You Can Count on Me: The Relationships Between Housing, Social Integration, and Adjustment Among First-Year McMaster Students

Katherine R. Cooper[1], Maiya M. Bertola[1], Jessica C. Aranyush[1], Jewel Pheasant-Dumont[1], Vanessa J. Richards[1]

Abstract

The first year of university is an exciting experience, but it can also be quite stressful as students face many changes. Though research on first-year students in general is abundant, little is known about the relationship between where they live and how socially integrated and adjusted to university they feel. No research has considered this relationship in the context of the COVID-19 pandemic. Our mixed-methods study aimed to fill these gaps. Participants (n=45), primarily 18-year-old females residing on campus, completed quantitative scales and open-ended questions in an anonymous online survey. Quantitative results revealed a non-significant positive relationship between students' social integration and adjustment, and a significant positive relationship between students' perceived social support and adjustment. Students living off campus with other students reported greater social integration than those living on campus or at home, but not significantly. Contrasting our quantitative results, qualitative results showed that students believed their housing had a significant impact on their sense of social integration and adjustment. Additionally, students reported feeling supported by their friends in three primary ways: emotional support, instrumental support, and by providing social interaction. We hope that these findings can be used to enhance the first-year experience by improving social programs and adding supports.

Introduction

The transition into university is a challenging one as students face a great deal of changes: new academic expectations, new responsibilities, new friends, and for some, new living environments (Pittman & Richmond, 2008). An important aspect of adjusting to this transition is forging meaningful friendships and social connections, which has been hindered by the public health restrictions in place due to the ongoing COVID-19 pandemic (e.g., social distancing, capacity limits, virtual gatherings, et cetera.; Li & Wang, 2020). To better understand how students are developing social connections and adjusting to university, our study aimed to elucidate the relationships between housing arrangements, social integration, and adjustment.

Statement of the Problem and Purpose of the Research

---

[1] Undergraduate student, Honours Social Psychology Program, Faculty of Social Sciences, McMaster University, Hamilton, Ontario, Canada

Students entering their first year of university are highly susceptible to all sorts of mental health problems; countless studies identify elevated rates of depression, anxiety, and stress among undergraduate students (e.g., Donovan et al., 2021; Moeller et al., 2020; O'Keeffe, 2013; Pittman & Richmond, 2008). Research indicates that these problems may be caused in part by difficulty adjusting to university (Pedrelli et al., 2015; Thurber & Walton, 2012; Wyatt et al., 2017). A sense of belonging and good social support can ease the transition to university and help students adjust, while a lack of these things can result in even more stress (Maunder, 2018). For this reason, it is important to study the factors that influence the transition to university in order for institutions to develop effective solutions for their students.

Research Questions and Inspiration

Our primary research question was, 'What are the relationships between housing accommodation, sense of social integration, and adjustment to university?'. Housing accommodation refers to whether students live on campus in residence, off-campus in a student house, or at home with family; none of our participants indicated living alone so this type of housing accommodation was not included in our study. To understand students' overall sense of social integration in their new university community, we combined their sense of belonging and perceived social support (PSS). Sense of belonging refers to the "extent to which students feel valued, accepted, and included" in a social environment (Goodenow, 1993a, as cited in Maunder et al., 2018, p. 757; Hagerty et al., 1992, p. 173, as cited in Choenarom et al., 2005). PSS refers to the extent to which one feels supported and understood by others (Xiang et al., 2020). Finally, adjustment refers to how well students are coping with the transition to university and was used as an indicator of general well-being. We used both quantitative and qualitative data to investigate these relationships.

Our secondary research question was, 'In what ways are students supported by their university friends?'. We used students' responses to one of our open-ended survey questions to answer this research question.

These research questions were derived from our own experiences as first-year students. While some of us experienced an easy transition to university, others found it much more difficult. Our housing situations also varied, with some of us living in residence, some off-campus with friends, and some at home with family. These experiences inspired us to conduct our research on how housing accommodations are related to developing a sense of social integration, and to adjusting to the university environment.

Overview of Sections

This paper first explains our two guiding theories: the Need to Belong Theory (Baumeister & Leary, 1995) and the Main-Effect Model (Cohen & Wills, 1985). Following our theories, we review literature on student housing, belonging, PSS, and adjustment to university. Next, we describe our methodology and research process. Then, we present our quantitative and qualitative results, followed by a discussion of those findings. Our discussion includes the limitations present in our research, as well as the significant insights and implications of our findings. We conclude with a brief summary and some proposed directions for future research.

Theories

Introduction

To investigate the relationship between where a student lives, how socially integrated they feel, and how well they are adjusting to university, we used the Need to Belong Theory (NBT; Baumeister & Leary, 1995) and the Main-Effect Model (Cohen & Wills, 1985). The NBT was our main framework, as it focuses entirely on the importance of forming and maintaining social relationships (Baumeister & Leary, 1995)—something that all first-year students are tasked with as they transition to this new phase of their lives. The Main-Effect Model is similar to the NBT in that it also considers the importance of social relationships, however, it further details the specific ways in which social support influences well-being. Together, these theories formed a solid guiding framework with which to conduct our research.

We intended to use these theories to interpret our results, particularly using the pathways of the Main-Effect Model to interpret students' responses to our open-ended question about social support, however this proved somewhat ineffectual. A detailed explanation of this is presented in the discussion. Nonetheless, these theories were invaluable in designing our survey, particularly in crafting our measure of social integration.

Need to Belong Theory (NBT)
Brief History of the Theory

The idea that people are motivated to form social bonds is not new; throughout history, many theorists have asserted the importance of social contact, including Freud (1930), Maslow (1968), and Bowlby (1969; as cited in Baumeister & Leary, 1995). Although different theorists understand the need for social interaction in different ways, they all emphasize the importance of forming and maintaining relationships (Baumeister & Leary, 1995). However, as Baumeister and Leary (1995) point out, most theorists fail to systematically and empirically evaluate their hypotheses. In response, Baumeister and Leary (1995) put forth a review of empirical evidence relevant to the belonging hypothesis—the idea that the need to belong is a fundamental human motivation—and propose the Need to Belong Theory (NBT).

Main Tenets of the Theory

According to the NBT, the motivation to form and maintain a minimum number of stable and positive interpersonal relationships is innate to all human beings (Baumeister & Leary, 1995; Moeller et al., 2020). This 'need to belong' has two aspects: firstly, people desire frequent and pleasant interactions with others; secondly, people need these interactions to occur within a stable, enduring context of care and concern (Baumeister & Leary, 1995). Essentially, the need to belong is satisfied by a combination of frequent interaction and consistent caring (Baumeister & Leary, 1995). Without the presence of both components, the need to belong can only be partially satisfied: interactions with a constantly changing series of partners will be less satisfactory than repeated interactions with the same people; strong relationships in the absence of frequent interactions will be unsatisfactory (Baumeister & Leary, 1995).

