowledge of professional help available (items 13-15), knowledge of where to seek information (items 16-19), and attitudes that promote recognition or appropriate help-seeking behaviour (items 20-35) (O'Connor & Casey, 2015). These 35 MHLS items are recorded using a Likert scale and a total overall MHLS score is obtained by summing a participant's scores across all attributes (lowest score: 35; highest score: 160), with higher scores indicating a higher level of mental health literacy. The initial development of this study reported good internal reliability (Cronbach's $\alpha = .873$) and two-week test-retest reliability ($r(69) = .797$, $p < .001$), and strong construct validity (O'Connor & Casey, 2015). For the evaluation of the hypotheses proposed, a mental health knowledge score was created by summing each participant's responses to items 1-19 and a mental health attitudes score was created by summing each participant's responses to items 20-35. This was considered a helpful taxonomy for the present study given the nature of the proposed hypotheses. For instance, it is plausible that changing constructions of masculinity and national campaigns to destigmatise mental health conditions may have influenced mental health attitudes but not mental health knowledge. This decision not to treat all six of the attributes of mental health literacy included in the MHLS as separate constructs was made for practical reasons due to the possibility of the analysis involving a very large number of statistical tests to perform. By using a two-way split, the present study recognises a clear conceptual distinction between attitudes and knowledge while avoiding working with six separate subscale scores.

3.4.4 Gender Role Conflict Scale, Restrictive Emotionality Subscale

The GRCS is a 37-item measure used to assess thoughts, feelings, and attitudes regarding gender. For the present study, only the 10-item restrictive emotionality subscale from the GRCS was used. Restrictive emotionality refers to the degree to which individuals experience difficulty expressing their feelings or denying others rights to emotional expression (O'Neil et al., 1986). Of the four components of the GRCS, the restrictive emotionality sub-scale in particular has demonstrated associations with attitudes towards psychotherapy and help-seeking (Blazina & Watkins Jr, 1996; Tsan et al., 2011), willingness to refer family members and friends who are experiencing mental distress to seek treatment (Vogel et al., 2014), and self-stigma towards seeking help (Pederson & Vogel, 2007). Four-week test-retest reliability for the restrictive emotionality subscale was .76 while internal consistency scores using Cronbach's alpha was .82 (O'Neil et al., 1986). While the GRCS is intended for use with men, the wording of the items within the restrictive emotionality subscale is not gender-specific so was administered to participants of all genders in the present study.

3.4.5 False Positive Likelihood

To evaluate H5, a measure was created to calculate whether participants had answered the first question of the third vignette (i.e., the 'relationship breakup' vignette) with a "yes" response, indicating they had answered by identifying a false positive (i.e., detecting the presence of a diagnosable mental health condition from a vignette where the criteria for such a condition were not met).

3.4.6 Overall Recognition Accuracy

To evaluate H7, a measure was created to assess participants' overall accuracy at correctly detecting and labelling the presence of a diagnosable mental health condition across the three vignette case studies (i.e., the percentage of correct responses). To qualify as a correct response for the first two vignettes, participants had to answer "yes" to the first

question in the block and correctly label the mental health condition in the second question in the block (i.e., depression for the first vignette and schizophrenia in the second vignette). To qualify as a correct response for the third vignette, participants had to answer "no" to the first question in the block. For each vignette question, participants were assigned a value of 1 for a correct response and a value of 0 for an incorrect response. The Overall Recognition Accuracy measure is calculated as a mean score across the three vignettes. As such, the possible scores for this measure were: 0%, 33%, 67% and 100%.

Given the open-ended format of the second question of the vignette block (i.e., asking participants to label the diagnosable mental health condition by typing it into a textbox), there was inevitably a degree of subjectivity when evaluating whether a response was correct or incorrect. As such, it was necessary to develop a set of rules to remain consistent when categorising responses to this question. For the majority of correct responses to the depression and schizophrenia vignettes, the responses provided by participants were straightforward to assess (e.g., "depression", "major depressive disorder", "schizophrenia"). However, it was necessary to establish a set of guidelines for responses that were less clear-cut. Not only did this reduce the impact of subjectivity when classifying the responses, but it also should aid in future replication of the study. For more information on the criteria used to classify correct and incorrect responses for each vignette, please see Appendix A.

3.4.7 Open-Ended Questions:

The present study aims to explore whether Baby Boomer participants have perceived a change in the messaging and exposure around mental health and in what ways. To capture this information, Baby Boomer participants were asked: "Do you believe that messaging around mental health (e.g., through public health campaigns, school curriculums, popular culture, etc.) in [Aotearoa New Zealand OR Australia] has changed in the past 10-20 years?" (note: the country that was piped into the text of the survey depended on where the

participants stated they were living). If these participants selected 'yes', they were then presented with a follow-up open-ended question ("You selected 'yes' at the previous question. Could you explain how you feel messaging around mental health in [Aotearoa New Zealand OR Australia] has changed in the past 10-20 years?"). Given the increasing presence of national mental health campaigns, initiatives, and high-profile figures in society speaking about mental health issues, this question was included to examine the perspective of older generations with respect to noticing these changes. The inclusion of this question could potentially provide a greater depth of understanding of the gaps in mental health literacy we typically observe between older and younger generations. Only Baby Boomers were asked these two questions as they were considered old enough to have observed and formed an opinion to comment on such changes.

3.5 Ethical Considerations

Several important ethical issues were considered in the present study. These are outlined in the subsections below.

3.5.1 Informed Consent

All participants recruited for this study were presented with an information sheet before agreeing to participate in the study. This sheet provided details about the study itself, the risks involved, the recruitment methods and incentives, the data management processes, participant rights, and the contact details of the researchers involved. Participants were informed that they could stop participating at any time and could contact the researchers with any questions regarding the study. Participants were then explicitly asked to select whether, after reading the information sheet, they agreed to participate in the study. Those who provided their consent proceeded to answer the survey questions while those who declined were thanked for their time and the survey closed.

3.5.2 Confidentiality

Materials and de-identified participant responses were saved on the Massey OneDrive cloud system. Following the analysis of the quantitative data, the data was uploaded to an openly accessible online repository through the Centre for Open Science. The data will be stored there indefinitely and will be available for other researchers or members of the public to access. The responses to the qualitative question have not and will not be uploaded nor will be accessible to avoid any possibility of inadvertently revealing a participant's identity. The only contact information that was requested was an active email address through which those participants recruited through Facebook could be sent a $5 GiftPay voucher as reimbursement for their time. This was optional and participants could leave this field blank if they preferred not to provide an email address. Participant email addresses have not been linked to their survey responses and were removed from the data once the vouchers had been successfully emailed out to participants. Additionally, potentially identifiable information such as IP address, estimated longitudinal and latitudinal location, and Prolific ID number were deleted before sharing the data.

3.5.3 Avoidance of Harm

It was carefully considered whether participants might feel a degree of discomfort when completing the survey. For instance, when reading the vignette case studies, participants may have experienced a similar situation or have been reminded of a friend or family member who underwent similar difficulties. To minimise the likelihood of this occurring, participants were provided with details about the nature of the questions in the information sheet before providing their consent to participate. It was also recommended in the information sheet that those people who were receiving mental health care at the time should discuss participation with their therapist before proceeding to participate. Additionally, all participants were informed that they could stop participating at any time, for any reason. Links to free Aotearoa New Zealand and Australian mental health support

agencies (e.g., Lifeline) were provided at the end of the survey in case participants felt discomfort upon completion. No deception of participants was involved at any stage of the study. The vignettes presented to participants were entirely fictional and evidence suggests that most individuals tolerate emotionally distressing topics well (Labott et al., 2016).

3.5.4 Cultural Appropriateness

The cultural appropriateness of the present study was carefully considered, particularly concerning recognising the significance of Aotearoa New Zealand's bicultural status. Additionally, steps were taken where possible to try to ensure the study was respectful of different worldviews and inclusive towards all who wished to participate. For instance, with the te ao Māori value of manaakitanga (the process of showing respect, hospitality, and kindness) in mind, the present study welcomed participants at the start of the survey with a greeting in several different languages including te reo Māori, Samoan, Tongan, Fijian, and Cook Islands Māori. Appropriate modifications were also made to the measures used, such as changing the word 'Australia' to 'Aotearoa New Zealand' for items 9 and 10 of the MHLS for those participants who were living in Aotearoa New Zealand. Additionally, the vignettes were considered with cultural relevance in mind. For instance, references to sports that are popular among both men and women in Australasia—rugby and cricket—feature across the vignettes.

The cultural appropriateness of the MHLS was also carefully considered. While the measure was developed in Australia by O'Connor and Casey (2015) and validated across different cultural contexts (Chen et al., 2021; Dang et al., 2018; Harouni et al., 2021; Heizomi et al., 2020; Nejatian et al., 2021), to the best of the writer's knowledge it has not been used nor validated in an Aotearoa New Zealand context. The only study the writer could find that used the MHLS in Aotearoa New Zealand was undertaken by Chu et al. (2019), which only used the 'knowledge of mental health help-seeking' items from the scale and did not validate

the measure. While this particular scale has not been used in its entirety in Aotearoa New Zealand, previous local studies have focused on the topic of mental health literacy (Chu et al., 2019; Tissera & Tairi, 2020). One study by Marie et al. (2004) that focused on comparing Māori and non-Māori mental health literacy of depression found no differences between the two groups. With the lack of validation of the MHLS within an Aotearoa New Zealand context in mind, the writer discussed the research design and the cultural appropriateness of the measures and materials with Associate Professor Dr Matt Shepherd (Ngāti Tama). Dr Shepherd is a senior lecturer at Massey University with extensive experience providing cultural supervision around issues relating to te ao Māori to students.

3.6 Ethics Notification

With the ethical considerations from the previous section in mind, a low risk ethics notification was lodged with the study meeting Massey University's low risk criteria (notification number: 4000025827). To meet the criteria for a low risk notification form, the researcher must complete a screening questionnaire and answer "no" to a series of questions asking about the nature of the study and any potential risk elements of the study.

3.7 Open Science Practices

In recent years, claims have been made that the field of psychological research is in the midst of a replication crisis (Anderson & Maxwell, 2017; Pashler & Wagenmakers, 2012). That is, a great deal of attention has recently been drawn to the fact that attempts to replicate the findings of numerous previous studies have been unsuccessful and that researchers within the discipline have adopted problematic practices (Shrout & Rodgers, 2018). In response to these concerns, there has been a call for improved research practices within the discipline. A key recommendation that has consistently been highlighted is the need to adopt the open science practices of full disclosure and preregistration (Frias-Navarro et al., 2020; Shrout & Rodgers, 2018). Full disclosure is a commitment to transparency

throughout the research process and includes practices such as explaining ad hoc decisions that were made and reporting all results (whether they are significant or not) (Shrout & Rodgers, 2018). The practice of submitting a preregistration involves submitting a publicly accessible document that outlines key aspects of a study such as the hypotheses, proposed analyses, data collection procedures, measures, and estimated sample size prior to data collection. Lakens (2019) asserts that when a study is preregistered, it allows others to "transparently evaluate the capacity of a test to falsify a prediction, or the severity of a test" (p 221). That is, readers of a preregistration document can see that the proposed hypotheses of a study were subjected to tests where they faced a genuine risk of being falsified.

With this in mind, the present study seeks to avoid the potential pitfalls that have led to the purported replication crisis by committing to the principles and practices of an open science approach to research. A full preregistration for this study was uploaded to the Open Science Website from the Center for Open Science, which is a nonprofit organisation that enables the sharing of documents, materials, and research designs. This includes an outline of the study information (including research questions and proposed hypotheses), sampling plan (including data collection procedures and proposed sample size), variables, design plan, and analysis plan (including proposed analyses and inference criteria for each hypothesis). The preregistration was submitted on 26th May 2022 (prior to data collection) and can be accessed using this view-only link (https://osf.io/vequ6). The full deidentified data for the study and the full R coding script can also be accessed through this view-only link for transparency and replicability (https://osf.io/yftq8/?view_only=6d530b20f2fe4e70b1abb27ce4e74177). Additionally, all ad-hoc decisions and deviations from the initial preregistration are disclosed in the methods section along with a full explanation of the reasoning behind this.

3.8 Quantitative Data Cleaning and Analysis

The first step in the data analysis process was to clean the data. This process involved deidentifying the data (i.e., removing any identifiable information attached to each respondent, such as their IP address), applying the predetermined exclusion criteria, addressing the issue of missing data, reverse coding the relevant items, and creating scale scores. Several of these processes are explained in greater detail below.

3.8.1 Participant Exclusion Criteria

This section outlines the exclusions that were applied to the data in accordance with the preregistration. Figure 2 provides a visual representation of the data exclusions along with the respective number of participants that were excluded at each stage.

Prior to applying the predetermined data exclusions, the data itself was reviewed. During this initial step, several suspicious responses were identified that would evade the defined exclusion criteria. Specifically, six responses were considered to likely be illegitimate for several reasons: all six responses started and finished the survey within seconds of one another; the location coordinates of all six responses indicated that they were completed within the United States of America; all six responses provided the same gender, date of birth, country, region, and ethnicity; and the same responses were provided for the vignette questions across all six responses. With this in mind and following a discussion with the writer's supervisors, it was agreed that these responses were likely illegitimate. As a result, these six responses were excluded from the data analysis. The preregistered exclusion criteria were then applied as follows:

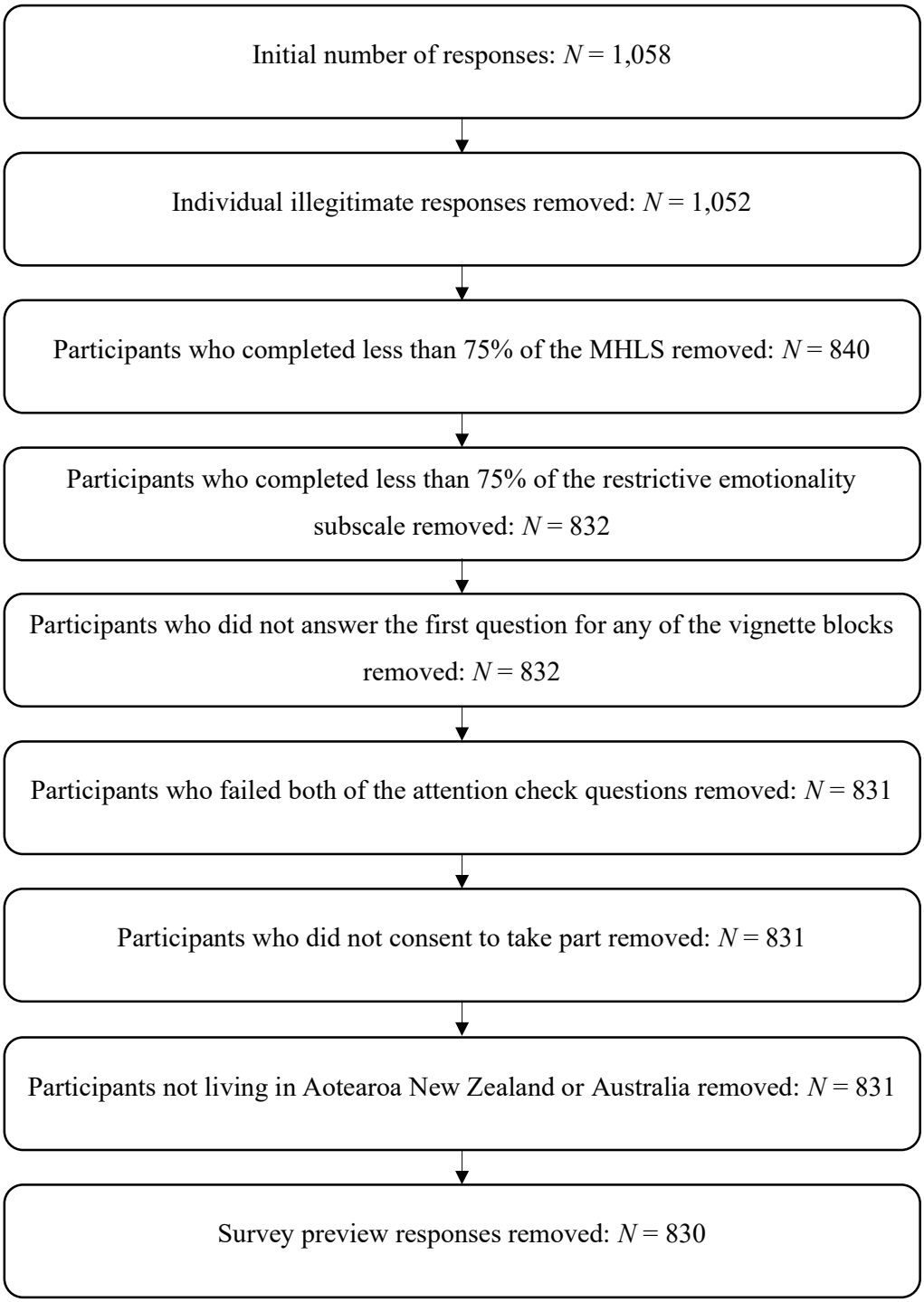
1. Those participants who did not complete the required sections of the survey were excluded. This was somewhat ambiguously phrased in the initial preregistration as follows: "Participants who respond to fewer than 75% of the items in the main scale questions (i.e., the MHLS and the restrictive emotionality subscale) will be excluded during the data processing phase". This could be interpreted as excluding participants

who responded to fewer than 75% of the total questions across both the MHLS and the restrictive emotionality subscale. However, the rule was applied so that participants who responded to fewer than 75% of the MHLS items *or* fewer than 75% of the restrictive emotionality subscale items were excluded from the data.

2. Those participants who did not respond to the first question of any of the three blocks of vignette questions were excluded.
3. Those participants who failed both of the attention check questions were removed.
    a. Two attention check questions were included in the survey to assist in identifying careless or illegitimate responses. For the block of items 1-10 and the block of items 20-28 from the MHLS, the last item in each block included an attention check question (e.g., "Please demonstrate that you are paying attention by selecting "strongly agree" to this item"). If the participant's response indicated they were not attending to the content of the item (e.g., by selecting any response other than "strongly agree" in this example) for both of the attention check items, that participant was excluded during the data processing phase. If the respondent did not provide an answer to an attention check question, this was also considered as failing the attention check question.
4. Those participants who did not consent to take part in the study were excluded.
5. Those participants who were living outside of Aotearoa New Zealand or Australia were excluded.
6. Preview responses that were used to test the survey before it was fully launched were excluded.

Figure 2

Exclusions Flowchart



3.8.2 Missing Data

As noted in the previous section, only those participants who completed at least 75% of the MHLS questions and at least 75% of the restrictive emotionality subscale questions were retained for the data analysis phase to ensure that completed survey responses accurately captured a participant's views. However, there were still participants who met these criteria and skipped certain questions. As outlined in the preregistration, an imputation was run to provide an accurate estimate of how these participants would have likely responded to the questions they skipped based on their responses to the other questions they answered. Upon investigating the data in RStudio, it was found that there were only two instances of missing data: two participants had only skipped one question each in the MHLS set of questions. To estimate their response to the question that each participant skipped, the Amelia package was used in R to run an expectation-maximisation single imputation.

3.8.3 Reverse Coding

As outlined in the instructions of the MHLS itself, several of the items need to be reverse coded to calculate the overall MHLS score. As such, items 10, 12, 15, and 20-28 were reverse coded prior to the calculation of any scale scores.

3.8.4 Data Analysis Software

All analyses were performed using R Statistical Software (R Core Team, 2023), which was accessed using RStudio (RStudio Team, 2020), version 2024.9.0.375. Several of the analyses required the use of structural equation modelling, which was performed using the Lavaan R package (Rosseel, 2012). Given that R is an open source and freely available programme, this further aligns with the open science principles outlined in a previous section. By using open source software that has no associated cost, additional barriers are removed should a researcher wish to replicate this study in the future. Further details can be found by accessing the specific R script used to carry out these functions, which is available to

download through the following view-only link (https://osf.io/yftq8/?view_only=6d530b20f2fe4e70b1abb27ce4e74177).

3.8.5 Hypothesis Testing

A multigroup confirmatory factor analysis with a test of the assumption of measurement invariance was used to evaluate H1, H2, H3 and H4. Figure 3 depicts the specific model that was fitted and evaluated across the independent variables of gender (men and women) and generational cohort (Generation Z, Millennials, Generation X, and Baby Boomers). Figure 3 depicts how the latent second order constructs of 'mental health knowledge' and 'attitudes towards mental health and help-seeking' are measured by items 1-19 and items 20-35 from the MHLS respectively. The second order construct of 'mental health knowledge' is comprised of five first order constructs: 'ability to recognise disorders' (items 1-8), 'knowledge of risk factors and causes' (items 9-10); 'knowledge of self-treatment' (items 11-12); 'knowledge of professional help available' (items 13-15); and 'knowledge of where to seek information' (items 16-19). One model was used to test all four hypotheses as this also provided the opportunity to test for the assumption of measurement invariance.

To evaluate the assumption of measurement invariance across both gender and generational cohort, three levels of increasingly stringent constraints of equivalence were applied: configural invariance, metric invariance, and scalar invariance. Configural invariance was used to test whether the latent factor structure fit adequately across groups (i.e., across genders and generations). This allowed us to test whether the basic factor structure was consistent across our groups of interest. The next stage was to evaluate metric invariance, which involved evaluating the relationship between each item and its respective latent construct across our groups. To do this, factor loadings were forced to be equal across groups. The last step was to test for scalar invariance, which involves testing whether the

intercepts are the same between groups. This was done by constraining the item intercepts to be equal across groups.

Spearman's rank correlation coefficient (also known as Spearman's Rho) was used to evaluate H5 and H7. For H5, the relationship between the categorical and ordinal independent variable of generational cohort and the categorical and ordinal dependent variable of false positive detection was evaluated. For H7, the relationship between the categorical and ordinal independent variable of the overall MHLS score and the categorical and ordinal dependent variable of Overall Recognition Accuracy was evaluated.

For H6, structural equation modelling was used to evaluate whether restrictive emotionality partially mediates the relationship between gender and mental health attitudes. This model to be tested is shown in Figure 4.

For H8, a factorial ANOVA was used to evaluate the relationship between two categorical independent variables (gender and generational cohort) and a continuous dependent variable (overall MHLS score). The interaction between gender and generational cohort was included in this model.

