Does poverty impact student academic outcomes and wellbeing in Australian universities? A systematic review

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Abstract

Preliminary evidence suggests that Australian university students have higher levels of financial stress and food insecurity relative to the general population. However, the impact of poverty on students' university experiences is rarely considered. The current systematic review sought to investigate whether poverty is associated with poorer academic outcomes and wellbeing in Australian tertiary students. The search included a range of terms related to financial stress, food insecurity, homelessness, housing insecurity, attrition, academic achievement, satisfaction with life, general health, and psychological distress. Twenty-seven (65.9%) of the 41 studies revealed a negative relationship between poverty and wellbeing, and/or a negative relationship between poverty and university engagement within Australian university student samples. Overall, the review found that poverty within tertiary students is associated with negative impacts on academic performance and well-being. Universities, governments, and researchers are therefore urged to explicitly identify the issue of poverty within higher education to begin to address it appropriately.

Key words: financial stress, poverty, academic achievement, low socioeconomic status (SES), university students.

Introduction

It has been suggested that a significant number of Australian tertiary students go without necessities such as medical care and food, due to issues of affordability. The most recent 2017 Australian University Student Finances Survey found that many Australian tertiary students experience high levels of financial strain, and often find it difficult to pay for costs associated with university (Arkoudis et al., 2018). Arkoudis et al. (2018) found that 58% of students surveyed were concerned about their level of financial stress, and that one in seven of the domestic undergraduate students reported that they regularly went without food or other necessities because they could not afford them.

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Food insecurity, which is a commonly accepted correlate of poverty (e.g. Bhattacharya, Currie, & Haider, 2004) occurs when individuals cannot afford food that meets their nutritional needs. Unsurprisingly, food insecurity is most prominent amongst those who are experiencing financial stress, of low income, receiving government benefits, renting and boarding, and who are not able to afford other necessities (Gallegos, Ramsey, & Ong, 2014; Hughes, Serebryanikova, Donaldson, & Leveritt, 2011). Food insecurity has furthermore been identified as a prominent issue amongst Australian tertiary students (Gallegos et al., 2014; Hughes et al., 2011; Micevski, Thornton, & Brockington, 2014). While estimates of food insecurity vary due to sampling differences and the varying classification of food insecurity, it is estimated that between 12.7% and 46.5% of Australian higher education students experience food insecurity (Gallegos et al., 2014; Hughes et al., 2011; Micevski et al., 2014). Such figures are much higher than the estimated prevalence of food insecurity within the general population at 5.2% (Temple, 2008).

High levels of food insecurity within tertiary students is concerning as it may have impacts on health and engagement at university. In support, Hughes et al. (2011) conducted a study using a sample of 399 students from a Queensland university and found that 70% of food insecure students self-rated their health as 'good' to 'very good' in comparison to 80% of food secure students. Gallegos et al. (2013) conducted a study on 810 metropolitan students at a Queensland university and found that food insecure students reported poorer health than their food secure counterparts. Additionally, food insecure students were three times more likely to have suspended their studies compared to students who were deemed food secure. These findings suggest that food insecurity may compromise both wellbeing and academic engagement.

Psychological distress and financial stress

Depression is associated with low satisfaction with one's financial circumstances (Khawaja & Duncanson, 2008). Cvetkovski, Reavely and Jorm (2012) examined the financial circumstances of 3,191 Vocational Education Training (VET) and university students. The students answered either yes or no to a series of statements about their financial circumstances and completed the self-report Kessler Psychological Distress Scale (K10). Cvetkovski et al. (2012) found that a positive response to items such as "I could not pay electricity, gas or telephone bills on time" or "was unable to heat my home" was associated with higher levels of psychological distress. Similarly, Stallman (2010) conducted a large study of 6,479 students from two Australian universities. Stallman found that students who self-reported constant financial strain were the most likely to meet the diagnostic criteria for a mental illness. Additionally, students with any amount of financial stress were twice more likely to have a mental disorder than those who reported no financial stress.