With regard to the number of social relationships, the need to belong is subject to satiation and diminishing returns: people seek a limited number of social bonds, beyond which additional bonds provide less benefit (Baumeister & Leary, 1995). Evidence consistently suggests that people prefer fewer close relationships to a larger number of weaker relationships, reflecting a belief of quality over quantity (Baumeister & Leary, 1995).

In line with the notion that belonging is a fundamental human need, NBT suggests people form social bonds quickly and easily, and are generally very reluctant to break them (Baumeister & Leary, 1995). Real, potential, or imagined changes in belonging status will produce emotional responses (Baumeister & Leary, 1995). The formation of social bonds is associated with positive emotions; close relationships are strongly correlated with happiness and well-being (Baumeister & Leary, 1995). Contrastingly, threats to and dissolutions of social bonds are associated with negative emotions; people feel extremely anxious at the thought of losing or lacking important relationships (Baumeister & Leary, 1995).

Main-Effect Model

Studies have indicated for decades that, regardless of the quality, those involved in many social relationships have better health than those involved in only a few (Cohen & Wills, 1985). Results reveal that those with fewer social supports die earlier and have poorer mental health (e.g., Aneshensel & Frerichs, 1982; Berkman & Syme, 1979; Blazer, 1982), leading Cohen and Wills (1985) to argue that one's level of social support directly impacts their well-being. In their analysis of these findings, Cohen and Wills (1985) present the Main-Effect Model of social support as a way to explain why those with more social connections often fare better than those without, regardless of any stressors they might experience. According to the Main-Effect Model, people typically have better well-being when they are involved in large social networks with others that they believe are available to support them (Cohen & Wills, 1985). In fact, it is emphasized that perceived availability of support is more predictive of well-being than actual support, indicating that if people feel that support is available to them, their mental well-being will be enhanced whether they seek support or not (Cohen & Wills, 1985; Cohen et al., 2000).

The Main-Effect Model has three major pathways in which social support can indirectly benefit well-being: social influence, positive psychological states, and neuroendocrine responses (see Figure 1 in Kawachi & Berkman, 2001). The social influence pathway suggests that members of a social group guide one another towards healthy behaviours (Cohen et al., 2000; Kawachi & Berkman, 2001). This might be in the form of modeling, and possibly peer pressuring friends, towards health-positive behaviours such as exercise or attending therapy, or in the form of providing information about relevant health-related resources (Cohen et al., 2000; Kawachi & Berkman, 2001). Social support and integration also elicit positive psychological states such as a sense of purpose and of belonging, which motivate people to engage in higher levels of self-care and help sustain an overall better sense of well-being (Cohen et al., 2000; Kawachi & Berkman, 2001). Furthermore, the neuroendocrine response to stress typically increases when people are socially isolated, however a feeling of being socially supported helps regulate and minimize this response (Cohen et al., 2000; Kawachi & Berkman, 2001). Elevated neuroendocrine responses can lead to psychological disorders such as anxiety or

depression (Cohen & Wills, 1985), meaning that perceptions of social support can minimize the negative effects of stress. The Main-Effect Model posits that when individuals belong to large social networks in which they feel supported, these three pathways indirectly boost mental health, and thus overall well-being (Kawachi & Berkman, 2001).

Theories Summary

Our two guiding theories, the NBT and the Main-Effect Model, combined to form a solid guiding framework that helped us design our research. Using both theories together provided us with more insight than either theory alone, resulting in a more comprehensive perspective of our variables. The NBT proposes that the need to belong is a fundamental motivation that, when satisfied, results in positive emotions and well-being (Baumeister & Leary, 1995). Likewise, the Main-Effect Model argues that those with more social connections have better overall health (Cohen & Wills, 1985). The positive psychological states pathway of the Main-Effect Model—which states that social support elicits a sense of belonging—is directly related to the NBT, while the other pathways provide more details about how social support benefits well-being (Cohen & Wills, 1985). We expected that this overlap between the Main-Effect Model and the NBT, and the further elaboration of the Main-Effect Model, would give us a comprehensive theoretical framework with which we could investigate students' sense of social integration and how it relates to their housing accommodations and adjustment to university; as is described later in our discussion, this was not the case.

Literature Review

Introduction

Our study considered the relationships between housing and social integration, housing and adjustment, and social integration and adjustment. As such, our literature review explored these topics, as well as the importance of adjustment to overall well-being.

Housing

First-year university students have several options when deciding where to live. Students can often choose to live in residence, where they live either by themselves or with roommates in various different room styles. At McMaster, students can choose to live alone in a single, with a roommate in a shared room, or with several roommates in an apartment-style suite; they can also choose between access to a common washroom, single user washrooms, or an ensuite. As an alternative to residence, students can live off-campus in a house or apartment with other students or alone. Some students do not select any of these options, and instead choose to remain at home with their family and commute to campus when necessary. As the following literature review demonstrates, there are advantages and disadvantages to each option with regard to social integration and adjustment to university.

Housing and Social Integration

Throughout their transition to university, students that move away from home experience a multitude of emotions, most notably feelings of missing friends and family,

that may lead to feelings of isolation (Buote et al., 2007; Dumford et al., 2019). Students who remain at home may still experience feelings of isolation if their existing friends move away for university, and face further challenges in developing new friendships with other students if they do not live close to campus. As explained in the upcoming section on social integration, forging new social relationships at university is essential in protecting students against these negative feelings (Dumford et al., 2019; Wilcox et al., 2005). Housing accommodation plays an important role in forming those beneficial friendships that result in a sense of belonging and high PSS (Joseph, 2021; Wilcox et al., 2005).

Research suggests that living in residence leads to a greater sense of social integration than living in a student house or at home (Dumford et al., 2019; Joseph, 2021; Wilcox et al., 2005). Although there are appeals to living off-campus with friends or family—such as affordability, having a private room, kitchen, and bathroom, and a "homier" feeling (Wode, 2018)—students in such housing accommodations often struggle to socialize as frequently as desired and form close friendships (Wilcox et al., 2005).

By conducting in-depth interviews with undergraduate students, Wilcox and colleagues (2005) found that students living off-campus felt that not living on campus hindered their ability to make friends, leaving them feeling marginalized and isolated. Holdsworth (2006) found similar results: off-campus students felt they had fewer opportunities to meet people, make friends, and fit in compared to their on-campus counterparts. While students can and do make friends in their classes, it is much easier to develop meaningful friendships with those one lives with and sees frequently (Nahemow & Lawton, 1975; Wilcox et al., 2005). Not only do residence halls force students to interact with one another in common spaces such as hallways, elevators, and washrooms, but they also provide additional opportunities for social engagement—for example, cafeterias, leadership opportunities, and study spots—which foster a greater sense of social integration (Li et al., 2005). Those living in residence rooms with roommates may be particularly fortunate; in Dumford and colleagues' (2019) survey of thousands of American undergraduate students, those living with at least one roommate reported higher levels of belonging than those living in single rooms.

