Improving the mental health of young people in tertiary education settings

A POLICY EVIDENCE BRIEF

August 2021

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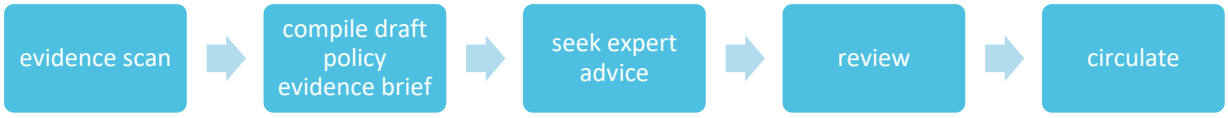

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Table of Contents

Abbreviations

AHPC	Australian Health Policy Collaboration
COVID-19	Coronavirus disease of 2019
LGBTIQA+	Lesbian, gay, bisexual, transgender/gender diverse, intersex, queer/questioning, asexual and other terms
OECD	Organisation for Economic Co-operation and Development
TAFE	Australian Technical and Further Education
UK	United Kingdom
U.S.	United States
VET	Vocational Education and Training
WHO	World Health Organization

Executive summary

Young people (15-24 years) have the highest prevalence of mental health disorders or behavioural conditions of all age groups [1]. Seventy-five per cent of mental disorders emerge for the first time before the age of 24 years [2], which is the time when a large proportion of young Australians enrol in tertiary education [3]. Each year, over 200,000 university students (18-25 years old) will experience mental ill health [4]. Mental ill health is often an outcome of individuals' experiences with various psychological stressors encountered in social and environmental 'settings' [5]. Tertiary education settings can be better utilised to improve the mental health of their students. These settings are well-placed to engage in primary and secondary prevention as well as in facilitating access to tertiary interventions (e.g. ensuring access to appropriate information, treatment and services for students experiencing mental ill health) [6-11]. Improving the mental health of young people could result in substantial social, economic, educational and health benefits for many young people, their families and the community [12].

The purpose of this policy evidence brief is to:

1. identify evidence-based interventions in tertiary education settings that can effectively help young people to manage stress and improve their mental health and lifelong outcomes; and

2. outline policy options to address the stress and mental health concerns of young people to help young people to develop healthy coping strategies to manage unavoidable life stressors [13].

Even though this brief's goal was to present balanced evidence for tertiary education settings that include both higher education and vocational education and training (VET), the majority of the limited available evidence has focused on higher education students, and evidence for VET students is scarce.

In this policy evidence brief, we focus on policy options that are relevant to health policy. However, we acknowledge that improving students' mental health and wellbeing requires action from the 'whole system', including tertiary education providers, and state and local government departments and sectors. Furthermore, the policy options presented in this policy evidence brief cannot address the identified challenges in isolation. These options need to be implemented as a part of a whole-system approach.

The policy options include:

- Establishing a regular, standardised and monitored national data collection on the state of tertiary students' mental health and wellbeing to enable evidence-informed and data-driven decision making.
- Investing in research related to tertiary students' mental health needs and mental health promotion in tertiary education settings.
- Increasing support for tertiary education settings to implement and evaluate appropriate evidence-based interventions aimed at improving students' mental health and wellbeing and to create teaching and learning environments that enhance students' mental health and wellbeing.
- Increasing mental health awareness and literacy among students and staff members, especially teaching staff, in tertiary education settings.

- Investing in the development and resourcing of action/implementation plans for universities across Australia to implement *A Framework for Promoting Student Mental Wellbeing in Universities* and the *Australian University Student Mental Health Framework*.
- Supporting the development of an Australian VET students' mental health framework and accompanying implementation plan.
- Increasing cross-sectoral collaboration between the Department of Health and the Department of Education, Skills and Employment to develop and implement national policies across health and education sectors; this would acknowledge tertiary students' mental health needs and the tertiary education sector as an important partner in the development and delivery of mental health initiatives.

What is the problem?

Young Australians have the highest prevalence of mental or behavioural conditions compared with other age groups

Mental ill health is an overarching term that includes mental illness and mental health problems [14]. Mental illness (or mental disorders) is the leading cause of disability in young people worldwide [15]. It is a mental or behavioural pattern that causes substantial distress and impairment to a person's functioning [16] and includes a range of different diagnosable conditions such as anxiety disorders, depression, bipolar disorder, and schizophrenia [17].[1] The latest National Health Survey (2017-18) shows that young people (15-24 years) have the highest prevalence of mental disorders or behavioural conditions of all age groups [1]. The onset of mental ill health is most likely to occur during adolescence and early adulthood [2, 18]. Mental ill health during this period often leads to long-term negative consequences related to employment, underachievement in education, poorer physical health, reduction in the quality of relationships [19, 20] and a higher risk of suicide. Indeed, depression is the strongest risk factor for suicidality in young people [21], and suicide is the leading cause of death in Australians aged 15-29 years [22].

Mental ill health is common among tertiary education students[2]

Mental health is defined as "a state of well-being in which an individual realises his or her own abilities, can cope with the normal stresses of life, can work productivity and is able to make a contribution to his or her community" [24]. Even in the absence of severe mental illness, the consequences of mental ill health among young people in tertiary education may include disruption to their developmental trajectory, higher rates of academic dropout and attrition [6, 8, 25, 26].