Figure 3

Proposed Model to Evaluate H1-H4 and to Test for Measurement Invariance

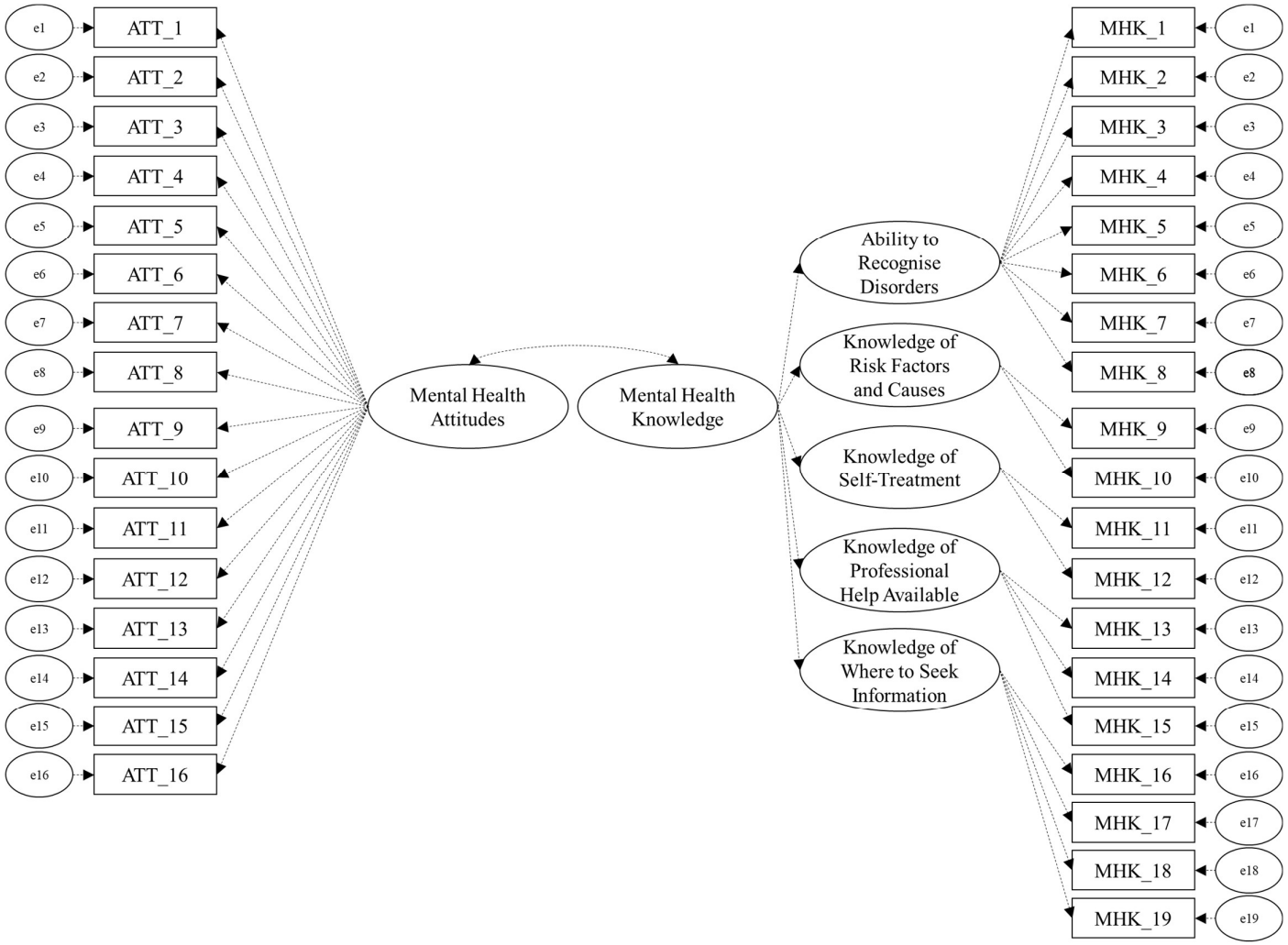
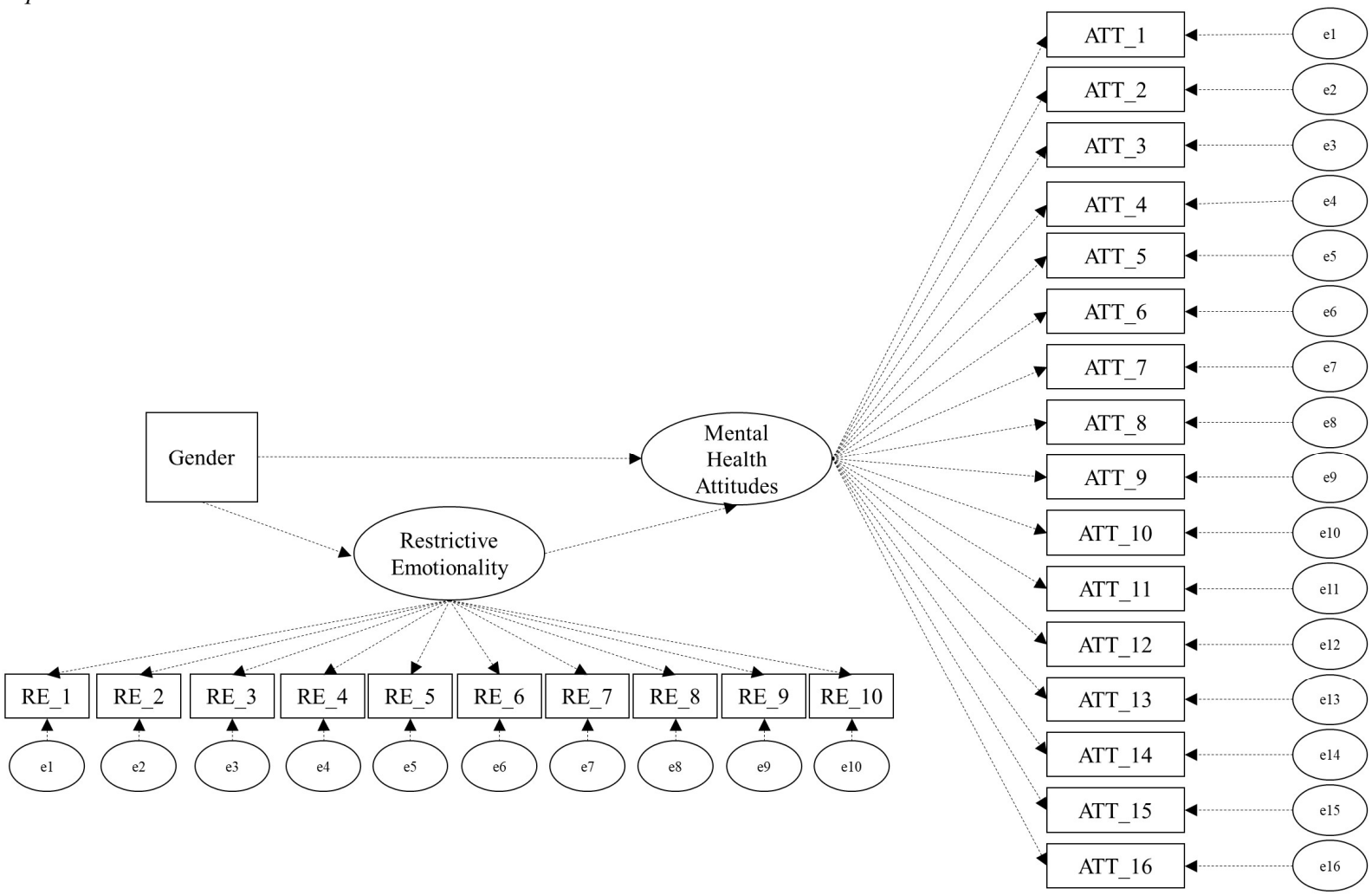


Figure 4

Proposed Mediation Model to Evaluate H6



3.8.6 Inference Criteria

This section outlines the specific conditions for each quantitative hypothesis that had to be met for that hypothesis to be considered supported. Following an open science approach, these criteria were submitted in a preregistration document prior to data collection.

Prior to evaluating the proposed hypotheses, the model depicted in Figure 3 was subjected to three successive tests of measurement invariance for both gender and generational cohort: configural invariance, metric invariance, and scalar invariance. Although not tied to a specific hypothesis, it was specified that the null hypothesis of measurement invariance would be rejected if any of the specific conditions were met at any of the three respective stages. For configural invariance, the conditions were: comparative fit index (CFI) of less than 0.90; standardised root mean square residual (SRMR) of over 0.08; and root mean square error of approximation of over 0.08. For metric invariance, the condition was: compared to the configural invariance stage, a change greater than 0.010 for the CFI or a change of greater than 0.015 for the RMSEA. For scalar invariance, the condition was: compared to the metric invariance stage, a change greater than 0.010 for the CFI or a change of greater than 0.015 for the RMSEA.

Table 4 below outlines the specific inference criteria for each of the proposed quantitative hypotheses. For H1 and H2, additional conditions were specified for these hypotheses to be considered partially supported.

Table 4

Inference Criteria for Proposed Quantitative Hypotheses

Hypothesis	Inference Criteria
H1	H1 will be considered to be fully supported if both of the following conditions are met: (a) the sample estimates of the latent means for mental health knowledge are in the following order: Generation Z > Millennial > Generation X > Baby Boomer; (b) all pairwise comparisons between generations are statistically significant (2-tailed p-value, no corrections for multiple testing).
	H1 will be considered to be partially supported if both of the following conditions are met: (a) the sample estimates of the latent means for mental health knowledge are in the following order: Generation Z > Millennial > Generation X > Baby Boomer; (b) at least one of the pairwise comparisons between generations is statistically significant (2-tailed p-value, no correction for multiple testing).
H2	H2 will be considered to be fully supported if both of the following conditions are met: (a) the sample estimates of the latent means for attitudes towards mental health and help-seeking are in the following order: Generation Z > Millennial > Generation X > Baby Boomer; (b) all pairwise comparisons between generations are statistically significant (2-tailed p-value, no corrections for multiple testing).
	H2 will be considered to be partially supported if both of the following conditions are met: (a) the sample estimates of the latent means for attitudes towards mental health and help-seeking are in the following order: Generation Z > Millennial > Generation X > Baby Boomer; (b) at least one of the pairwise comparisons between generations is statistically significant (2-tailed p-value, no correction for multiple testing).
H3	H3 will be considered to be supported if the latent mean for mental health knowledge of women is statistically significantly higher (i.e., p-value less than 0.05) than the mean score of men.
H4	H4 will be considered to be supported if the latent mean for attitudes towards mental health and help-seeking of women is statistically significantly higher (i.e., p-value less than 0.05) than the mean score of men.

H5	H5 will be considered to be supported if the Spearman's correlation coefficient is negative and statistically significant (i.e., p-value less than 0.05, 2-tailed).
H6	H6 will be considered to be supported if the indirect effect of gender on attitudes toward mental health and help-seeking through restricted emotionality is positive* and statistically significant (i.e., p-value less than 0.05, 2-tailed). *With men coded as 0 and women coded as 1.
H7	H7 will be considered to be supported if the Spearman's correlation coefficient is positive and statistically significant (i.e., p-value less than 0.05, 2-tailed).
H8	H8 will be considered to be supported if both of the following conditions are met: (a) statistically significant (i.e., p-value less than 0.05) F test for the interaction between generational cohort and gender; (b) sample estimates of the differences between gender means (men-women) are in the following order: Generation Z < Millennials < Generation X < Baby Boomers.

Note. There is a deviation from the inference criteria in the original preregistration document for H5. In the original document, it was stated that H5 would be supported if the Spearman's correlation coefficient is positive and statistically significant. This was later changed to a negative correlation given the way the generations and responses to the vignette questions were ultimately numerically coded for the analysis.

3.9 Qualitative Content Analysis

Content analysis was selected as the most appropriate methodological approach to analyse the data received from the open-ended question regarding changes in mental health messaging that was asked of Baby Boomer participants. Content analysis can be described as "a process of identifying, coding, and categorising the primary patterns in the data" (Patton, 1990, p. 381). By following this approach, researchers can sift through large amounts of data by condensing volumes of text into relevant content categories in a systematic fashion by adhering to specified coding procedures (Stemler, 2019).

As content analysis can take several forms, it is important to briefly outline the specific approach selected for the present study and the rationale for doing so. Hsieh and Shannon (2005) outline three distinct approaches to content analysis: conventional, directed, and summative. The authors note that conventional content analysis is typically used when aiming to describe a phenomenon and is often appropriate when there is relatively limited extant literature on the topic. Directed content analysis is typically appropriate when a more expansive body of literature exists, while summative content analysis identifies specific words and looks at how those words are used within a particular context. Given the exploratory nature of the research question, 'conventional' content analysis was considered the most appropriate approach for the present study to adopt. With this approach, researchers "avoid using preconceived categories…instead allowing the categories and names for categories to flow from the data" (Hsieh & Shannon, 2005, p. 1279). White and Marsh (2006) also distinguish between quantitative and qualitative content analysis. While there are similarities between the two, there are also important differences to consider. For instance, while quantitative content analysis adopts a deductive approach and establishes hypotheses to be tested, qualitative content analysis is inductive and uses open questions to guide the

research. As the focus of this component of the research is exploratory, a qualitative approach has been selected for the present study.

Accordingly, analysis of the data initially involved an immersion into the data itself to obtain a holistic sense of the responses. To do this, the writer read and reread the responses four times and wrote down their initial impressions in brief note form. Once considerable familiarity with the data had been established, identifiable codes that capture key concepts were developed and assigned to responses (e.g., "increased awareness"). Given the length of the responses (including a response with 105 words) and the fact that many responses covered multiple topics of interest, it was deemed that certain phrases within responses would be the most appropriate coding unit. As such, some responses were coded across several categories. However, specific phrases were only assigned one code to ensure mutual exclusivity. While an initial codeframe was developed, this was refined several times and with each new iteration the data was recoded accordingly (see Table 12 for the final code frame used). As the researcher became increasingly familiar with the data, categories (e.g., "public awareness, understanding, behaviours, and attitudes towards mental health") and subcategories (e.g., "changes in behaviour among the general public") were developed. In turn, these categories and subcategories were used to group the individual codes into meaningful clusters to make sense of the data (Hsieh & Shannon, 2005). Next, definitions were developed for each code, subcategory, and category and quotes of each were identified within the data.

As outlined by White and Marsh (2006), analysis takes a more central role in qualitative content analysis compared to quantitative content analysis. The authors note that this can include any new questions or themes that have emerged during the coding process, with the goal being "to depict the "big picture" of a given subject, displaying conceptual depth through thoughtful arrangement of a wealth of detailed observations" (p. 39). While the

results section includes an initial description of the qualitative data received, broader observations that emerged from the data are also presented. In the discussion section, these findings are considered alongside relevant research and theory to enhance our understanding of the qualitative data.

4. Results

This chapter begins with reporting a set of descriptive statistics, providing an overview of the results for the key measures of the present study. Following this, the data analyses for each of the quantitative hypotheses (H1-H8) are reported. Lastly, the results from the content analysis undertaken to investigate the proposed exploratory question are discussed.

4.1 Descriptive Statistics

Tables 5, 6, and 7 provide an overview of the descriptive statistics for the key measures of the present study. However, it is important to note that these descriptive analyses do not take into account the possibility of varying measurement properties across groups or attempt to compare the latent means on the constructs of interest. This will be carried out later in this section.

As shown in Table 5, the mean score for the overall MHLS score was 128.3, with scores ranging between 47 and 157 (from a possible score of 160). This is comparable to the mean score of $M = 127.38$ for the community sample in the initial development of the MHLS (O'Connor & Casey, 2015). Mental health knowledge scores ranged between 31 and 78 with a mean score of 63.99, while mental health attitude scores ranged between 16 and 80 with a mean score of 64.34. From this, we can observe that while the range of scores on the mental health attitudes was greater than that of the mental health knowledge range, the mean score across both variables was similar.

Table 5

Overall Descriptive Statistics for Key Measures

	Mean	Median	SD	Min	Max	Cronbach's α
MHLS score	128.30	130.00	14.47	47.00	157.00	.90
Mental Health Knowledge	63.99	64.00	6.11	31.00	78.00	.77
Mental Health Attitudes	64.34	66.00	10.13	16.00	80.00	.91
Restrictive Emotionality	31.26	31.00	11.84	10.00	60.00	N/A
False Positive Likelihood	0.15	0.00	0.36	0.00	1.00	N/A
Overall Recognition Accuracy	49.6%	33.3%	0.33	0%	100%	N/A

Note. MHLS refers to the Mental Health Literacy Scale (O'Connor & Casey, 2015), with Mental Health Knowledge and Mental Health Attitudes treated as subscales of the overall MHLS score. Restrictive emotionality refers to the restrictive emotionality subscale from the Gender Role Conflict Scale (O'Neil et al., 1986). Total sample size: n = 830.

Tables 6 and 7 display the results across the two key groups of interest for the present study: gender and generational cohort. From the descriptive statistics shown in Table 6, women exhibited higher scores than men on both the mental health knowledge (M = 65.39 vs. M = 62.57) and mental health attitudes (M = 67.22 vs. M = 61.43) components of the MHLS, leading to a higher overall mean score on the MHLS (M = 132.62 vs. M = 124.00). Those participants who identified as gender diverse achieved the highest scores of all three of these groups for these measures. However, with a low sample size of n = 11, these results should be interpreted with caution. Men displayed higher scores than women on the restrictive emotionality measure (M = 32.12 vs. M = 30.22), higher scores than women on the False Positive Likelihood measure (M = 0.18 vs. M = 0.12), and lower scores than women on the Overall Recognition Accuracy measure (M = 47.3% vs. M = 52.0%).

Table 6

Mean Scores for Key Measures for Gender

	Men (n = 418)	Women (n = 401)	Gender Diverse (n = 11*)
MHLS score	124.00 (15.02)	132.62 (12.47)	136.18 (11.84)
Mental Health Knowledge	62.57 (6.30)	65.39 (5.60)	66.55 (3.56)
Mental Health Attitudes	61.43 (10.47)	67.22 (8.41)	69.64 (10.02)
Restrictive Emotionality	32.12 (11.60)	30.22 (11.94)	36.45 (13.92)
False Positive Likelihood	0.18 (0.39)	0.12 (0.32)	0.09 (0.30)
Overall Recognition Accuracy	47.3% (33%)	52.0% (33%)	51.5% (31%)

Note. Mean score (standard deviation). MHLS refers to the Mental Health Literacy Scale (O'Connor & Casey, 2015), with Mental Health Knowledge and Mental Health Attitudes treated as subscales of the overall MHLS score. Restrictive emotionality refers to the restrictive emotionality subscale from the Gender Role Conflict Scale (O'Neil et al., 1986). Total sample size: N = 830.

**Note:* low base size

Table 7 shows that the overall MHLS scores are in order of generational cohort, with Generation Z achieving the highest MHLS scores (M = 130.80) and Baby Boomers achieving the lowest MHLS scores (M = 124.75). While this same trend can be seen for mental health attitudes, scores on the mental health knowledge, restrictive emotionality, False Positive Likelihood, and Overall Recognition Accuracy measures all demonstrate different patterns. Baby Boomers exhibited notably higher scores than other cohorts for False Positive Likelihood (M = 0.24) and notably lower scores than other cohorts for Overall Recognition

Accuracy (*M* = 44.1%). Restrictive emotionality was highest for Generation Z compared to the other generational cohorts.

Table 7

Mean Scores for Key Measures for Generational Cohort

	Generation Z (*n* = 184)	Millennials (*n* = 213)	Generation X (*n* = 191)	Baby Boomers (*n* = 242)
MHLS score	130.80 (13.50)	129.68 (13.71)	128.95 (14.50)	124.75 (15.20)
Mental Health Knowledge	64.51 (5.66)	64.45 (5.96)	65.10 (5.73)	62.30 (6.53)
Mental Health Attitudes	66.29 (9.54)	65.23 (9.73)	63.85 (10.34)	62.46 (10.45)
Restrictive Emotionality	34.78 (11.59)	32.05 (11.77)	28.43 (11.87)	30.12 (11.37)
False Positive Likelihood	0.15 (0.36)	0.10 (0.30)	0.08 (0.27)	0.24 (0.43)
Overall Recognition Accuracy	48.9% (0.33)	53.5% (0.33)	53.1% (0.32)	44.1% (0.33)

Note. Mean score (standard deviation). MHLS refers to the Mental Health Literacy Scale (O'Connor & Casey, 2015), with Mental Health Knowledge and Mental Health Attitudes treated as subscales of the overall MHLS score. Restrictive emotionality refers to the restrictive emotionality subscale from the Gender Role Conflict Scale (O'Neil et al., 1986). Total sample size: *n* = 830.

**Note:* low base size

4.2 A Note on Data Sets

Given the nature of the questions asked by the present study, it was necessary to use modified data sets when evaluating particular hypotheses. Participants who were gender diverse were excluded from the analyses involving gender as an explanatory variable (i.e., for H3, H4, H6, and H8). The reasoning for this is that these hypotheses were specifically

evaluating gender differences between men and women. With a sample of just $n = 11$ participants who identified as gender diverse, including this group in the analyses would not have been possible. Participants who responded "don't know" to the first question of the third vignette were excluded from the analysis for H5. Removing the "don't know" responses reduced the analysis to a "yes" vs. "no" dichotomy, where "yes" represented a false positive and "no" represented a true negative.

4.3 A Note on Item Parcelling and Model Identification

It is necessary to note an important deviation from the initial data analysis plan in the preregistration of the present study regarding the model used to evaluate H1-H4. When the original model was initially estimated in RStudio, this produced an error message indicating the presence of negative estimated error variances. While a relatively common occurrence in factor analysis and structural equation modelling, negative variance estimates—also known as Heywood cases—are impossible in the population and must be addressed by researchers (Kolenikov & Bollen, 2008). In the case of the present study, the offending variables were the residual variances for Self-Treatment and Professional Help. Following the guidance of Dillon et al. (1987), these residual variances were initially constrained to be 0. However, further issues were encountered when testing for measurement invariance; when evaluating measurement invariance at the 'strong' level for the gender group comparison, a separate warning message stating that the variance-covariance matrix of estimated parameters is not positive definite was displayed. Additional warning messages regarding the failure of optimisers and Heywood cases were also displayed when testing for measurement invariance for the generational cohort groups. As a result, it was decided that several approaches should be explored in order to determine the most appropriate remedy to address this issue.