Correspondingly, Wilcox and colleagues (2005) found that students living in residence who were struggling to adapt to university life found comfort in peers they lived with, and that it was these new friends who aided them in their transition into their new school community. As the year progresses, students come to depend more on the friends they live with rather than their friends and family from home; their new friends take on the role of a "surrogate family" as they become the new primary source of support and belonging (Wilcox et al., 2005). However, this also comes with the issue that many families often face: the need for space. Christie and colleagues (2002) point out that living in residence can sometimes lead to feelings of claustrophobia and a lack of privacy as the year progresses. Moreover, despite all the extra opportunities to socialize, students living in residence may still fail to develop meaningful social relationships. Those who frequently return home, usually to visit friends or significant others, have less time to bond with the students around them, and thus become more socially isolated (Mackie, 1998, as cited in Wilcox et al., 2005). Evidently, students' housing accommodations greatly influence their opportunities to make friends, and thus their sense of belonging and PSS.

Housing and Adjustment

Much of the literature on the relationship between type of housing accommodation and adjustment to university considers social integration to be a mediating variable. As will be discussed in the upcoming section on social integration and adjustment, forming good friendships is essential in successfully adjusting to university (Wilcox et al., 2005). Many researchers argue that housing accommodations greatly influence students' social integration, which then leads to higher rates of adjustment and retention (Dumford et al., 2019; Fosnacht et al., 2019; Lamont Strayhorn, 2008). As previously discussed, living in residence provides significantly more opportunities to make friends than living off-campus in a student or family home (Joseph, 2021; López Turley & Wodtke, 2010; Wilcox et al., 2005), suggesting that living in residence leads to better adjustment to university.

Other research on the topic of housing and adjustment has considered the drawbacks of moving away from home on the transition to university, including experiences of "homesickness" (Thurber & Walton, 2012; Tochkov et al., 2010). Homesickness, defined as the "distress or impairment caused by an actual or anticipated separation from home", is considered a result of an inability to adjust to the university environment (Thurber & Walton, 2012, p. 415). For any student, the transition to university is challenging. However, this challenge can be exacerbated by cultural differences and potentially decreased contact with family (Thurber & Walton, 2012). In a study that examined the incidence and determinants of homesickness among first-year students at an American university, a sample of international students from India was compared to a group of domestic students (Tochkov et al., 2010). In their results, the researchers found that homesickness was significantly more prevalent among international students (Tochkov et al., 2010). Moreover, homesickness was positively correlated with anxiety and depression (Tochkov et al., 2010). Fisher and Hood (1987) found similar results: first-year students who reported more homesickness showed significantly higher rates of depression. For international students, homesickness has a heightened adverse effect on their psychological health and academic performance (Tochkov et al., 2010). Fortunately, universities typically have programs in place to help ease international students' transition.

Other literature on the relationship between housing and adjustment focuses primarily on academic achievement as a measure of adjustment (Simpson & Burnett, 2019; Taylor & Mitra, 2021). Such studies typically find that although students who live in residence are more academically engaged than their off-campus peers (Astin, 1984), they do not perform as well, likely due to the increased involvement in potentially distracting social activities (López Turley & Wodtke, 2010; Pascarella, 1984). In support of this finding, one study showed that commuter students perform better academically than students living on campus, perhaps due to additional factors related to living at home, such as being under stricter rules and having no choice but to study more (Simpson & Burnett, 2019). However, López Turley and Wodtke (2010) argue that most studies fail to consider that the effect of housing on academic performance may differ for different groups of students and different types of institutions. Accordingly, their study found that for the majority of first years, housing accommodations did not significantly impact academic performance (López Turley & Wodtke, 2010).

Unfortunately, it seems that minimal research has been done on the direct impact that housing accommodations may have on adjustment to university. Research mainly

suggests that social integration acts as a mediator, such that housing provides opportunities for social integration, which is associated with better adjustment.

Social Integration

As previously mentioned, our variable of social integration consists of a sense of belonging and PSS. Although these are distinct concepts, they capture similar aspects of social integration, as this review will demonstrate. For this reason, we have combined them to form one variable. The summary of this section provides greater detail on this process.

Belonging

A sense of belonging is defined as the extent to which people feel valued, accepted, and included in a social system or environment (Goodenow, 1993a, as cited in Maunder et al., 2018; Hagerty et al., 1992, p. 173, as cited in Choenarom et al., 2005). Generally, as argued by Baumeister and Leary (1995), being accepted and included leads to feelings of happiness, contentment, and calmness; being rejected, excluded, or ignored leads to feelings of anxiety, depression, grief, jealousy, and loneliness. Social exclusion—a lack of belonging—is thought to be the most common and important cause of anxiety (Baumeister & Tice, 1990, cited in Baumeister & Leary, 1995). A lack of belonging is also linked to higher levels of mental and physical illness, and greater vulnerability to behavioural problems such as crime and suicide (Baumeister & Leary, 1995).

Belonging and Adjustment

Many studies have found a strong positive correlation between sense of belonging and adjustment to university: a greater sense of belonging is associated with a greater ability to adjust (Maunder, 2018; Moeller et al., 2020; O'Keeffe, 2013; Pittman & Richmond, 2008). In a survey of undergraduate students in England, Maunder (2018) found that students' adjustment to university was most strongly predicted by how attached they felt to their university friends. Attachment to the university itself was also measured, but it contributed to adjustment considerably less than peer attachment. Their results indicate that strong social relationships are critical to a successful transition to university, aligning with previous findings (Lamothe et al., 1995; Wilcox et al., 2005). Consistent with the NBT's assertion that people require strong relationships in addition to frequent interaction (Baumeister & Leary, 1995), studies have also found the quality of social bonds to be important; forging high quality friendships is associated with better adjustment to university (Maunder, 2018; Wilcox et al., 2005). One limitation in much of this literature is the inability to draw causal conclusions due to the use of correlational research designs. Studies that utilize qualitative approaches can overcome this limitation and gain deeper insight to the direction of the relationship between belonging and adjustment, and thus prove that a sense of belonging directly influences students' ability to adjust to university (Maunder, 2018; Wilcox et al., 2005).

While a sense of belonging facilitates a successful transition to university, a lack of belonging is associated with a poorer transition (Maunder, 2018). Students who struggle to make friends are more likely to experience depression, loneliness, and social anxiety (Moeller et al., 2020, O'Keeffe, 2013; Pittman & Richmond, 2008), struggle academically (Kantanis, 2000), and consider dropping out of school (Heisserer & Parette, 2002;

Maunder, 2018). A sense of belonging is therefore crucial to a successful transition to university and to overall well-being.

