

Crowded house: Accommodation precarity and self-reported academic performance of international students

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Abstract

This article draws on two surveys of international students in Sydney and Melbourne, undertaken in 2019 and during the 2020 COVID-19 lockdowns. Using the concept of bounded agency, we identify how the challenges of living in one of the world's most expensive rental housing markets impact students' perceptions of their academic attainment. We find housing insecurity, unaffordability and condition, amplified by financial stress, contribute significantly to student anxiety about their studies. These relationships differ by student background and education. We argue students' agency to meet their educational ambitions in Australia is constrained by the cost of housing and the housing choices they consequently make to mitigate financial stress. Our findings suggest the importance of 'town' or non-institutional aspects of the international student experience on their satisfaction and academic outcomes. We call for further research to explore these relationships in other global contexts.

Keywords: international students, housing, bounded agency, academic outcomes, Australia

Introduction

International students choose their study destination based on different factors. Over the last decade, Australia has consistently been one of the world's top five destinations (OECD 2021) due to the perception that providers offer a high-quality education (Yue et al. 2014; Huismann et al. 2022) within a safe country (Forbes-Mewett and Wickes 2018). However, students face high living costs and tuition fees in one of the world's most unaffordable housing markets (Pawson et al. 2020).

Given their status as temporary migrants, many international students experience multiple and overlapping forms of precarity associated with migration experiences. Precarity is partly due to most students being dependent on an inadequately regulated private rental sector (Ruming and Dowling 2017). Therefore, many students must 'manage' their studies while residing in expensive but relatively poor-quality housing (Obeng-Odoom 2012; Morris et al. 2020). While there has been increased scholarly interest in the factors affecting international students' academic outcomes, little attention internationally has been paid to the role of housing. This paper analyses the impact of housing on students' perceptions of their academic attainment. Given its unaffordable housing and the country's relative importance as a destination for international students, Australia is an appropriate site for investigating the impact of housing on educational outcomes. We draw on two surveys—conducted before and during the COVID-19 pandemic—to explore the international student experience in the private rental sector in Sydney and Melbourne.

Our analysis demonstrates that housing *affordability*, *insecurity*, and *quality* increase student concerns about academic success. We also find that increased levels of financial stress are associated with increased emotional anxiety about educational outcomes via each of these housing dimensions. Students with fewer financial resources are more constrained in their housing choices. They face intensified housing affordability and security problems,

often accepting insecure, overcrowded, poorly located and lower-quality accommodation. We find that these aspects of housing drive students' increased anxiety about academic performance. Therefore, we argue that students' agency in pursuing international education and optimising their academic performance is 'bounded' or limited by their financial resources and capacity to obtain good quality, affordable and secure housing in expensive Australian rental markets.

Our data suggest that housing is an essential component of the student experience, influencing student satisfaction with academic progress and outcomes. Consequently, Australian governments and education providers must pay more attention to international student housing. Our Australian findings highlight the need for increased research in other jurisdictions on the impact of pressures external to the university on student performance. For example, the United States, United Kingdom, Canada, China, Russia and Europe have substantial international student populations. Our results suggest it is vital to identify issues in housing quality, availability, affordability or other off-campus pressures that students face, such as the need to work, to determine how these factors influence student experience and their possible impacts on performance and satisfaction. Focusing on the specific contexts and mechanisms of the international student housing experience in Australia provides a base from which comparative research on external factors can develop.

The article begins by reviewing the literature on international student's living conditions, showing that it rarely considers the connection between housing and student academic performance. We outline the concept of *bounded agency* used to explain how structural and individual factors interact to explain the patterns identified in the data. After discussing the survey data and analytical methods, we outline the findings illustrating housing problems' impact on international students' self-reported academic outcomes. We discuss the implications for education providers and the government from our study.

International students, housing, and academic performance in Australia

Australia is among the world leaders in its share of international student numbers. Australia and the UK each have 8% of global international student enrolments and are equal second after the United States (18%). Of all students in Australia, around 27% are from another country (OECD 2021). At the time of our first survey, just under half (47%) of Australia's international students were in higher education, followed by vocational education and training (VET) (35%), and English language schools (ELICOS) (12%) (Department of Education 2020).

There is a scarcity of affordable rental housing in Australia. Sydney and Melbourne, which attract large numbers of students, have the lowest vacancy rates and the highest rents (Pawson et al. 2020). Most students live in share accommodation to reduce housing costs (Berg and Farbenblum 2019). Shared housing is more likely associated with poor housing quality, overcrowding, insecurity, theft, violence, and anti-social behaviour (Green and McCarthy 2015). While domestic students also deal with inadequate housing, international students are more disadvantaged because they do not qualify for housing assistance (Berg and Farbenblum 2019). International students are also particularly vulnerable to harassment, bullying, scams, and even assault due to their immigration status and the cultural and language barriers associated with temporary migration (UNSW Human Rights Clinic 2019).

Inadequate and insecure housing likely impacts academic performance; however, there has been little focus on this relationship in the literature. Drawing on an older study (1997) from the University of Adelaide, Macintyre (2003, 111) suggests 'a greater level of academic success among students who share a stable and supportive residential environment'. A more recent qualitative study of 90 students in Australia at risk of exclusion for poor academic progress found that financial and family problems, impacting the security of living arrangements, influenced students' abilities to succeed (Jevons and Lindsay 2018). However,

of more research interest are factors other than housing including previous performance (McDonald et al. 2001), academic entry-level (Schofield and Dismore 2010), resilience and engagement (Ayala and Manzano 2018), language ability (Sawir 2005), personality traits (Feldman et al. 2016), the perceived importance of learning success to family (Choi and Nieminen 2013), and financial, family and personal issues (Jevons and Lindsay 2018). Little attention has been devoted to the relationship between housing and academic performance compared to these other areas.