Academic achievement, attrition and financial difficulty

Evidence of the link between poverty and academic engagement is somewhat unclear. For the purposes of this review, engagement refers to academic achievement (marks, grade point average [GPA] or grades), completion rates, deferring, attrition (drop-out), being able to concentrate, and time taken to complete study. Some studies have identified a relationship between considerations of withdrawing and high levels of financial stress (Arkoudis et al., 2018; Lim, 2015) whereas others have found no such relationship (Halliday-Wynes & Nguyen, 2014; McMillan, 2008). Arkoudis et al. (2018) surveyed 18,584 students across 38 Australian public universities. Results showed that 9% of domestic students and 7% of international students reported deferring their studies due to financial reasons and that 55% of part-time students would have preferred to study full-time if finances permitted. Additionally, Halliday-Waynes and Nyuden (2014) interviewed 51 university students across Australia who were experiencing financial stress. Results revealed that the reason 29% of the interviewees deferred their studies

was due to financial stress. Furthermore, in a study of 165,905 university students across Australia, Edwards and McMillan (2015) found that both self-reported financial difficulties and an inability to pay for university fees were associated with non-completion of a university degree within a nine-year period for low socioeconomic status (SES) students, but not for high SES students.

While a review of the literature reveals an apparent relationship between student poverty and poor student academic and wellbeing outcomes, to date there has not been a formal systematic review of the research addressing this issue within Australian tertiary institutions. Therefore, the aim of the current study is to address this gap in the literature and investigate the available evidence on the impact of poverty on Australian university students' wellbeing and academic outcomes. A systematic review was conducted which included studies published from the year 2002 to 2019, to investigate the impact poverty has on student outcomes.

Method

A systematic review was conducted to investigate whether poverty is associated with poor academic engagement and wellbeing in Australian tertiary students. The current study followed the protocol outlined in Cochrane (Higgins & Green, 2011) for systematic reviews. Two reviewers (NB and MT) established the research question, search strategy, and criteria for the study prior to the search. After this was established, electronic databases were searched using a combination of the terms: wellbeing, higher education, poverty, engagement, and/or retention, across the EBSCO Host, PsycINFO, Scopus, A+ Education (Informit), Australia & New Zealand databases. The searches were conducted in January 2018, and updated in January, 2019, and March 2020 to include articles from 2018 and 2019. A summary of the search strategy and full list of terms is provided in Table 1.

Table 1: Terms used in systematic review on poverty within tertiary education.

Tertiary education	Poverty	Engagement	Well-being
Higher education	Poverty	Marks	Mental health
Tertiary education	Employment	GPA	Mental disorder
College	Income	Academic achievement	Depress*
Undergrad*	Socioeconomic*	Academic performance	Anxiety
Bachelor*	Work hours	Retention	Psychiat*
Universit*	Financial stress	Attendance	Self-esteem
Post-secondary	Financial strain	Concentration	Well-being
	Financial distress	Dropout	Quality of life
	Financial burden	Engagement	Life satisfaction
	Financial security	Attentiveness	Wellness
	Afford*	Quality of learning	Loneliness
	Cost*		Happiness
	Accommodation		Belonging
	Hous*		Wellbeing
			Distress
			Stress
			General health
			Independent living skills
			Service
			Help-seek*

Note. Limiters included Australia, 1 January 2002 to 31st December 2019, English.

As shown in Table 1, the studies included in the review must have addressed poverty in Australian tertiary students in relation to engagement or wellbeing variables. The search limited articles to English-language references published within the last 19 years (2002-2019), and those based within an Australian context. Studies were excluded if they: (a) had no identifiable data on Australian students; (b) were reviews, or not empirically based; (c) were conference abstracts or theses; (d) did not examine a relationship between poverty and university experience (e.g. only featured prevalence rates of food insecurity); or (e) did not address

current university experience (e.g. only examined experiences of placement).

One reviewer (NB) removed duplicates using Endnote (Thomson Reuters EndNote X8, 2016) and afterwards removed articles which were clearly irrelevant to the topic of poverty in Australian tertiary students through screening the titles and abstracts of records. NB and MT independently screened the studies in full text using the systematic review management software program, Covidence Online Software (https://www.covidence.org) to establish reliability. When discrepancies arose, this was resolved through a discussion of the search criteria. A third, independent reviewer (FM) was introduced, for the purposes of coding the 39 remaining articles. All articles were independently coded on Excel spreadsheets for participants, measures, results, limitations, discussion points and whether poverty had either a positive, minimal/no, or negative impact to ensure reliability. The spreadsheets were then compared, and when inconsistencies arose this was resolved via discussion between FM and NB.

Results

A total of 6,283 potential studies were identified through the search. In sum, a total of 41 references were identified as relevant. Of these references 32 (78.0%) were peer-reviewed. A flowchart of studies included and excluded is shown in Figure 1, following the PRISMA guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analyses; Moher, Liberati, Tetzlaff, & Altman, 2009). A summary of the findings is displayed in Table 2.