Prior to exploring these different approaches, however, the potential impact of researcher bias was considered. Given that several different approaches to addressing the

error messages were to be trialled, it was considered a possibility that more than one approach could address the issue at hand. Since the full set of results would be produced with each iteration, this may have potentially biased the researcher's ultimate decision regarding which of the possible options to select with this prior knowledge in mind. To minimise the possibility of researcher bias in this process, a decision was made to trial the different approaches using a random subset of approximately half the sample (n = 400). In this way, the output produced with each trial would not provide an accurate representation of the results compared to if the approach had been applied to the full sample of data. However, the sample was still sufficient to provide a reasonably accurate indication of whether the approach addressed the error and warning systems.

As noted above, several options were trialled to address the error messages displayed. One such approach was to change both the estimators and the optimiser. Following the Lavaan guidelines, the model was run in RStudio with the following estimators (in place of the default maximum likelihood estimator): weighted least squares, diagonally weighted least squares, unweighted least squares, distributionally weighted least squares, pairwise maximum likelihood, and various extensions to maximum likelihood (e.g., MLM, MLMVS etc.). The model was also run using the following optimisers: BFGS, L-BFGS-B, and GN. However, changing the estimator and the optimiser did not provide a remedy, with these trials either prompting the same set of error messages or new warnings. Additionally, the model was run using just a two-factor, first order measurement model and forgoing the second order model entirely. However, this again produced warning messages when run in RStudio.

The approach that ultimately yielded an error-free model when run in RStudio involved the use of item parcelling. Instead of treating the two latent variables with just two items loading onto them (i.e., Self-Treatment, Risk Factors and Causes) as first-order latent factors, item parcels were created for these two constructs by summing their two respective

items. This approach was tested given that the inclusion of factors with just two items seemed a likely cause of problems with model identifiability. However, when parcelling the items loading onto these two variables and running the model, it was found that the estimated variance for the Professional Help variable was still negative. Therefore, the three items loading onto this variable were also parcelled together (see Figure 5 for the final model, with the item parcels labelled as MHK_ST, MHK_RF, and MHK_PH). Following this process, the model and the subsequent tests of measurement invariance were able to be run error-free in RStudio. Additionally, all the model parameters were estimated and the parameters and errors appeared within reasonable bounds, with no errors or covariances equalling 0. The results reported in the present study were produced using the default maximum likelihood estimator. In the spirit of transparency, a version of the RStudio script containing these trials can be publicly accessed through this view-only link (https://osf.io/yftq8/?view_only=6d530b20f2fe4e70b1abb27ce4e74177).

It should be noted that the model was able to be run error-free after the item parcelling approach was applied, including when testing the three levels of measurement invariance across both gender and generation. The only subsequent warning messages that were displayed occurred when calculating the pairwise comparisons between cohorts for both mental health knowledge and mental health attitudes[4]. However, it is important to note that the lines of code in R used difference variables that were linear composites of one another. This was not considered to be an issue as the difference variables are linearly dependent (i.e., mathematically related) and simply being used to display results, rather than estimating

[4]When running this code in R for mental health knowledge, the following warning message is displayed: "The variance-covariance matrix of the estimated parameters (vcov) does not appear to be positive definite! The smallest eigenvalue (= 3.197139e-13) is close to zero. This may be a symptom that the model is not identified"

When running this code in R for mental health attitudes, the following warning message is displayed: "The variance-covariance matrix of the estimated parameters (vcov) does not appear to be positive definite! The smallest eigenvalue (= 4.934322e-13) is close to zero. This may be a symptom that the model is not identified"

differences in the model. Given that this did not affect the analysis or model fit in any way, these warning messages were safely ignored.

4.4 Quantitative Results

The present study set out to test a total of eight hypotheses. A variety of methods of data analysis were used to evaluate these hypotheses, including multi-group confirmatory factor analysis, Spearman's Rho, structural equation modelling, and factorial ANOVA. Table 4 from section 3.8.6 outlines the conditions against which the proposed hypotheses were evaluated, while Table 8 below provides a summary of the method of analysis and outcome for each of the hypotheses. Following this, the results for each hypothesis are discussed in greater detail.

Table 8

Summary of Hypotheses, Analysis Method, and Outcomes

Hypothesis	Method of Analysis	Outcome
H1: Younger generations will demonstrate higher mental health knowledge than older generations	Multi-Group Confirmatory Factor Analysis	Not Supported
H2: Younger generations will demonstrate more positive attitudes towards mental health and help-seeking than older generations	Multi-Group Confirmatory Factor Analysis	Partially Supported
H3: Women will demonstrate higher mental health knowledge than men	Multi-Group Confirmatory Factor Analysis	Supported
H4: Women will demonstrate more positive attitudes towards mental health and help-seeking than men	Multi-Group Confirmatory Factor Analysis	Supported
H5: Younger generations will be more likely to provide 'false positive' responses to vignette cases (i.e., incorrectly identifying the presence of a mental disorder when presented with a vignette describing normal levels of distress to a difficult situation) than older generations	Spearman's Rho	Not Supported
H6: RE partially mediates the relationship between gender and attitudes towards mental health and help-seeking (with men having higher scores for RE, and RE being negatively related to attitudes towards mental health and help-seeking)	Structural Equation Modelling	Not Supported
H7: Higher overall MHLS scores will be associated with higher Overall Recognition Accuracy in response to the vignette cases	Spearman's Rho	Supported
H8: The gender gap in mental health literacy will be smaller for younger generations	Factorial ANOVA	Not Supported

4.4.1 Hypotheses 1-4: Measurement Invariance Testing

Prior to testing for differences between the groups of interest, it was important to first examine the overall fit of the proposed model. As noted in the previous section, it was necessary to aggregate the items of three of the latent variables in the model: Risk Factors and Causes, Self-Treatment, and Professional Help. The output in RStudio demonstrates that the model was not a good fit for the data, given that the CFI was below .90 (CFI = .74), the SRMR was over .08 (SRMR = .10), and the RMSEA was over .08 (RMSEA = .09) (Bentler, 1990; Browne & Cudeck, 1992; Hu & Bentler, 1998). As such, the null hypothesis of measurement invariance was rejected as the model failed to survive the initial test of configural invariance. In line with the preregistration document, the subsequent levels of measurement invariance were still evaluated despite the failure to achieve configural invariance.

When the model was run across generations, similar figures were produced (CFI = .73; SRMR = .10; RMSEA = .10). For generation, the conditions were not met at the two additional levels of measurement invariance: metric invariance (CFI = .71; SRMR = .12; RMSEA = .10) and scalar invariance (CFI = .69; SRMR = .12; RMSEA = .10). The null hypothesis of measurement invariance was also rejected due to the change greater than 0.01 for the CFI that was observed between the configural and metric invariance stages (change of 0.02) and between the metric and scalar invariance stages (change of 0.02). The model fulfilled the condition of a change no greater than 0.015 for the RMSEA between the configural and metric invariance stages (change of 0.00) and between the metric and scalar invariance stages (change of 0.00).

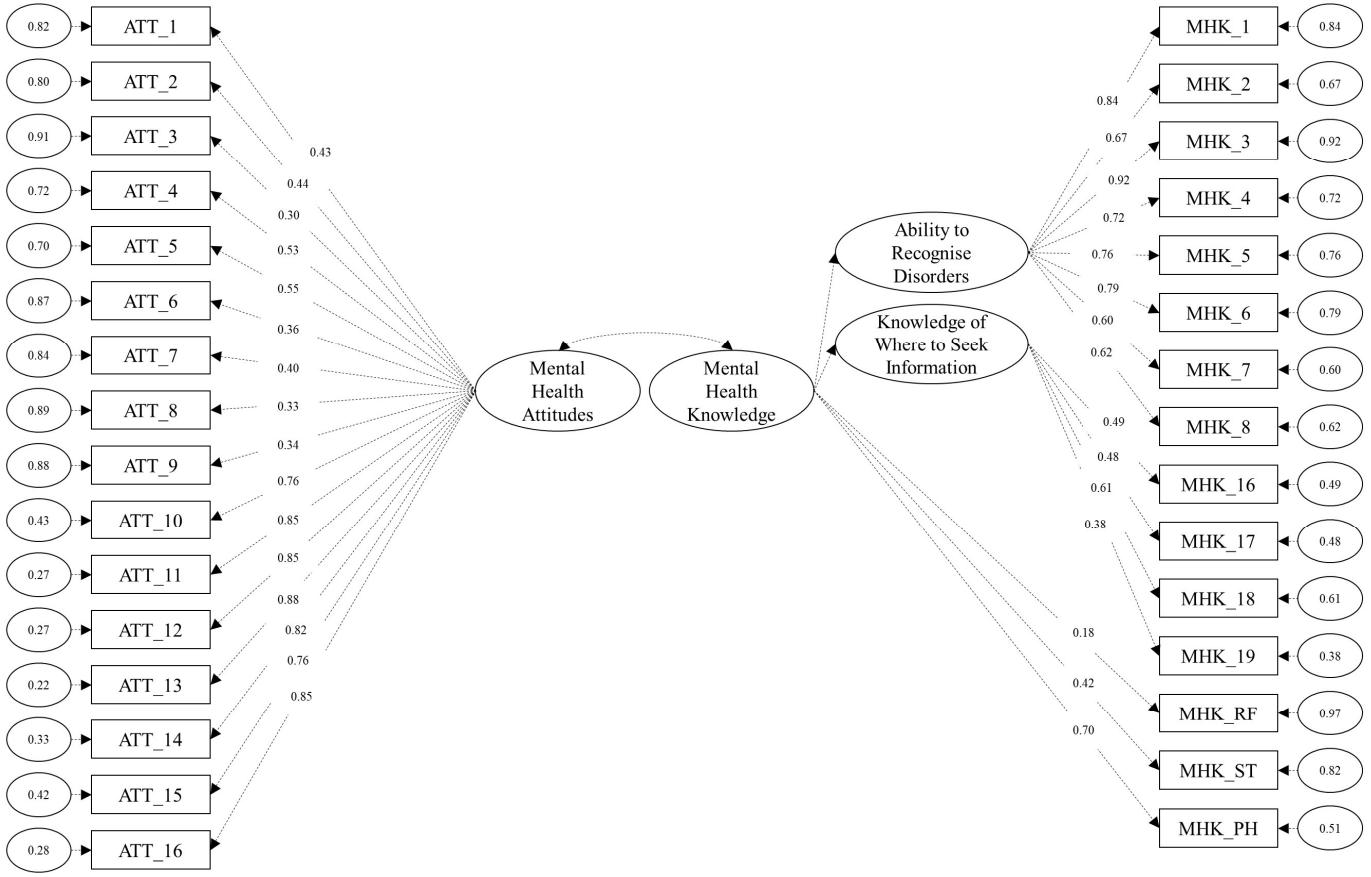
Similar figures were again produced when the model was run for gender (CFI = .73; SRMR = .10; RMSEA = .09). As with generation, the conditions were not met at the two additional levels of measurement invariance for gender: metric invariance (CFI = .73; SRMR

= .11; RMSEA = .09) and scalar invariance (CFI = .72; SRMR = .11; RMSEA = .09). The model fulfilled the condition of a change of no greater than 0.01 for the CFI and 0.015 for the RMSEA between the configural and metric invariance stages (changes of 0.00 and 0.00 respectively) and between the metric and scalar invariance stages (changes of 0.01 and 0.00 respectively).

As outlined in the methods section, despite the model proving to be a poor fit for the data and not surviving the test of measurement invariance, the present study proceeded to evaluate H1-H4 for differences between the groups of interest. The failure to meet the conditions of measurement invariance does, however, raise the possibility that any differences between groups that were observed when evaluating H1-H4 might simply be artefacts of the MHLS having different psychometric properties across the groups of interest. As such, the findings when evaluating differences between groups were considered with a substantial degree of caution and uncertainty due to the lack of evidence for measurement invariance that was found. See Figure 5 for a depiction of the model that was tested.

Figure 5

Model Used to Evaluate H1-H4 and to Test for Measurement Invariance



Note. A one-directional, single-sided arrow extending from a latent variable (e.g., Mental Health Attitudes) to an observed variable (e.g., ATT_1) represents a factor loading. Each observed variable has a residual error variance term, representing the amount of variance left unexplained by the latent factor in relation to the observed variable.

Note. The variables in the model that are item parcels are: MHK_RF (two items), MHK_ST (two items), and MHK_PH (three items).

4.4.2 Differences in Mental Health Knowledge by Generation (H1)

H1 proposed that younger generations would demonstrate higher mental health knowledge than older generations.

The results demonstrate that the latent means were in the following order: Millennial > Generation X > Generation Z > Baby Boomer (see Table 9). Of these pairwise comparisons, the only statistically significant difference in latent means was between Baby Boomers and all three of the other generational cohorts (Baby Boomers vs. Generation X: $LM_{diff} = -.15$, $p < .001$; Baby Boomers vs. Millennials: $LM_{diff} = -.15$, $p < .001$; Baby Boomers vs. Generation Z: $LM_{diff} = -.12$, $p < .001$). Given that the sample estimates of the latent means for mental health knowledge were not in the order hypothesised, H1 was not supported.

4.4.3 Differences in Mental Health Attitudes by Generation (H2)

H2 proposed that younger generations would demonstrate more positive attitudes towards mental health and help-seeking than older generations.

The results demonstrate that the latent means were in the following order: Generation Z > Millennial > Generation X > Baby Boomer (see Table 9). This does not fulfil the primary criteria, as the following pairwise comparisons between generations were not statistically significant: Baby Boomers vs. Generation X; and Millennials vs. Generation Z. However, given the strictness of these criteria, an additional set of conditions was proposed in the inference criteria against which the hypothesis could be considered partially supported. Given that more than one of the pairwise comparisons were statistically significant (Baby Boomers vs. Millennials: $LM_{diff} = -.10$, $p = .003$; Baby Boomers vs. Generation Z: $LM_{diff} = -.11$, $p = .003$; Generation X vs. Millennials: $LM_{diff} = -.09$, $p = .025$; Generation X vs. Generation Z, $LM_{diff} = -.09$, $p = .020$), H2 is considered to be partially supported.

Table 9

Latent Means for Mental Health Knowledge and Mental Health Attitudes by Generational Cohort

	Generation Z (n = 184)	Millennials (n = 213)	Generation X (n = 191)	Baby Boomers (n = 242)
Mental Health Knowledge	0.07 [0.03, 0.11]	0.10 [0.06, 0.15]	0.09 [0.05, 0.14]	-0.05 [-0.09, -0.02]
Mental Health Attitudes	-0.08 [-0.13, -0.02]	-0.09 [-0.14, -0.03]	-0.17 [-0.23, -0.11]	-0.19 [-0.24, -0.13]

Note. Latent mean [95% confidence interval]. Mental Health Knowledge and Mental Health Attitudes are treated as subscales of the overall MHLS score.

4.4.4 Differences in Mental Health Knowledge by Gender (H3)

H3 proposed that women would demonstrate higher mental health knowledge than men.

The results demonstrate that the mental health knowledge latent mean for women was higher than that of men (LM_{diff} = .12, p < .001) (see Table 10). As such, H3 is supported.

4.4.5 Differences in Mental Health Attitudes by Gender (H4)

H4 proposed that women would demonstrate more positive attitudes towards mental health and help-seeking than men.

The results demonstrate that the mental health attitudes latent mean for women was higher than that of men (LM_{diff} = .21, p < .001) (see Table 10). As such, H4 is supported.

Table 10

Latent Means for Mental Health Knowledge and Mental Health Attitudes by Gender

	Men (n = 418)	Women (n = 401)
Mental Health Knowledge	0.00 [0.00, 0.00]	0.12 [0.07, 0.16]
Mental Health Attitudes	0. 0.00 [0.00, 0.00]	0.21 [0.15, 0.27]

Note. Latent mean [95% confidence interval]. Mental Health Knowledge and Mental Health Attitudes are treated as subscales of the overall MHLS score. Men are the reference category for the analysis and therefore the latent mean values for men are displayed as 0.00.

4.4.6 Differences in False Positive Likelihood by Generation (H5)

H5 proposed that younger generations would be more likely to provide 'false positive' responses to vignette cases (i.e., incorrectly identifying the presence of a mental disorder when presented with a vignette describing normal levels of distress to a difficult situation) than older generations.

While the survey captured the responses as 1 = yes and 2 = no, the data was recoded using RStudio to 0 = no (i.e., "true negative") and 1 = yes (i.e., "false positive). The correlation of this measure against the numerical unit assigned to each generational cohort group (i.e., 1 = Generation Z, 2 = Millennials, 3 = Generation X, 4 = Baby Boomers) was then used to evaluate H5. When answering the first question of the third vignette, participants were also provided with the option of responding by selecting "don't know." After discussions with the writer's supervisors, the decision was made to exclude those who responded "don't know" to this question (n = 74 participants). The rationale for this decision is that by excluding the "don't know" responses, the data for this question have been simplified to a "yes" vs. "no" dichotomy, where "yes" (or 1 in the recoded data) represents a false positive and "no" (or 0 in the recoded data) represents a true negative. While the "don't

know" responses were technically incorrect responses, they are not a false positive identification. For this reason, they were excluded from the evaluation of H5.

The overall False Positive Likelihood figures along with the figures for this measure across the gender and generational groups can be found in section 4.1. A higher mean score on this measure indicates a higher False Positive Likelihood.

The Spearman's correlation for H5 indicated a positive and significant correlation between generational cohort and False Positive Likelihood with a correlation coefficient of $r = .10$, $p = .005$, 95% CI [0.02, 0.18]. As such, H5 is not supported. In fact, this is the opposite direction to what was predicted.

4.4.7 Indirect Effect of Gender on Mental Health Attitudes via Restrictive Emotionality (H6)

H6 proposed that restrictive emotionality would partially mediate the relationship between gender and attitudes towards mental health and help-seeking (with men having higher scores for restrictive emotionality and restrictive emotionality being negatively related to attitudes towards mental health and help-seeking).

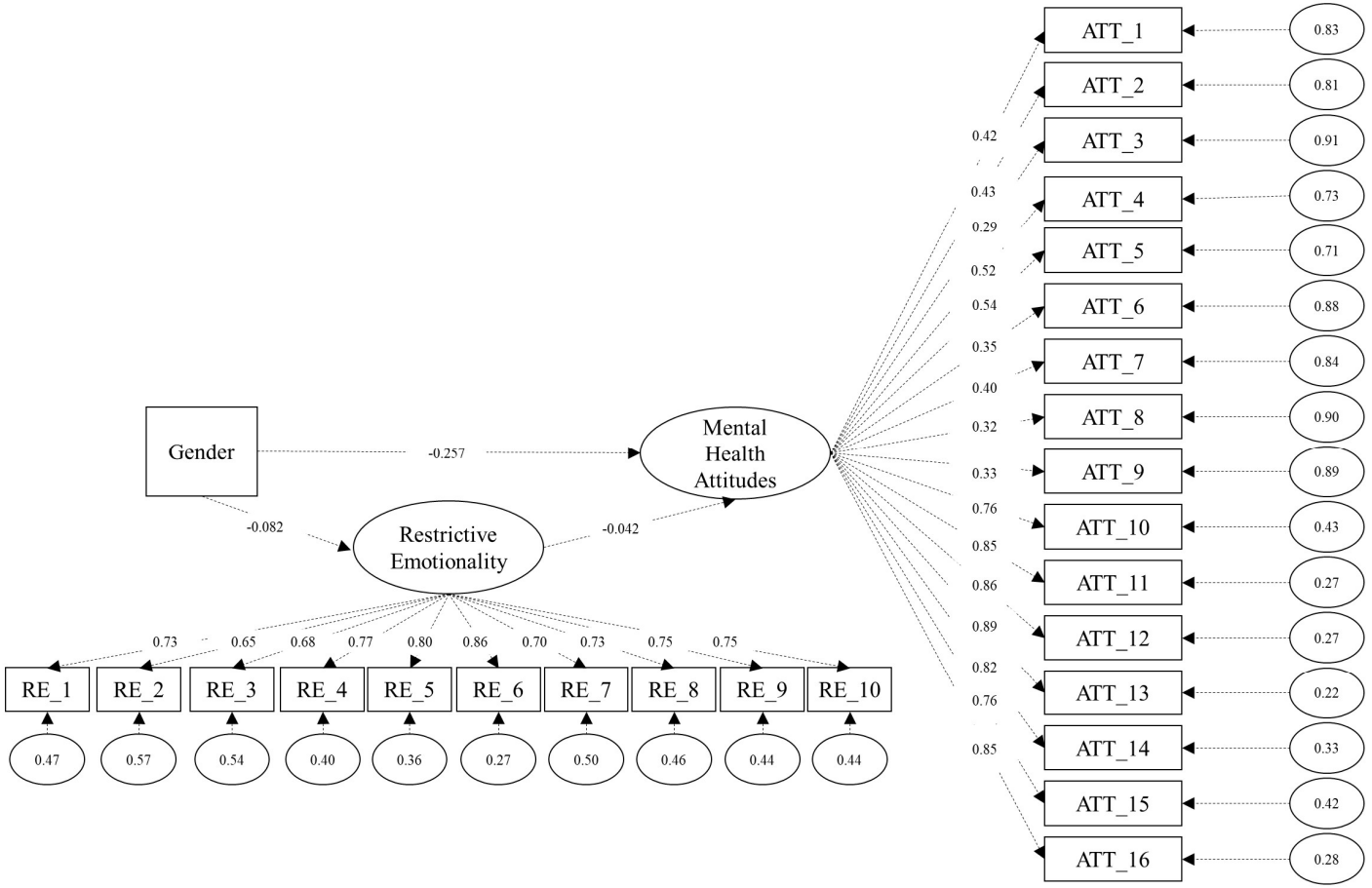
A mediation model was estimated to evaluate whether H6 is supported, as shown in Figure 6. The variables included in the model are as follows: gender was a dichotomous variable where 1 = man and 2 = women; restrictive emotionality was a latent variable loading on the 10 items from the restrictive emotionality subscale; mental health attitudes was a latent variable loading on 16 items from the MHLS. The model produced a CFI of 0.77, a SRMR of 0.12, and a RMSEA of 0.11. Given that the CFI was below 0.9, the SRMR was over 0.08, and the RMSEA was over 0.08, the model is not a good fit for the data (Bentler, 1990; Browne & Cudeck, 1992; Hu & Bentler, 1998). The estimated total effect of gender on mental health attitudes was positive and significant (unstandardised coefficient = .26, $p <$ .001). When controlling for gender, there was a negative but not significant estimated effect

of restrictive emotionality on mental health attitudes (unstandardised coefficient = -.04, p = .318). There was a negative and significant association between gender and restrictive emotionality (unstandardised coefficient = -.08, p = .028), indicating that men had higher restrictive emotionality scores than women. The results also showed a positive and significant direct effect[5] of gender on mental health attitudes (unstandardised coefficient = .26, p < .001), indicating that women had higher scores for mental health attitudes than men. The indirect effect of gender on mental health attitudes via restrictive emotionality was positive and not significant (unstandardised coefficient = .00, p = .406). For this reason, H6 is not supported.