Higher education students' mental health is receiving increasing attention (Larcombe et al. 2021; Ryan et al. 2021). Here the relationship to housing is much clearer: the literature documents that poor housing undermines student well-being (Green and McCarthy 2015; Singh et al. 2019; Bond et al. 2012). Housing affordability strongly determines poor mental health (Bentley et al. 2019). The physical layout, social composition, and power differentials of their accommodation shape the possibility of students experiencing loneliness in their housing (Morris et al. 2020). Therefore, poor well-being among tertiary students is increasingly a critical issue (Forbes-Mewett 2019). It will likely impact their ability to focus on academic work (Lipson and Eisenberg 2018; Jevons and Lindsay 2018). Therefore, existing literature has established a relationship between housing and well-being and a tentative relationship between well-being and student performance. We hypothesise that a more direct connection between housing and academic performance is likely.

Obeng-Odoom (2012) argues that higher education journals tend to ignore the housing situation of international students, while favouring other aspects of student life or treating housing as a separate, 'discrete' problem. For example, one international comparative study of students in Australia, the United Kingdom and the United States investigated arrival, living, learning, and support service experiences and their influence on student satisfaction (Ammigan and Jones 2018). By design, that study does not assume that living ('town') has

any bearing on students' education ('gown') (Ammigan and Jones 2018). Studies including housing as an aspect of international student life tend to focus on other research questions such as 'on-campus' versus 'off-campus' living to find living on campus is associated with better security and learning experiences (Forbes-Mewett 2016; Macintyre 2003). However, few international students in Australia have that option because of the paucity and expense of on-campus living options, estimated at less than 5% of the bed-to-student ratio (UNSW Human Rights Clinic 2019).

The literature currently identifies issues with the affordability and quality of housing for international students in Australia. Research also reports a range of factors that adversely impact student outcomes. However, the literature barely considers that housing may directly affect student outcomes. Our survey data provides an opportunity to address this gap by analysing student perceptions of the impact of housing on their studies.

We acknowledge that the *perceived* effects of housing on academic outcomes may not be the same as the *actual* effect on academic performance (Rosen et al. 2017). Nevertheless, many studies are optimistic about students' ability to accurately report their educational outcomes and the reality of their lives (Guo et al. 2015; Juniper et al. 2012). This provides confidence that students' self-assessments of their housing situation and its influence on their grades reasonably measure how housing impacts performance (Rubin 2020). Also, current and prospective students make decisions based on how they experience their own lives and share those experiences with other students, who then make decisions based on those self-assessments (Rubin 2020). Therefore, despite some shortcomings in terms of accuracy, there is value in asking students about self-perceptions—especially when it is impossible to collect information in other ways (Rosen et al. 2017).

Bounded agency

To reconcile the complex interactions between student agency, students' perceptions of their reality and the many structural constraints they face, we utilise the concept of 'bounded agency' (Evans 2007; Evans 2002). Bounded agency recognises that 'agency is a socially situated process, shaped by experiences of the past, the chances present in the current moment and the perceptions of possible futures' (Evans 2002, 262). This approach focuses on how constraints are subjectively perceived and inhabited (Hamilton and Adamson 2013; Hamilton et al. 2019). However, the constraints are real. Bounded agency provides a framework for considering how structural, institutional, and cultural processes with which students interact shape their decisions and expectations (Hamilton et al. 2019). Thus, a student's capacity to exercise agency and work towards their life objectives or 'ultimate concerns' are defined and delimited by the socioeconomic resources available to them and the specific conditions they find themselves in (Archer 2003). These conditions incorporate past life experiences and interpersonal interactions. Thus, student agency is temporally embedded through 'past patterns of thought and action' (Klemenčič 2015, 15).

Bounded agency helps us consider how the subjective understandings of migrant students develop within the objective constraints on them and how the skills and past experiences they arrive with are likely to shape how they perceive their reality and assess their range of options for action. We employ bounded agency as an interpretive, analytical framework for explaining the data, particularly how students make decisions in the context of limited resources and unaffordable housing.

Methodology

This article reports on a descriptive and multivariate analysis of data from two related surveys of international student housing and welfare, conducted as part of a mixed-method study of

international students in the post-secondary education sector in Sydney and Melbourne. The first survey was fielded between August and December 2019 using the Qualtrics online software package. A sample of 7,084 responses was achieved¹. These were elicited from students enrolled in 43 post-school providers, including ten public universities, 24 vocational education providers, and seven English language schools. Providers were asked to email their entire international student population, giving all students an equal opportunity to respond and improve sample quality through greater ‘randomisation’ in selection (Agresti 2018).

The second follow-up survey was fielded in June 2020 following the nationwide lockdown response to the pandemic. Its purpose was to investigate the impact of the COVID-19 crisis on employment, income, and housing for international students². The follow-up sample of 817 valid responses (751 of whom still resided in Australia) was derived from a sub-sample of 3,114 respondents consenting to re-contact. It was impossible to link data to previous responses at an individual level and undertake longitudinal analysis. The students who responded to the ‘during’ COVID-19 survey are different to the larger pre-COVID-19 sample in three important ways: they report being more dependent on paid employment and less on family support for income before the impacts of the pandemic; are more likely to come from low-income countries; and a smaller proportion are enrolled at non-university educational institutions. It seems probable that students may have been more strongly motivated to respond to the second survey if the pandemic had more adversely impacted their lives and income (Morris et al. 2020).