PSS

PSS is the degree to which one feels that their need to be supported is fulfilled (Stack-Cutler et al., 2015). It is important to note that the perception of being supported is far more important to well-being than the actual degree of support (Henderson, 1981; Henderson et al., 1980, as cited in Cohen & Wills, 1985); that is, whether people actually require support, simply believing that it is available is enough to benefit well-being (Cohen & Wills, 1985; Xiang et al., 2020). Higher PSS is correlated with higher levels of happiness, self-esteem, and self-efficacy, as well as lower levels of stress, depression, and anxiety (Xiang et al., 2020; Bukhari & Afzal, 2017). Consistent with the Main-Effect Model, these findings exist regardless of the amount of stress that students experience (Xiang et al., 2020).

PSS and Adjustment

Stack-Cutler and colleagues (2015) found that, among university students, life satisfaction is positively correlated with PSS, and that support by significant others, such as friends, were more important than the feelings of belonging to an institution as a whole. This demonstrates the necessity for first-year university students to develop close bonds with those around them. In support of this conclusion, Awang and colleagues (2014) found that developing meaningful friendships is essential to a successful transition to university. It has also been found that highly supported first-year college students have better social and emotional adjustment (Friedlander et al., 2007, as cited in Awang et al., 2014), which aids students in their overall transition to university (Demaray et al., 2005, as cited in Awang et al., 2014).

The first few weeks of university are critical for first-year students as they navigate this new experience. A student's level of PSS is a key factor in their decision to drop out of school (Wilcox et al., 2005). Thomas (2002) found that students who were undecided about dropping out credit their decision to stay to the social support they received from their peers, while Mackie (1998) reported that many students who drop out early in their first year do so due to a lack of social integration and support. It might be argued that the Stress-Buffering Model—the idea that social support primarily benefits those under significant amounts of stress (Cohen & Wills, 1985)—would best explain this phenomenon, however further research has demonstrated that the Main-Effect Model (Cohen & Wills, 1985) provides a better explanation. As students remain in school and develop more relationships, they begin to feel more supported, which increases confidence (Awang et al., 2014). Essentially, high levels of PSS may help students develop more social relationships, which further boost PSS, creating a positive feedback loop (Xiang et al., 2020). Following these first few critical weeks, students' levels of PSS increase and stabilize (Wilcox et al., 2015), aligning much better with the Main-Effect Model.

Blending Belonging and PSS

Although a sense of belonging differs from a sense of social support, the literature finds that these two concepts are highly connected (Wilcox et al., 2005). Outcomes for

belonging and PSS are typically very similar: both are required for a successful transition to university, and a lack of either results in poor well-being (e.g., Awang et al., 2014; Maunder, 2018; Wilcox, 2005). As such, we combined the two concepts to create one variable of social integration, while still measuring each concept individually.

Adjustment

Serving as an indicator of well-being, adjustment is defined as how well students are coping with the transition to post-secondary (Maunder, 2018). As argued by Pittman and Richmond (2008), the transition to university is made easier for those who have certain protective factors, such as strong social relationships and a sense of belonging. Greater attachment within the university, environment, and among peers is linked to better social adjustment (Tao et al., 2000), lower levels of depressive symptoms, higher academic motivation, and lower attrition rates (Pittman & Richmond, 2008). Generally, successful adjustment is associated with greater well-being (Tao et al., 2000; Thurber & Walton, 2012).

Pittman and Richmond (2007, p. 272; 2008, p. 345) assert that similar findings exist in younger populations. Studies sampling middle school and high school students found a link between a sense of belonging and positive student outcomes, including greater academic motivation and success (Anderman, 2002; Anderman, 2003; Goodenow, 1993b; Goodenow & Grady, 1993; Roeser et al., 1996), lower rates of attrition (Finn, 1989; Wehlage et al., 1989), and better interpersonal functioning (Anderman, 1999; Resnick et al., 1997; Shochet et al., 2006).

In any setting, it is important that an individual feels that they belong and that they are supported by those around them (Pittman & Richmond, 2008). Adjusting smoothly into university is dependent on these variables, and a deficiency in either of these factors increases students' vulnerability to lower well-being, which can manifest as poor mental or physical health. Accordingly, research has found that the inability to transition into post-secondary is associated with poorer mental and physical health (Tao et al., 2000; Thurber & Walton, 2012). In a study highlighting prevention and treatment strategies for university students, Thurber and Walton (2012) found that students who have difficulty transitioning to university report high levels of depression, anxiety, and withdrawn behaviour. Morton and colleagues (2014) published similar findings; while their correlational study could not determine a causal direction, first-year students in their study with higher levels of depression and life stress reported more difficulty adjusting to university.

Although there is a significant body of research on the topic of adjusting to university, relatively few studies utilize large and diverse samples (Pittman & Richmond, 2008), and few recognize the varying definitions of social support, adjustment, and well-being (Tochkov et al., 2010). Moreover, correlation studies cannot establish the temporal order of adjustment and well-being to determine whether poor adjustment to university causes a decrease in well-being, or whether low well-being is responsible for difficulty adjusting to university.

Summary of the Literature

In our search of the literature, we found a considerable amount of research on the relationships between our topics of interest: housing with social integration, social integration with adjustment, and adjustment with general well-being. Much of the research

on the relationship between housing and adjustment pointed to other factors that mediate the relationship—such as social integration—rather than finding any direct effect. Research has also indicated a strong relationship between adjustment and student well-being. Generally, the literature supports the idea that type of housing is related to levels of social integration, which in turn affect adjustment to university and overall well-being.

Methodology

Introduction to the Research

Our research was a mixed-methods study of first-year McMaster University students. Specifically, our research questions were (1) 'What are the relationships between housing accommodation, sense of social integration, and adjustment to university?' and (2) 'In what ways are students supported by their university friends?'. To answer these questions, we conducted an anonymous online survey hosted on the MREB-approved platform LimeSurvey. We focused primarily on our variables of interest: type of housing accommodation, level of social integration, and level of adjustment to university.

Research Timeline

A complete timeline of our research process is presented in Table 1.

Table 1
Complete timeline of research process

Task	Date
Research proposal and ethics protocol submitted	October 19, 2021
Revision meeting with Dr. Clancy	October 29, 2021
Proposal revisions completed and ethics approval granted	November 8, 2021
Survey launched and recruitment began	November 10, 2021
Research project overview submitted	November 19, 2021
Data collection ended	February 18, 2022
Data analysis began	February 19, 2022
Data analysis ended	February 28, 2022
Poster draft submitted for review	March 7, 2022

Poster presentation	March 18, 2022
Final thesis paper submitted	April 1, 2022
All data deleted	Once Dr. Clancy has submitted grades for the course, no later than April 30, 2022

Materials

We activated our survey on November 10, 2021 and accepted responses until February 18, 2022. The survey consisted of 19 closed-ended questions and three open-ended questions.