It is estimated that approximately 25% of Australian university students will experience mental ill health, and students from at-risk population groups (such as students from low socio-economic backgrounds, First Nations students, and students from culturally and linguistically diverse backgrounds) are at even greater risk [6]. However, the lack of comprehensive Australian data and research on tertiary education students' mental health, especially VET students, makes it challenging to accurately determine the prevalence of mental ill health in this group [8]. It is evident that 75% of mental disorders emerge for the first time before the age of 24 years [2], which is when a large proportion of young Australians are enrolled in tertiary education [3].[3] Tertiary education students generally experience a higher prevalence of moderate psychological distress than non-students [28]. This means that tertiary education is a critical environment to reach young people to promote and support mental health and influence lifelong outcomes. The latest Census of Population and Housing data shows that Australians are "upskilling like never before" – 56% of Australians (15 years and older) have a

[1] It is important to note the conceptual difference between 'mental ill health', which requires support and should be treated, and 'mental wellbeing' that should be promoted.

[2] Tertiary or post-secondary education in Australia includes vocational education and training (VET) and higher education [23]. In this policy evidence brief, when referring to a "higher education" setting we refer to a university setting and use these terms as synonyms.

[3] We acknowledge that not only young people enrol in tertiary education but also adults and older adults. However, young Australians are the largest age group enrolled in tertiary education, so this brief is focused solely on them. According to the 2020 *Educational opportunity* report, 73% of Australians had gained a tertiary education degree by age 24 or were currently studying towards gaining the qualification (data from 2016) [27].

post-secondary qualification, which is a significant increase from 46% in 2006 [29]. *Educational opportunity in Australia 2020: Who succeeds and who misses out* reported that 73.1% of young adults had completed a post-secondary qualification by age 24 or were currently gaining a qualification: 33.1% of 24-year-olds had gained a higher education degree; 29.2 % had a VET certificate or diploma; 8.4% were currently attending a higher education institution; and 2.4% were currently attending a VET institution [27]. In 2016, 15% of Australian 22-year-olds had moderately high to high levels of psychological distress [27]. Based on estimates of the number of young people enrolled in higher education and the prevalence of mental health concerns in this age group, it is estimated that, each year, over 200,000 university students (18-25 years old) will experience mental ill health [4].

At the beginning of the coronavirus disease of 2019 (COVID-19) outbreak, public health and mental health experts expressed concerns about the potential rise in mental ill health as a result of the pandemic, especially for children and young people [30, 31]. Recent studies show that these concerns were justified. Nearly one-third of Australian children and young people (5-25 years) experienced adverse mental health effects from COVID-19 [32, 33]. The most recent poll from October 2020, commissioned by the *Age* newspaper, found that the pandemic disproportionally affected young people's mental health (18-24 years old), with three-quarters of young people reporting their mental health had been impacted by COVID-19. A study from the United States (U.S.) found young people (18-30 years) faced major psychological challenges due to COVID-19 [34]. Furthermore, 20% of U.S. college students reported being more depressed, 16% more lonely, and 11% more anxious since the onset of COVID-19 [35]. These findings highlight the underlying vulnerability of young people, who may already be experiencing mental ill health that place them at particular risk in times of additional stress. Researchers warn that, in the wake of COVID-19, significant efforts will be needed to build Australian young people's mental health and resilience in education systems and communities to support them in learning and in work [27].

Stress in education settings as a trigger for mental ill health

Stress can be any factor that causes physical, emotional or psychological strain, and persistent or recurrent stress is known to be a risk factor for the onset and persistence of mental illness [36-38] such as depression and anxiety [13, 39, 40]. Major stressful life events are one of the strongest predictors of depression [13, 39, 41]; the first onset of depression in young people is commonly preceded by a major life stressful event or occurrence [13, 42].

Many of the challenges associated with tertiary education, including financial stress and pressure to perform academically, can be considered as ongoing or persistent stressors that may provoke or worsen mental health symptoms [8, 27, 43]. Indeed, young people in tertiary education experience a range of ongoing stressors that can have a negative impact on their learning capacity, academic performance, quality and quantity of sleep, physical health, mental health, education, employment and substance use [13]. A systematic review comprising of thirteen studies found that self-reported stress levels are associated with poorer quality of life and wellbeing in people undertaking higher education [44]. Another systematic review of twenty-four studies reported the prevalence of depression among university students ranged from 10% to 85% [45]. The mean weighted prevalence is 30.6% in the general population and therefore university students experience considerably higher rates of depression than the general population [45]. The 2019 *Student Experience Survey* showed that 46% of Australian undergraduate students were considering an early course exit because of health and/or stress

reasons [46]. Some groups of students such as First Nation students and international students often experience additional stressors due to racism and lack of cultural sensitivity [47, 48].

Student mental health and academic outcomes

In Australia, approximately 20% of students leave university before completing their course annually, resulting in an average accrued debt of $12,000 and ongoing missed potential lifetime earnings had they completed a degree [49]. Even in students who don't drop out, mental ill health can adversely affect student academic achievement [50]. Several international studies indicate that students with higher self-reported levels of stress have lower academic achievement [13] and in Australia approximately 85% of Australian Technical and Further Education (TAFE) and undergraduate university students report that stress is the main factor negatively affecting their studies [51]. Studies from Germany, Hong Kong and the U.S. all show that higher levels of self-reported academic-related stress predict poor academic performance [52, 53], such as lower grades on examinations [13, 54, 55].

Student mental health and lifelong physical health outcomes

Young people who experience high academic-related stress are also at increased risk of developing preventable physical health problems later in life [13]. A systematic review found that people who were often stressed (e.g. during examination periods) were more likely to be physically inactive, the impact of which is linked with many potentially inter-related poor physical health outcomes [56]. Stress can also be a major trigger for the development of non-communicable conditions and diseases, such as cancer and Type-2 diabetes [57], and is associated with increased appetite [58] and higher body weight [59]. Academic-related stress is likely to contribute to the development of chronic non-communicable diseases as well as a range of other physical health issues, related to increases in unhealthy lifestyle behaviours and physical inactivity [13].