¹ Ethics approval granted by University of Technology Sydney (UTS HREC Ref. No. ETH19-3737)

² Ethics approval granted by University of Technology Sydney (UTS HREC Ref. No. ETH20-4933)

Table 1: Variables used in bivariate analysis

2019 Survey		(n=7084)
Variable	Description	Percent
Female	Female (1) versus male (0)	46.2%
Confidence in English language ability	Self-assessed good/very good on 5-pt scale	65.4%
Non-university student	Enrolled in vocational education and training or an English language college rather than a university	16.5%
From low-income country <\$3,995	Rather than middle or high income country World Bank 2020 Country Gross National Income per capita classifications	32.0%
Financial stress questions: In the last 12 months have you:	Had trouble paying your electricity on time?	11.1%
	Pawned or sold anything to get money?	11.5%
	Went without meals?	20.1%
	Unable to heat your home adequately?	21.6%
	Unable to cool your home adequately?	21.4%
	Asked welfare/community organisation for help?	4.0%
	Had to borrow money from friends or family?	39.4%
	Could not afford to buy prescribed textbook/s?	20.8%
	2020 Survey	
Female	Female (1) versus male (0)	45.4%
From low-income country <\$3,995	Rather than middle or high income country World Bank 2020 Country Gross National Income per capita classifications	41.2%
Working-class background	Self-assessed working-class (rather than middle- or upper-class)	30.5%
Non-university student	Enrolled in vocational education and training or an English language college rather than a university	10.0%
Undergraduate or vocational	Enrolled at undergraduate or lower level rather than at postgraduate level	36.0%
Financial stress questions: In the last 12 months have you:	Had trouble paying your electricity on time?	22.2%
	Pawned or sold anything to get money?	24.6%
	Went without meals?	27.8%
	Unable to heat your home adequately?	34.0%
	Unable to cool your home adequately?	20.1%
	Asked welfare/community organisation for help?	22.1%
	Had to borrow money from friends or family?	43.8%
	Could not afford to buy prescribed textbook/s?	26.6%

The findings are divided into three sections, with the first reporting on the 2019 ‘pre-COVID’ survey and the second on the June 2020 ‘during-COVID’ survey. In each section,

we use descriptive statistical approaches to investigate the relationship between housing affordability, security and quality, and student perceptions about the relationship of these to academic outcomes. In addition to reporting univariate frequency responses to relevant questions from each survey, we use bivariate analysis (Chi-square test of association) to determine if responses to these questions vary according to key demographic and student characteristics. Our analyses tested associations with gender, confidence in English language ability, university vs. non-university enrolment, postgraduate vs. lower-level qualification, income of country of origin, family class background and levels of financial stress. Summary statistics for the variables used in bivariate analysis are in Table 1. The third section uses multivariate ordinal logistic regression to analyse data from the 2019 survey. We investigate which dimensions of housing condition are most associated with student concern about their studies, to establish how financial distress translates into the kind of terrible housing situations that increase student academic stress.

Findings

Although bounded agency provided a conceptual framework for our approach to analysis, for clarity, we focus on a descriptive summary of our findings in this part of the paper. These findings will form the basis of our theoretical model development reported in the following discussion.

Section 1: Before the COVID-19 pandemic (2019)

Even before the COVID-19 pandemic, many students reported negative feelings about success in their studies because of issues connected to the ability to pay rent, working excessive hours to afford to live in Australia and the quality of their housing.

Dimensions of housing and stress about academic performance

Seven relevant questions were included in the first survey (before COVID-19). These asked students to assess how different dimensions of housing and housing affordability impacted their stress about academic performance (see Table 2). Of the students with paid employment, 40% are concerned that the number of hours they work affects their academic success. Likewise, a similar proportion of the entire sample said that concern about paying the rent impacts their studies (37%).

Table 2: Dimensions of housing and stress about academic performance (2019 data)

	Statement/Question	Number of Responses	Percentage Agree/Yes
1	I worry that the number of hours I have to work is affecting success in my studies (Likert 5-pt agreement)	3,215	39.9%
2	Does concern about paying your rent have an impact on your studies? (Yes/No)	6,808	37.0%
3	Stress around the possibility of losing my accommodation is affecting my academic studies (Likert 5-pt agreement)	7,042	27.0%
4	The distance I have to travel to my educational institution has a negative impact on my studies (Likert 5-pt agreement)	7,076	20.4%
5	It's hard to study in the home I live in (Likert 5-pt agreement)	7,071	18.7%
6	The condition of my accommodation has a negative impact on my studies (Likert 5-pt agreement)	7,070	13.7%
7	Has the stress around the possibility of being evicted impacted on your academic studies? (Yes/No)	529	71.8%

Notes:

Q1, 3, 4, 5, & 6 were 5-pt Likert agreement response scales. Strongly agree and agree have been coded to 'Agree' in this analysis (versus neutral, disagree and strongly disagree responses).

Q1 was asked of a sub-sample who reported paid employment in Australia as a source of income whilst a student.