[5] In discussing analyses of mediation, I use the terms "direct effect" and "indirect effect", as this is standard terminology and conveys the fact that these statistics are estimates of causal effects. The cross-sectional design nevertheless means that these statistics come with substantial uncertainty attached as estimates of causal effects.

Figure 6

Mediation Model Used to Evaluate the Indirect Effect of Gender on Mental Health Attitudes via Restrictive Emotionality



Note. RE refers to restrictive emotionality items; ATT refers to Mental Health Attitude items. A single-headed arrow from one latent variable (e.g., Mental Health Attitudes) to another depicts a directional relation path. A one-directional, single-sided arrow extending from a latent variable (e.g., Mental Health Attitudes) to an observed variable (e.g., ATT_1) represents a factor loading. Each observed variable has a residual error variance term, representing the amount of variance left unexplained by the latent factor in relation to the observed variable.

4.4.8 Association Between MHLS Scores and Overall Recognition Accuracy (H7)

H7 proposed that higher overall MHLS scores would be associated with higher Overall Recognition Accuracy in response to the vignette cases.

The data relevant to the evaluation of H7 were collected via the vignette questions (see section 3.4.2 for the vignettes and section 3.4.6 for details of how this measure was calculated). The Spearman's correlation for H7 indicated a positive correlation between MHLS score and Overall Recognition Accuracy with a correlation coefficient of $r = .14$, $p < .001$. As such, H7 is supported.

4.4.9 Differences in Gender Gap for MHLS Scores by Generation (H8)

H8 proposed that the gender gap in mental health literacy would be smaller for younger generations.

Since the F test used to evaluate the interaction between generational cohort and gender was not significant, $F(3, 811) = .855$, $p = .464$, H8 is not supported. See Table 11 for the mean MHLS scores crossed by gender and generation.

Table 11

Cross Tabulation of Mean Scores for Mental Health Knowledge by Generation and Gender

	Men	Women
Generation Z	63.26	65.64
Millennials	63.65	65.24
Generation X	63.38	66.60
Baby Boomers	60.59	64.25

Note. Total sample size: $N = 830$.

4.5 Qualitative Results

Content analysis was applied to the open-ended data collected from responses to the following question: "Could you explain how you feel messaging around mental health in [Aotearoa New Zealand or Australia] has changed in the past 10-20 years?" Given that participants only answered the question if they answered "yes" to an initial question asking whether they felt that mental health messaging had changed in the past 10-20 years, not all *n* = 241 Baby Boomer participants answered the follow-up question. In response to the first of the two questions, *n* = 197 (81.7%) answered "yes", *n* = 21 (8.7%) answered "no", and *n* = 23 (9.5%) answered "don't know". Of the *n* = 197 who proceeded to answer the second question, only *n* = 8 left a blank response. Of the total responses received excluding blank responses, the average number of words per response was 14.7. While several responses included only one word, the longest response recorded was 105 words.

4.5.1 Categories, Subcategories and Codes

Following the process outlined in the methods section, participant responses were coded inductively according to the data. Given the exploratory nature of the research question and the fact that the analysis was reported in a descriptive manner, it was decided that the use of multiple coders to check for interrater reliability would not be required. The initial code frame was revised over several iterations before subsequent categories and subcategories were developed to group the individual codes in a meaningful way. For example, the "increased awareness" code belongs to the subcategory of "changes in attitudes, awareness, and knowledge," which belongs to the wider category of "public awareness, attitudes, understanding, and behaviours towards mental health" (as shown in Table 12). A total of 25 codes, 4 subcategories, and 7 categories were developed through the data. Subcategories were only developed for the two largest categories. The 7 main categories—which will be discussed in this section—are as follows: public awareness, attitudes, understanding, and behaviours towards mental health (67%); media, public campaigns, and communication

(36%); information, resources and support (13%); room for improvement (9%); schools and workplaces (5%); other (10%); and unsure / don't know / blank (4%).

Table 12

Final Code Frame

Category	Subcategory	Code	Quote Example	Count (% who mentioned it)
Public awareness, attitudes, understanding, and behaviours towards mental health				128 (67%)
	Changes in attitudes, awareness, and knowledge			87 (45%)
		Less stigma and more acceptance / openness / normalisation	"I suffer from and have been treated for a mental condition for over 20-25 years and people in general are much more aware and accepting of mental health...no longer all in your head"	62 (32%)
		Increased awareness	"Making more people aware of the existence of it and the number of people affected"	17 (9%)
		Greater recognition that mental illnesses are "real"	"More emphasis on mental health problems being a real disease and not something to snap out of"	11 (6%)
		Improved knowledge about mental health difficulties	"A greater understanding that there are many different types of mental health"	7 (4%)
		Increased focus on men's mental health	"Men with mental health issues are now being encouraged to reach out rather than hide it all away"	2 (1%)

	Changes in behaviour among the general public			64 (33%)
		More openness in talking about mental health difficulties and emotions	"Mental well-being is discussed a lot more and out in the open. Years ago it was a 'no no' to talk about"	59 (31%)
		Increased willingness to seek help	"I feel people are more open to seeking help for mental health issues"	5 (3%)
Media, public campaigns, and communication				70 (36%)
	Quantity and improvement of messaging			50 (26%)
		More prominent, public, and visible messaging (including media coverage)	"For one thing, there is more of it, and it is more prominent"	43 (22%)
		Improved quality of messaging / more positive	"It has improved immensely"	7 (4%)
	Public figures, campaigns, and social media			34 (18%)
		Public figures speaking out about mental health	"Well known personalities ("celebrities") come forward with their own stories and lead campaigns for awareness"	22 (11%)
		Mental health campaigns	"Through public health campaigns, now even more effective"	8 (4%)
		Social media	"Social media has had a very positive and negative effect. People are more vulnerable now"	4 (2%)
Information, resources, and support				25 (13%)

	Improved information availability and quality	"More information available about mental health"	14 (7%)
	Improved accessibility of support and resources	"Help is readily available"	9 (5%)
	Mention of specific resources (helplines, apps, pamphlets etc.)	"Telephone help numbers given on national news programmes"	4 (2%)
Room for improvement			17 (9%)
	Better, but still room for improvement	"Much more openness about the reality and presence of mental illness although there is quite a way to go yet"	10 (5%)
	Issues with accessibility, funding and availability of support	"A lot more messaging around mental health and seeking support, but there isn't really support readily and quickly available…massive gaps in the mental health system and the advertising keeps saying 'get help', 'talk about it' etc."	7 (4%)
	Strain on family members providing support to loved ones	"There is a lot about acknowledging mental health but much for the people around that person and who are affected every day trying to support that person's needs…you can become invisible"	2 (1%)
Schools and Workplaces			9 (5%)
	More initiatives in schools	"It is now covered in schools and students are more open"	8 (4%)
	More workplace and Employee Assistance Programmes (EAP)	"EAP access for employees"	2 (1%)

Other			19 (10%)
	Mental health difficulties are more common now	"More people experience mental illness"	4 (2%)
	Personal experience with mental health difficulties	"When I was first diagnosed with major depressive disorder I had no idea what was happening to me"	4 (2%)
	Less institutionalisation and hospitalisation	"More public awareness has led to…hospitalization and institutionalization being used only in crisis and extreme danger to self or others situations"	4 (2%)
	Critical view towards the concept of mental illness	"I believe mental illness is a social construct and people should just get on with things and stop dwelling on the negative"	3 (2%)
	Other	"More perfect"	6 (3%)
Unsure / Don't Know / Blank		"No idea"	8 (4%)

Public awareness, attitudes, understanding, and behaviours towards mental health. This category was the most frequently mentioned, with the responses of approximately two thirds of participants containing at least one of the codes that fall within this main category. This category is organised into two further subcategories: "changes in attitudes, awareness, and knowledge" (45%) and "changes in behaviour among the general public" (33%). Given the number of responses that fall within these two subcategories, this suggests that a notable proportion of Baby Boomers in Australasia feel there have been observable changes in both attitudes and behaviours towards mental health over the past 10-

20 years. Regarding a change in attitudes and understanding, participants often remarked on how views towards mental health have become less stigmatised and how there is a growing acceptance of mental illness as a legitimate difficulty akin to a physical ailment. This was reflected in comments such as: "Major attempts to remove/reduce the stigma that was a problem. Now very open messaging, indicating this is an illness and not something to be ashamed of." This category reveals the perception among Baby Boomers that not only have attitudes changed over time, but behaviours related to mental health have also shifted. Regarding changes in behaviours, these responses often focused on how people nowadays are more willing to speak openly about mental health and their own struggles. This was frequently contrasted with the past, when it was considered taboo to bring up such issues. This sentiment is captured in responses such as: "Never heard any mention of it as I was growing up and it was hushed up and not talked about." Additionally, participants observed an increased willingness among the population to seek mental health support, relating to the reduction of stigma in this area.

Media, public campaigns, and communication. This was another frequently mentioned category, with 36% of participants mentioning it in their responses. Again, given the number of responses that fell into this category, it was helpful to group the individual codes into the following two subcategories: "quantity and improvement of messaging" (26%) and "public figures, campaigns, and social media" (16%). Participants commonly remarked on the prominence of mental health messaging in the public sphere and the number of different channels that now cover such content. In some responses, the influence of this increased visibility and communication around such topics was also linked back to the normalisation and destigmatisation of mental health difficulties (e.g., "More media attention making others aware it is ok to share mental health issues and they are real;" "Depression particularly has been talked about and ad campaigns around it featuring public figures

therefore making it more 'normal' if there's such a word.") The influence of public figures speaking out about mental health and opening up about their own struggles was also mentioned by a number of participants. Among Baby Boomers from Aotearoa New Zealand, public figures who are commonly associated with mental health such as former All Black John Kirwan and comedian Mike King were mentioned by name (e.g., "I feel that is more acceptable to admit you have a problem and seek help and that is due to people like John Kirwan being front and centre on our screens.").

Information, resources, and support. This category was mentioned by 13% of participants. A number of participants who mentioned this category spoke about how both the quantity and the quality of information related to mental health has increased over the past 10-20 years. At times, responses that fell into this category were again linked to the shift in attitudes towards mental health (e.g., "more sharing of information with people to normalise that it is ok to seek support to talk about what you are feeling."). Participants also commented on how support and resources are now more readily available. Some participants referred to the increased availability of specific resources, such as telephone helplines, apps, and information pamphlets in settings such as health clinic waiting rooms.

Room for improvement. Nine percent of participants mentioned that there was room for improvement with respect to either mental health messaging or mental health in general. While most of these responses acknowledged that the situation had improved over time, they also felt that there was still a way to go in terms of progress. This is reflected in comments such as: "It has become a more open topic but needs a lot more acceptance and greater understanding - not surface thought but deeper. But at least it is being talked about." Other responses that fell into this main category include those that expressed concern about the accessibility and funding of mental health care and support available. Moreover, several responses highlighted the concern that while public messaging now actively encourages

people to seek mental health support, poorly resourced and underfunded mental health care systems in their country mean that support is still not accessible to many. This is captured by responses such as: “Support networks everywhere are overstretched and underfunded. Not for the first time individuals are looking around and wondering how much longer can this go on and at what cost.” Some participants further lamented how this lack of accessible professional care has led to situations where those in need are being supported by family members instead, such as: “Many people with mental health illnesses are now managed by family rather than an ever-decreasing pool of mental health professionals.”

Schools and workplaces. The “schools and workplaces” category was mentioned in the responses of 5% of participants. As its title suggests, this category refers to comments made about the increased presence of mental health messaging and support within academic settings and workplaces. With respect to the former, participants observed how mental health content and support has now been formally established within school settings, including comments such as: “the school curriculum is more comprehensive” and “more awareness in schools through the ‘social worker in schools’ initiative.” Regarding workplaces, participants again remarked on the presence of initiatives and programmes within organisations designed to support the mental health of their employees.

Other. A number of responses (10%) did not neatly fit within the parameters of the other categories. As a result, the ‘other’ category represents a collection of responses that stand apart from the other categories in terms of their content. Some participants commented on their own mental health experiences, such as: “I suffer from and have been treated for a mental condition for over 20-25 years.” Several responses also commented on their perception of how the incidence of mental health conditions has increased over time, including: “More people experience mental illness.” Other responses indicated a more critical stance towards mental illness that was at odds with comments suggesting an increased

openness towards the topic, including: “I believe mental illness is a social construct and people should just get on with things and stop dwelling on the negative.” Other responses in this category were simply unrelated to the topic at hand, such as “better pop culture.”

Unsure / Don’t Know / Blank. This category does not convey meaning in the same sense as the other classifications and instead represents those responses that were either left blank or included a response indicating the participant was unsure or unable to provide a comment. These included responses such as: “unsure” and “no idea.” In total, 4% of responses were classified under this category.

4.5.2 Analysis of Qualitative Findings

While the preceding subsection provided a description of the qualitative data received, this subsection aims to analyse these results by presenting the broader observations that emerged from the data. These are discussed below.

A shift in societal attitudes towards mental health. A consistent message across the responses received was a perception that there had been a notable shift in the way the general public views mental health. Baby Boomers noted that while in the past it was a taboo subject that was typically swept under the carpet, there is now a recognition of the legitimacy of mental health difficulties and an acceptance of their impact on overall wellbeing and health. Responses were quick to acknowledge the increased presence of mental health campaigns, messaging, advertising, media coverage, and public figures speaking openly about their own struggles. Moreover, many comments highlighted how this public exposure to mental health content has contributed to reducing the stigma on the topic and led to greater acceptance and inclusivity. The general sentiment of the responses appears to reveal a perception that mental health messaging has become entrenched across different aspects of society, including in the news and media, within the workplace, and in schools. Whereas discussions around mental

wellbeing may have previously been confined solely to discrete and private settings, these conversations have become more visible and accepted within everyday life.

Behavioural changes towards mental health. Across the responses received, Baby Boomers often highlighted the link between this shift in society's attitudes and awareness and a subsequent change in behaviour. One of the most common behavioural shifts mentioned was an increased openness among the general population to talk about mental health issues. Again, this was contrasted against the previously held beliefs around the taboo nature of the subject. As a result, comments recalled a time gone by when potential conversations were stifled, concerns were dismissed and delegitimised, and personal struggles were swept under the carpet. Additionally, Baby Boomers observed how the willingness to seek help and support for mental health difficulties has altered with time. Whereas previously it may have been expected that people suffer in silence with such struggles and learn to cope with their difficulties in a self-reliant manner, the responses indicated an increased openness to seeking support, be it professional care or expressing concerns to loved ones.

Increased awareness and reduced stigma vs. a lack of funding and availability. One concern raised by several participants related to the actual availability of support. These responses noted that while there has been an increase in messaging to the general public to seek support for mental health difficulties, an underfunded mental health system means that people may become frustrated and feel hopeless when they are unable to access support when they need it most. When discussing mental health literacy, this raises important questions about which are the most effective levers to address the issue of people not receiving appropriate mental health care. That is, it may be that efforts to address this by introducing initiatives designed to raise mental health literacy and encourage help-seeking may be significantly hindered by a system that is underfunded and ill-equipped to provide timely support. This sentiment is perhaps best captured by the following response: "A lot more

messaging around mental health and seeking support, but there isn't really support readily and quickly available…massive gaps in the mental health system and the advertising keeps saying 'get help', 'talk about it' etc."

Critical views towards mental illness still exist. Contrary to the general tone of the responses that communicated an increased recognition of the legitimacy of mental illnesses and reduced stigma, some participants expressed more critical views towards the concept of mental illness. This ranged from the idea that mental illness is a social construct that simply requires people to change their mindset to the notion that some people use mental illness as an excuse to behave in particular ways. While there were only a handful of responses that spoke to this point, it is an important reminder that despite the changes in attitudes noticed by many Baby Boomers, a plurality of views exist. Moreover, it may be the case that such views are more prominent than the data suggests. Indeed, it is important to consider that the present study was advertised to Baby Boomers on Facebook, encouraging them to take part in a study explicitly about mental health. As such, it is possible that those with critical views towards mental illness may have been less likely to participate.

5. Discussion

The overall aim of the present study was to enhance our understanding of gender and generational differences in mental health literacy. This was carried out by initially exploring whether these established gaps exist in an Australasian context before testing for measurement invariance to evaluate whether any group differences may be influenced by varying measurement properties. The influence of additional variables (such as restrictive emotionality) was explored to add to our understanding of what may contribute to any observed differences between groups. Eight quantitative hypotheses were proposed and evaluated alongside an exploratory qualitative question, with all the data collected using an online survey. This chapter will initially discuss the quantitative survey results for the proposed hypotheses, followed by a discussion of the supplementary qualitative data that was collected. Next, the identified strengths and limitations of the present study will be explored. After this, directions for future research are proposed. Finally, the clinical implications of the findings from this study will be discussed.

5.1 Discussion of Quantitative Findings

5.1.1 Gender and Generational Differences in Mental Health Literacy (H1-H4)

Hypotheses 1, 2, 3 and 4 address one of the key aims of the study, which was to investigate differences across both generations and genders concerning two key components of mental health literacy: mental health knowledge and mental health attitudes. As such, the present study hypothesised that: younger generations will demonstrate higher mental health knowledge than older generations (H1); younger generations will demonstrate more positive attitudes towards mental health and help-seeking than older generations (H2); women will demonstrate higher mental health knowledge than men (H3); women will demonstrate more positive attitudes towards mental health and help-seeking than men (H4).

As outlined in the results section, the proposed model failed to survive the tests of measurement invariance. Measurement invariance testing is used to evaluate whether an unobserved construct (e.g., mental health knowledge) is assessed in the same manner using a measurement tool (e.g., the MHLS) across different groups (e.g., men vs. women). Given that the proposed model did not survive the initial test of configural invariance, any differences observed across gender and generation may reflect that respondents within these groups attach different meanings to particular items on the MHLS. As such, there is a potential bias present that is caused by measurement non-invariance, which in turn reduces our confidence in concluding that differences within these groups on the latent constructs of interest (i.e., mental health knowledge and mental health attitudes) are, in fact, valid differences.

It is important to consider the lack of evidence of measurement invariance found in the present study alongside the existing literature. The MHLS has been translated into several different languages and is considered to demonstrate acceptable validity, including in Chinese (Chen et al., 2021) and Persian (Harouni et al., 2021; Heizomi et al., 2020). However, the findings of these studies do suggest several issues when evaluating the construct validity of the scale. For instance, the factor analyses performed by Harouni et al. (2021) and Heizomi et al. (2020) resulted in models with a different number of factors compared to the original study by O'Connor and Casey (2015) and also involved the removal of 11 and five items respectively. The authors of these studies also consistently highlight the possible influence of culture on the applicability of the measure. For instance, Chen et al. (2021) observe that Chinese culture is influenced by Confucianism and that Chinese people typically demonstrate a higher stigma against mental health conditions. Additionally, Harouni et al. (2021) hypothesised that a possible reason for the need to remove 11 items was that some items were difficult for the general population to understand. Even if these studies were not formally evaluating measurement invariance, they do suggest that the measure may plausibly show

different measurement properties across groups. As such, while the MHLS has been validated in different languages and countries, the results from the present study may not be entirely inconsistent with several of the concerns the existing research has suggested.

While most of the previous studies did not test for measurement invariance, one study that has carried this out was a study validating a French version of the MHLS that was administered to students at the University of Bordeaux (Montagni & González Caballero, 2022). The study tested for measurement invariance across gender (men compared to women), with the findings supporting measurement invariance. As such, the results of the present study are inconsistent with this study. There are several reasons this may be the case. One possible reason could be that Montagni and González Caballero's (2022) study used a more homogenous sample: students from one university, with 37.6% of the sample studying healthcare. Given the homogeneity of this sample in terms of age, educational level, and area of academic interest, it is possible that respondents were more likely to interpret items from the MHLS in a similar manner. This contrasts with the present study, which recruited its sample from the general population across two countries. A second possible reason is that the present study tested a different model to the study by Montagni and González Caballero (2022). As such, the difference in the evaluation of measurement invariance between the two studies may not be entirely unexpected.

As outlined in the literature review (section 1.2.5), mental health literacy as an area of research has attracted criticism regarding how the construct has been inconsistently defined and measured. While O'Connor and Casey (2015) have done an admirable job in trying to redress this by introducing an element of rigour to the measurement of the construct with the development of the MHLS, the present study's findings suggest there is work still to be done. In adhering to the original construct definition proposed by Jorm et al. (1997), the MHLS could be considered overly ambitious in its attempt to capture a construct that is so far-

reaching in its scope. For instance, one of the six components comprising the construct of mental health literacy as outlined in the development of the MHLS is "attitudes that promote recognition and appropriate help-seeking" (O'Connor & Casey, 2015). It could be argued that this component—even when considered in isolation from the five remaining attributes—may be overly broad in its scope. In their proposed framework for help-seeking measurement, Rickwood and Thomas (2012) highlight the lack of consensus concerning the definition of help-seeking. They argue that this is due to the way that the distinct components of such a broadly defined construct are operationalised and state that "attitude, or general orientation, is not truly a measure of help-seeking" (p. 180). Given that attitudes represent just one of six components of mental health literacy as measured by the MHLS, this may reflect the sheer broadness of the construct's definition.