Mental health (in)equity – at-risk population groups

In Australia and internationally, tertiary education institutions are increasingly welcoming a larger number of students who may be first in the family to attend; who are from lower socioeconomic backgrounds; who are mature aged students or who belong to other vulnerable or at-risk population groups [60, 61]. In academic literature, some groups of young people are identified who experience poorer mental health outcomes, generally called 'at risk groups' [62]. In Australia, identified high risk or 'at-risk groups' are students from low socioeconomic backgrounds, those residing in rural and remote areas; lesbian, gay, bisexual, transgender/gender diverse, intersex, queer/questioning, asexual and many other terms (e.g., pansexual, non-binary; LGBTIQA+) students; international students; students with culturally and linguistically diverse backgrounds, and First Nations young people [6, 62].

The mental health risks associated with belonging to an at-risk population group are complex and may interact with other social or psychological risk factors. For example, students who are the first in their family to attend university also experience unique risk factors for mental health concerns, including diminished social support and challenging cultural transitions [63]. Additionally, evidence suggests that LGBTIQA+ students report insufficient support, and it highlights the need for improvement in students' access to inclusive mental health support [64]. Furthermore, survey data from over 6000 students at a large public Australian university showed that the highest rates of mental disorders occurred among women aged from 25 to 34 years, low-income students, and LGBTIQA+ students [65]. Moreover, the experiences of financial pressure or stress and relocating for education (i.e. international students or students from regional or remote areas) are associated with poorer mental health and psychological distress in tertiary students [66-69]. First Nations students are especially vulnerable to experiencing additional stressors and hardship in higher education settings which may lead to mental ill health. This includes lack of culturally appropriate/safe services, experiences of racism, feeling alienated due to lack of First Nations people's perspectives in course content and learning models that recognise their worldviews [70].

International students, the vast majority of whom are from both culturally and linguistically diverse backgrounds, are at particular risk of mental ill health [6, 25, 71-73]. They often experience significant language barriers and disconnection and displacement from their culture and family, which can contribute to poorer mental health outcomes [6, 72, 74]. During the COVID-19 pandemic, known hardships such as language barriers and disconnection from families have been compounded and a significant financial stress was added, due to the lack of financial support as these students have not been eligible for Australia's JobSeeker and JobKeeper financial support programs [75]. Additionally, a quarter of Australian international students experienced racism during the COVID-19 pandemic [47]. This placed international students at increased risk of mental ill health [76, 77]. Because international students comprise 26% of Australian university students [6], contribute $38 billion to the Australian economy, and support over 130,000 Australian jobs, "the livelihood of many Australians depends on a healthy international education sector" [78]. Given the negative impact of COVID-19 on the education sector, supporting the health of international students will be essential to the maintenance of a 'healthy education sector'. This necessarily includes healthy international students, which has been increasingly difficult to maintain during the COVID-19 pandemic [76]. International students have much lower engagement with mental health services than do Australian-born students [79], mainly due to fear of stigma, language barriers, and cultural perceptions related to mental health [72]. Experts are calling for a more systematic approach to the provision of

mental health services to international students in Australia [80]. Additionally, the Productivity Commission outlined “improving access to mental health services for international students” as one of four key actions to addressing the significant burden of young adults’ mental health issues [10, p. 11].

Intersectionality and gender as risk factor

Even though female students and young women often experience higher rates of mental ill health than men [9, 27, 65], social factors such as stigma and social/gender norms impact help-seeking behaviour for mental health support among young men [81]. Young men record high rates of mental illness, anger, irritability and risky behaviours, which are often higher than is the case for women or men at other age groups [82]. This can significantly reduce quality of life, educational attainment, and employment outcomes [82]. Moreover, suicide is the leading cause of death from Australians aged between 15 and 44 [83]. In 2017, 75% of Australians who died by suicide were men [83]. Even though mental illness in young men (12-25 years old) has been estimated to cost the Australian economy around $3.27 billion per year in lost productivity [84], young men are an underserved population relative to their mental health needs [82]. Culturally and linguistically diverse young men, men from low socio-economic backgrounds, and men who identify as LGBTIQA+ are at an even higher risk of mental ill health and face additional barriers to engagement with mental health services such as fear of stigma and harassment, distrust of service system, language barriers and low health [62, 82]. Therefore, when considering different at-risk population group’s mental health needs it is important to consider the concept of ‘intersectionality’, which refers to interplay and interaction between multiple identities and social positions that one person simultaneously has [85]. For example, an international student who identifies as LGBTIQA+ may experience worse health outcomes than Australian-born student who identifies as LGBTIQA+, due to intersections of two at-risk groups, to which the international student belongs. Another example may be a First Nation student from remote or very remote area are who may experience additional hardship compared to a First Nation student from an urban area [70].

Barriers for at-risk students

There are a range of concerns about access to mental health support services for tertiary education students, especially those belonging to at-risk groups. Findings from a systematic review of barriers and facilitators to mental health care among at-risk groups suggest that many vulnerable young people experience heightened barriers to accessing mental health support, including First Nations young people, young people from culturally and linguistically diverse backgrounds, young people who identify as LGBTIQA+, or those from rural or remote areas [62]. Common barriers across at-risk groups include shame/stigma around seeking help, treatment cost, lack of support for treatment, limited treatment options, lack of knowledge/awareness of services, and confidentiality and anonymity concerns [62].