Q7 was asked of a sub-sample who reported they had been evicted or forced by the landlord/real estate agent to leave a rental property whilst in Australia as a student.

Housing insecurity also contributes to concerns about student performance, with 27% of students responding that 'stress around the possibility of losing my accommodation is affecting my academic studies'. For the 7.5% of our sample who had experienced a formal eviction or had been forced by a landlord or real estate agent to leave their rental property suddenly, not surprisingly, nearly three-quarters (72%) report the stress around this event has an impact on their studies. One in five survey respondents (20%) is concerned that the

distance they must travel to their educational institution harms their studies, and 14% believe the condition of their accommodation also has a negative impact. A similar proportion finds it hard to study in the home in which they live (19%).

The international student population is not uniform. Some student characteristics are associated with higher stress levels around student performance in response to housing and housing affordability factors. These differences were assessed for statistical significance using a Chi-square test of association and reported if significant at $p < 0.05$. There are higher levels of concern from non-university students about travel distance to their education provider (23% compared with 19% of university students) and stress about losing their accommodation (31% compared with 26%). Students more confident in their English language ability reported approximately 10% lower stress about eviction and losing their accommodation. This result suggests that potential anxiety and its impacts are reduced when students have higher capacity from their cultural or linguistic capital, with a consequent possible increased confidence in their ability to negotiate and understand the system.

Students from lower-income countries are also more likely to be concerned about the distance they travel to school (25% compared with 18% of students from higher-income countries) and have concerns about paying the rent (45% compared with 33%). Interestingly, students from lower-income countries (40% compared with 48% of higher-income countries) and those studying at a non-university provider (40% compared with 46% of those at a university) are *less* likely to be concerned about their hours of work affecting their studies. Perhaps these students have learnt how to simultaneously manage the paid work and student workload from earlier experience or have different expectations about needing to work and therefore are more prepared to manage both activities.

Financial stress, housing, and academic performance

Existing literature on international student housing in Australia already describes the connection between elevated financial stress, increased accommodation costs, poorer housing quality, and greater insecurity (Berg and Farbenblum 2019). Having found a relationship between these aspects of housing stress and self-assessed educational performance, we investigated the direct impact of increased financial stress on the same measures. In other words, we asked if it is possible to see connections between increased financial precarity, and the impacts of housing, on student anxiety about their studies. We adapted measures of financial stress from the Australian Bureau of Statistics (2017) to suit the circumstances of international students (including by adding an item on the affordability of textbooks). We asked students if they had done any of eight specific things in the last twelve months due to a shortage of money, with a higher score out of eight reflecting a higher degree of financial stress. Details of the financial stress score (FSS) questions are in Table 1 (see also Morris et al. 2020).

As per Table 3, international students expressing more anxiety about the impacts of housing and housing affordability on their academic performance also report a significantly higher FSS. On average, students with concerns about housing on their academic performance score have a higher mean FSS than those who do not report a concern. For example, students who agree that ‘stress around the possibility of losing my accommodation is affecting my academic studies’ have an average FSS of 2.3 (out of 8), compared to an average score of 1.26 for those who do not agree. The respondents answering ‘yes’ or agreeing that housing stresses affect their educational outcomes had between 57% and 221% higher mean FSS than those answering no or did not agree.

Table 3: Financial stress score (FSS): means compared across respondent groups (2019 data)

Statement	Number	(1) Mean FSS neutral/ disagree & no	(2) Mean FSS agree & yes	Difference in FSS across groups
I worry that the number of hours I have to work is affecting success in my studies	2,969	1.49 (sd 1.85)	2.74 (sd 2.17)	+83.9%
Does concern about paying your rent have an impact on your studies?	6,750	0.85 (sd 1.36)	2.73 (sd 2.15)	+221.2%
Stress around the possibility of losing my accommodation is affecting my academic studies	6,805	1.26 (sd 1.68)	2.31 (sd 2.31)	+83.3%
The distance I have to travel to my educational institution has a negative impact on my studies	6,815	1.35 (sd 1.77)	2.32 (sd 2.28)	+71.9%
It's hard to study in the home I live in	6,813	1.32 (sd 1.74)	2.53 (sd 2.34)	+91.7%
The condition of my accommodation has a negative impact on my studies	6,812	1.38 (sd 1.77)	2.61 (sd 2.46)	+89.1%
Has the stress around the possibility of being evicted impacted on your academic studies?	497	1.91 (sd 2.24)	3.00 (sd 2.52)	+57.1%

Note: Percentage difference in FSS across groups calculated as $(\text{Mean 2} - \text{Mean 1})/(\text{Mean 1}) \times 100$

In summary, data from the 2019 survey (before COVID-19) demonstrates that housing quality, affordability and security *directly* affects students' ability to perform as well as they wish to, a link we had hypothesised as outlined earlier. Increased financial stress amplifies these fears.

Section 2: During the COVID-19 pandemic (2020)

In response to COVID-19, Australia went into a nationwide lockdown in March 2020, with restrictions easing slightly after nine weeks. One month later, Victoria (Melbourne) returned to a hard lockdown in response to surging case numbers. Due to lockdowns, the suspension of business in hospitality, retail and other industries left many international students without employment, significantly reduced hours, or less support from family (Morris et al. 2020;

Hastings et al. 2023). Our data show that for many international students in Australia, the impact of the pandemic on their financial resources has been catastrophic. On average, students experienced a 23% drop in income during COVID-19, with more than a quarter of students (28%) losing more than *half* of their pre-COVID income. Additionally, 43% of the students reliant on family allowances suffered a decrease in family support. Most significantly, of the 59% of students who relied on paid employment as a primary source of income before the pandemic, 61% lost their job after the lockdowns.