In addition to these criticisms, differences in the samples used between the present study and the development of the MHLS are also important to consider. The sample used for this study spanned two countries, recruited from the general public across a range of demographic variables, and used a robust sample ($N = 830$) that provided sufficient power to detect issues with measurement invariance. This differs from the development of the MHLS, which in the final phase of psychometric testing used a sample of $n = 372$ first-year psychology students (only $n = 94$ of whom were male) and $n = 43$ mental health professionals (only $n = 6$ of whom were male) (O'Connor & Casey, 2015). The authors themselves identified the homogeneity of this group as a potential limitation compared to a more representative community sample and also noted that there are many different ways that each attribute could have been interpreted (O'Connor & Casey, 2015). Previously mentioned studies that have validated the measure in other languages have also used more homogenous samples, such as Chinese teachers within the Henan province (Chen et al., 2021) and students from the University of Bordeaux (Montagni & González Caballero, 2022).

Of particular relevance is a recent systematic review of studies that have investigated the measurement properties of the MHLS, which included one of the creators of the MHLS as a listed author (ElKhalil et al., 2024). The review concludes that while the quality of the development of the MHLS was considered ‘adequate’, the content validation and translation processes of the studies examined were considered ‘doubtful’ and ‘inadequate’ respectively, according to COSMIN standards. Additionally, while the methodology and results ratings of structural validity and internal consistency were ‘very good’ and ‘positive’ respectively, there were also notable variations in the structure of the MHLS across the studies. The authors conclude by suggesting there may be considerable cross-cultural variability and that structural variability may be the result of viewing mental health literacy as a construct instead of a theory.

Considering these points, the failure of the test of measurement invariance may lend support to Spiker and Hammer's (2019) proposal to reconceptualise mental health literacy as a multi-construct theory instead of a multidimensional construct. That is, they suggest developing a precise outline of the different variables within this area that explains how and why these variables are related to one another to predict certain outcomes. The authors argue that in taking this approach, different constructs that comprise mental health literacy (e.g., mental health knowledge, attitudes, help-seeking) could be retained while keeping these construct definitions narrow and concise. The findings of the present study lend credibility to this, as it may be the case that the lack of measurement invariance reflects the overly ambitious goal of using a single instrument to accurately capture an overarching construct that is comprised of numerous separate constructs. That is, it may be unrealistic to expect that respondents with different demographic characteristics would not exhibit biases or differing interpretations across the broad range of constructs measured by the MHLS. Overall, the results from the present study suggest that perhaps the notion of reconceptualising mental

health literacy as a multi-construct theory may be worth exploring further through future research.

5.1.1.1 Generational Differences in Mental Health Literacy (H1-H2)

The next sections will proceed to discuss any differences in latent means between the groups of interest. It is important to note that this will be done in full recognition of the fact that the present study has found a lack of evidence for measurement invariance; that is, we are unable to confidently rule out the possibility that these differences are measurement artefacts. As such, any conclusions drawn from these differences are made tentatively and with caution.

Existing research indicates that older adults typically exhibit lower mental health literacy than younger adults (Farrer et al., 2008; Fisher & Goldney, 2003). With this in mind, the present study hypothesised that younger generations would demonstrate higher mental health knowledge and more positive mental health attitudes compared to older generations.

As outlined in the results section, H1 was not supported and H2 was partially supported. For H1, the latent means were in an order (i.e., Millennial > Generation X > Generation Z > Baby Boomer) that differed from that which was hypothesised. For H2, however, the latent means were in the hypothesised order (Generation Z > Millennial > Generation X > Baby Boomer). Additionally, four of the six pairwise comparisons between generations were statistically significant. Despite the failure of the model to meet the conditions for measurement invariance, H2 is considered partially supported according to the inference criteria of the present study.

Concerning mental health knowledge, the findings of the present study were contrary to what was anticipated. Farrer et al. (2008) found that older adults (70+) were poorer at correctly identifying depression and schizophrenia than younger age groups, while Fisher and Goldney (2003) found that those aged 65-74 years did not perform as well as those aged 15-

24 years in terms of recognition of a mental health condition in a vignette. There are several possibilities as to why the findings of the present study are not consistent with the existing research. Firstly, the present study arguably applied more stringent criteria to determine whether differences in mental health knowledge between generations exist. Not only did the present study evaluate measurement invariance, but a defined set of inference criteria that would need to be met was also proposed and preregistered, including a specified order of latent means across generations and statistically significant pairwise comparisons. This differs substantially from the methodology applied by Fisher and Goldney (2003), whose comparisons were solely between 65-74 year olds and 15-24 year olds. Despite H1 not being supported, the findings of the present study are effectively similar to those of Fisher and Goldney (2003), given that the latent means for mental health knowledge of Baby Boomers were statistically significantly lower than all other generations. Secondly, the approach to measuring mental health knowledge in the present study differed from these studies. Whereas the previously mentioned studies utilised the vignette methodology, the present study used the MHLS to measure mental health knowledge.

Another point of note from the findings was how the latent mean for mental health knowledge of Baby Boomers was statistically significantly lower than all three other generational groups, while there were no other statistically significant differences between the other groups. Indeed, there was little difference between the latent means across the remaining three groups. It may be possible that while mental health messaging may not have been as prevalent during the childhoods of Generation X and Millennials compared to Generation Z, these two generational groups may still have been capable of effectively acquiring this information as adults. Additionally, by the very nature of having lived longer than Generation Z, the mental health knowledge of these groups may have been positively influenced by the likelihood of experiencing a mental health condition or having a family

member or close friend undergo a diagnosis. For instance, one study found that the mental health knowledge of siblings of individuals who have psychosis was higher than the general population (Sin et al., 2016), while another found that mental health literacy may be associated with a personal history of mental health care (Dahlberg et al., 2008).

However, this possible effect does not appear to have extended to Baby Boomers and it is currently unclear what may underlie the lower knowledge scores for this group. One possible explanation may be a lasting impact of the lack of mental health messaging combined with more stigma towards mental illness during both the formative and early adulthood years of this group making it less likely that peers in this cohort would seek help for and speak about their own mental health difficulties. Future research is required to more precisely explore the causal influences underlying this difference. Additionally, it is important to consider how the present study found a lack of evidence for measurement invariance and that it is possible that this could be explained by differences in measurement properties between the groups.

The findings from the present study concerning mental health attitudes reveal a slightly different pattern to those for mental health knowledge. H2 was considered to be partially supported given that the latent means for mental health attitudes were in the hypothesised order and four statistically significant pairwise comparisons were found. The failure to survive the test of measurement invariance notwithstanding, these findings suggest the possibility that mental health knowledge and mental health attitudes are influenced in different ways. For instance, it is possible that mental health attitudes may be influenced to a greater extent by cohort effects (e.g., exposure to mental health messaging) than knowledge. However, it is the role of future research to identify specific age, period, and cohort effects and explore how they interact with these variables.

The differing results between knowledge and attitudes across generational cohorts may also lend further support to the reconceptualisation of mental health literacy as a multi-construct theory. By treating knowledge and attitudes independently instead of solely focusing on the wider umbrella of mental health literacy, the present study makes a novel contribution to the literature by identifying that the nature of possible generational differences across these two constructs may differ. It is possible for future research that adopts a multi-construct approach to more precisely define the constructs that comprise mental health literacy (e.g., help-seeking efficacy, mental health attitudes, stigma, mental health knowledge etc.) and subsequently explore the nature, direction, and strength of the relationships between these variables.

5.1.1.2 Gender Differences in Mental Health Literacy (H3-H4)

Existing research has consistently found that men have lower mental health literacy than women (Cotton et al., 2006; Furnham & Swami, 2018; Hadjimina & Furnham, 2017; Miles et al., 2020). As such, the present study hypothesised that women would demonstrate higher mental health knowledge and more positive mental health attitudes compared to men. The present study proposed that for H3 to be considered supported, the latent mean for mental health knowledge of women would need to be statistically significantly higher than the mean score of men. For H4 to be considered supported, the latent mean for mental health attitudes of women would need to be statistically significantly higher than the mean score of men.

As reported in the results, H3 and H4 were supported as women demonstrated statistically significantly higher latent mean scores for both mental health knowledge and attitudes compared to men. The lack of measurement invariance notwithstanding, these results are consistent with the existing literature. While research demonstrating gender differences in mental health literacy in Australia is well established (Cotton et al., 2006;

Gibbons et al., 2015), the same cannot be said for Aotearoa New Zealand. One study exploring the levels of mental health literacy among New Zealand adolescents did not find evidence of a gender difference (Tissera & Tairi, 2020). However, the authors did identify the need for future research with a larger sample size, given that the study had a small sample with a gender imbalance with only $n = 22$ males taking part (Tissera & Tairi, 2020). Therefore, the gender difference found in the present study for mental health knowledge and attitudes is consistent with research in other countries.

5.1.2 False Positive Responses to Vignette Cases (H5)

Drawing from the burgeoning body of research known as 'concept creep,' assertions made by Lukianoff and Haidt (2015) and Haslam (2016) suggest that younger generations may hold broader concepts of harm compared with older generations. Recent research has indicated that there may be evidence of concept creep within the mental health field. For instance, one study by Baes et al. (2023) produced findings that the authors suggest may reflect a broadening of mental health terms and a growing tendency to view uncomfortable emotional experiences through a pathological lens. As such, the present study proposed the hypothesis that younger generations will be more likely to provide 'false positive' responses to vignette cases (i.e., incorrectly identifying the presence of a mental disorder when presented with a vignette describing normal levels of distress to a difficult situation) than older generations.

Given that the Spearman's correlation indicated a positive and significant correlation between generational cohort and False Positive Likelihood, H5 was not supported. That is, younger generations were not necessarily more likely to provide a false positive than older generations (at least for the disorders and stimuli used in our survey). While concept creep as a body of literature—especially with a mental health focus—is still largely in its infancy, the results of the present study contrast the messaging of many voices in this field that suggest

there is an expanding concept of harm among younger generations concerning mental health terminology. The results of the present study are not consistent with this perception.

It is also interesting to consider the results of the present study within the wider context of perceived conflict between generations. Duffy (2021) speaks about the notion of a 'culture war' that is "often presented as being waged between the 'snowflake' or 'social justice warrior' young and the 'out-of-touch' or 'ok, boomer' old" (p. 13). He asserts that while differences across attitudes, views and behaviours do exist between generational groups, these are often exaggerated and there is often not a great deal of difference between cohorts (except for the eldest in society). For instance, Duffy (2021) draws attention to longitudinal data examining the percentage of white British adults who reported that they would mind if one of their relatives were to marry a person of black or West Indian origin. In 1983, over 40% of Baby Boomers agreed with this statement, which was notably lower than the generation preceding them (the Pre-War Generation). By 2013, this figure had halved for Baby Boomers. While their agreement scores were higher than those of Generation X and Millennials in 2013, the differences were much greater between Baby Boomer views and Pre-War views (which remained over 40% by 2013). This data demonstrates that while high-profile examples of extreme viewpoints on issues can be amplified by the media, this is not necessarily a reliable barometer for identifying a generational break. Rather, the trajectory of social and cultural change is often messier and more nuanced than may be portrayed, requiring an appreciation of the interplay between cohort, period, and lifecycle effects.

5.1.3 Assessing how Gender can Affect Mental Health Attitudes Through the Mediator of Restrictive Emotionality (H6)

With the established gender difference in mental health literacy in mind, the present study sought to enhance our understanding of what might be underlying this difference. Given that previous research has found associations between restrictive emotionality and

attitudes towards therapy and help-seeking (Blazina & Jr, 1996; Nagai, 2024; Simonsen et al., 2000), the present study hypothesised that restrictive emotionality would partially mediate the relationship between gender and attitudes towards mental health and help-seeking. That is, men would have higher restrictive emotionality scores than women and restrictive emotionality would have a negative association with attitudes towards mental health and help-seeking. It should be noted that with the lack of evidence found in the present study to support measurement invariance, one potential explanation for the gender differences in mental health attitudes found in this study and existing research could simply be measurement bias. However, the present study adds to our understanding of this area by exploring how restrictive emotionality may mediate the relationship between gender and attitudes.

For H6 to be supported, the indirect effect of gender on mental health attitudes via restrictive emotionality was required to be positive and statistically significant. While the data showed that the effect was in the hypothesised direction (i.e., positive), this was not statistically significant. As such, H6 is not supported. This finding is inconsistent with existing research and the assertion that "a man who generally conforms to the norm of emotional stoicism is likely to feel that seeking help…is a threat" (Addis & Mahalik, 2003, p. 10). Given the cross-sectional design of the present study, its ability to draw conclusions about causal effects is limited (Rohrer et al., 2022). However, this analysis did facilitate the testing of whether the proposed hypothesis about causal effects was consistent with the data. The findings demonstrate that this was not the case and H6 is not supported.

A possible reason that could account for the inconsistency between the present study's findings and existing research is the combination of items from the MHLS that were used to evaluate mental health attitudes. While previous research has specifically indicated an association between help-seeking attitudes and restrictive emotionality (Blazina & Jr, 1996;

Nagai, 2024; Simonsen et al., 2000), the latent construct of mental health attitudes used in the present study is comprised of a wider range of items. While items referring to help-seeking attitudes are included (e.g., "seeing a mental health professional means you are not strong enough to manage your own difficulties"), the scale also includes items that refer to general stigma towards mental health (e.g., "people with a mental illness could snap out if it if they wanted"). For instance, Nagai (2024) found that while restrictive emotionality was negatively associated with attitudes towards help-seeking, it was not related to help-seeking intentions.

This nuanced difference suggests that there may be important differences to consider in the relationship between restrictive emotionality and both help-seeking attitudes and the wider construct of mental health attitudes. For instance, an association may exist—as suggested by prior research—between restrictive emotionality and help-seeking attitudes, but not with stigma towards mental illness. It is also relevant to consider the present study's administration of the restrictive emotionality subscale to women as well as men. While the scale does not include any gender-specific items, it derives from the GRCS, which was developed specifically for men. As such, women may interpret the questions differently from men and thus influence the validity of the gender comparison for this construct.

5.1.4 How MHLS Scores Correspond to Overall Recognition Accuracy (H7)

A component of mental health literacy that is consistently highlighted as a central attribute of the construct is the capacity to recognise mental health disorders. The MHLS measure reflects this and was designed with Jorm et al.'s (1997) original definition in mind, which included "the ability to recognise specific disorders" (p. 182) as a key attribute of the construct definition. Jorm (2012) draws attention to the fact that the public often delays seeking help for even the most severe mental health conditions and argues that one of the key reasons for this is the lack of ability to recognise the signs of mental health disorders. Given that the MHLS includes eight items that measure the recognition of mental health conditions,

the present study hypothesised that a higher MHLS would correspond to higher Overall Recognition Accuracy when answering the recognition question of the vignette component of the study.

To be considered supported, the Spearman's correlation coefficient needed to be positive and statistically significant. As outlined in the results, H7 is supported given that a statistically significant positive correlation was found between MHLS score and Overall Recognition Accuracy. That is, the findings of the study suggest that those with higher MHLS scores may be more accurate at detecting the signs of mental health conditions among the general public. Considering this correlation alongside Jorm's (2012) assertion that delays in help-seeking are influenced by the inability to recognise the signs of a mental health condition, this study suggests that there may be a benefit to raising the mental health literacy of the population and provides some support for the convergent validity of the MHLS. However, future research is required to evaluate whether this relationship is causal or simply correlational and whether increased recognition accuracy translates to tangible behaviour change concerning help-seeking.

5.1.5 Evaluating the Magnitude of the Gender Gap in Mental Health Literacy Between Generations (H8)

Existing research in this area has indicated that both a gender gap (Cotton et al., 2006; Furnham & Swami, 2018; Hadjimina & Furnham, 2017) and a generational gap (Farrer et al., 2008; Fisher & Goldney, 2003) is present concerning mental health literacy. With this in mind, the present study hypothesised that the gender gap in overall MHLS scores would be more pronounced for older generations compared to younger generations.

To be considered supported, two conditions were required to be met: a) a statistically significant F test for the interaction between generational cohort and gender, and b) the sample estimates of the differences between gender means would need to be in the following

order: Generation Z < Millennials < Generation X < Baby Boomers. Since the F test used to evaluate the interaction between generational cohort and gender was not significant, H8 is not supported.

Given that research to date has not examined the relationship between these two variables, the present study contributes to our understanding of this body of research. The findings suggest that while the mental health literacy of younger generations may be higher, the gender difference remains evident and is not significantly smaller compared to older generational groups. This has implications for how we view the gender gap in mental health literacy. The data from the present study suggests that even if society is shifting towards a more accepting and knowledgeable populace with respect to mental health, the gap between men and women remains. While future research is required to accurately ascertain why this may be the case, one possibility is that gender role expectations still impact the mental health literacy of younger generations of men.

5.2 Discussion of Qualitative Findings

The present study proposed the following exploratory question: do Baby Boomers in Aotearoa New Zealand and Australia feel that messaging around mental health (e.g., through public health campaigns, school curriculums, popular culture, etc.) has changed in the past 10-20 years, and in what ways? A qualitative content analysis was performed on the data, resulting in a description of the responses received and a subsequent analytical interpretation of the findings. The implications of these findings will be discussed in this section.

One of the key messages reflected by the responses provided by participants was that this generational cohort has perceived a notable shift in the way the general public views mental health. Responses spoke to how an increase in the quantity of messaging, campaigns, and public figures had led to a growing acceptance of mental health conditions as legitimate health concerns and contributed to reducing stigma towards those experiencing such

difficulties. Responses further indicated that changes were not confined to attitudinal shifts, but also behaviour. Many participants observed an increasing openness to discussing mental health difficulties, whereas previously, these conversations had been stifled and swept under the carpet. Responses also spoke to a greater willingness to seek support for such difficulties instead of suffering in silence. It is interesting to compare these themes with the quantitative data, particularly concerning generational differences in attitudes towards mental health and help-seeking. H2 was considered partially supported as the latent means for mental health attitudes were in the hypothesised order of generational cohorts and several of the pairwise comparisons were statistically significant. This appears to be consistent with the qualitative data; responses from Baby Boomers suggest that younger generations have been exposed to greater mental health messaging during their formative years (e.g., campaigns in schools) and have grown up in an environment with less stigma towards mental health difficulties.

The comments received not only suggested a change in the views of younger generations but also a shift in the views and behaviours of Baby Boomers themselves. The comment below demonstrates this point:

> "There is much better discussion and openness about discussing mental health today than there was even 10 years ago. I find younger people are much better at discussing feelings and thoughts than my generation is. But even among my peers, talking is much more open now. Not everyone, but more people."

While the present study does not have the benefit of longitudinal data to evaluate Baby Boomers' attitudes and behaviours towards mental health 10 or 20 years ago, comments such as the one above suggest that views among this group, too, have likely shifted over time. This again speaks to the notion that while generational differences are often viewed through the lens of a 'culture war,' it is possible that the true gap between cohorts is exaggerated. Duffy (2021) references demographic data assessing the percentage of respondents in the

United Kingdom who agree with various attitudinal statements to make two points that are of relevance to this assertion. Firstly, the data shows that overall societal attitudes have experienced remarkable change towards more typically 'progressive' views over a relatively short period of time, which is a trend driven by all generational groups (except the very oldest). Secondly, there remain substantial minorities even among the youngest generations who hold less progressive or typically 'older' attitudes towards social issues (Duffy, 2021). For the present study, it may well be the case that the shifting mental health attitudes of Baby Boomers have followed a similar directional trajectory to younger generations over time. The idea that successive generations hold differing perspectives from those who came before them is hardly a novel stance concerning changing social views; however, it may be the case that the perceived gap between generations has been amplified by influences such as social media that could be seen as encouraging an "us vs. them" mentality leading to division between generational groups.

Existing work in this area also suggests these qualitative findings are consistent with the current body of literature. Indeed, prior research indicates that the attitudes of older generations towards mental health have likely shifted as they have aged despite having been exposed to less mental health messaging during their formative years. A meta-analysis carried out by Corrigan et al. (2012) found that contact with people experiencing mental health difficulties—especially face-to-face contact instead of stories told on video—was a more effective approach to challenging stigma than education about mental health. Interestingly, the authors found the reverse was true for adolescents, for whom educational interventions were more effective at reducing stigma. Bradbury (2020) attributes this to a possible life cycle effect on attitudes; that is, "as an individual ages they become more informed about, and accepting of, those who differ to themselves" (p. 935) and "are more likely to have sustained contact with an individual with a mental health diagnosis, potentially

reducing stigmatised attitudes." (p. 936). These existing findings are useful to consider in the context of the present study. Again, our attention is drawn to the fact that the broad construct of mental health literacy comprises both attitudes and knowledge, which appear to be impacted in disparate ways at different points in an individual's lifecycle. This emphasises the point that mental health literacy might best be understood as a multi-construct theory as opposed to a multidimensional construct given the complexity of the relationships between the components that are understood to represent it.

The findings from the qualitative content analysis also remind us to consider the wider societal context when interpreting the results of the present study. For instance, the evaluation of H7 in the quantitative analysis provided some support for the convergent validity of the MHLS, showing that people with higher MHLS scores were better able to accurately detect the presence or absence of a mental health disorder. While this may tentatively suggest that there is some benefit to trying to raise the mental health literacy of the general public, this must be considered alongside the healthcare landscape of both countries. In the qualitative analysis, some responses highlighted the lack of accessibility of mental health services. In Aotearoa New Zealand, it is estimated that there is a shortage of 1,000 psychologists to be able to adequately meet the mental health care needs of the population (NZ Psychology Society, NZ College of Clinical Psychologists and NZ Psychologists Board, 2023). In Australia, too, the Productivity Commission's 2020 Inquiry into Mental Health identified several significant gaps in the mental health care system and stated that it is "not comprehensive and fails to provide the treatment and support that people who need it legitimately expect" (Productivity Commission, 2020, p. 6). Additionally, the 2024 Australian Workforce Survey Report surveyed 1,269 Australian psychiatrists and found that 9 in 10 psychiatrists believe that the current workforce shortages negatively impact the care clients receive (The Royal Australian and New Zealand College of Psychiatrists, 2024). This

is an important landscape to consider when discussing mental health literacy and attempts to encourage help-seeking and reduce treatment gaps. If the support is simply not available or reasonably accessible, attempts to address these concerns through raising mental health literacy will be limited in their overall impact. The concerns about the accessibility of mental health services from the qualitative data are consistent with the findings from the He Ara Oranga report, which describes people in Aotearoa New Zealand "having to fight and beg for services, not meeting the threshold for treatment, and the cruelty of being encouraged to seek help from unavailable or severely rationed services" (He Ara Oranga, 2018, p. 10).