Despite increasing enrolments of, and growing evidence of the mental health risks for, tertiary students belonging to at-risk groups, there is low provision of targeted mental health prevention and treatment for these students [65]. There is a lack of comprehensive and comparable national data that captures the mental health needs of tertiary students across both VET and higher education [18, 86]. For example, in 2018, students from low socioeconomic backgrounds accounted for 17.5% of domestic on-shore university students and students from regional areas comprised 18.9% [87]. Unfortunately, VET student data uses different categories for at-risk groups, which makes comparison between university and VET students difficult [88]. Additionally, it remains a concern that the mental health of at-risk groups within

tertiary education is not well documented, despite evidence that these groups appear to experience greater risk of poor mental health [6].

More evidence is needed to expand the knowledge base about specific students and student groups that are at heightened risk for experiencing mental ill health in tertiary education settings and how to best address their needs [6]. Addressing this would improve understanding of the mental health of tertiary education students, including risk factors associated with mental ill health. It would also enable greater provision of tailored support and services that met the specific needs of students at heightened risk. Notably, the mental health care needs of all groups cannot be grouped together, and the individual needs of each group must be considered. Barriers to mental health support (Table 1) or lack of tailored support could worsen mental health outcomes for already at-risk tertiary students [86, 89].

Table 1. Barriers and facilitators of at-risk groups to accessing/engaging with mental health care services[4]

At-risk group	Barriers	Facilitators
First Nations young people (from Aboriginal and Torres Strait Islander backgrounds)	• poor service knowledge • worry about confidentiality - stigma and shame around seeking help as barriers to accessing support	• having information needs met • availability of learning opportunities • perception of safety in treatment • confidence in treatment provider's competency • educational and community programs (designed to increase service help-seeking attitudes, awareness, or attitudes toward mental health)
Young people from rural and regional areas	• rural community factors • rural region of residence • lack of appropriately trained professionals • lack of anonymity • lack of religious faith	• confidence in treatment provider's competency • educational and community programs (developed to increase service awareness, attitudes toward mental health or help-seeking attitudes)
Culturally and linguistically diverse young people	• distrust of the service system • sociocultural beliefs regarding psychological problems	*Not reported*
LGBTIQA+ young people	• fear of harassment	*Not reported*
International students	• language barriers • unfamiliar academic environment • cultural perceptions • stigma	*Not reported*

[4] The table was developed based on data taken from the *Systematic review of barriers and facilitators to accessing and engaging with mental health care among at-risk young people* (for young people from rural and regional areas and LGBTIQA+, culturally and linguistically diverse young people, and First Nations young people) [62] and from *Mental health and international student: issues, challenges and effective practice* for international students [72]. Unfortunately, facilitators to accessing mental health care services were not separately reported for culturally and linguistically diverse young people, LGBTIQA+ young people, and international students.

	• fear of losing face or reputation	

The under-developed potential of mental health promotion in VET settings – reaching young men and other at-risk groups

As already reported, most mental health problems and disorders emerge before adulthood, with significant increases between the ages of 16-24 years [90], making this an ideal time to intervene to improve students' mental health. Some studies and reports argue that, due to social, housing, fiscal, and familial situations, VET students may be at a higher risk of poor mental health than non-students and university students [8, 91, 92]. However, it has been speculated that a substantial number of VET students do not disclose their mental health issues, which presents a serious challenge for VET providers to respond to their students' needs [8, 91]. Moreover, there is evidence that the VET sector attracts students from lower socioeconomic backgrounds, who also experience poorer mental health outcomes and greater barriers to accessing mental health services [92]. Due to a scarcity of available data and research, there are substantial gaps in our understanding of the prevalence of mental ill health among Australian VET students [8].

In 2008, an Australian research report about TAFE staff perspectives on supporting students with mental illnesses revealed there is generally a low level of mental health literacy among both staff and students [91]. In 2018, *Orygen* recommended that the Australian Government develop and fund resources and training materials to increase mental health literacy for both VET staff and students [8].

Currently, available services and activities of VET providers such as student support services, mental health training for staff, and mentoring [8] are inadequate to support the mental health needs of VET students. Integration of mental health promotion into VET settings may reach large numbers of at-risk students, especially young men, who are attending VET in higher percentage than women [27], and who are recognised as one of the most challenging groups to engage in mental health promotion interventions [82, 84].

The evidence

Education can improve health

Extensive literature suggests that formal education is “a contributing cause of health” [93] and high levels of educational attainment can improve health outcomes [23, 94, 95]. Educational expertise and skills such as knowledge, emotional self-regulation, reasoning and interactional abilities are crucial components of health [93]. People with higher levels of education report better mental health and overall wellbeing and fewer illnesses than those with lower levels of education [96]. Further, people with full-time employment and a tertiary education qualification earn around 34% more than those with only an upper secondary education [97]. Positive health and education outcomes increase the prospect of sufficient income, self-sufficiency, and sustainable employment [98], which can contribute to saving governments hundreds of millions of dollars each year [97]. However, young people with mental health issues such as depression are less likely to undertake higher education [13, 99]. Lower educational attainment can have wider-reaching negative social impacts, including inter-generational problems such as poor academic outcomes, poverty, unemployment, and lower contribution to the community [97].

Importance of tertiary education settings for improving the mental health and overall wellbeing of students

The Organisation for Economic Co-operation and Development (OECD) emphasises that education settings are places where young people develop emotional and social skills necessary for them to thrive and become resilient [100]. Tertiary education settings provide access to a large number of young people during an important, developmental period of life [13, 101], when many long-term positive and negative health-related patterns of behaviour are established [101]. The implementation of population-level programs, interventions, and initiatives to build resilience and improve stress management skills can help young people to develop strategies to deal with inevitable and ongoing stressors throughout the lifespan. This can result in substantial and ongoing economic, social, and benefits for many young people, their families, and the community [12, 13]. Promotion of mental health in tertiary settings requires support of protective factors in these settings, in both academic and social environments, together with provision of appropriate interventions that help students to better cope with and manage stress and anxiety [9]. An environmental approach to mental health acknowledges the importance of the learning and teaching environment to students’ mental health and wellbeing [9]. Strong evidence indicates that students’ experience of teaching and learning influences their overall wellbeing [9, 102, 103]. In recent years, there is an increasing body of evidence showing that a ‘students as partners’ approach, involving students in the co-creation and co-design of university policies, interventions and programs, can have positive effects on students’ empowerment and engagement [9, 104, 105].