As shown in Figure 1 and Table 2, the records identified featured a range of poverty indicators such as financial stress, food insecurity, and satisfaction with housing, homelessness, low SES, and inability to afford basic necessities. Engagement included thoughts about deferring or dropping out of university, academic achievement (such as marks or GPA), completion of a degree, whether students failed units, and quality of study (e.g. ability to concentrate, enjoyment at university). Wellbeing included variables such as depression, anxiety, stress, presence of a mental disorder, satisfaction with life, happiness, and self-report ratings of general health. Overall, 20 of the 41 studies had some measure of wellbeing (48.8%), and 27 studies (65.9%) included measures of engagement. Only six studies in total explored the impact indicators of poverty had on both academic engagement and wellbeing (15.4%). Twenty-one of the 41 studies (51.2%) included financial stress, financial issues, financial difficulty, financial strain or financial problems as a measure of poverty, while another 19 (46.3%) included low SES as an indicator of poverty. Nine articles (22.0%) included measures of accommodation. Fewer studies accounted for the measurement of homelessness in their design with only two out of 41 (4.9%) including this as a variable.

In relation to the wellbeing construct, the most common measure of student wellbeing was self-reported psychological distress which was explored in 20 (51.3%) records, while only four (7.7%) records contained measures of general health. Only three (7.7%) records included a measure of food security. Only seven studies (15.4%) examined financial variables and academic engagement, with five of these showing that financial variables were associated with greater disengagement. However, most of the research on financial stress showed that financial stress or greater financial difficultly was associated with higher levels of psychological distress or poorer health; 14 out of 17 (82.4%) studies found this relationship.

Eleven of the 19 studies that included SES (57.9%) showed that low SES impacted on wellbeing or academic engagement at university. Nine of the 19 studies including SES (47.4%) specifically examined the impact SES had on academic marks or academic achievement. Five out of nine studies (55.6%) showed that low SES adversely affected academic achievement, whereas the remaining studies did not, highlighting the inconclusive nature of this relationship. Additionally, 10 of the 19 studies (52.9%) including SES as a variable examined attrition and

low SES. Only six out of ten (60.0%) of these studies showed that attrition was greater in low SES students indicating that the evidence concerning low SES and academic impact is inconclusive.

In summary, 27 of the 41 studies (65.9%) revealed a negative relationship between poverty and wellbeing; and engagement at university within Australian student samples. None of the articles found that poverty improved wellbeing or engagement at university. However, 14 studies out of the 41 available on the topic (34.1%) showed poverty had no, or minimal impact on wellbeing and engagement at university.

Figure 1: Flowchart of studies included and excluded for systematic review.