Dimensions of housing and stress about academic performance

Four questions included in the survey during COVID-19 asked students to assess the degree to which different dimensions of their housing and financial stress impact their academic performance. Although there are wording differences in the questions between the 2019 and 2020 surveys, and the samples are somewhat unlike (discussed in the methodology section above), an increased proportion of students during the pandemic have concerns about the impact of financial stress and housing on their academic studies (Table 4). Three in five students (60%) agreed that financial stress affects success in their studies. Close to half (47%) reported that ‘stress around my housing is impacting my academic studies’. A slightly smaller proportion (45%) are worried they might be unable to pay their tuition fees. Given that all educational providers moved to online modes of course delivery in March 2020 and most had not resumed any face-to-face teaching when we conducted the follow-up survey in June, it is a relatively positive outcome that 59% of students agreed their accommodation is suitable for online learning. However, for two in five students, this is not the case.

Students are more likely to agree that financial stress affects study success if they are from lower-income countries (65% compared with 56% of those from higher-income countries) or a working-class background (70% compared with 55% of those from a

middle/upper-class background). Those enrolled in a non-university provider (74% compared to 58% of those enrolled at a university) and studying at an undergraduate or vocational level (57% compared with 37% of postgraduates³) are also more likely to agree that financial stress affects their studies. As in the 2019 results, lower family income, and educational and language capital are associated with increased student concern about the impact of financial stress on their academic success.

Table 4: Dimensions of housing, financial stress, and anxiety about academic performance (2020 data)

	Statement (Likert 5-point agreement)	Number of Responses	Percentage Agree
1	Financial stress is affecting success in my studies	748	59.5%
2	I am worried that I may not be able to pay my tuition fees	725	44.4%
3	My accommodation is suitable for online learning	725	59.0%
4	Stress around my housing is having an impact on my academic studies	725	46.5%

Financial stress, housing, and academic performance

Students in the 2020 (Covid-19) survey sample were asked the same financial stress scale questions as those in the 2019 sample, adjusted to reflect their recent pandemic experience. We asked if they had done any of eight specific things since the start of the pandemic due to a shortage of money, with a higher score out of eight reflecting a higher degree of financial stress. As per Table 5, international students who reported higher levels of concern about housing affordability and financial stress-related impacts on their academic performance also reported significantly higher levels of financial stress. Those students who agree that ‘financial stress affects success in their studies’ score on average twice as high for financial

³ This finding reflects the increased likelihood of postgraduate students having a scholarship and that this income was less impacted by the pandemic (see Hastings et al. 2023)

stress as those who did not agree. Similarly, those who agree they are worried about paying their tuition fees or that the stress around their housing impacts their academic studies score on average 50% higher than those who do not agree. Again, more significant financial stress increases students' concerns about their academic outcomes.

There was no significant difference in average financial stress between the respondents who agreed 'my accommodation is suitable for online learning' and those who did not. It may be that pre-pandemic, when suitability for online learning was not an essential housing requirement, this was not factored into the cost of housing. Students would not pay more to obtain this accommodation feature. Neither was a thing for less advantaged students to give up when looking for ways to save money.

Table 5: Financial stress score (FSS): means compared across respondent groups (2020 data)

Statement	Number	(1) Mean FSS neutral/disagree & no	(2) Mean FSS agree & yes	Difference in FSS across groups
Financial stress is affecting success in my studies	714	1.23 (sd 1.64)	3.77 (sd 2.46)	+206.5%
I am worried that I may not be able to pay my tuition fees	713	1.68 (sd 1.95)	4.09 (sd 2.47)	+143.5%
My accommodation is suitable for online learning	714	2.83 (sd 2.50)	2.66 (sd 2.50)	Not significantly different
Stress around my housing is having an impact on my academic studies	713	1.60 (sd 1.85)	4.06 (sd 2.50)	+153.8%

Note: Percentage difference in FSS across groups calculated as $(\text{Mean 2} - \text{Mean 1})/(\text{Mean 1}) * 100$

Section 3: What factors make the condition of accommodation a concern to students?

So far in our analysis, we have reported descriptive statistics that find connections between poor housing affordability, security and condition with student concerns about their academic performance and indicated for whom these connections are stronger. Utilising additional measures from the 2019 pre-COVID survey, we now turn to multivariate analysis to

investigate which dimensions of housing *condition* are most associated with student concern about their studies.

Table 6: Descriptions and distributions for variables used in multivariate regression