Promoting mental health in tertiary education could result in fundamental improvements to public health and economic outcomes, including increased likelihood of sustainable employment [97]. The Australian Government goal to increase attainment of post-secondary school qualifications would also be supported by enhancing mental health supports in tertiary education [106]. Improving student mental health and wellbeing is linked to better academic engagement and can reduce dropout rates as well as longer-term mental health problems [6, 25]. Australian tertiary institutions should be engaged in primary prevention (promoting

wellbeing) and secondary prevention (addressing systemic issues by minimising academic stressors and improving students' coping capacities), as well as facilitating tertiary interventions (ensuring access to appropriate information, treatment and services for students experiencing mental ill health) [6-11].

What works to improve students' mental health?

To present the best available evidence on interventions, initiatives, programs, and approaches that are effective for improving tertiary students' mental health, this section of the brief reports on findings of systematic reviews[5] and/or meta-analyses, scoping reviews or individual studies that are either assessed as having "higher methodological quality"[6] [108] or are published in high-quality peer-reviewed journals[7].

Effective interventions/approaches to improve students' mental health

The following data relates to interventions/approaches offered to students but not necessarily delivered in tertiary settings or by tertiary education institutions; for example, they may be delivered in the community, but target students.

We identify interventions/approaches that have been implemented in virtual or non-specified settings and have shown positive effects on tertiary students' mental health outcomes comprising:

(i) cognitive-behavioural therapy-based interventions;
(ii) mindfulness-based interventions;
(iii) physical activity, exercise, sport, and recreation interventions
(iv) dietary interventions, and;
(v) digital approaches.

Cognitive-behavioural therapy-based interventions: Interventions for post-secondary students based on cognitive behavioural therapy have significant positive effects on anxiety and depression [109]. Cognitive-behavioural therapy is a type of psychotherapy that uses practical strategies to help people change unhealthy ways of behaving, thinking and feeling [110]. A systematic review and meta-analysis of interventions for common mental health problems among tertiary education students found that cognitive behavioural therapy-based interventions were effective for treating both depression and generalised anxiety disorder [109].

Mindfulness-based interventions: Strong evidence indicates that mindfulness-based interventions can significantly improve psychological outcomes for young people especially for depression, anxiety and stress reduction [109, 111-116]. However, cognitive-behavioural therapy-based interventions lead to greater reductions in depression than mindfulness-based interventions [108, 109]. A systematic review and meta-analysis of interventions for common mental health problems among post-secondary students found that mindfulness-based interventions were effective in reducing generalised anxiety disorder and depression [109]. However, no evidence was found that the effects of mindfulness-based interventions were sustained over time [109]. Furthermore, another recent systematic review and meta-analysis

[5] Systematic literature reviews are considered "the best form of evidence" [107]. Therefore, when available, we relied on the evidence from systematic literature reviews.
[6] The review of reviews assessed methodological quality of the reviews according to the AMSTAR grading scale. Those reviews that have a total score from 7 to 9 (out of total 11) were labelled as having a "higher methodological quality".
[7] In Scimago database, academic journals are ranked from Q1 to Q4. Q1 journals are considered as being of highest quality. We presented findings only from reviews published in Q1 and Q2 journals.

found that mindfulness-based interventions reduced symptoms of perceived stress, depression and anxiety [112]. The review concluded that mindfulness-based cognitive therapy was the most effective type of mindfulness-based intervention, with some studies demonstrating lasting effects at one and six months after the intervention [112]. Finally, another systematic review included several studies that reported significant reductions in measures of depression and stress following mindfulness-based interventions [113, 115, 116].

Physical activity, exercise, sport and recreation interventions: A meta-analysis that explored combined effects of meditation, mindfulness and yoga on anxiety, depression and anxiety found that interventions have moderately positive effects on anxiety, depression and stress levels [114]. One systematic review found that exercise-based interventions, as well as peer support and art interventions, had the largest effect size for depression and anxiety, larger than mindfulness-based interventions or interventions based on cognitive-behavioural therapy [109]. A recent scoping review on physical activity and exercise interventions for mental health promotion in young people found evidence that such interventions may decrease symptoms of depression and anxiety [117]. Finally, a wealth of high-quality studies reported substantial evidence of various social, health and psychological benefits of physical activity, exercise, sport and recreation across different age groups, including young people [117-122].

Dietary interventions: Diet has been shown to be associated with the risk for and prevention of common mental disorders [123, 124]. Additionally, evidence from randomised controlled trials suggests diet is an effective treatment strategy for depression in both adults [125, 126] and young people [127]. A systematic review of randomised controlled trials demonstrated evidence to support dietary interventions for improving depression outcomes [128]. Additionally, a systematic review examining diet and mental health among emerging adults supported associations between diet and a range of mental health outcomes (i.e. depression, anxiety, suicide ideation) among this cohort [129]. Given that adherence to dietary recommendations among Australian adults is very low [130], even modest improvements in diet may have mental health benefits. Many tertiary students are categorised as young or emerging adults, and this age group typically exhibits both poor quality diet and high mental health concerns. Diet may offer a modifiable, low-risk strategy to supporting mental health among tertiary students.