Measure of Housing

Housing accommodation was measured by asking participants to select whether they lived on campus in residence, off campus with other students, off campus with family, off campus alone, or an option not listed. Additional housing-related data was collected on residence room and bathroom type (if applicable), household size, distance from campus, and frequency of visiting campus.

Measure of Social Integration

Social integration was measured by combining items that assessed a sense of belonging (e.g., "I feel connected to my friends") and items that assess PSS (e.g., "I am satisfied with the number of people that I feel I can turn to for help") to create a seven-item scale with good internal consistency (α = .83). The belongingness subscale consisted of four items and had acceptable internal consistency (α = .77). The PSS subscale consisted of three items and had questionable internal consistency (α = .65) which improved when the third item ("My friends care about my well-being") was dropped (α = .7). We formulated each item to correspond with particular tenets of the NBT and the Main-Effect Model in an effort to capture the important aspects of social integration. Each item on the scale was rated on a five-point Likert scale (1 = Strongly disagree, 5 = Strongly agree).

Measure of Adjustment

Adjustment to university was measured using a four-item scale with acceptable internal consistency (α = .71). During the data analysis process, we realized that two of the four items were not applicable to students living at home ("I visit and/or call home frequently; I rarely feel homesick"), so we excluded these two items from the overall measure of adjustment for students who indicated they lived at home. The internal consistency of this subscale was acceptable (α = .72). We used the four-item measure for students living on campus or with other students off-campus, and the two-item measure for students living at home for their final measure of adjustment. Each item was rated on a five-point Likert scale (1 = Strongly disagree, 5 = Strongly agree).

Demographics

At the end of the survey, we collected demographic information, specifically age, self-identified gender, and international status.

Recruitment

To recruit first-year student participants, Jessica Aranyush and Jewel Pheasant-Dumont contacted McMaster student-run groups, clubs, and pages. Using our recruitment scripts, we asked the groups to post a poster promoting our survey on their social media profiles. We emailed or messaged the following groups: Society of Off-Campus Students, McMaster Social Psychology Society, McMaster Anthropology Society, PNB Society, McMaster Sociology Society, McMaster HASSA, McMaster Pass on Positivity, McMaster Golden Z, McMaster Humanities Society, Social Work Students Collective, Gujarati Student Association, McMaster Dance Recreational Team, McMaster COPE, McMaster ISA, McMaster Social Sciences Society, McMaster Students Union, macGEET, DeGroote Commerce Society, McMaster Life Sciences Society, McMaster Human Behaviour Society, McMaster Engineering Society, Medicine Health and Society, Kinesiology Society, Linguistics Society, DeGroote Impact, McMaster Extra Life, McMaster Relay for Life, McMaster Veggie Club, McMaster Indigenous Health Movement, Mac ProcrastiKnitters, Mac Soup Kitchen, McMaster Board Game Society, Bollywood Club, McMaster Geeks, McMaster Math and Stats Society, McMaster Arts for Children, McMaster Penpals for Seniors, Mac Italian Club, McMaster Chinese Students Association, Mac German Cultural Club, McMaster Indian Association, McMaster Association of West Indian Students, McMaster Polish Society, McMaster SriLankan Association, McMaster Vietnamese Students Association, McMaster French Club, Iraqi Students Association, McMaster Japanese Club, The Egyptian Student Association at McMaster University, McMaster Foodies, Spotted at Mac, McMaster University Class of 2025 Current Students, McMaster University Class of 2025 Official Group, McMaster Social Sciences Accepted Class of 2025, and the McMaster ArtSci Class of 2025. Maiya Bertola and Kate Cooper also affixed 150 MSU-approved posters around campus.

Sample

We received 442 responses to our survey, 394 of which were deleted for not having completed the majority of the closed-ended questions. Two additional responses were removed for having indicated in their open-ended responses that they were not in first year, and one was removed for being 17 years old. Our final sample consisted of 45 McMaster students over the age of 18. Demographic information is described in the results section.

Ethical Concerns and Solutions

Our study may have posed a psychological risk to participants to the extent that the questions may have been triggering or uncomfortable for some. To manage this risk, the following precautions were taken: the survey was anonymized, allowing participants to share their experiences without being identified; the survey was voluntary, giving participants the ability to skip questions or quit the survey at any point before completion; the survey listed support resources on the first and final pages from which participants can seek support if they feel uncomfortable or upset. Our study may have posed a social

risk to participants to the extent that completing it in public may have exposed their responses to others in the immediate environment. This risk was managed by informing participants in the preamble that they could complete the survey at a time and place of their choosing, minimizing the chance of a breach of their privacy. Beyond these potential issues, our study posed minimal risk—none greater than everyday life. The research was approved by the McMaster Research Ethics Board (MREB#: 0327).

To avoid any conflicts of interest, we recruited participants primarily through student-run groups, clubs, and pages; we did not contact students directly. Jessica Aranyush and Jewel Pheasant-Dumont were responsible for contacting most of the groups previously stated; Vanessa Richards contacted the McMaster Social Psychology Society as Jessica Aranyush and Jewel Pheasant-Dumont are on the executive team. Kate Cooper was noted to have several conflicts of interest as a Teaching Assistant and Community Advisor to first-year students, thus she was not involved with recruitment beyond affixing posters around campus. Once the data was collected, it was kept private, secure, and protected from others outside of the research group on password-protected computers connected only to secure networks.

Data Analysis

To discover what relationships existed between our variables of interest—housing accommodation, social integration, and adjustment to university—we analyzed our quantitative data using Jamovi software. We began by setting up our data file, reverse scoring the required items and creating mean scores for social integration and adjustment. Then, to learn more about our sample, we calculated descriptive statistics. Next, we conducted one-way ANOVAs to see whether different types of housing accommodations were associated with different levels of social integration and adjustment, and used a correlation matrix to see the association between social integration and adjustment. After analyzing our main relationships, we conducted additional analyses, including reliability analyses to determine the internal consistency of our scales, independent samples t-tests to compare mean differences between groups with only two categories, generalized linear model mediation analysis to test the mediating effect of social integration on the relationship between housing and adjustment, and independent chi-square tests to see whether categorical frequencies were as expected. In this paper, we report only the findings pertaining to our research questions and additional findings we deemed interesting.

To supplement and contextualize our quantitative data, as well as to answer our secondary research question (In what ways are students supported by their university friends?), we analyzed responses to our three open-ended survey questions using descriptive coding. We took a mostly inductive approach to coding the responses, allowing the themes to emerge from the data, however our codes and themes were influenced by the findings of our literature review and our two guiding theories, the NTB (Baumeister & Leary, 1995) and Main-Effect Model (Cohen & Wills, 1985).