Variable	Questions, responses, and coding decisions	Percent	Value
Female	Female (1) versus male (0)	53.8%	
Financial stress score (0 to 8)	Additive measure based on yes/no responses to the following questions: Over the past year, since you started renting, have any of the following happened to you because of a shortage of money? Had trouble paying your electricity on time; Pawned or sold something to get money; Went without meals; Unable to heat your home adequately; Unable to cool your home adequately; Asked welfare/community organisations for help; Had to borrow money from friends or family; Could not afford to buy prescribed textbook/s.	44.1% 18.0% 12.5% 8.6% 7.1% 4.4% 2.9% 1.4% 1.1%	0 1 2 3 4 5 6 7 8
Total property defects (0 to 7) Poor physical state of the property	Additive single measure, counting agree/strongly agree=1 (else=0) responses to the following: The common areas of the property (i.e. stairwells, and gardens) are in poor condition; The home I live in does not leak; The home does not have damp and mould; The electricity and power-points are safe and in good working order; The toilet is in good condition (works, doesn't leak); The condition of the kitchen makes cooking difficult; The property I rent has good locks and doors.	55.6% 25.1% 12.1% 3.9% 1.9% 0.9% 0.3% 0.1%	0 1 2 3 4 5 6 7
Overcrowded (5-pt Likert)	'The home I live in is over-crowded (i.e., too many people)'.	27.1% 42.1% 17.9% 9.5% 3.5%	1 Strongly disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly agree
Lives alone	Lives alone (1) versus all other living arrangements (0)	12.1%	
Neighbourhood amenity (0-7)	Additive single measure, counting agree/strongly agree=1 (else=0) responses to the following: The property I rent is close to supermarkets and services (banks, post office, etc); Most of the time, I feel my neighbourhood is safe to walk around; I enjoy living in my present neighbourhood; My area has good public transport; I feel accepted by the local community; Travelling to my educational institution is an easy journey.	1.2% 2.1% 4.9% 9.8% 16.6% 23.0% 25.8% 16.5%	0 1 2 3 4 5 6 7
Subjective loneliness (5-pt Likert)	'I feel lonely in Australia'	8.6% 26.7% 30.4% 23.6% 10.7%	1 Strongly disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly agree

The dependent variable of the ordinal regression model (5-pt Likert agreement scale) reflects responses to the statement that: ‘the condition of my accommodation has a negative impact on my studies’ in the pre-COVID survey (2019). Estimates are expressed as odds ratios. The model is parsimonious, capturing a few highly significant influences on perceptions. We included, for obvious reasons, gender and the measure of financial stress. To capture the quality of living conditions, we included an additive measure indicating the physical state of the accommodation (total property defects reported) and three single items 1) perceptions of overcrowding, 2) whether respondent lives alone (or not), and 3) the degree to which they report loneliness. We also included an additive measure of the amenity of the neighbourhood in which accommodation is located. Table 6 provides information about variable construction and response distributions for the items used in the model.

Table 7: Ordinal logistic regression model—factors explaining ‘the condition of my accommodation has a negative impact on my studies’ Likert 5-pt agreement scale

Variable	Odds Ratio	Std. Err	P
Female	0.816	0.039	0.000
Financial stress score (0 to 8)	1.115	0.015	0.000
Total property defects (0 to 7)	1.588	0.038	0.000
Overcrowded (5-pt agreement)	1.951	0.050	0.000
Lives alone (Yes)	0.825	0.060	0.008
Subjective loneliness	1.309	0.031	0.000
Neighbourhood amenity	0.805	0.013	0.000

Note: Pseudo r-square=0.145; n=6,508

As shown in Table 7, male students show significantly higher agreement with the proposition that the ‘condition of my accommodation has a negative impact on my studies’. Students with increased financial distress are also more likely to agree that condition of their housing has a negative impact, consistent with poorer housing options for students with fewer financial resources. It is significant even with the presence in the model of indicators of poor-quality housing and living in a neighbourhood with fewer amenities. Related, respondents with stronger subjectively felt loneliness are also more likely to report the negative impact of

housing conditions on their studies (Morris et al. 2022). Students who live alone are less likely to report a negative impact.

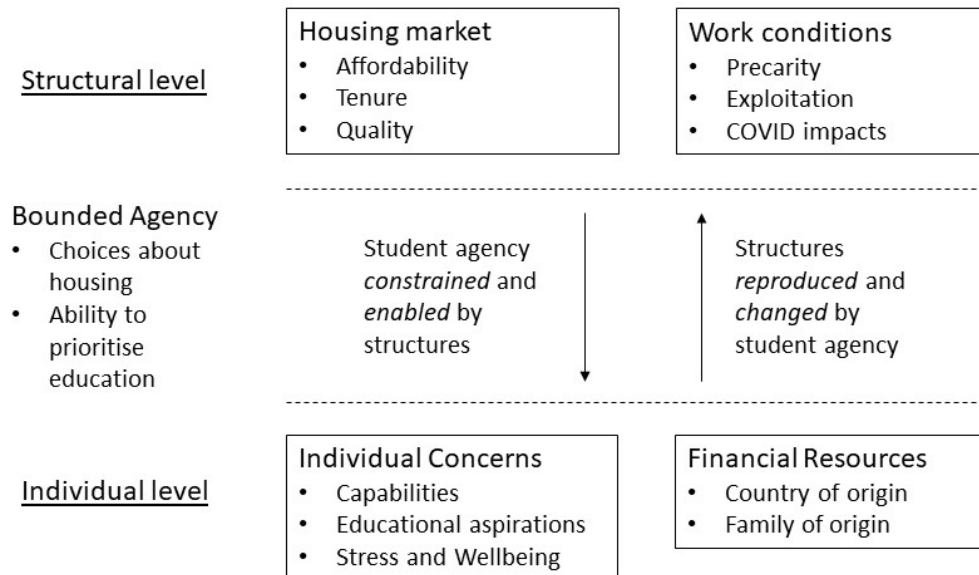
The most substantial single effect in the model is subjective agreement with accommodation being over-crowded, with each increase in the level of agreement associated with a doubling of the likelihood of a higher concern about the condition of accommodation on studies (OR=1.95; p=0.000). The measures for increased poor-quality physical conditions (defects) (OR=1.59; p=0.000) and increased amenity of the neighbourhoods in which students live (OR=0.81; p=0.000) are also making a relatively large contribution to understanding how the condition of the accommodation increases student concerns about their studies. This is central because it gives us direct insight into *how* financial distress translates into the *kind* of inferior housing situations that increase student academic stress. The subjective experience of overcrowding (i.e., ‘too many people’) combines with poorer quality accommodation (presence of more defects) and a less friendly and convenient neighbourhood (i.e., less amenity) to increase students’ concerns about the impact of housing conditions on their studies.