Digital approaches[8]: A systematic review and meta-analysis of internet-based approaches to improve mental health in university students found that these approaches can have a small effect on anxiety, depression and stress symptoms [131]. An earlier review also found web-based and computer-delivered approaches can be effective in improving tertiary students' stress, anxiety and depression levels, when the experimental group (i.e. the one that received an intervention) is compared with the inactive control group [132]. However, the review authors call for higher methodological quality and user evaluation in future trials [132].

Effective interventions and approaches to improve students' mental health in tertiary education settings

This part of the report presents three types of interventions/approaches that have been implemented explicitly in tertiary education settings and have shown positive effects on tertiary students' mental health outcomes:

(i) suicide-prevention interventions – gatekeeper training and classroom instruction;

[8] Under the term "digital approaches", we include internet/web-based, computer-delivered or phone app-delivered approaches.

(ii) curriculum-based strategies; and
(iii) the development and implementation of various university policies.

However, it should be noted that existing evidence is limited and partial [9, 18, 133]. Very few interventions/approaches have been evaluated or trialed in diverse contexts. The majority of the available studies focus on the experience of a particular cohort within one institution, which limits the generalisation of the intervention/approach to other settings and to countries where tertiary education systems, and their cultural norms and student bodies, are different [133].

Suicide-prevention interventions – gatekeeper training and classroom instruction: A systematic review that focused on suicide prevention interventions in tertiary education settings found that gatekeeper training[9] and classroom instruction increased short-term knowledge of students about suicide and suicide prevention [134]. However, the long-term effects of classroom instruction and the effects of classroom instruction on suicidal behaviour have not been studied [134]. Furthermore, no evidence was found that gatekeeper training improved long-term behaviours or knowledge about suicide or short-term attitudes toward suicide [134].

Curriculum-based strategies: A systematic review of higher-education setting-based interventions to improve students' mental health found that, in some cases, curriculum-based strategies can be effective [133]. For example, since 2002, Monash University has offered a mandatory course, *Health Enhancement Program,* for all first-year medical students, which includes a mindfulness component and the ESSENCE lifestyle model[10] [135]. The findings of the outcome study related to the course suggest that the course has beneficial effects on student psychological and physical wellbeing [136]. Even though the absence of a control group increases the potential risk of bias, external validity assessment of the course was graded as moderate to high, which means that it can be assumed that this intervention would also be successful in other contexts [133].

University policies: One study found that the number of student suicides significantly decreased at a university that implemented a policy that required professional assessment for suicidal students [137]. The number of suicides at this university was compared with eleven control universities that did not implement similar policies [137]. The policy approach was reported to be successful for undergraduate students, but not for post-graduate students [133].

A scoping review of interventions that promote mental health reported a "lack of foresight" in planning and policies related to primary prevention of mental ill health [138]. The review found no evidence that studies have been undertaken to explore the impact of social, health, educational, and economic policies that have the potential to reduce the burden of poor mental health and create psychologically healthier environments [138]. Moreover, there are very few interventions or approaches addressing those aspects of the environment or setting that contribute to stress and potential mental ill health [138]. This is a significant research and practice gap that should be addressed.

Due to the lack of existing research, it is difficult to determine the direct positive effects of the established university mental health policies on students' mental health and wellbeing.

[9] Gatekeeper training is an educational program that teaches the basics of suicide prevention.
[10] The Essence of Health lifestyle model includes: "Education, the importance of knowledge and reflection; Stress management, the importance of mental health (intervention covered in the mindfulness program); Spirituality, the role of meaning and/or on coping, health, and illness, Exercise, the importance and application of physical activity; Nutrition, the role of healthy nutrition and the influences on eating patterns; Connectedness, the role of social support for well-being and healthcare; Environment, creating a healthy physical, emotional, and social environment" [135].

However, the development of university policies may be considered as a first step and good practice that demonstrates a university's commitment to the enhancement of students' mental health and wellbeing. To increase effectiveness, university policies for the promotion of mental health should have supporting implementation plans and be regularly evaluated.

Frameworks for promotion of Australian university students' mental health

In 2016, *A Framework for Promoting Student Mental Wellbeing in Universities* was developed through a consultation process with mental health experts, higher education researchers and leaders, and professional and academic staff members from 13 Australian universities [139]. This framework is a part of a broader project called *Enhancing Student Wellbeing*, which aims to build the capacity of academic educators to create and promote environments supportive of students' mental wellbeing [140]. The framework has five action areas that aim to:

1. *Foster engaging curricula and learning experiences;*
2. *Cultivate supportive social, physical and digital environments;*
3. *Strengthen community awareness and actions;*
4. *Develop students' mental health knowledge and self-regulatory skills; and*
5. *Ensure access to effective services* [139].

Each action area contains a suggestion of core and additional activities that should be conducted as well as possible indicators for progress tracking.

Throughout 2019/20, *Orygen*, an Australian not-for-profit organisation and research institute, led a consultation process with key stakeholders from universities and the mental health sector who contributed to the development of the *Australian University Student Mental Health Framework* [7]. The framework provides guidance on effective ways to promote and support the mental health and wellbeing of university students and aims to support Australian universities. The Framework takes a settings-based approach and is structured around six principles that support student mental health and wellbeing:

1. The student experience is enhanced through mental health and wellbeing approaches that are informed by students' needs, perspectives and the reality of their experiences.
2. All members of the university community contribute to learning environments that enhance student mental health and wellbeing.
3. Mentally healthy university communities encourage participation; foster a diverse, inclusive environment; promote connectedness; and support academic and personal achievement.
4. The response to mental health and wellbeing is strengthened through collaboration and coordinated actions.
5. Students are able to access appropriate, effective, timely services and supports to meet their mental health and wellbeing needs.
6. Continuous improvement and innovation is informed by evidence and helps build an understanding of what works for student mental health and wellbeing [7].