Summary of Methodology

To summarize, we developed a quantitative survey with qualitative components to answer our two research questions. We recruited a final sample of 45 first-year students through McMaster student-run groups and posters displayed across campus. We ensured

that we took the necessary precautions to minimize any potential risks to our participants, and to avoid conflicts of interest in our recruitment process. Finally, we used Jamovi to analyse our quantitative data and descriptive coding to analyse our qualitative data.

Results

Quantitative Results

Demographics

Usable data was collected from 45 participants (n=45). Participants were all assumed to be in their first year of university given the inclusion of this criterion in the survey title and preamble (M_{age} = 18.3, SD_{age} = 0.63). Most participants self-identified as women (86.7% female, 11.1% male, 2.2% non-binary). Only five participants identified themselves as international students (11.1% international, 88.9% non-international). Approximately half of the sample lived on campus in residence (53.3% in residence, 22.2% off campus with students, 24.4% off campus with family). Approximately half of those living in residence lived in traditional double rooms (54.2% double, 41.7% single, 4.2% apartment-style). Exactly half of those living in residence had access to a common washroom (50% common washroom, 29.2% single user washroom, 20.8% ensuite washroom). This reflects the proportion of room types in McMaster residences: double rooms with access to a common washroom are the most common room type (Housing & Conference Services, n.d.). Across all participants, social integration was relatively high on the scale out of five ($M_{social\ integration}$ = 3.64, $SD_{social\ integration}$ = 0.73) while adjustment was close to average ($M_{adjustment}$ = 2.6, $SD_{adjustment}$ = 0.97).

Statistical Analysis

We conducted several different statistical analyses to answer our research questions and discover additional relationships between our variables. The following tables and figures illustrate our most relevant and interesting findings.

Table 2 and Figure 1 show the levels of social integration and adjustment by different housing types, analyzed by conducting a one-way ANOVA. Social integration was highest for those living off campus with other students, followed by those in residence, and lowest for those at home. Adjustment to university was best for those living in residence, followed by those off campus with other students, and worst for those at home. However, the differences between groups were not significant.

Table 2

Means and standard deviations of social integration and adjustment by housing type

	Social Integration		Adjustment	
Housing Type	Mean	SD	Mean	SD
In residence	3.60	.809	2.79	.966
Off campus with other students	3.84	.695	2.55	.900
Off campus with family	3.51	.572	2.20	1.03

p-value	.547	.271

Figure 1

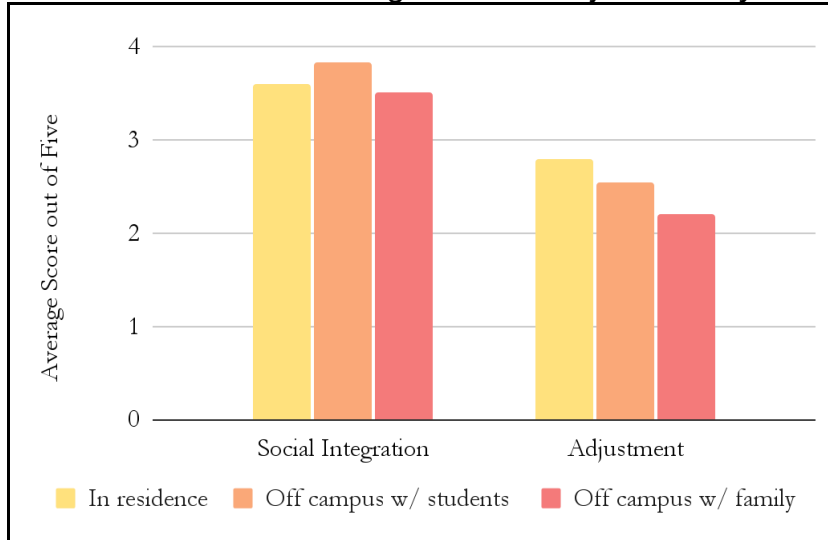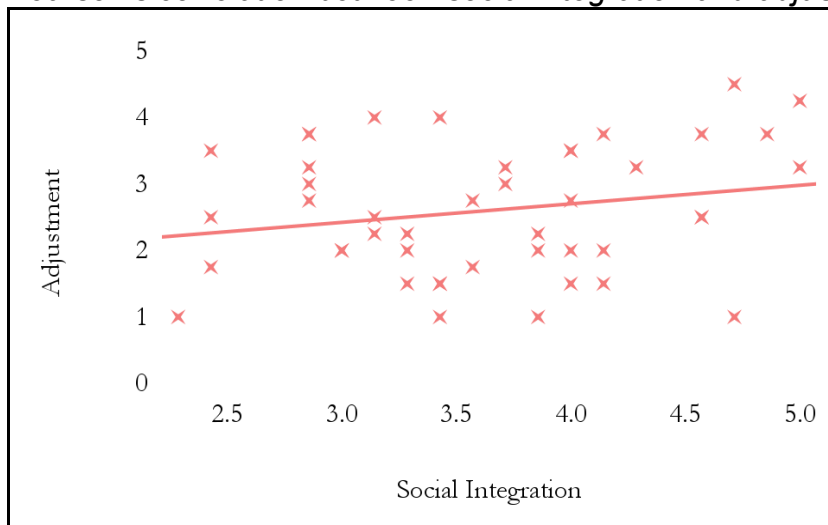*Mean scores for social integration and adjustment by housing type*

Figure 2 shows the correlation between social integration and adjustment. Social integration and adjustment are positively correlated, but not significantly ($r = .21$, $p = .167$).

Figure 2

Pearson's correlation between social integration and adjustment

We also tested the indirect effects of housing accommodation on adjustment through social interaction using a generalized linear model of mediation. The indirect effects were not significant, meaning that social integration did not mediate the associations between

housing and adjustment. The direct effects were also not significant, meaning that housing did not have a direct effect on adjustment.

Table 3 shows the correlations between all social integration items and adjustment. Items 1, 4, 5, and 6 were measures of belonging; items 2, 3, and 7 were measures of PSS. Only items 2 and 3 were significantly correlated with adjustment. A subscale consisting of these two items was significantly positively associated with adjustment ($r =$ .462, p = .001). Correspondingly, participants who strongly disagreed, disagreed, or felt neutrally toward these two items reported significantly worse adjustment than those who agreed or strongly agreed. Results of these independent samples t-tests are reported in Table 4 and visually illustrated in Figure 3.