Discussion

The analysis of international student housing precarity provided an opportunity to explore the impact of housing stress and affordability on students’ self-assessment of the impact on their academic studies. In the context of unaffordable housing for international students in Australia’s private rental market, our data suggest that financial stress drives a need for paid work for many students, increases their anxiety about paying the rent, and encourages them to engage in mitigation strategies to reduce housing costs. A theoretical framing using bounded agency enables us to propose an account of the interaction between structural and individual sources of housing-related stress and study outcomes, summarised in Figure 1.

Figure 1: A model describing the bounded agency of international students in relation to their housing and perceived academic outcomes

Bounded Agency: Housing and Academic Outcomes for International Students



The agential capacity of international students to obtain the most appropriate housing to support their studies is bounded by mechanisms embedded in the structure of the Australian housing market and work conditions, and the financial resources and ‘ultimate concerns’ students have as individuals (Archer 2003). Therefore, students make choices about their housing to the extent they can as agents, given their resources, position and experiences. For those with fewer financial resources, these choices necessarily include engaging in strategies to mitigate the high cost of housing. Mitigation strategies include accepting poorer-quality housing and accommodation that is more crowded, less convenient, or further away from their educational provider. Each of these housing affordability-related mitigation factors plus the insecurity of housing tenure in the private rental market is associated with increased student anxiety and concern about academic outcomes. Earlier research finds that students with the greatest financial stress experience accelerated risks of negative outcomes, suggesting exponentially higher levels of academic stress for the most financially precarious (Wilson et al. 2022).

Students are required to make adverse housing choices, potentially limiting their success as students because of the cost of housing in the private rental market. We found the experience of overcrowding combined with poorer quality accommodation and a less friendly or inconvenient neighbourhood to amplify concerns for students about the impact of housing conditions on their studies. This finding builds on a small literature focused on housing disruption on school-level results (e.g. von Simson and Umblijs 2021). It also adds to prior research connecting extreme overcrowding to high financial stress and low personal well-being (Wilson et al. 2022; Hastings et al. 2023).

Many students also respond to the high cost of housing in the private rental market by working. Work precarity and exploitation of international students in the Australian job market are well documented (Farbenblum and Berg 2020; Hastings et al. 2023). A European study describes international students' competing demands and identities across their roles as purchasers of education, participants in the local economy as workers, and members of families supporting them financially to whom they feel an obligation (Brooks 2018). In this Australian case, we have shown that working to afford housing constrains a student's ability to prioritise their education due to restrictions on time. Additionally, we have shown how the impact of COVID-19 on the ability of students to work has adversely impacted their income and increased both financial stress and concerns about academic performance.

However, the relationship between housing affordability, insecurity and quality with higher levels of academic stress is more substantial for some students, specifically those from low-income countries and with lower educational capital (studying towards a lower level of qualification or with a non-university provider). Our current findings support prior analysis showing that students from lower-income countries and studying at non-universities are more likely to be experiencing overcrowding, poorer quality accommodation, greater reliance on work (rather than scholarship income) and other signifiers of increased financial stress

(Hastings et al. 2023). Likewise, less privileged students in Europe are more likely to take up paid employment, have increased financial worries and live further from campus, whilst struggling to meet the demands of their studies (Brooks 2018). Therefore, the social and structural contexts of students' individual histories before they arrive in Australia, also condition their resources and individual concerns. Together with their current situation, 'home' country factors shape and condition a student's experiences in the 'host', their sense of future possibilities, and daily decisions.

The COVID-19 pandemic dramatically changed the conditions for international students who remained in Australia. The pandemic and associated lockdowns made an already difficult student life extremely challenging. For many, the combination of employment loss, reduction in work hours, and a fall in their financial allowances from home resulted in substantial falls in income, increased housing precarity and elevated financial stress. Data collected during the COVID-19 lockdowns shows an increased proportion of students concerned about financial stress and housing impacts on their study outcomes. Once again, the students with lower financial resources (from poorer countries and of a lower social class) and with lower educational capital are more concerned about the impacts of financial stress and housing affordability on their studies. The 'bounded agency' of these students compromises their capacity to make housing choices enabling them to be confident about meeting their educational aspirations.

Conclusion and implications

Our survey findings demonstrate that housing matters to international students' perceptions of their academic performance, calling attention to the related structural and individual factors shaping educational success. We have shown that housing stress increases anxiety about poor academic results across the dimensions of unaffordability, insecurity, and

condition of accommodation. Specifically, anxiety about academic outcomes is increased through worries about paying rent and the number of hours of work needed to afford rent payments, stress about eviction and losing their accommodation, and the condition and location of housing. Data collected during the pandemic confirms that each of these housing-related stress factors is amplified by financial stress.