5.3 Strengths and Limitations

One of the key strengths of the present study lies in its sample size and rigorous mixed methods. A conservative approach was taken to the power analysis to ensure that robust comparisons could be made across the groups of interest, with the final sample size of $N = 830$ ensuring that the necessary quotas could be applied for both generation and gender. Additionally, several different methods of quantitative analysis were used, including multigroup confirmatory factor analysis, structural equation modelling using a mediation model, Spearman's Rho, and factorial ANOVA. The steps taken to ensure a robust sample size with the application of appropriate quotas facilitated the inclusion of a range of hypotheses using different statistical analysis methods to enhance our understanding of this area of research. The present study also included a qualitative component to supplement and add depth to the quantitative findings.

Another strength of the present study is its attempt to contribute a degree of rigour to the area of mental health literacy, with prior research in this area having been criticised for inconsistent research practices that may have impeded progress for this body of literature (Spiker & Hammer, 2019). The present study used multigroup confirmatory factor analysis to evaluate the assumption of measurement invariance for the MHLS, with the findings

suggesting that differences in measurement properties may partially underlie previously established differences in mental health literacy scores across groups. Additionally, the findings provide further support for Spiker and Hammer's (2019) proposed conceptualisation of mental health literacy as a multi-construct theory as opposed to a multi-dimensional construct.

The use of preregistration can also be seen as a strength of the present study. Prior to collecting data, a preregistration document was submitted to the Open Science Website from the Center for Open Science. The practice of submitting a preregistration document can be seen as a commitment to transparency. The de-identified data for the study has been made publicly available and readers of the preregistration document can see that the hypotheses were subjected to tests where they faced a genuine risk of being falsified (Lakens, 2019). In this sense, it is hoped that the practice of pre-registering the study prior to data collection enhances the credibility of the findings.

The present study is not without its limitations. While there are several strengths related to the study design, there are also methodological limitations. One such limitation is the cross-sectional nature of the study. Due to practical restrictions such as time and cost, the current study collected data at a single point in time. Given the interest of the present study in understanding previously established differences in mental health literacy between generational cohorts, a longitudinal study would have provided a more rigorous design to evaluate these differences. By collecting data at different periods of time and then making subsequent comparisons, the study would have been better equipped to isolate and comment on age, period, and cohort effects.

Another limitation regarding the design of the present study is the differing recruitment methods used. While the Prolific platform was used to recruit Generation Z, Millennial, and Generation X participants, Facebook advertising was used to recruit Baby

Boomer respondents. This decision was made given the lack of those within the Baby Boomer age group who were registered on the Prolific platform at the time of data collection, alongside the financial infeasibility of recruiting all participants through Facebook. While the eligibility criteria for participation were deliberately broad, different sample characteristics may exist between those registered on Prolific and those registered on Facebook. As a result, it is possible that the observed differences between Baby Boomer participants and the other generational cohorts were influenced by differences in sampling methods as opposed to true differences between the populations.

Additionally, there are several limitations relating to the sample size and convenience sampling approach of the present study. While convenience sampling was selected for the benefit of being able to collect data in a relatively inexpensive and straightforward manner, a downside of this approach is that the results of the study cannot be confidently generalised to the wider respective populations of Aotearoa New Zealand and Australia. Additionally, the sample size of the present study was insufficient for conducting further subgroup analyses. While a power analysis was conducted to ensure a sufficiently robust sample size to evaluate the proposed hypotheses, the sample size did not account for the analysis of minority groups. For instance, only $n = 11$ gender diverse respondents participated in the study. The binary comparison between men and women when evaluating hypotheses related to gender does not inform our understanding of mental health literacy among the gender diverse population.

Similarly, the present study does not enhance our understanding of the mental health literacy of the indigenous and minority ethnic populations of Aotearoa New Zealand and Australia. This is a significant limitation, particularly when considering the poorer mental health outcomes for Māori (He Ara Oranga, 2018) and Pacific (Ataera-Minster & Trowland, 2018) peoples in Aotearoa New Zealand and Indigenous Australians in Australia (Dudgeon et al., 2014).

The same is true for trans and gender diverse populations in both countries (Smith et al., 2014; Tan et al., 2022). For instance, Tan et al. (2022) found that people of diverse genders and sexualities in Aotearoa New Zealand had three times the risk of self-harm and suicidal thoughts compared to their cisgender and heterosexual counterparts. With this in mind, enhancing our understanding of how components of mental health literacy such as recognition and help-seeking attitudes can be influenced to encourage at-risk populations to receive appropriate support is vitally important.

5.4 Directions for Future Research

Mental health literacy remains an area of research that has been previously criticised for how the construct itself has been inconsistently defined and measured. As a result, this area would benefit not only from future research, but research designed to specifically address these concerns. The findings from the present study align with Spiker and Hammer's (2019) proposed conceptualisation of mental health literacy as a multi-construct theory as opposed to a multi-dimensional construct. For instance, this study found differing generational trajectories for scores on the—albeit still broad—latent constructs of mental health attitudes and mental health knowledge. It seems plausible that this area of research could be better served if elements that comprise these constructs (e.g., help-seeking attitudes and stigma for mental health attitudes) are considered separate constructs that contribute to a theory of mental health literacy. This would allow researchers to investigate the relationships between relevant variables and would avoid the possibility of mental health literacy becoming an unwieldy combination of pre-existing constructs. As such, it could be beneficial for future research to continue down the path of developing a multi-construct theory of mental health literacy.

Another possible direction for future research would be isolating the impact of age, period, and cohort effects on mental health literacy over time via longitudinal research. One

of the shortcomings of the present study is its inability to comment accurately on the nature of these effects due to its cross-sectional design. Longitudinal research would greatly enhance our understanding of the mechanisms that may underlie the previously established differences across age groups in mental health literacy. As the qualitative data from the present study suggests, Baby Boomer participants have observed several changes in the attitudes and behaviours of not only the generations that have succeeded them, but amongst their own peers. This is important, as it may be plausible that even if mental health literacy initiatives are more often aimed at younger audiences (e.g., programmes in schools), there may have been an overall societal impact that has also influenced older generations. In turn, this may have influenced their knowledge, attitudes, and behaviours regarding mental health. Future research could make a valuable contribution by investigating the impact of factors such as increased exposure to mental health messaging over time across different generational groups and the possibility of developmental changes in views across the lifespan. In doing so, future research could inform and enhance the efficacy of interventions designed to raise the mental health literacy of the general population.

Future research could also further investigate which variables may influence the disparity observed in mental health literacy between men and women. The present study found a positive yet not statistically significant indirect effect of gender on mental health attitudes via restrictive emotionality. As such, it appears that there are other factors influencing the gender difference observed for mental health literacy. It would be useful for future research to investigate what these might be.

Lastly, a possible avenue for future research would be exploring the differences in mental health literacy across minority and at-risk groups. Given the nature and design of the present study, robust commentary on such groups was not possible. Particularly when accounting for the poor mental health outcomes experienced by these populations, it is

important for future research to investigate the mental health literacy of trans and people of diverse genders and sexualities. Likewise, research on the Māori and Pacific populations in Aotearoa New Zealand and Indigenous Australians in Australia would represent a valuable contribution to this area of research.

5.5 Clinical Implications

The key aim of the present study was to investigate both gender and generational differences in mental health literacy in Aotearoa New Zealand and Australia. Additionally, the study set out to observe whether restrictive emotionality was an influential factor in gender differences in mental health attitudes and whether younger generations were more likely to identify a false positive when interpreting the signs of mental distress. The findings from this study have several clinical implications.

Firstly, it is important to consider the implications of several of the hypotheses that were not supported. For instance, the study did not fully support the hypotheses regarding generational differences in mental health attitudes and knowledge. Additionally, the hypothesis that younger generations would be more likely to provide 'false positive' responses to vignette cases was not supported. Overall, these results are inconsistent with much of the public perception of generational differences. While younger generations may accuse preceding cohorts of holding antiquated beliefs, older generations may perceive the youth of today as overly fragile and sensitive. These results serve as a timely reminder that differences may not be as vast as we often assume.

In terms of clinical implications, these findings may lead us to consider whether it could be helpful for clinicians to reflect on whether they hold any generational biases (both their own and those that they assume others have). For instance, some clinicians may hold biases that are consistent with the literature that suggests younger generations have more expansive concepts of harm, which could suggest these generations are more likely to believe

they meet the criteria for mental health diagnoses when their symptoms are not in the clinical range. This could lead to some clinicians prematurely dismissing or inadequately investigating the concerns of clients from generations younger than their own if they make presumptions about how such individuals understand mental ill-health.

Equally, it is possible that some clinicians may believe that older generations hold stigmatised views towards mental health and may consequently exercise excessive caution when discussing topics such as the causes of mental health difficulties. With respect to their clinical work, it may be helpful for professionals to consider whether the presence of any such biases influences the way they interact with and treat clients from different generations. This interrogation of generational biases could not only be carried out as a self-reflection exercise, but also discussed in supervision. Overall, the findings from this study serve as a reminder that the preconception that younger generations hold more expansive concepts of harm may not translate to clinical settings.

Secondly, this study reminds us of the complexity of the relationships between variables that contribute to the broader construct of mental health literacy and how developing an enhanced understanding of these interrelationships may improve our ability to design appropriate interventions to enhance mental health literacy. With greater understanding, more intentional and informed decisions can be made concerning which levers to pull to make the most effective changes. For instance, is it more effective to combat the prevailing stigma towards mental illness first, or can help-seeking behaviour be targeted directly? By improving our understanding of these relationships, tangible interventions could be designed to address the substantial delays in seeking professional help that are often seen in clinical spaces (Wang et al., 2007). In reducing help-seeking delays, it is possible that we could see an overall reduction in the severity of mental distress of those we see in clinical practice.

At present, admirable attempts have been made to raise the mental health literacy of the general population (Jorm et al., 2019). However, in the absence of a more precise understanding of the construct, these attempts may not be reaching the full potential of their impact. For instance, a recent study found that school teachers in Australia were reluctant to deliver mental health education due to factors such as a lack of training, a lack of confidence, and fear of legal ramifications (Marinucci et al., 2023). This supports the notion that while there presently exists the intention to improve mental health literacy among the population, our understanding of how to target and deliver such interventions is still ongoing. If initiatives such as delivering mental health education in schools can be enhanced, we may well see a beneficial effect later down the line as clinicians providing mental health care. When working with clients directly, an improved understanding of the interrelationships between mental health literacy constructs may influence our understanding of common concerns such as treatment dropout and how to effectively provide psychoeducation to clients and their family members.

Overall, a key clinical takeaway message from this research is the importance of engaging with clients with open-mindedness as opposed to preconceived notions of their mental health literacy. While it remains unclear whether the observed differences between groups in the present study are influenced by differences in measurement properties, the overall message from the findings emphasises the importance of attending to clients with curiosity and a sincere interest towards the person in front of you as a mental health professional.

6. Conclusion

The present study set out to enhance our understanding of previously established differences in performance on measures of mental health literacy across gender and generational groups. While the findings showed that men exhibited lower levels of mental health knowledge and attitudes than women and older generations demonstrated lower mental health attitudes than younger generations, a lack of support was found for measurement invariance. As such, it is possible that these observed differences were influenced by differences in measurement properties. This study did not find evidence that younger generations were more likely to incorrectly identify the presence or absence of a mental health disorder, contrasting voices within the concept creep literature that suggest younger generations hold more expansive concepts of harm towards mental health. Additionally, the results did not support the hypothesis that restrictive emotionality mediates the relationship between gender and mental health attitudes.

Overall, this study contributes to the literature on mental health literacy in several ways. The lack of support for measurement invariance adds to our understanding of gender and generational differences in mental health literacy, raising the possibility that measurement bias may play an influential role. Additionally, the results suggest that common preconceptions about the differences between generational groups in this area may be exaggerated. From a clinical perspective, these findings serve as a reminder of the importance of mental health professionals attending to clients with an open mind and being mindful of biases they may hold concerning the mental health literacy of different groups.

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Appendix A

Guidelines for Determining Correct and Incorrect Responses to the Vignette Questions

A considerable degree of thought was put into the guidelines above for categorising responses as either correct or incorrect. Additionally, the guidelines were reviewed, discussed, and agreed upon with the writer's supervisors. During these exchanges, particular guidelines were discussed at length to develop a robust rationale and justification for each decision made. For instance, the merits of classifying responses that included multiple conditions alongside the "correct" condition (e.g., responses such as "*depression or anxiety*" and "*depression, insomnia, anxiety*" for the depression vignette). It was decided that such responses would be included for a variety of reasons: 1) rates of co-morbidity and symptom overlap for mental health conditions are high (Kessler et al., 2011) and it is not unlikely that vignette protagonists could be experiencing multiple mental health conditions; 2) mental health conditions are complex and rarely as straightforward as ticking off a list of symptoms; 3) participants who identified multiple mental health conditions were not provided with the opportunity to state which of the conditions they thought was the most likely to be present. For details on the guidelines for determining correct and incorrect responses to the depression and schizophrenia vignettes, please see the tables below.

For the depression vignette, the following responses were classified as correct and incorrect responses:

Correct Response	**Example Responses**
Responses that provided some variant of "depression".	"depression," "major depressive disorder," "clinically depressed," "some sort of depressive disorder," "Rita sounds like she may be experiencing a major depressive

	episode," "depressive episode," "severe depression," "persistent depression"
Responses that indicate depression but with a degree of uncertainty.	"depression?" "sounds like depression to me"
Responses that were misspelled or contained typographical errors, but were clearly intending to mean depression.	"despression," "clicially depressed"
Responses that mention *"depression"* alongside another condition	"anxiety and/or depression," "depression, insomnia, anxiety," "stress, depression," "depression, low self esteem"

Incorrect Response	**Example Responses**
Blanks responses	
Responses where the participant was unable to provide a condition	"not sure," "none," "don't know"
Responses that provided an incorrect alternative condition	"anxiety disorder," "seizure," "psychological trauma," "personality disorder," "her overall attitude and unwillingness," "adhd"

For the schizophrenia vignette, the following responses were classified as correct and incorrect responses:

Correct Response	**Example Responses**
Responses that provided some variant of "schizophrenia"	"schizophrenia," "paranoid schizophrenia," "schizophrenia or some other cause of psychosis," "paranoid schizophrenia with positive symptoms"
Responses that indicate schizophrenia but with a degree of uncertainty	"schizophrenia?" "schizophrenia possibly," "possibly a psychotic illness, paranoid schizophrenia?"

Responses that were misspelled or contained typographical errors, but were clearly intending to mean schizophrenia	"schitophrenia," "skzophrenia," "schofrenia"
Responses that mention "schizophrenia" alongside another condition	"depression, schizophrenia," "schizophrenia or delusions," "schizophrenia & depression," "schizophrenia, an eating disorder," "without any more information, Talia may be experiencing a depressive or psychotic episode," "at best complicated depression at worst schizophrenia," "if not sleeping bi polar, paranoid and talking to nobody Schizophenia," "at least depression, but possible schizophrenia if paranoid and hearing voices."
Responses that mentioned "psychosis" or the presence of a "psychotic episode"	"psychosis," "paranoia; psychosis," "psychotic episode/ psychosis"

Incorrect Response	**Example Responses**
Blank responses	
Responses where the participant was unable to provide a condition	"don't know," "don't have expertise to give a label she does need mental health diagnosis," "no sure but it's not normal"
Responses that provided an incorrect alternative condition	"hysteria," "depression," "schizoid tendency with some eating disorder?" "BPD," "social anxiety," "anguish," "mental issue," "personality disorder," "paranoia"

Appendix B

Information Sheet for Prolific Participants

Kia ora, talofa lava, malo e lelei, bula vinaka, kia orana, and welcome.

Thank you for your interest in this study! The information included on this page will provide you with some details around this piece of research and what is involved if you do decide to participate. Firstly, in order to participate you will need to be:

- Born between 1965 and 2004 and over 18 years old
- A fluent English speaker (the survey will be in English)
- Living in either Aotearoa New Zealand or Australia

If you meet the criteria above and are interested in participating, please find some further information about the study below.

STUDY OVERVIEW

This is a formal invitation to participate in a research study that will enhance our understanding of mental health knowledge and attitudes in Australasia. The findings of this study may help to inform mental health initiatives in both Aotearoa New Zealand and Australia and will also assist in contributing to the wider body of international research in this area.

WHAT IS INVOLVED?

If you decide to participate, you will be answering a number of different questions relating to the topic of interest. We will also ask you to confirm some general questions such as your gender, age, region and ethnicity before proceeding to the core questions of the survey. While the majority of questions will ask you to simply select the extent to which you agree or disagree with a number of statements, for some questions you will be required to read a short fictional case study and answer several questions relating to that case. Your responses will remain confidential at all times and will not be individually connected to you. This is not an evaluation of you personally and you will not receive a "score" at the end, so please answer as honestly as possible. In total, the survey should take approximately 15 minutes to complete depending on your reading speed and how much or how little additional information you choose to include. If you decide for any reason that you do not wish to continue, you can stop at any point, no questions asked.

ARE THERE ANY RISKS INVOLVED?

The majority of the questions included in this survey are taken from existing measures of mental health literacy and emotional expression. You will also be asked to read several fictional case studies and answer questions in response to the information provided. There is a small chance that some of the questions could make you feel uncomfortable. Given that this research is focused on mental health, you may find the material confronting if you have experienced mental distress yourself. If you are currently receiving mental health support, please carefully consider whether this is the right time for you to participate. If you are currently in therapy, please speak with your therapist about whether it

would be a good idea to participate in this research.

If you do begin to experience any discomfort or find any of the material confronting or upsetting, then please remember that you can stop the survey at any time for any reason, no questions asked. If you do not complete the survey, we will not include your responses in the analysis.

PARTICIPANT RECRUITMENT AND INCENTIVES

We will be recruiting participants through Prolific. As a token of our appreciation for your participation in this research, you will be paid directly through the platform. We aim to process and approve submissions within 5 days of completion.

DATA MANAGEMENT

If you do decide to participate, the data from the study will be anonymous at all times. Initially, the data will only be accessible by the project team. After the data has been analysed, it will then be uploaded to an open-access online data repository. The data will be stored indefinitely and will be accessible by other researchers or members of the public. Again, this data will be de-identified and no identifiable data will be included or kept.

PARTICIPANT RIGHTS

You are under no obligation to participate in this research. If you do choose to participate, you have the right to stop participating at any time, for any reason.

RESEARCHERS AND CONTACT DETAILS

My name is Andrew Dodge and I am in the second year of the Doctor of Clinical Psychology programme at Massey University. My supervisors for this project are Dr Matt Williams and Dr Kirsty Ross. If you have any questions about this study, you can direct these to one of the email addresses below:

Andrew Dodge
andrew.dodge.1@uni.massey.ac.nz

Dr Matt Williams
M.N.Williams@massey.ac.nz

Dr Kirsty Ross
K.J.Ross@massey.ac.nz

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research. If you have any concerns about the conduct of

this research that you wish to raise with someone other than the researcher(s), please contact Prof Craig Johnson, Director, Research Ethics, telephone 06 356 9099 x 85271, email humanethics@massey.ac.nz

Appendix C

Information Sheet for Facebook Participants

Kia ora, talofa lava, malo e lelei, bula vinaka, kia orana, and welcome.

Thank you for your interest in this study! The information included on this page will provide you with some details around this piece of research and what is involved if you do decide to participate. Firstly, in order to participate you will need to be:

- Born between 1946 and 1964
- A fluent English speaker (the survey will be in English)
- Living in either Aotearoa New Zealand or Australia

If you meet the criteria above and are interested in participating, please find some further information about the study below.

STUDY OVERVIEW

This is a formal invitation to participate in a research study that will enhance our understanding of mental health knowledge and attitudes in Australasia. The findings of this study may help to inform mental health initiatives in both Aotearoa New Zealand and Australia and will also assist in contributing to the wider body of international research in this area.

WHAT IS INVOLVED?

If you decide to participate, you will be answering a number of different questions relating to the topic of interest. We will also ask you to confirm some general questions such as your gender, age, region and ethnicity before proceeding to the core questions of the survey. While the majority of questions will ask you to simply select the extent to which you agree or disagree with a number of statements, for some questions you will be required to read a short fictional case study and answer several questions relating to that case. Your responses will remain confidential at all times and will not be individually connected to you. This is not an evaluation of you personally and you will not receive a "score" at the end, so please answer as honestly as possible. In total, the survey should take approximately 15 minutes to complete depending on your reading speed and how much or how little additional information you choose to include. If you decide for any reason that you do not wish to continue, you can stop at any point, no questions asked.

ARE THERE ANY RISKS INVOLVED?

The majority of the questions included in this survey are taken from existing measures of mental health literacy and emotional expression. You will also be asked to read several fictional case studies and answer questions in response to the information provided. There is a small chance that some of the questions could make you feel uncomfortable. Given that this research is focused on mental health, you may find the material confronting if you have experienced mental distress yourself. If you are currently receiving mental health support, please carefully consider whether this is the right time for you to participate. If you are currently in therapy, please speak with your therapist about whether it

would be a good idea to participate in this research.

If you do begin to experience any discomfort or find any of the material confronting or upsetting, then please remember that you can stop the survey at any time for any reason, no questions asked. If you do not complete the survey, we will not include your responses in the analysis.

PARTICIPANT RECRUITMENT AND INCENTIVES

We will be recruiting participants through Facebook advertising. As a token of our appreciation for your participation in this research, participants will be sent a virtual $5 GiftPay voucher to a nominated email address at the end of the survey. This will be emailed to you within 14 days of completing the survey. Note that there are measures in place within the survey to assess whether you are completing the survey attentively. If your responses indicate that you were not paying attention and reading the questions asked, you may be ineligible for the GiftCard. Each individual participant may only complete the survey once and will not be reimbursed for multiple submissions.