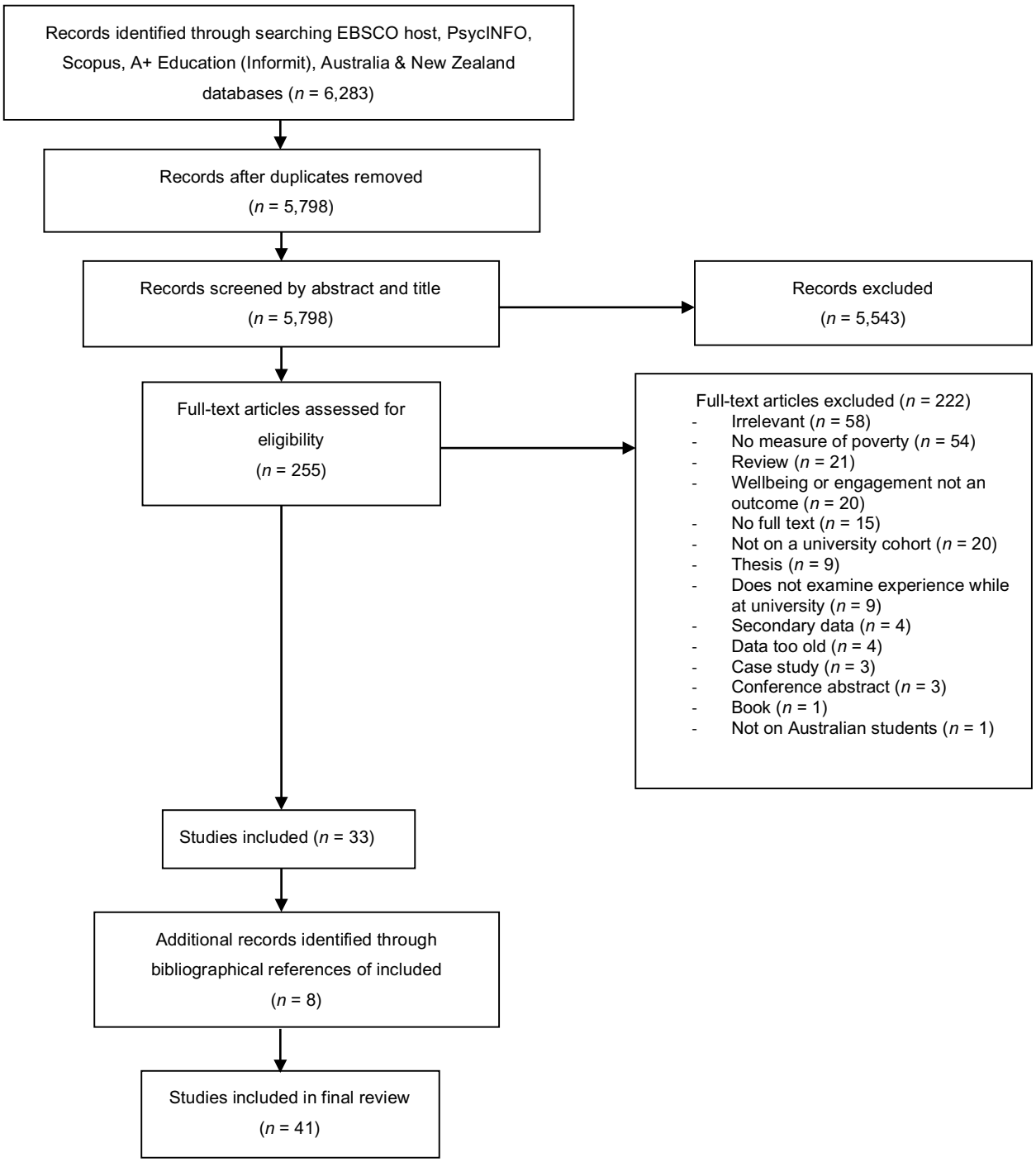

Table 2: Outcomes of studies included within the review.

Author	Sample	Key terms	Findings
(Andrews & Chong, 2011)	1,182 undergraduate and postgraduate students	Financial issues, psychological distress	Students struggling financially demonstrated higher levels of psychological distress than those who had adequate or secure financial circumstances.
Arkoudis et al. (2018)	18,584 students across 38 universities	Attrition, food insecurity financial issues, financial stress, food insecurity, low SES	A higher percentage of low SES students reported that financial stress was a source of worry. Finances influenced university choice and study choice for students. Low SES not more likely to defer than non-low SES students. However, low SES students were more likely to reduce their course load than non-low SES students.
(Ballantyne, Madden, & Todd, 2009)	151 first year students	Course enjoyment, low SES, satisfaction with university	Low SES found staff less approachable than middle, and high SES students. No differences were apparent in satisfaction of course, and enjoyment between low SES and high SES students.
(Birch & Miller, 2007)	6,896 first year students taking a GAP year	Academic achievement, low SES	Low, and high SES students had lower marks compared to middle SES students. HECS deferrers had lower marks compared to students who paid this up front.
(Carroll, Ng, & Birch, 2009)	18 postgraduate business students at a regional university	Attrition, financial issues	Financial pressures were not identified as a significant obstacle in completing university.
(Carson, 2011)	53 undergraduate students at Swinburne receiving a scholarship	Attrition, financial stress, concentration at university	Financial stress was associated with poorer concentration at university. Scholarships reduce financial strain and increase ability to focus on studies.
(Chesters & Watson, 2016)	1,738 domestic undergraduate students	Attrition, low SES	Higher discontinuation rates for high SES compared to low. However, this difference was very small.
(Craft, 2019)	309 students from a satellite campus completing Bachelor's degree	Academic achievement, low SES	There was no difference in GPA between low SES students and those of non-low SES. SES did not predict GPA.
(Cvetkovski et al., 2012)	3,191 undergraduate, postgraduate and VET students	Financial issues, financial stress, psychological distress	Financial stress was associated with higher levels of psychological distress. Students with financial problems had higher psychological distress than those without financial problems. Income not associated with distress within university students.
(Department of Education and Training, 2015)	Undergraduate students across universities in Australia*	Attrition, low SES	Low SES less likely to complete degree than high or mid SES.
(Edwards & McMillan, 2015)	165,905 domestic students	Attrition, financial issues, low SES	Low SES students less likely to complete their degree compared to high SES. Fee difficulties, and financial difficulties are reasons for non-completion in low SES students but not high SES. Low SES considered leaving more than medium and high SES.
(Farrer, Gulliver, Bennett, Fassnacht, & Griffiths, 2016)	611 undergraduate and postgraduate students at Australian National University	Financial stress, psychological distress, housing	Students experiencing occasional, frequent or constant financial stress were more likely to meet the diagnostic criteria for General Anxiety Disorder (GAD) than those with no financial stress. Only constant financial stress was associated with increased risk of major depression. Risk of depression and GAD was higher for students who moved to attend university compared to those who did not move to attend university.