Our findings resonate with those of a recent study of Bachelor and Master students in Belgium investigating which components of satisfaction best predict overall satisfaction; and to what extent student motivations and social-demographic variables related to the level of student satisfaction for their international experience. In addition to encounters with practical or administrative issues, academic or on-campus experiences, and the cultural and social impacts of studying abroad, Huisman et al. (2022) include ‘personal stability’ as a component of international student satisfaction. A student’s personal stability includes housing, financial support, well-being and safety. They find that these stability components of satisfaction, which are mainly beyond the control of educational institutions, are related to overall satisfaction. Whilst the quality of education is vital, it is not the only driver of student satisfaction. The authors conclude that “a close(r) partnership between town and gown offers fertile ground for maintaining or improving overall satisfaction” (p. 1344). They also find a relationship between background characteristics such as financial security and satisfaction.

Our contribution to the literature lies principally in empirical evidence showing how strategies to manage housing affordability—choosing less secure, unstable, overcrowded, less convenient, and poorer quality accommodation—have consequences for academic outcomes. Our original hypothesis of the likelihood of a relationship between housing and academic performance is supported by our data. The stress, anxiety and challenges to well-being students experience concerning housing are directly negatively impacting their perception of their study outcomes.

Our analyses also tease out the relationship between financial stress, housing and academic performance. Impacts of poor quality, insecure and unaffordable housing on student well-being have independent effects on student perceptions of their academic performance separate from the predictable impact of financial stress. That is, whilst financial stress is recognised in the literature—and evident in our data—as having a direct effect on well-being and self-assessed academic performance, we have found a more indirect impact via housing. We have shown in this paper that housing conditions, affordability and security are all substantial stressors to students. We have identified features of housing conditions that increase stress levels and directly negatively impact student well-being and perceptions of their capacity to succeed academically.

Using the concept of bounded agency, we suggest that in the context of Australian rental market and work structures, students with higher levels of financial insecurity have limited affordable, secure and good-quality housing options. These structural and individual factors constrain their agential powers. They must trade off their ability to prioritise education to obtain affordable housing. Because of their bounded agency, we argue that the mitigation strategies they employ in this situation see students living in sub-optimal accommodation. The resultant mechanisms of overcrowding, poor quality accommodations, insecure tenancies and inconvenient housing locations combine to generate a clear housing-related connection to reduced confidence about their academic outcomes.

Our research also demonstrates that ‘town’ (student living) is not distinct from ‘gown’ (academic experience) (Ammigan and Jones 2018; Huisman et al. 2021; Obeng-Odoom 2012). Instead, housing plays an integral role in shaping student experiences and educational outcomes. Yet, we still know little about how housing and other external factors impact students’ lives. For example, the same housing-related forces impacting confidence in academic success are also likely implicated in the development of students’ social

relationships, health and well-being—all factors connected to overall satisfaction with international student experience (Husiman et al. 2021).

A promising direction for future research is to explore further the relationship between factors external to the university ('town') and their influence on student studies ('gown'). Studying the impact of work precarity and exploitation on student outcomes in the Australian context seems an obvious next step. Likewise, testing the connections between housing stress and student success in international jurisdictions will contribute to an increased understanding of the mechanisms and contexts of this relationship. It is also plausible that other countries will have factors external to the university that adversely impact student achievement, the identification of which will extend our knowledge of the influence of 'town' on 'gown'. The specific contexts of different 'study abroad' locations, institutional structures, and the distinct backgrounds of students attracted to each site will engender different stresses and constraints. For example, a recent study of international students in the United States explored how the intersecting challenges of juggling income sources, engaging in paid work and navigating localised problems manifest different educational experiences and aspirations for students from lower socioeconomic backgrounds (Glass et al. 2021). As research in this area develops, an increasingly comparative focus across jurisdictions will allow a richer insight into the non-campus factors that drive dissatisfaction and reduce academic performance.

In the Australian context, international students are subject to an expensive and insecure private rental market, negatively impacting their student experience and confidence to meet academic aspirations. Hence, we argue that Australian post-secondary education providers should increase support for international students to obtain appropriate and affordable housing during their enrolment period. Given the importance of international students to Australia's economy, university funding and the social fabric of our cities and

towns, governments also need to increase their responsibility for housing international students. Our findings highlight the potential adverse effects of housing stress on the capability of students to achieve their educational aspirations in Australia. At the same time, they reinforce that international students are not a homogenous group (Glass et al. 2021). Comparing student characteristics, including their country and family of origin, we find cohorts of students experiencing greater financial and housing stress and fears for their academic outcomes. These students are particularly in need of support in the Australian context.

At present, international student rights are expressed mainly as a set of responsibilities of the educational institutions that enrol these students on behalf of the federal government. The central legal instruments, the *Education Services for Overseas Students (ESOS) Act, 2000* (ESOS Act 2000 (Cth)) and the *National Code of Practice for Registration Authorities and Training to Overseas Students* (DESE 2021; DESE 2018) cover the international education sector. At no point is there any specific obligation on educational institutions to *provide* housing services or take responsibility for students' material living conditions. Institutions only need to provide information *on* them.

The current framework is ineffective at protecting students against overheated and poorly regulated rental property markets. Ultimately, housing policy interventions are necessary to protect Australia's reputation as a destination for international students. In the Australian context, inadequate, insecure and unaffordable housing affects exactly what international students travel for: a high-quality education. It is likely that housing, or other aspects of off-campus 'town' life, similarly negatively impact students' experiences, satisfaction and academic success in other countries.

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