DATA MANAGEMENT

If you do decide to participate, the data from the study will be anonymous at all times. Initially, the data will only be accessible by the project team. After the data has been analysed, it will then be uploaded to an open-access online data repository. The data will be stored indefinitely and will be accessible by other researchers or members of the public. Again, this data will be de-identified and no identifiable data will be included or kept. Email addresses provided by participants will only be used to send the GiftPay vouchers; they will not be uploaded to the online data repository and will be removed from our records when the study ends.

PARTICIPANT RIGHTS

You are under no obligation to participate in this research. If you do choose to participate, you have the right to stop participating at any time, for any reason.

RESEARCHERS AND CONTACT DETAILS

My name is Andrew Dodge and I am in the second year of the Doctor of Clinical Psychology programme at Massey University. My supervisors for this project are Dr Matt Williams and Dr Kirsty Ross. If you have any questions about this study, you can direct these to one of the email addresses below:

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This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Prof Craig Johnson, Director, Research Ethics, telephone 06 356 9099 x 85271, email humanethics@massey.ac.nz

Appendix D

Study Description Provided to Prolific Participants

Title:

Mental Health Knowledge and Attitudes Research

Description:

Welcome!

This study will ask you a variety of questions regarding your knowledge and attitudes towards mental health. You will be required to answer several demographic questions, a series of questions relating to three case study vignettes, followed by 47 questions asking you to indicate the extent to which you agree or disagree with a number of statements. The deidentified and anonymous data from this study will be uploaded and stored indefinitely on an open-access online data repository. Further details about the study are included in the information sheet at the beginning of the study, which you will be required to read and consent to before proceeding to participate.

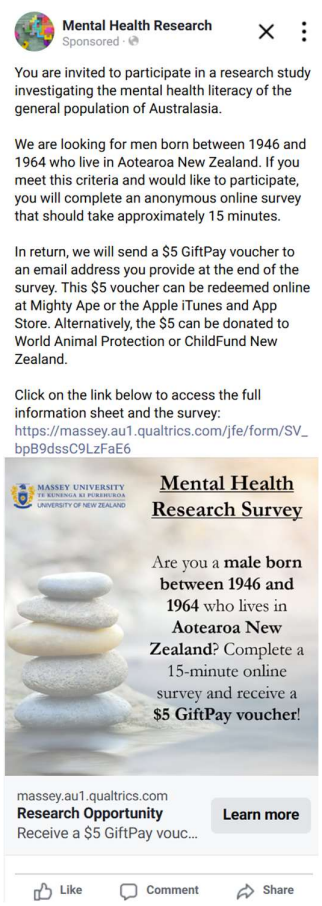
In order to participate, you must: 1) live in either Australia or Aotearoa New Zealand; 2) be aged between XX and XX; and 3) be a fluent English speaker (the survey will be in English).

To avoid having your submission rejected, you must provide consent to participate, complete the questions you are asked, and pass the attention check measures in place.

We aim to process and approve submissions within 5 days of completion.

Appendix E

Facebook Advertisements



Appendix F

Qualtrics Survey

Consent Having read the information above, do you consent to take part in this survey?

- ○ Yes (1)
- ○ No (2)

End of Block: Information Sheet and Consent

Start of Block: Prolific ID

Prolific ID What is your Prolific ID? *Please note that this response should auto-fill with the correct ID*

_____

End of Block: Prolific ID

Start of Block: Demographics 1

Gender What is your gender?

- ○ Male (1)
- ○ Female (2)
- ○ Another gender (please specify) (3)

_____

Age In what year were you born?

Country In what country do you currently reside?

- Aotearoa New Zealand (1)
- Australia (2)
- Other (3)

End of Block: Demographics 1

Start of Block: Demographics NZ

Display This Question:

If Country = Aotearoa New Zealand

NZ Region In which region do you live?

- ○ Northland (1)
- ○ Auckland (2)
- ○ Waikato (3)
- ○ Bay of Plenty (4)
- ○ Gisborne (5)
- ○ Hawke's Bay (6)
- ○ Taranaki (7)
- ○ Manawatu-Wanganui (8)
- ○ Wellington (9)
- ○ Tasman (10)
- ○ Nelson (11)
- ○ Marlborough (12)
- ○ West Coast (13)
- ○ Canterbury (14)
- ○ Otago (15)
- ○ Southland (16)

Display This Question:

If Country = Aotearoa New Zealand

NZ Ethnicity Which ethnic group(s) do you belong to? *Please select all that apply to you.*

- ☐ Pākehā / New Zealand European (1)
- ☐ Māori (2)
- ☐ Samoan (3)
- ☐ Cook Islands Māori (4)
- ☐ Tongan (5)
- ☐ Australian (6)
- ☐ English (11)
- ☐ Indian (8)
- ☐ Asian (7)
- ☐ Middle Eastern (10)
- ☐ Other European (12)
- ☐ Other. Please enter the ethnicity(s): (9)

_____

End of Block: Demographics NZ

Start of Block: Demographics AU

Display This Question:

If Country = Australia

AU Region In which state or territory do you live?

- Australian Capital Territory (1)
- New South Wales (2)
- Northern Territory (3)
- Queensland (4)
- South Australia (5)
- Tasmania (6)
- Victoria (7)
- Western Australia (8)

Display This Question:

If Country = Australia

AU Ethnicity Which ethnic group(s) do you belong to? *Please select all that apply to you.*

- ☐ Australian (1)
- ☐ Indigenous Australian or Torres Strait Islander (2)
- ☐ Pākehā / New Zealand European (3)
- ☐ Māori (4)
- ☐ Samoan (5)
- ☐ Tongan (6)
- ☐ Cook Islands Māori (7)
- ☐ English (8)
- ☐ Indian (9)
- ☐ Asian (11)
- ☐ Middle Eastern (13)
- ☐ Other European (12)
- ☐ Other. Please enter the ethnicity(s): (10)

_____

End of Block: Demographics AU

Start of Block: Vignette Case 1 - Male

Vignette 1a Male Please read the following case study: *Niko is 30 years old. He has been feeling deeply sad and miserable almost every day for the last few weeks. Even though he is tired all the time, he has trouble sleeping nearly every night. Niko doesn't feel like eating and has lost weight. He can't keep his mind on his work and puts off making decisions. Even day-to-day tasks seem too much for him. This has come to the attention of Niko's boss who is concerned about his lowered productivity. Niko's family and friends are also concerned about him and worry that he has turned down invitations to family get togethers. He no longer attends indoor cricket which he used to really enjoy doing with his friends, who feel they haven't seen him in a while.* From the information above, do you think it is likely that the distress Niko is experiencing would meet the criteria for a diagnosable mental health condition?

- ○ Yes (1)
- ○ No (2)
- ○ Don't know (3)

Display This Question:

If Vignette 1a Male = Yes

Vignette 1b Male You answered 'Yes' to the previous question. What diagnosable mental health condition do you think Niko might be experiencing?

_____

Vignette 1c Male From the information provided, do you think that Niko should seek professional help?

- ○ Yes (1)
- ○ No (2)
- ○ Don't Know (3)

End of Block: Vignette Case 1 - Male

Start of Block: Vignette Case 2 - Male

Vignette 2a Male Please read the following case study: *Xavier is 24 and lives at home with his parents. He has had a few temporary jobs since finishing school but is now unemployed. Over the last six months he has stopped seeing his friends and has begun locking himself in his bedroom and refusing to eat with the family or to have a bath. His parents also hear him walking about his bedroom at night while they are in bed. Even though they know he is alone, they have heard him shouting and arguing as if someone else is there. When they try to encourage him to do more things, he whispers that he won't leave home because the neighbour is spying on him. They realise he is not taking drugs because he never sees anyone or goes anywhere.* From the information above, do you think it is likely that the distress Xavier is experiencing would meet the criteria for a diagnosable mental health condition?

- ○ Yes (1)
- ○ No (2)
- ○ Don't Know (3)

Display This Question:

If Vignette 2a Male = Yes

Vignette 2b Male You answered 'Yes' to the previous question. What diagnosable mental health condition do you think Xavier might be experiencing?

_____

Vignette 2c Male From the information provided, do you think that Xavier should seek professional help?

- ○ Yes (1)
- ○ No (2)
- ○ Don't Know (3)

End of Block: Vignette Case 2 - Male

Start of Block: Vignette Case 3 - Male

Vignette 3a Male Please read the following case study: *Caleb is 33 years old. After being together for four years, his partner ended their relationship a month ago. Since that time, Caleb sometimes feels down when thinking about their relationship and feels tearful when looking at photos of the two of them together. Some days he doesn't feel like eating as much as usual, although he has not lost weight. He initially had a few nights when it was hard to sleep, but this is improving slowly. Last week after rugby practice, he mentioned to some of his teammates that he is worried he won't be able to meet someone like his ex-partner again.*

From the information above, do you think it is likely that the distress Caleb is experiencing would meet the criteria for a diagnosable mental health condition?

- ○ Yes (1)
- ○ No (2)
- ○ Don't Know (3)

Display This Question:

If Vignette 3a Male = Yes

Vignette 3b Male You answered 'Yes' to the previous question. What diagnosable mental health condition do you think Caleb might be experiencing?

_____

Vignette 3c Male From the information provided, do you think that Caleb should seek professional help?

- ○ Yes (1)
- ○ No (2)
- ○ Don't Know (3)

End of Block: Vignette Case 3 - Male

Start of Block: Vignette Case 1 - Female

Vignette 1a Female Please read the following case study: *Rita is 30 years old. She has been feeling deeply sad and miserable almost every day for the last few weeks. Even though she is tired all the time, she has trouble sleeping nearly every night. Rita doesn't feel like eating and has lost weight. She can't keep her mind on her work and puts off making decisions. Even day-to-day tasks seem too much for her. This has come to the attention of Rita's boss who is concerned about her lowered productivity. Rita's family and friends are also concerned about her and worry that she has turned down invitations to family get togethers. She no longer attends indoor cricket which she used to really enjoy doing with her friends, who feel they haven't seen her in a while.* From the information above, do you think it is likely that the distress Rita is experiencing would meet the criteria for a diagnosable mental health condition?

- ○ Yes (1)
- ○ No (2)
- ○ Don't know (3)

Display This Question:

If Vignette 1a Female = Yes

Vignette 1b Female You answered 'Yes' to the previous question. What diagnosable mental health condition do you think Rita might be experiencing?

_____

Vignette 1c Female From the information provided, do you think that Rita should seek professional help?

- Yes (1)
- No (2)
- Don't Know (3)

End of Block: Vignette Case 1 - Female

Start of Block: Vignette Case 2 - Female

Vignette 2a Female Please read the following case study: *Talia is 24 and lives at home with her parents. She has had a few temporary jobs since finishing school but is now unemployed. Over the last six months she has stopped seeing her friends and has begun locking herself in her bedroom and refusing to eat with the family or to have a bath. Her parents also hear her walking about her bedroom at night while they are in bed. Even though they know she is alone, they have heard her shouting and arguing as if someone else is there. When they try to encourage her to do more things, she whispers that she won't leave home because the neighbour is spying on her. They realise she is not taking drugs because she never sees anyone or goes anywhere.* From the information above, do you think it is likely that the distress Talia is experiencing would meet the criteria for a diagnosable mental health condition?

- Yes (1)
- No (2)
- Don't Know (3)

Display This Question:

If Vignette 2a Female = Yes

Vignette 2b Female You answered 'Yes' to the previous question. What diagnosable mental health condition do you think Talia might be experiencing?

_____

Vignette 2c Female From the information provided, do you think that Talia should seek professional help?

- Yes (1)
- No (2)
- Don't Know (3)

End of Block: Vignette Case 2 - Female

Start of Block: Vignette Case 3 - Female

Vignette 3a Female Please read the following case study: *Mia is 33 years old. After being together for four years, her partner ended their relationship a month ago. Since that time, Mia sometimes feels down when thinking about their relationship and feels tearful when looking at photos of the two of them together. Some days she doesn't feel like eating as much as usual, although she has not lost weight. She initially had a few nights when it was hard to sleep, but this is improving slowly. Last week after rugby practice, she mentioned to some of her teammates that she is worried she won't be able to meet someone like her ex-partner*

again. From the information above, do you think it is likely that the distress Mia is experiencing would meet the criteria for a diagnosable mental health condition?

- ○ Yes (1)
- ○ No (2)
- ○ Don't Know (3)

Display This Question:

If Vignette 3a Female = Yes

Vignette 3b Female You answered 'Yes' to the previous question. What diagnosable mental health condition do you think Mia might be experiencing?

_____

Vignette 3c Female From the information provided, do you think that Mia should seek professional help?

- ○ Yes (1)
- ○ No (2)
- ○ Don't Know (3)

End of Block: Vignette Case 3 - Female

Start of Block: MHLS - Ability to Recognise Disorders

MHLS Intro The purpose of the next set of questions is to gain an understanding of your knowledge of various aspects to do with mental health.

SP If someone became extremely nervous or anxious in one or more situations with other people (e.g., a party) or performance situations (e.g., presenting at a meeting) in which they were afraid of being evaluated by others and worried that they would act in a way that was humiliating or feel embarrassed, then to what extent do you think it is likely they have Social Anxiety Disorder?

- ○ Very Unlikely (1)
- ○ Unlikely (2)
- ○ Likely (3)
- ○ Very Likely (4)

GAD If someone experienced excessive worry about a number of events or activities where this level of concern was not warranted, had difficulty controlling this worry and had physical

symptoms such as having tense muscles and feeling fatigued then to what extent do you think it is likely they have Generalised Anxiety Disorder?

- Very Unlikely (1)
- Unlikely (2)
- Likely (3)
- Very Likely (4)

MDD If someone experienced a low mood for two or more weeks, had a loss of pleasure or interest in their normal activities and experienced changes in their appetite and sleep then to what extent do you think it is likely they have Major Depressive Disorder?

- Very Unlikely (1)
- Unlikely (2)
- Likely (3)
- Very Likely (4)

PD To what extent do you think it is likely that Personality Disorders are a category of mental illness?

- ○ Very Unlikely (1)
- ○ Unlikely (2)
- ○ Likely (3)
- ○ Very Likely (4)

Dysthymia To what extent do you think it is likely that Persistent Depressive Disorder is a disorder?

- ○ Very Unlikely (1)
- ○ Unlikely (2)
- ○ Likely (3)
- ○ Very Likely (4)

Agoraphobia To what extent do you think it is likely that the diagnosis of Agoraphobia includes anxiety about situations where escape may be difficult or embarrassing?

- Very Unlikely (1)
- Unlikely (2)
- Likely (3)
- Very Likely (4)

BD To what extent do you think it is likely that the diagnosis of Bipolar Disorder includes experiencing periods of elevated (i.e., high) and periods of depressed (i.e., low) mood?

- Very Unlikely (1)
- Unlikely (2)
- Likely (3)
- Very Likely (4)

DD To what extent do you think it is likely that the diagnosis of Substance Use Disorder may include physical and psychological tolerance of the drug (i.e., require more of the drug to get the same effect)?

- Very Unlikely (1)
- Unlikely (2)
- Likely (3)
- Very Likely (4)

Display This Question:

If Country = Aotearoa New Zealand

Mental Illness - NZ To what extent do you think it is likely that in general in Aotearoa New Zealand, women are MORE likely to experience a mental illness of any kind compared to men?

- Very Unlikely (1)
- Unlikely (2)
- Likely (3)
- Very Likely (4)

Display This Question:

If Country = Australia

Mental Illness - AU To what extent do you think it is likely that in general in Australia, women are MORE likely to experience a mental illness of any kind compared to men?

- Very Unlikely (1)
- Unlikely (2)
- Likely (3)
- Very Likely (4)

Display This Question:

If Country = Aotearoa New Zealand

Anxiety - NZ To what extent do you think it is likely that in general, in Aotearoa New Zealand, men are MORE likely to experience an anxiety disorder compared to women?

- Very Unlikely (1)
- Unlikely (2)
- Likely (3)
- Very Likely (4)

Display This Question:

If Country = Australia

Anxiety - AU To what extent do you think it is likely that in general, in Australia, men are MORE likely to experience an anxiety disorder compared to women?

- Very Unlikely (1)
- Unlikely (2)
- Likely (3)
- Very Likely (4)

Attention Check 1 Please demonstrate that you are paying attention by selecting “Unlikely” for this item

- Very Unlikely (1)
- Unlikely (2)
- Likely (3)
- Very Likely (4)

End of Block: MHLS - Ability to Recognise Disorders

Start of Block: MHLS - Knowledge of Self Treatment

Sleep To what extent do you think it would be helpful for someone to improve their quality of sleep if they were having difficulties managing their emotions (e.g., becoming very anxious or depressed)?

- ○ Very Unhelpful (1)
- ○ Unhelpful (2)
- ○ Helpful (3)
- ○ Very Helpful (4)

Avoidance To what extent do you think it would be helpful for someone to avoid all activities or situations that made them feel anxious if they were having difficulties managing their emotions?

- ○ Very Unhelpful (1)
- ○ Unhelpful (2)
- ○ Helpful (3)
- ○ Very Helpful (4)

End of Block: MHLS - Knowledge of Self Treatment

Start of Block: MHLS - Knowledge of Professional Help Available

CBT To what extent do you think it is likely that Cognitive Behaviour Therapy (CBT) is a therapy based on challenging negative thoughts and increasing helpful behaviours?

- ○ Very Unlikely (1)
- ○ Unlikely (2)
- ○ Likely (3)
- ○ Very Likely (4)

Confidentiality 1 Mental health professionals are bound by confidentiality; however, there are certain conditions under which this does not apply. To what extent do you think it is likely that the following is a condition that would allow a mental health professional to **break confidentiality**: *If you are at immediate risk of harm to yourself or others*

- ○ Very Unlikely (1)
- ○ Unlikely (2)
- ○ Likely (3)
- ○ Very Likely (4)

Confidentiality 2 Mental health professionals are bound by confidentiality; however, there are certain conditions under which this does not apply. To what extent do you think it is likely that the following is a condition that would allow a mental health professional to **break**

confidentiality: *If your problem is not life-threatening and they want to assist others to better support you*

- ○ Very Unlikely (1)
- ○ Unlikely (2)
- ○ Likely (3)
- ○ Very Likely (4)

End of Block: MHLS - Knowledge of Professional Help Available

Start of Block: MHLS - Knowledge of Where to Seek Information

Information Please indicate to what extent you agree with the following statements:

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I am confident that I know where to seek information about mental illness (1)	○	○	○	○	○
I am confident using the computer or telephone to seek information about mental illness (2)	○	○	○	○	○
I am confident attending face to face appointments to seek information about mental illness (e.g., seeing the GP) (3)	○	○	○	○	○
I am confident I have access to resources (e.g., GP, internet, friends) that I can use to seek information about mental illness (4)	○	○	○	○	○
Please demonstrate that you are paying attention by selecting "Strongly Agree" for this item (5)	○	○	○	○	○

End of Block: MHLS - Knowledge of Where to Seek Information

Start of Block: MHLS - Attitudes 1

Attitudes 1 Please indicate to what extent you agree with the following statements:

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
People with a mental illness could snap out if it if they wanted (1)	○	○	○	○	○
A mental illness is a sign of personal weakness (2)	○	○	○	○	○
A mental illness is not a real medical illness (3)	○	○	○	○	○
People with a mental illness are dangerous (4)	○	○	○	○	○
It is best to avoid people with a mental illness so that you don't develop this problem (5)	○	○	○	○	○
If I had a mental illness, I would not tell anyone (6)	○	○	○	○	○

Seeing a mental health professional means you are not strong enough to manage your own difficulties (7)	○	○	○	○	○
If I had a mental illness, I would not seek help from a mental health professional (8)	○	○	○	○	○
I believe treatment for a mental illness, provided by a mental health professional, would not be effective (9)	○	○	○	○	○

End of Block: MHLS - Attitudes 1

Start of Block: MHLS - Attitudes 2

Attitudes 2 Please indicate your willingness in response to each of the following statements:

	Definitely Unwilling (1)	Probably Unwilling (2)	Neither Unwilling nor Willing (3)	Probably Willing (4)	Definitely Willing (5)
How willing would you be to move next door to someone with a mental illness? (1)	○	○	○	○	○
How willing would you be to spend an evening socialising with someone with a mental illness? (2)	○	○	○	○	○
How willing would you be to make friends with someone with a mental illness? (3)	○	○	○	○	○
How willing would you be to have someone with a mental illness start working closely with you on a job? (4)	○	○	○	○	○

How willing would you be to have someone with a mental illness marry into your family? (5)	○	○	○	○	○
How willing would you be to vote for a politician if you knew they had suffered a mental illness? (6)	○	○	○	○	○
How willing would you be to employ someone if you knew they had a mental illness? (7)	○	○	○	○	○

End of Block: MHLS - Attitudes 2

Start of Block: Restrictive Emotionality

RE Intro The purpose of the next set of questions is to gain an understanding of your emotional expressiveness.

RE For each statement below, select the number that most closely represents the degree that you Agree or Disagree with the statement. There is no right or wrong answer to each statement; your own reaction is what is asked for.

	Strongly Disagree 1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	Strongly Agree 6 (6)
I have difficulty telling others I care about them (1)	○	○	○	○	○	○
Strong emotions are difficult for me to understand (2)	○	○	○	○	○	○
Expressing feelings makes me feel open to attack by other people (3)	○	○	○	○	○	○
Talking about my feelings during sexual relations is difficult for me (4)	○	○	○	○	○	○
I have difficulty expressing my emotional needs to my partner (5)	○	○	○	○	○	○
I have difficulty expressing my tender feelings (6)	○	○	○	○	○	○
Telling others of my strong feelings is not part of my sexual behavior (7)	○	○	○	○	○	○

I often have trouble finding words that describe how I am feeling (8)	○	○	○	○	○	○
I do not like to show my emotions to other people (9)	○	○	○	○	○	○
Telling my partner my feelings about him/her during sex is difficult for me (10)	○	○	○	○	○	○

End of Block: Restrictive Emotionality

Start of Block: End of Survey Message

End of Survey Thank you for your participation! Please click the arrow button below to be redirected back to Prolific and register your submission. If you are feeling distressed or feel that someone around you may need support, the links below contain lists of some of the services in Aotearoa New Zealand and Australia that offer support, information and help for you, your family/whānau, and your friends. If you wish to access these links, please open them in a separate tab of your browser to avoid failing to register your submission.
Aotearoa New Zealand Helplines and Support Australia Helplines and Support

End of Block: End of Survey Message

Appendix G

Additional Question Asked to Baby Boomer Participants and Alternate End Screen Message

Start of Block: MH Messaging

Display This Question:

If In what country do you currently reside? = Aotearoa New Zealand

Messaging 1 - NZ Do you believe that messaging around mental health (e.g., through public health campaigns, school curriculums, popular culture, etc.) in Aotearoa New Zealand has changed in the past 10-20 years?