(Gallegos et al., 2014)	810 business, and health students at a Brisbane metropolitan campus	Attrition, food insecurity, health, housing	Food insecure individuals were twice more likely to report fair or poor health than food secure individuals. Individuals who are food insecure are three times as likely to drop out compared to food secure individuals. Students boarding or renting were two to three times more likely to experience food insecurity compared to those who lived at home.
(Grace, Keys, & Hart, 2012)	11 homeless students at university	Homelessness, quality of study, time taken to complete study	Homeless students stated that stable and safe accommodation allows them to progress at university and engage academically. Homeless students took longer to complete their degrees. Some homeless students described having lower grades than their non-homeless counterparts.
(Grebennikov & Skaines, 2008)	8,896 University of Western Sydney undergraduate students	Attrition, academic achievement, low SES	Low SES students had lower GPAs compared to high SES students. SES not associated with leaving institution. However, those with low SES who left the institution were more likely to list work and family commitments as reasons compared to their high SES counterparts, who were more likely to leave to attend another institution.
(Halliday-Wynes & Nguyen, 2014)	51 university and VET students experiencing financial stress	Concentration at university, financial issues, health	Only a few students who were experiencing financial difficulty reported that this adversely impacted their health, wellbeing, concentration, and their grades. Financial difficulty influenced study mode with students switching from full time to part time due to financial reasons. However, it did not influence whether students withdrew or deferred. Costs of studying had a negative impact on how well students believed they could do at university.
(Hughes et al., 2011)	399 students from a Queensland university	Financial issues, food insecurity, health, housing	Food insecure individuals had poorer self-rated health compared to those who were deemed food secure. Food insecure individuals were more likely to have poor personal finances compared to those who were food secure.
(James et al., 2008)	2,422 stratified sample of students from multiple universities	Academic achievement, attrition, financial stress, low SES	Low SES students more likely to cite financial reasons as reason for deferral compared to the total sample. Low SES more likely to worry about finances, state that working interferes with study, and have lower grades in semester one of study than the total sample.
(Karimshah et al., 2009)	1,002 domestic undergraduate students at the University of Queensland	Help seeking, low SES, psychological distress, stress	Low SES students experience more stressors than high SES students. Low SES students perceive the impact of these stressors as being stronger than high SES students.
(Khawaja & Dempsey, 2007)	86 international students from Queensland University of Technology	Financial stress, housing, psychological distress	Coping strategies rather than financial stress or housing satisfaction predicted psychological distress.
(Khawaja & Duncanson, 2008)	287 students from large metropolitan university	Financial satisfaction, housing, psychological distress	Students not satisfied with their financial position or housing situation have more symptoms of depression than those who were quite or very satisfied with housing situation, and financial position.
(Larcombe et al., 2016)	4,825 undergraduate and postgraduate students from a	Financial issues, housing, psychological distress	No difference in depression, and stress, students for those with support compared to without support. Those with no support had higher anxiety compared to those with support.