Table 3
Pearson's correlation between social integration items and adjustment

Social Integration Scale Item	Adjustment
1. I have a strong, accepting social bond with my peers	.206
2. I am comfortable asking those who live in close proximity to me for help	.395**
3. I am satisfied with the number of people that I feel I can turn to for help	.422**
4. I am satisfied with the number of really close friends that I have	.065
5. I enjoy spending time with my friends	.087
6. I feel connected to my friends	.023
7. My friends care about my well-being	-.183

Note. $*p < .05$, $**p < .01$, $***p < .001$

Table 4
Comparison of low and high agreement to 2) "I am comfortable asking those who live in close proximity to me for help" and 3) "I am satisfied with the number of people that I feel I can turn to for help"

	Level of agreement		Adjustment	t-value	p-value
Item 2	Low agreement (strongly disagree, disagree, neutral)	Mean SD	2.09 .760	2.99	.005
	High agreement (agree, strongly agree)	Mean SD	2.91 .968		

				2.59	.013
Item 3	Low agreement (strongly disagree, disagree, neutral)	Mean SD	2.24 .854		
	High agreement (agree, strongly agree)	Mean SD	2.95 .971		

Figure 3

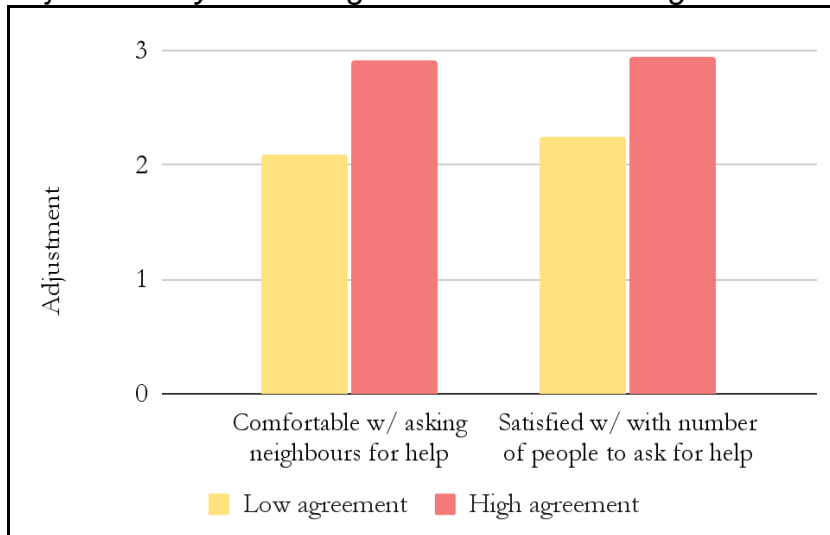*Adjustment by level of agreement to social integration items 2 and 3*

Table 5 and Figure 4 show the results of a one-way ANOVA testing the relationships between frequency of visiting campus and social integration and adjustment. More frequent campus visits were associated with higher levels of social integration, though not significantly. The relationship between campus visit frequency and adjustment was significant; visiting campus very frequently or very rarely was associated with better adjustment than visiting weekly.

Table 5

Means and standard deviations for social integration and adjustment by campus visit frequency

	Social Interaction		Adjustment	
Campus Visit Frequency	Mean	SD	Mean	SD
Every day or almost every day	3.68	.816	2.84	.886
Weekly	3.57	.695	1.89	.824
Never or almost never	3.29	.572	2.75	1.768

p-value	.722	.016

Figure 4
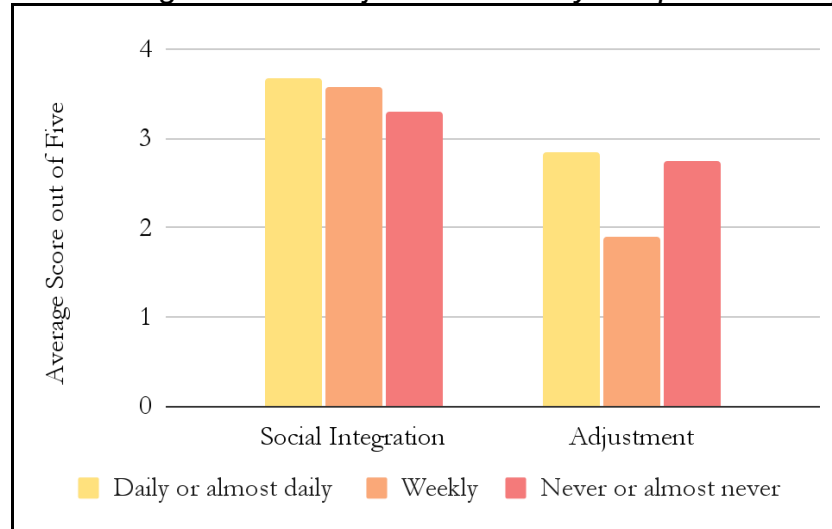*Social integration and adjustment and by campus visit frequency*

Table 6 shows the results of an independent samples t-test comparing international students and non-international students' social integration and adjustment. The two groups did not differ significantly on social integration, however international students were significantly better adjusted than non-international students.

Table 6
Comparison of international and non-international students' social integration and adjustment

International Status	Social Integration		Adjustment	
	Mean	SD	Mean	SD
International	3.83	.650	3.50	.433
Non-international	3.61	.744	2.49	.966
p-value	.534		.027	

Independent samples t-test were conducted to test the associations between residence room type (single or double) and gender (male or female) with social integration and adjustment. Students in double rooms reported higher levels of social integration and adjustment than those in single rooms, but not significantly. Female students reported higher social integration than male students, while male students reported better adjustment than female students, but the differences were not significant. Moreover, a

linear regression showed that the interaction between gender and social integration was not significant, meaning that gender did not moderate the relationship between social integration and adjustment. A one-way ANOVA was conducted to test the associations of residence bathroom type (common, single-user, or ensuite) with social integration and adjustment. Students in residence with access to a common bathroom were more socially integrated than other students in residence, while students with an ensuite were better adjusted than other students in residence, but these differences were not significant. A chi-square test was run to assess the relationship between housing type and distance from McMaster campus; as expected, this relationship was significant, X^2 (4, $N = 45$) = 18.6, $p = <.001$. Interestingly, several students who reported living in residence also reported living farther than 8 kilometres from campus or outside of Hamilton entirely.

Qualitative Results

To supplement our quantitative data, we analyzed the responses to three open-ended questions: 1) In what ways do you think that your living arrangements affected your ability to make friends and receive social support? 2) In what ways do you think that your living arrangements affected your ability to adjust to university life? 3) In what ways do your friends support you?. Our analysis of the qualitative questions used an inductive coding approach, wherein we generated codes only after reading through the responses. We allowed overarching themes and subthemes to emerge from the responses after completing the coding.

Question 1

The first open-ended question asked students how they thought their living arrangements affected their social integration. Responses centered mainly around feelings of social integration and isolation. Prominent themes and subthemes are reported in Table 7.