The development of both frameworks provides guiding resources for recognition of the needs of university students and promotion of their mental health and wellbeing. However, the frameworks do not have implementation or action plans. The frameworks are focused solely on university students and do not address the mental health needs of VET students.

What do others think? – A whole-system approach and lived experience of students

As presented in the *What works to improve students' mental health* section of this brief, there is limited robust scientific evidence regarding the effectiveness of some interventions/approaches aimed at improving tertiary students' mental health. However, the expert community involved in the development of the promotion of Australian university mental health frameworks agrees that a whole-system approach is necessary to address the complex problem of mental ill health and the promotion of wellbeing at Australian universities [7, 139]. The World Health Organization has promoted 'healthy settings' since the establishment of the Ottawa Charter for Health Promotion (1986), which was further strengthened by the Jakarta Declaration (1997) that emphasised the value of settings for implementation of health promotion strategies [141]. In the UK, a 'whole university approach' to mental health has been piloted at several universities [142]. In Australia, the Productivity Commission has recommended a whole-of-government approach to reform the governance of the mental health system [11].

During their studies young people face various systemic and structural stressors within the tertiary education setting that contribute to their mental ill-health [143, 144]. The academic culture, tertiary education community awareness, social environment, teaching and learning practices and experiences all have a significant impact on students' wellbeing and should be actively modified to promote positive and supportive impacts [7, 9, 139, 145, 146].

Even though tertiary education settings regularly ask students for feedback on their experience with teaching and learning, there is a lack of evidence on student perspectives on how their mental wellbeing is affected by or could be better supported at university, and universities do not engage in a systematic evaluation of students' wellbeing [9]. A recent study, conducted on 2776 Australian university students, explored what students think could improve their wellbeing at their universities [9]. Seven key themes were identified: (i) teachers and teaching practices; (ii) student services and support; (iii) environment, culture and communication; (iv) course design; (v) program administration; (vi) assessment; and (vii) student society activities [9]. A particular finding was that teachers can have a crucial role in reducing students' stressors in the learning environment, which does not only refer to their teaching skills and practices, but to their attitudes towards teaching and students [9]. Furthermore, students emphasized the need to improve support services already available within universities [9] with emphasis placed on increasing awareness and promotion of the use of services; as well as improved service availability, range, and quality [9]. Despite most universities offering a range of programs to support student wellbeing, little is known about the overall quality and effectiveness of these [6]. Evaluation of the effectiveness of available programs and services would inform and improve services and supports and mental health outcomes for students [9].

National policy response for mental health promotion

The *National Mental Health Strategy* was endorsed in 1992 by the Australian Health Ministers' Conference [147]. The Strategy includes several documents – the *National Mental Health Policy* [148], the *Mental Health Statement of Rights and Responsibilities*, and five *National Mental Health Plans* [147]. The *National Mental Health Policy* recognised that people in certain life stages, such as adolescence, are at increased risk of mental disorders and advocated for "a more integrated approach across sectors" (p. 19), by forming partnerships between youth affairs, housing, employment, police, community and disability services, corrective services, education, and alcohol and drug services [148]. Additionally, the *National Mental Health Policy* stated that the mental health sector and education sector could jointly collaborate to deliver resilience programs in both primary and secondary schools [148]. Although the education sector is recognised in this policy, tertiary education is omitted.

The *Fifth National Mental Health and Suicide Prevention Plan* was adopted by the Council of Australian Governments and covers the period from 2017 to 2022 [147]. The *National Mental Health and Suicide Prevention Plan* mentions the diversity of experience of mental disorders across several at-risk population groups, such as people from the LGBTIQA+ community, First Nations young people, and people living in rural and remote areas [147]. The plan recognises that mental health problems in children and adolescents differ from those of adults and that mid-to late adolescence is a common time for the onset of mental disorders [147]. However, the Plan then focuses on children's mental health and does not go into detail about the specific mental health needs of young people or tertiary students.

Given that young people (15-24 years old) have the highest prevalence of mental disorders or behavioural conditions compared to all other age groups [4], and that the majority of mental disorders (75%) first occur before the age of 24 [5], the mental health of young people has not been proportionally reflected and addressed in the Policy and the Plan. Additionally, the tertiary education sector is not recognised as an important partner in the development and delivery of mental health initiatives.

Policy options

1. Establish a regular, standardised and monitored national data collection on the state of tertiary students' mental health and wellbeing to enable evidence-informed and data-driven decision making:

> Available data related to Australian tertiary students' mental health are scarce, which is especially the case for VET students [6, 8, 18]. Furthermore, the data collection related to VET students has different categories for at-risk population groups, which makes comparison between VET and higher education students difficult [88]. Moreover, strong evidence indicates that students' experiences of teaching and learning influence their wellbeing [9, 102, 103, 146]. It has previously been suggested that the *Student Experience Survey* can be utilised to include student mental health and wellbeing outcome measures [6, 149]. A separate section with a few questions could be added on: (i) how students perceived their mental health and wellbeing; (ii) risk factors that may have influenced poor mental health and wellbeing; and (iii) the type/level of support they received in tertiary education settings [6]. Inclusion of such a section addressing students' mental health and wellbeing could enable evidence-informed and data-driven decision making. It could inform policy and service responses by the universities and become a valuable information for the Department of Health, and the Department of Education, Skills and Employment regarding the universities' responses to students' mental health needs. As well, given the planned Intergenerational Health and Mental Health Study (IHMHS) announced in 2019 by the Australian Government Minister for Health, the findings on the mental health and wellbeing of students should be reported as a specific sub-sample within that study. There is an established need for a routine and regular collection of a comprehensive range of biomedical, anthropometric, and environmental measures and risk factors for preventable chronic health conditions in the Australian population [150]. Inclusion of student mental health and wellbeing in routine and regular surveys and studies would reflect the significance of this age group's mental health and wellbeing for population mental health and wellbeing.