	large metropolitan university		
(Le & Tam, 2008)	68 postgraduate engineering students at the university of Griffith	Attrition, financial issues	Financial reasons were a significant predictor of non-pursuit of a postgraduate engineering degree. Financial difficulty ranked as 2nd most important predictor of non-pursuit out of 11 variables.
(Lewis, Dickson-Swift, Talbot, & Snow, 2007)	489 students from large regional university in Bendigo	Poverty (as measured by homelessness, and high levels of financial hardship), stress	Poverty is a significant source of stress for many students. However, poverty does not appear to operate in isolation.
(Li & Carroll, 2020)	193,494 domestic students	Attrition, low SES, financial issues	Low SES students were more likely to be at risk of leaving the university. Low SES students also had lower weighted average marks compared to other non-equity groups. Low SES students were more likely to cite financial reasons for leaving compared to dispositional factors.
(Li & Dockery, 2015)	8,417 domestic undergraduate students at a university	Academic achievement, low SES	SES (as SES of high school) was not significant predictor of weighted average mark when accounting for other factors.
(Lim, 2015)	2,479 in LSAY cohort who had attended university	Attrition, low SES	SES predicted completion, with those of low SES being less likely to complete university than high SES.
(Logan, Cox, & Nielsenc, 2013)	916 students undertaking a bioscience module	Academic achievement, low SES	SES not a predictor of academic performance.
(Malau-Aduli et al., 2017)	1,097 medical students at a regional university	Academic difficulty, low SES	Socioeconomic background not related to academic difficulty.
(Marks, 2007)	13,613 young people who commenced university three years or less after year 12	Attrition, low SES	SES and parental occupation did not predict completion rates.
(Messinis & Sheehan, 2015)	19,940 first year students at the University of Victoria	Academic achievement, low SES	Low SES students had lower first year marks in comparison to high SES students when official SES was used. When self-defined SES was used low SES had significantly higher marks than high SES.
(Mestan, 2016)	17 first year Bachelor of Arts students at Latrobe who did not re-enrol after first year	Attrition, financial issues, financial stress	A minority of students identified financial issues as a reason for attrition. However, this did not appear to singularly predict attrition, rather, interactional effects were suggested.
(Mulder & Cashin, 2015)	609 undergraduate and postgraduate students at a regional university	Attrition, financial stress, psychological distress	Financial stress, and the inability to save $2000 is associated with high psychological distress. Students with high psychological distress could not work or study for one in three days and could not work/study effectively for one in six.
(Norton, Cherastidtham & Mackey, 2018)	646 undergraduates across Australian universities	Attrition, low SES	Low SES slightly more likely to drop out than those not from low-SES background
(Puddey & Mercer, 2014)	421 graduate entry postgraduate medical students at the University of Western Australia	Academic achievement, low SES	Being of a lower SES (bottom 8 quartiles of SES) was significantly associated with lower grades overall, 2nd year, 3rd year, 5th year.

(Said, Kypri, & Bowman, 2013)	6,044 students at the University of Newcastle	Income, psychological distress	Anxiety and depressive disorders higher in those with low incomes (as determined by presence of a healthcare card).
(Soh et al., 2013)	497 students enrolled in a graduate medical program at Sydney University	Financial support, housing, psychological distress	No relationship between number of people living in residence and distress. Living in the family home or living in one's own home is associated with lower levels of psychological distress than renting. No association between whether students were financially supported and distress.
(Stallman, 2010)	6,479 students from two large universities	Financial stress, psychological distress	Students with any level of financial stress are twice as likely to report mental illness compared to students with no financial stress.
(Tucker, Jones, Mandy, & Gupta, 2006)	273 physiology students enrolled in Curtain University	Financial stress, stress	Financial stress significantly associated with stress but not more so than academic stress.
(Walter et al., 2013)	475 medical postgraduate students at the university of Sydney	Financial stress, housing, stress	Financial stress is associated with greater overall stress and is a source of stress for students. A small number of students found accommodation issues very or extremely stressful.
(Watson, Barber, & Dziurawiec, 2016)	614 students from a Western Australian university (Pathways to Success)	Financial stress, housing, psychological distress, satisfaction with life	Financial strain is associated with greater depression and lower satisfaction with life. Students who are not living with their parents reported more economising behaviours. Economising behaviours and living status influence one another, and these both influence perceived financial strain, which impact upon life satisfaction and depressed mood.

Note. *Number of participants not specified.

Discussion

To our knowledge, this is the first systematic review conducted on the relationship between tertiary student poverty and academic engagement in Australian universities. Most of the studies identified that poverty had an adverse impact of academic engagement and wellbeing. However, a few studies in the review did not identify poverty as an issue in relation to factors such as financial stress (e.g. Cvetkovski et al., 2012; Larcombe et al., 2016; Watson, Barber, & Dziurawiec, 2016) and food insecurity (e.g. Hughes et al., 2011). Instead, other explanations were given for increased food insecurity such as poor coping strategies, working fewer hours, and the spending habits of students, seen to be more responsible for increased financial stress (e.g. Hughes et al., 2011). However, students are likely to face significant barriers to obtaining education such as housing insecurity, increased dependency in care-giving roles, and work constraints (Hedwig, Trawver, Crutchfield, Maguire, & Aguiniga, 2020). Institutional factors within the university such as level of support, awareness of student issues, and campus emergency responses can also play a role in educational attainment and the well-being of students (Hedwig et al., 2020).