- Yes (1)
- No (2)
- Don't Know (3)

Display This Question:

If In what country do you currently reside? = Australia

Messaging 1 - AU Do you believe that messaging around mental health (e.g., through public health campaigns, school curriculums, popular culture, etc.) in Australia has changed in the past 10-20 years?

- Yes (1)
- No (2)
- Don't Know (3)

Display This Question:

If Do you believe that messaging around mental health (e.g., through public health campaigns, school... = Yes

Messaging 2 - NZ You selected 'yes' at the previous question. Could you explain how you feel messaging around mental health in Aotearoa New Zealand has changed in the past 10-20 years?

_____

Display This Question:

If Do you believe that messaging around mental health (e.g., through public health campaigns, school... = Yes

Messaging 2 - AU You selected 'yes' at the previous question. Could you explain how you feel messaging around mental health in Australia has changed in the past 10-20 years?

_____

End of Block: MH Messaging

Start of Block: Email Address Collection NZ

Display This Question:

If In what country do you currently reside? = Aotearoa New Zealand

Email NZ You've now completed all the questions! To say thank you for your time, we would like to send you a **$5 virtual GiftPay voucher**. In order to do this, you will need to **enter a valid email address** into the field below before clicking the arrow button to finish the survey. You will be emailed the voucher **within 14 days** of completing the survey, provided that you have completed the survey attentively. This $5 voucher can be redeemed online at Mighty Ape or the Apple iTunes and App Store. Alternatively, the $5 can be donated to World Animal Protection or ChildFund New Zealand. If you do not wish to

receive the voucher, you can leave this field blank and click on the arrow button to finish the survey.

○ Email Address: (4) _____

End of Block: Email Address Collection NZ

Start of Block: Email Address Collection AU

Display This Question:

If In what country do you currently reside? = Australia

Email AU You've now completed all the questions! To say thank you for your time, we would like to send you a **$5 virtual GiftPay voucher**. In order to do this, you will need to **enter a valid email address** into the field below before clicking the arrow button to finish the survey. You will be emailed the voucher **within 14 days** of completing the survey, provided that you have completed the survey attentively. This $5 voucher can be redeemed online at retailers including Coles, Myer, Big W, and Woolworths. Alternatively, the $5 can be donated to an organisation such as Beyond Blue or the Australian Cancer Research Foundation. If you do not wish to receive the voucher, you can leave this field blank and click on the arrow button to finish the survey.

○ Email Address: (4) _____

End of Block: Email Address Collection AU

Appendix H

Research Case Study

Massey University
Clinical Psychology

CASE STUDY 6

Research Case Study

Candidate: Andrew Dodge
Clinical Psychology Programme Massey University
Student ID:
Setting: Manukau Community Mental Health Centre
Supervisor: Dr Melodie Barr

This case was completed during internship at the Manukau Community Mental Health Centre in 2023 and represents the work of the candidate

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Supervisor

Dr Melodie Barr
Consultant Clinical Psychologist

_____

Student

Andrew Dodge

_____

Date: 24/11/2023

Abstract

This case study is a reflective piece that was completed during my internship year in the Doctor of Clinical Psychology programme. It considers how my doctoral research has impacted upon my clinical practice as an intern psychologist at the Manukau Community Mental Health Centre, which is a secondary adult mental health service in Te Whatu Ora Counties Manukau. Firstly, this case study provides an overview of my doctoral research. This is followed by a summary of my experience as an intern psychologist. Finally, I reflect on the ways in which my doctoral research has contributed to my clinical practice. This includes a consideration of the impact of gender and generational differences in my work with clients, understanding the influences on different cohorts and considering my own biases and assumptions, the influence of Open Science principles on my practice, and how my research translates to an Aotearoa New Zealand context. Overall, I feel these considerations have contributed towards my professional and personal development as an intern psychologist.

Doctoral Research Overview

My doctoral thesis is supervised by Dr Matt Williams, Dr Kirsty Ross Dr Ilana Seager Van Dyk and is titled *Gender and Generational Differences in Mental Health Literacy across Australasia*. My doctoral research focuses on mental health literacy, which refers to the capacity of the general population to effectively assist in the identification, management, and prevention of mental distress. With prior research indicating both gender and age differences in mental health literacy, the present study aims to establish whether these findings hold true within an Australasian context. Additional hypotheses are also proposed that, when taken as a whole, seek to explore why such differences may exist and to bolster our overall understanding of the concept.

Study Rationale and Aims

The concept of mental health literacy was first introduced by Jorm et al. (1997), who initially defined the concept as "knowledge and beliefs about mental disorders which aid their recognition, management and prevention" (p. 182). Until the introduction of the concept of mental health literacy in the mid-nineties, the focus of the mental health sector was simply on the training of primary care professionals (Jorm, 2019). Mental health literacy shifts the focus of the sector away from the notion that members of the public are merely passive recipients of mental health care and towards improving their knowledge and ability to recognise the signs of mental distress in themselves and others and take appropriate steps to receive help (Jorm, 2000). In doing so, members of the public can take on a more active role in the symptom management of themselves and those around them.

Existing research has indicated that there are both gender and age gaps in levels of mental health literacy, with men and older adults typically exhibiting lower levels on this measure (Cotton et al., 2006; Farrer et al., 2008). However, there is a lack of research exploring what may underlie these differences. This gap is important to address. If certain

groups are less capable of accurately evaluating when mental distress warrants support, they may be less likely to seek or recommend help when it would be appropriate to do so. Investigating these differences and exploring why they exist is important and may provide us with an enhanced understanding of certain vulnerabilities concerning these groups. For instance, lower levels of mental health literacy among men may plausibly be contributing to the significantly higher rate of suicide among men compared with women.

The present study seeks to address this gap by investigating how variables such as restrictive emotionality and perceived exposure to mental health messaging may be associated with the knowledge and attitudinal components that comprise mental health literacy. By estimating the relationships between these variables, this study seeks to enhance our understanding of why we typically observe lower mental health literacy among men and older generations. Additional aims of this study include exploring whether these same differences exist within an Australasian context. A multigroup confirmatory factor analysis with a test of the assumption of measurement invariance will be used to further assess whether any observed differences can be ascribed to real differences on latent variables and not the result of measurement bias. This study also looks to further enhance our understanding of this area by exploring how greater mental health knowledge and attitudes may influence the correct detection and rejection of the signs of different forms of mental distress presented in vignette case studies.

Research Hypotheses and Questions

Given the aims of the study, the following eight hypotheses were proposed:

H1: *younger generations will demonstrate higher mental health knowledge than older generations*

H2: *younger generations will demonstrate more positive attitudes towards mental health and help-seeking than older generations*

H3: *women will demonstrate higher mental health knowledge than men*

H4: *women will demonstrate more positive attitudes towards mental health and help-seeking than men*

H5: *younger generations will be more likely to provide 'false positive' responses to vignette cases (i.e., incorrectly identifying the presence of a mental disorder when presented with a vignette describing normal levels of distress to a difficult situation) than older generations*

H6: *Restrictive Emotionality (RE) partially mediates the relationship between gender and attitudes towards mental health and help-seeking (with men having higher scores for RE, and RE being negatively related to attitudes towards mental health and help-seeking)*

H7: *higher overall Mental Health Literacy Scale scores will be associated with higher Overall Detection Accuracy in response to the vignette cases*

H8: *the gender gap in mental health literacy will be smaller for younger generations*

In addition to the eight hypotheses, one research question was explored:

RQ1: *do Baby Boomers in Aotearoa New Zealander and Australia feel that messaging around mental health (e.g., through public health campaigns, school curriculums, popular culture, etc.) has changed in the past 10-20 years, and in what ways?*

Methodology

The present study used a quantitative cross-sectional survey design to investigate the proposed hypotheses. To inform the single exploratory research question posed, content analysis was applied to the text data collected from an open-ended question asked only of Baby Boomer participants.

Participants

A power analysis was calculated to determine an appropriate sample size to evaluate the set of proposed hypotheses. Using the parameters of a 5% level of significance, a 90%

power level, and an effect size of 0.15, the required sample size of a one-way ANOVA test was calculated as n=636. Given that it was not possible to conduct a power analysis on a multigroup CFA, the target sample size was increased by 200 to a total of n=836 to account for any uncertainty. Ultimately, the sample size achieved for the present study was n=830. While not quite reaching the initial target of n=836, this was considered an appropriate sample size with which to proceed. Interlocking age and gender quotas were applied to the data collection to ensure that a sample of approximately n=100 male participants and n=100 female participants per generational cohort group was achieved.

Participants were recruited through a combination of the Prolific research platform and Facebook advertising. In total, n=588 participants were recruited through Prolific and n=241 were recruited through Facebook. Prior to the data collection phase, it was decided that recruitment across both platforms would continue until either: 1) the quotas for each platform were reached, or 2) 30 days pass (whichever comes sooner). To be eligible to take part in the study, participants needed to be: aged over 18 and born after 1945; living in either Aotearoa New Zealand or Australia at the time the data was collected; and be a fluent English speaker.

Procedure

Two versions of the questionnaire were designed: one for participants recruited through Prolific and one for participants recruited through Facebook. Differences between the two versions included: some differences to the wording of the information sheet; a field to capture the ID of the Prolific participants; two additional questions asked only of Baby Boomer participants recruited through Facebook; a field through which Facebook participants could provide an email address that the GiftPay voucher could be sent to; and a slightly different end of survey message.

After clicking on the link to proceed to complete the survey (either through the Prolific platform or a Facebook advertisement), participants were provided with an information sheet containing an overview of the study, information on what participation involves, the possible risks of participation, incentives for participation, the data management approach, and the contact details of the researchers involved. Participants were informed that they had no obligation to participate and could stop participating at any time, for any reason. After reading the information sheet, participants were required to provide their explicit consent to proceed to the survey. Following this, participants continued to complete a number of sections including demographic information, a set of questions based on three vignette case studies, the Mental Health Literacy Scale, and the Restrictive Emotionality subscale of the Gender Role Conflict Scale. Baby Boomer participants also completed two additional questions concerning the messaging around mental health. At the end of the survey, participants were provided with the links to mental health support services for both Aotearoa New Zealand and Australia.

The present study has also been carried out in accordance with Open Science principles, which involves conducting research in a more rigorous manner to avoid the pitfalls associated with the replication crisis. Practically, this has involved submitting a pre-registration document to the Center for Open Science and the Open Science Framework outlining the key aspects of the present study such as the hypotheses, proposed analyses, data collection procedures, measures, and estimated sample size prior to data collection. The full deidentified data for the study and the full R coding script will also be uploaded for the purposes of transparency and replicability. Such steps assist in ruling out the practice of 'HARKing' (Hypothesising After the Results are Known), a term introduced by Kerr (1998) that can be defined as "presenting a post hoc hypothesis (i.e., one based on or informed by one's results) in one's research report as if it were, in fact, an a priori hypotheses" (p. 196).

Ethics

Ethical approval for the present study was applied for and granted by Massey University's Ethics Committee on April 29th 2022 (application number: 4000025827). A number of important ethical issues were considered in the design of this study. To ensure that participants were able to provide their full informed consent, they were first presented with a thorough information sheet providing details about the study itself, the risks involved, the recruitment methods and incentives, the data management processes, participant rights, and the contact details of the researchers involved. Participants were informed that they could stop participating at any time and were explicitly asked to provide their consent to participate in the study after reading the information sheet. In adherence with the Open Science approach to research, the data for this study will be uploaded to an online repository that is accessible to the public. To maintain the confidentiality of the participants, this data will be deidentified and the responses to the qualitative open-ended question will not be uploaded. To minimise the possibility of participants experiencing any harm in completing the survey, the risks were clearly outlined in the information sheet. Links to mental support services were provided at the end of the survey and no deception was involved at any stage in the research.

Considerations were also made with respect to Te Tiriti o Waitangi and the cultural appropriateness of the study. This included welcoming participants using a diverse range of languages at the start of the survey, making appropriate modifications to the wording of the Mental Health Literacy Scale items, using culturally appropriate references to an Australasian audience when writing the vignettes, and the use of ethnically ambiguous names for the protagonists of the case studies to reduce the possibility of biases related to cultural stereotypes. The materials and measures of the present study were discussed in consultation with Dr Matt Shepherd, a senior lecturer at Massey University with extensive experience providing cultural supervision to students around issues relating to te ao Māori. Issues such as

the lack of validation of the Mental Health Literacy Scale in Aotearoa New Zealand and how the interpretations of hallucinations can differ in a te ao Māori context were discussed.

Data Analysis

Data analysis for the present study was carried out using RStudio. The following statistical tests were used to evaluate the proposed hypotheses: a multigroup confirmatory factor analysis with a test of the assumption of measurement invariance was used to evaluate H1, H2, H3 and H4; Spearman's rank correlation coefficient (also known as Spearman's RHO) was used to evaluate H5 and H7; structural equation modelling was used to evaluate H6; and a factorial ANOVA was used to evaluate H8. To evaluate the qualitative question at the end of the survey that was asked only to Baby Boomer participants, content analysis was applied to the open-ended text data that was received from this question.

Clinical Psychology Internship

I commenced my internship in February 2023 at the Manukau Community Mental Health Centre (CMHC), which is an adult community mental health service in South Auckland. The centre is a secondary mental health service that accepts referrals for adult clients aged 18 to 65 presenting with a wide range of mental health concerns. During my internship, I have worked with clients across this age bracket. However, the majority of my regular treatment clients have been aged 18 to 45. Additionally, I have worked with clients with a range of presenting difficulties and conditions, including depression, anxiety, obsessive-compulsive disorder, psychosis, autism spectrum disorder, and borderline personality disorder. The discussion and reflections that follow relate to my experience as an intern psychologist working within this setting over the past nine months and how my research has influenced my clinical practice.

Reflections

Gender and Age Preconceptions

A significant focus of my research is on the differences that exist between both gender and generational cohort across several variables. Considering this, I feel this has led me to curiously observe whether the research findings seem to translate to clinical work. For instance, the research indicates that women typically have higher levels of mental health literacy and men typically have higher restrictive emotionality. With the clients I have seen during my internship, I would say these findings seem to generally hold true. For example, one female client I worked with came into our initial assessment suspecting she had a diagnosis of obsessive-compulsive disorder. Throughout the session, it became apparent that she was well-versed in the diagnostic criteria for the condition and knowledgeable about other areas of mental health. Another female client described herself as a mental health advocate and regularly uploaded videos of her speaking about her mental health difficulties on diagnoses to social media, where she had many followers. Alternatively, the concept of mental health was novel to one of the male clients I saw. For instance, he struggled to identify whether he felt anxious as he was unsure what the term itself meant. Another male client I saw demonstrated significant difficulties putting words to emotions and was far more comfortable speaking about surface level topics. During my clinical practice, I have also observed differences regarding mental health literacy across age groups. For instance, during my placement at a child and adolescent mental health centre last year, one adolescent client came to an assessment session actively seeking a diagnosis of ADHD and was equipped with the diagnostic criteria for the condition. Conversely, several adults from older generations that I have seen this year have exhibited relatively low knowledge of mental health as a whole. Overall, these experiences seemed to support the existing research findings in the literature.

Regarding my clinical practice, I feel that my research has served as a timely reminder that many clients have low levels of mental health literacy and may feel a sense of

disempowerment or unease upon entering a mental health setting. I feel it has been important to reflect on this and to take care in ensuring that I adjust my practice accordingly. For instance, for one of the clients I mentioned in the previous paragraph, it was important to alter my language around anxiety and provide psychoeducation in a manner that was easily understood but avoided condescension. I feel it is also important to find the right balance between acknowledging the differences that exist in the literature while maintaining an open mind. For instance, I have also seen male clients who were comfortable in expressing their emotions and demonstrated considerable mental health literacy.

Influences on Cohort Differences

Regarding my review of the literature for my research, one interesting area was exploring the external influences – particularly during their formative years – that have impacted upon different generational cohorts. For instance, it has been posited that the 2007-2008 global financial crisis – which occurred as many millennials were entering the workforce – may have impacted upon the values and outlook for this cohort. Immersing myself in this research had led me to reflect on the current set of global external circumstances occurring during the lives of younger generational cohorts that may have an impact on their current and future mental health. For instance, the academic careers of the majority of those within the Generation Z cohort will have been significantly interrupted by the Covid-19 pandemic. Various other global forces are currently ongoing at the time of writing including the increasing frequency of climate-related disasters, global conflicts such as wars between Russia and Ukraine and Israel and Palestine, and the rapid advance of artificial intelligence. While the effects of these events on this cohort have not yet been realised, they have led me to wonder whether they could lead to a degree of existential anxiety for this age group in the years to come, especially when considered around the global reach of news coverage. Additionally, this cohort are the first to have been introduced to

social media at a young age, which I feel will inevitably impacted upon the mental wellbeing of this group as they progressed through their high school years.

With these considerations in mind, I feel it is important to acknowledge that the client landscape is constantly changing. As time goes on, new generational cohorts with different characteristics will become clients. It will not only be important to recognise the influences that have shaped these groups, but also to reflect on the formative impacts on my own age group and consider my own biases, assumptions, and preconceptions.

Scientist-Practitioner Approach and Open Science Principles

An integral element of clinical psychology is the notion of evidence-based practice, and conducting my own study has enhanced my understanding of what constitutes sound scientific research. It has put me in a better position to critically analyse the research of others and has also reinforced the importance of staying up-to-date with the latest evidence in the area in order to practice effectively. Throughout my internship, I have been fortunate enough to be exposed to several therapeutic approaches and clients with a wide range of presenting difficulties. However, my lack of clinical experience – especially early in the internship – left me concerned about my ability to provide appropriate support to my clients. One way in which I was able to alleviate this concern was through consulting the latest evidence-based treatment research for different disorders. For instance, when working with a client with obsessive-compulsive disorder, I found that the latest version of David Clark's 'Cognitive-Behavioural Therapy for OCD and its Subtypes' contained a number of significant changes compared to an earlier version of the book I had read.

Another important aspect of my research involved adhering to Open Science principles such as transparency, rigor, and accountability. In terms of my research, this included submitting a preregistration document before any data was collected, using an open-source software to conduct the data analysis, and making my coding script and deidentified

data publicly accessible. Including such steps in the research process ensures a degree of rigor and serves as an attempt to avoid the pitfalls commonly associated with the reproducibility crisis. I feel this has expanded to influence my clinical practice in several ways. Clients have the right to know where their information is stored and who it will be shared with, so I ensure this is clearly communicated to them in the first session. It is also important that clients are given the opportunity to provide their consent for treatment and understand confidentiality and its limits. Creating an information sheet covering similar issues around consent, confidentiality, and possible risks for participants of my research to read was a useful exercise that applied similar principles to those in my clinical practice. Additionally, clients have the right to access their clinical notes. As such, I feel it is important to write my notes in a transparent manner that accurately reflects the nature of the session and would not feel like a misrepresentation in any way should the client read them.

Aotearoa Context and Considerations

An important consideration I have made throughout my research project is how this area translates to an Aotearoa New Zealand context. I feel it is necessary to recognise that the general body of literature around mental health literacy is very much focused on a Western understanding of mental health. This extends to the principal measure I used in my research: the Mental Health Literacy Scale. For instance, one of the key domains measured using this tool is the recognition of disorders, which the authors of the measure developed in close reference to the DSM-IV. Additionally, the measure has not been validated within an Aotearoa New Zealand context. For these reasons, I felt it was important to seek cultural consultation regarding the use of the measure in my research. I also made several culturally appropriate changes to the materials, such as using ethnically ambiguous names for protagonists in the vignettes and rewriting a vignette depicting the symptoms of schizophrenia with the concept of matakite in mind. While initially the plan was to only

include participants from Aotearoa New Zealand, it became quickly apparent that this would not be possible due to feasibility and funding constraints. For this reason, the research was extended to include Australian participants.

This raises the question of how these considerations during my research have influenced my clinical practice during my internship. Firstly, I feel it is important to understand the context of the service itself. The Manukau CMHC is in South Auckland and serves a catchment area with notable diversity in terms of cultural backgrounds and ethnicities. When reflecting on the regular clients I have worked alongside in treatment this year, this includes Māori, Pasifika, Indian, and New Zealand European clients. With this in mind, I feel that my research has impacted on my clinical practice by expanding my consideration of non-Western views of mental health. While the measures used in my research were very much developed through a Western lens, the research process has assisted me in reflecting on different cultural understandings of mental health. I see this as an invaluable benefit, especially when working in diverse settings that accurately represent the cosmopolitan make-up of a city such as Tamaki Makaurau. When reflecting on my interactions with clients, I feel my research encouraged me to consider alternative understandings of mental health. For instance, I felt discouraged by the lack of progress I was making during my first sessions in working with a Māori client using a traditional CBT approach to treating depression. It was not until I incorporated a model developed using a Te Ao Māori understanding of mental health (alongside cultural supervision) that notable therapeutic progress was achieved.

Summary

While conducting my own research project has been valuable in itself, I feel it has also shaped my practice as an intern psychologist in several ways. One such influence that engaging in this particular body of literature has had is an expansion of my understanding of

the formative impact that different events and time periods can have on different generations and genders. At the same time, it has also led me to reflect on balancing a recognition of these influences while maintaining an open-mind towards every client that walks through the door. It has also led me to consider the ever-changing landscape within clinical practice and has served as a reminder that it will be important to continuously reflect on my own biases and assumptions. I feel this will be particularly important as time goes on and the age gap becomes increasingly large between myself and the youngest clients in the service. Additionally, adhering to Open Science principles throughout the research process has served as a useful reminder to adhere to the scientist-practitioner model in clinical practice. I feel strongly that these same principles of transparency, rigor, and accountability are highly relevant in a clinical setting and are necessary in upholding respect and care for our clients. Lastly, my research project has led me to consider how this area of literature translates to an Aotearoa New Zealand context. Overall, I feel that engaging in this area of research has enhanced my practice as an intern psychologist.

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