2. Invest in research related to tertiary students' mental health needs and mental health promotion in tertiary education settings:

> Academic studies and reports have indicated the paucity of available data and Australian research related to tertiary students' mental health [6, 18]. This is especially the case for research related to VET students [8], with most of the research found and presented in this brief focused on university students. In order to improve and promote Australian tertiary students' mental health and wellbeing, current research gaps should be addressed to enable better understanding of the overall prevalence of mental ill health among both VET and higher education students; barriers and facilitators to accessing mental health care services for different at-risk groups; and aspects of the tertiary education environment and experience that contribute to mental health and well-being risks at the individual level and what strategies and interventions can address these. Establishment of a dedicated Research Centre for Mental Health in Tertiary Education, like SMaRteN research network in the UK, could contribute to addressing mentioned research gaps. Such a national centre for tertiary students' mental health and wellbeing could provide leadership, training, best practice guidance, and help coordinate research and data collection across the sector. To build on the suggestions in the first policy

option, the centre could become a central national institution to provide evidence-informed and data-driven decision making.

3. Increase support for tertiary education settings to implement and evaluate appropriate evidence-based interventions aimed at improving students' mental health and wellbeing and to developing and sustaining teaching and learning environments that enhance students' mental health and wellbeing:

> Young people are comparatively reluctant to seek help for their mental health concerns [151] and tertiary education settings can be better utilised to promote and improve students' mental health and wellbeing. Therefore, existing evidence-based interventions that proved to be effective for addressing mental ill health such as physical activity, sport offerings and dietary approaches should be implemented while ensuring they are inclusive and respectful of the diversity of student cohorts. Particular attention should be given to at-risk population groups and their mental health needs, taking into account the concept of 'intersectionality', which refers to interplay and interaction between multiple identities and social positions that one person simultaneously has [85]. Furthermore, universities already offer a range of services to promote students' wellbeing, however little is known about the effectiveness of these, with evaluation of these services of critical importance to the development of effective supports and interventions [6, 9].

4. Increase mental health awareness and literacy among students and staff members, especially teaching staff, in tertiary education settings:

> Up to 60% of Australians have inadequate levels of health literacy [152]. There is a strong body of evidence that shows association between poor health literacy and poor health outcomes [152, 153]. Within the project, *Enhancing Student Wellbeing,* various resources have been created to help university educators develop policies, design curricula and learning and teaching environments that can better support university students' wellbeing and mental health [140]. These resources can be utilised and promoted in tertiary education settings to increase the prominence of mental health within all educational activities and improve mental health literacy of both students and staff members. Additionally, the Productivity Commission suggested amending the *Higher Education Standards Framework* (2015) and the *Standards for Registered Training Organisations* (2015) to require all tertiary education institutions to develop a student mental health and wellbeing strategy. This should include guidance and training for staff so that: (i) all teaching staff undertake training on student mental health and wellbeing; and (ii) all tertiary education providers make available guidance for their staff on what they should do to support student mental health if a student approaches them with a mental health concern [10].

5. Invest in the development and resourcing of action/implementation plans for universities across Australia to implement *A Framework for Promoting Student Mental Wellbeing in Universities* and the *Australian University Student Mental Health Framework*:

> The development of the framework provides guidance for the promotion of mental health promotion for Australian university students. Nevertheless, if the frameworks are to make a difference and improve students' wellbeing and mental health outcomes, they need to be implemented. This can be achieved with the development of implementation or action plans that outline specific, measurable, achievable, realistic

and time-bound actions or objectives for all parties relevant to the implementation of the frameworks.

6. Support the development of an Australian VET students' mental health framework and accompanying implementation plan:

The mental health needs of VET students are often different from higher education students and VET students face different challenges [8]. The existing frameworks – *Framework for Promoting Student Mental Wellbeing in Universities* and the *Australian University Student Mental Health Framework* – are not intended to cover VET providers and their students. The development of a complementary framework and action plan aimed at improving mental health and wellbeing of VET students would redress the gap. Additionally, the Mental Health report by the Australian Productivity Commission emphasised that the Australian Government should develop or commission guidance for VET and other non-university tertiary education providers on how they can best address students' mental health needs, to include best-practice interventions that these institutions could adopt to support students' mental health and wellbeing [10].

7. Increase cross-sectoral collaboration between the Department of Health and the Department of Education, Skills and Employment to develop and implement national policies across health and education sectors that acknowledge tertiary students' mental health needs and the tertiary education sector as an important partner in the development and delivery of mental health initiatives:

Federal policies have the potential to guide decision-makers at the state, local, and institutional (e.g. universities, VET providers) levels. Federal policies should recognise that not only primary and secondary education sectors are important partners in the development and delivery of mental health initiatives. The role of the tertiary education sector should be acknowledged with recognition of and emphasis on specific mental health needs of young people and tertiary students [25]. Inter-departmental structures and cross-portfolio strategies between the Department of Health and the Department of Education would enable a focus on tertiary education and mental health. This could facilitate a whole-of-government approach to the factors influencing tertiary students' mental health and well-being. Finally, this would align with the Productivity Commission's recommendation for the Australian Government to commit to a more strategic and cross-portfolio approach and adopt a whole-of-government approach to mental health promotion [11].

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