Themes identified

Financial stress and wellbeing. Financial stress was a common theme amongst university students in the literature. Financial stress appears to be associated with higher levels of psychological distress, and high levels of financial stress are associated with greater overall stress, anxiety, and depression (see Table 1). However, Khawaja and Dempsey (2007) found no relationship between these variables when accounting for coping. Arguably, financial stress could be considered an important indirect predictor of wellbeing. For example, Watson, Barber, and Dziurawiec (2015) found that financial stress was an important mediator between economising behaviour and psychological wellbeing. Thus, students who are shown to be engaging in more coping strategies (i.e. economising behaviours) to address financial adversity have higher levels of financial stress, which in turn leads to poorer wellbeing. This

finding highlights the need to consider coping styles when examining financial stress.

Food security, health, and attrition. Only two studies identified the impact that food insecurity has on student wellbeing (Gallegos et al., 2013; Hughes et al., 2011). Both found that food insecurity contributed towards poorer health. It is evident that food insecurity is higher within Australian student populations than that of the general population (Gallegos et al., 2013; Hughes et al., 2011). Given the prevalence of food insecurity among Australian tertiary students, the need to consider this factor when examining academic outcomes and the health of students ought not to be underestimated. Gallegos et al. (2013) identified that undergraduate business and health students who were food insecure were three times more likely to suspend their studies compared to those who were deemed food secure. However, to date no study has examined the impact food insecurity has on academic achievement in Australia. As food insecure individuals may be more likely to suspend their studies, it is possible that food insecurity could result in compromised health, higher stress and in turn, poorer grades, and disengagement at university (Gallegos et al., 2013). Further research is needed to clarify the relationship between food insecurity and academic outcomes such as grades at university; perhaps even the role of the discipline the student is studying.

Low SES and academic engagement. While there were relationships found between financial stress, food insecurity, and poorer health or academic outcomes, the relationship between SES and academic engagement was less clear amongst the studies reviewed. A strong relationship between academic engagement and low SES did not emerge from the literature review and inconsistencies were present. A possible reason for these inconsistencies is that postcode or other measures of low SES such as parental occupation or parental education may not fully capture the true experience of disadvantage among tertiary students (James et al., 2008). For example, James et al. (2008) highlights issues with using postcode indicators of SES. One such issue is that postcode indicators underestimate the number of low SES students living in an area. Realistically, residential areas are comprised of low, middle, and high SES students – postcode indicators of SES fail to capture this (James et al., 2008). Given that the relationship between SES and academic achievement is unclear in Australian studies, and that this may be due to the way SES is measured, it would be beneficial for future research to explore the development of a specific measure of tertiary student poverty so that meaningful comparisons can be made. The review suggests that other variables such as food insecurity, financial stress, and housing insecurity may be more appropriate predictors of social disadvantage relative to SES.

Homelessness at university. The review identified that the literature on homelessness in Australian tertiary students is scarce. Very few studies have been conducted on homelessness and housing security within post-secondary education (Silva et al., 2017). Only one study examined the experiences of homeless students at an Australian university (see Grace, Keys, & Hart, 2012). Additionally, only two out of the nine studies that assessed students' living arrangements included homelessness items in their response options (e.g. Lewis et al., 2007). Although no studies have been published on the prevalence of tertiary student homelessness in Australia, the 2016 Census found that 9% of respondents who were identified as homeless were also students enrolled in a tertiary institution (Australian Bureau of Statistics, 2016). Grace et al. (2012) argue that different forms of homelessness such as couch-surfing is likely to be overlooked and therefore underreported in university student samples.

Grace et al. (2012) interviewed 11 students who had experienced homelessness throughout their studies at university and found that while the students were persistent in obtaining an education, they still faced significant barriers that impacted on their studies, such as a lack of social support networks, health related issues, and difficulty securing stable accommodation. The students also disclosed that they took longer to complete their degree than intended, and regularly experienced delays due to not having access to affordable and secure

accommodation. Furthermore, one more recent international study identified that housing insecurity is negatively associated with attendance and academic success at university (Silva et al., 2017). An important area for future research would be to examine the experiences of homeless university students and comparing their experiences to students who have secure housing. Future research should also aim to account for a variety of forms of homelessness, including couch surfing, living in crisis accommodation or temporary housing, and sleeping in tents.

Few studies have examined the impact that food insecurity and financial stress have on both academic and wellbeing outcomes. Predictors of academic engagement would be enhanced by having studies include measures of actual attrition rather than self-report measures asking if students have considered dropping out. Multiple predictors of academic outcomes including grades, completion rates, and quality of study (e.g. enjoyment, ability to concentrate) can be included when examining the impact that poverty may have on engagement in tertiary education. It is also advisable to include not just first year academic results, but to examine grades longitudinally as well. Differences may also be apparent between international versus local students, between disciplines, or between undergraduate and postgraduate students. Therefore, it is useful to include a large, diverse sample of students to assess these findings amongst sub-populations of students to deepen our understanding of this phenomenon.

Limitations of studies

Limitations of the studies in the review include samples not being representative of the wider student population in their institutions (e.g. Stallman, 2010). Differences may also be apparent between certain student demographics such as international and domestic students (see Khawaja & Dempsey, 2007), which was not accounted for in most designs. A potential issue for studies examining psychological distress is that students with high levels of distress may be less likely to participate (Stallman, 2010). Despite this, the review did find that there appears to be a consistent relationship between moderate levels of psychological distress and financial stress. The studies that examined attrition relied on whether students considered dropping out due to financial stress. However, it would be worthwhile to explore rates of actual drop out to establish if students discontinue university because of financial pressure.

Limitations of the review

One of the identified limitations of the systematic review is that some potentially relevant articles may not have been identified through the search strategy that was used. However, this is an inevitable weakness present with most systematic reviews (Higgins & Green, 2009). By including a range of search terms across different databases, as well as searching bibliographies of relevant articles, it is anticipated that most relevant articles would have been identified. A further limitation is the lack of a consistent definition of poverty in the studies identified and conducting this review has highlighted the overall lack of consensus on what contributes to student poverty. Furthermore, the review also included studies that were not peer reviewed. 'Grey literature' is common in the social sciences and can often reveal important findings regarding social issues. Therefore, the rationale for including grey literature (by way of research reports) was to examine all available evidence given there is such a small amount of peer-reviewed studies focusing on poverty within university students.

Recommendations

Given that poverty is associated with disengagement and poorer wellbeing, it is advisable that universities address this issue in a practical way. Most Australian universities provide free or low-cost services available to students, including food banks, financial advisors, accommodation support, and bulk-billing health clinicians. However, some evidence suggests

that many students lack knowledge, or are unaware of the services available to them at university (Walter et al., 2013). One third of the sample used in Walter et al.'s (2013) study were unaware that the university had financial assistance services available to them. Therefore, increasing awareness about services, and how these can help students may assist in lessening the effects of poverty on wellbeing and academic studies, is vital.

Since financial stress is associated with one's ability to cope with stressors in general (Khawaja & Dempsey, 2007; Watson et al., 2015), as well as being associated with psychological distress (Stallman, 2010), universities could aim to improve wellbeing through greater provision of counselling services for students. Furthermore, given that international studies have also found that poorer mental health is associated with food insecurity and impaired academic performance (Martinez, Frongillo, Leung, & Ritchie, 2020; Raskind, Haardörfer & Berg, 2019) universities could also include a focus on food insecurity issues in counselling services. There is also scope for universities to run programs and workshops that teach students how to cook affordable healthy meals (Martinez, Maynard, & Ritchie, 2016). Partnerships with low-cost food providers and providing adequate facilities for cooking and food preparation at the university for students to use may also address issues around food insecurity amongst tertiary students (Martinez et al., 2016).

Conclusion

Although many of the reviewed studies did not explicitly address poverty within their design there still appears to be a relationship between poverty, wellbeing, and engagement at university. The association between financial stress and poorer psychological wellbeing was the strongest and most consistent finding in this review. Food insecurity was also related to poorer health in university samples, however the evidence concerning SES and academic outcomes was less conclusive. Additionally, researchers should account for homelessness when exploring student accommodation types, as information about this phenomenon in Australian university student cohorts was rare. Overall, this review highlights that poverty is likely to have adverse effects on Australian students' wellbeing and ability to engage at university. Universities therefore need to appropriately recognise and address the issue of student poverty within their tertiary education institutions.

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