Table 7
Prominent themes and subthemes in responses to open-ended question 1

Themes	Subthemes
Social integration	• *No subthemes*
Social isolation	• Housing negatively affecting social integration • COVID-19

Social Integration

A significant theme that emerged from students' responses was the idea that living in residence was conducive to social interaction and integration. Living in residence allowed students to interact with more people and increase their chances of forming connections with others, and made it easier to spend time with already-established friends. One student captured this common theme perfectly with their response: "Being in residence increases chances of meeting new people and also being able to hang out with them more (which enables the formation of a stronger connection)." This idea was prevalent

not only among students living in residence, but also among those who had chosen to live off campus with other students or their family. One participant who chose to live at home stated, "if I was comfortable with living in residence I'm sure it would have made it easier to meet people." A few students living off campus with other students also responded that living with their peers had increased their sense of social integration, however they acknowledged that they mainly became closer with their housemates and did not form as many new social connections as they would have living in residence. Overall, the theme of social integration emerged mainly from the responses of students living in residence, who explained that this living arrangement provided them with more social interaction and integration.

Social Isolation

In contrast to the theme of social integration, many students mentioned feeling socially isolated and disconnected from their first-year peers. Within this overarching theme, the largest subtheme that emerged was *housing as a direct cause of social isolation*. Students whose responses fell within this subtheme explicitly stated that their living arrangements were the reason why they felt socially isolated. Students in all three housing types indicated, to a varying extent, that their housing type contributed to their feelings of social isolation.

Feeling that housing type was directly responsible for their social isolation was most prevalent among students living at home. One such student noted, "I think because I'm living off campus with my family, I haven't had many opportunities to make friends because I don't see other McMaster students unless I'm visiting campus." Another stated that living at home made them feel "extremely socially isolated." Interestingly, students living off campus with other students also indicated feeling that living on campus would have helped them feel more socially integrated. Multiple students in this housing type echoed one student, who explained that "not being able to be on campus as a first year has made it incredibly hard to meet people and make friends." Of the students in residence who reported that their housing type made them feel socially isolated, all resided in single rooms.

Within the subtheme of housing as a cause of social isolation, some students explicitly identified isolation caused by their living arrangements as having negatively impacting their mental health. One student in a single room in residence revealed that feeling isolated "really took a toll on my emotional and mental wellbeing," and added that living in a single had "affected my ability to make friends tremendously."

The *COVID-19 pandemic* was also a recurring subtheme in students' responses to our first open-ended question. Some students made reference to online classes and wearing masks, however these were often only brief mentions. Only one student described that COVID-19 regulations inhibited their ability to meet people in their building, saying that "online school has not helped with making friends since I am mainly in my room most of the time." However, it is safe to assume that COVID-19 and associated conditions did not facilitate social interaction and integration and can be more accurately categorized as a factor causing social isolation.

Question 2

The second open-ended question asked students how they believed their living arrangements affected their ability to adjust to university life. Table 8 displays the themes and subthemes that emerged from students' responses to this question.

Table 8
Prominent themes and subthemes in responses to open-ended question 2

Themes	Subthemes
Connectedness	• Positive experiences • Negative experiences
Continuity	• Positive experiences • Negative experiences
Proximity	• Positive experiences • Negative experiences
Living Space	• Positive experiences • Negative experiences
Independence	• Positive experiences • Negative experiences

Connectedness

Similar to the main themes that emerged in the responses to the first open-ended question, many students mentioned that their living arrangements provided either a sense of connectedness, or a lack of connectedness, which impacted their adjustment to university. When describing *positive experiences* of connectedness, students mentioned that living on campus has eased their adjustment to university because it allowed them to connect with other first-years, particularly over shared experiences. For instance, a participant who lived in residence noted: "Having other students around me who were experiencing the same situation as me helped as we were able to discuss similar feelings of uneasiness surrounding university life." These positive experiences of connectedness were most commonly cited by those who lived on campus with roommates.

Negative experiences appeared in students' responses as they felt a lack of connectedness as a result of their living arrangements, which negatively affected their adjustment to university. This theme was particularly prominent in the responses of off-campus students. Off-campus students reported feeling less connected to their peers as they were unable to interact with other students as much as students living on campus. Moreover, participants who lived off campus noted feeling like outsiders to university life, and that living at home made them less of a typical university student. These negative experiences of limited connectedness to both the university and their peers were cited as reasons for having difficulty adjusting to university.

Continuity

Continuity was a critical factor that students expressed, whether it was as a positive or negative influence on adjusting to university. *Positive experiences* of continuity were cited

by students living off-campus with their family, as their support system and living environment remained consistent. For example, one student stated that staying at home for first year made it easier to adjust, as it was "one less change in my life amidst the craziness [of] adjusting to university life and expectations," and they were able to continue receiving support from their parents and dog. However, this theme only emerged in a few participants' responses; relative to the frequency of other themes, it was not a popular perspective.

More prominently, students noted *negative experiences* of continuity in their living arrangements and the negative impact it had on their adjustment to university. Those who lived in residence noted that the sudden change of environment was difficult to adjust to, particularly because they did not have the same support system as they did at home. Here, it was discontinuity in living arrangements that was experienced negatively. Conversely, one student found continuity in their living arrangements was a negative experience that made it difficult to adjust to university: "I did not get into the groove of living in the traditional residence buildings. Staying off campus has basically been like still living at home."

Proximity

Students cited the proximity of their housing accommodation to the university as either a positive or negative contributor to their adjustment to university. Students living on or close to campus described *positive experiences* of proximity as they had easier access to the benefits associated with campus. One student summed this theme up perfectly, writing that living in residence helped with adjustment since "everything I needed was right there." Some students specified that the reason they enjoyed living in close proximity to campus and having easy access to campus amenities was because it saved them time. With this extra time, they were able to focus more on schoolwork or hangout with friends. These other activities helped them "feel more at ease and comfortable," which eased their adjustment to university. Overall, proximity to campus and its associated convenience made the transition to university less challenging.

Participants also cited *negative experiences* that occurred as a result of their lack of proximity to campus. One student who lived off-campus with family noted that living farther from school was a difficult transition, as they were more accustomed to living in close proximity to their high school. Another common response was that living off-campus made adjustment more difficult as much of their time was spent commuting. Not living near campus made it harder for students to adapt and adjust to university life.

Living Space

Participants indicated in their responses that their living environment fostered both positive and negative experiences when it came to adjusting to first year. Within the *positive experiences* subtheme, a common response from on-campus students was that being surrounded by an academic environment allowed and encouraged them to stay dedicated to their studies. Some participants also noted that being on campus in a single room helped them to adjust since they had their own space to become accustomed to the university environment.

For other students, their living space was a *negative experience* that impacted their adjustment to university. Students in residence cited issues with their room and

roommates as factors that made it difficult to adjust. In some cases, students expressed that the room itself was unsatisfactory and made it harder for them to make the adjustment, for example having a washroom that "isn't ideal." In other cases, participants expressed being uncomfortable in their living space due to their roommates: "They force me to interact with another person frequently, but that's not always what I want [or] am comfortable with." Some participants who lived in residence also commented that they disliked their roommate, leading them to go home more frequently instead of remaining in residence.

Students living off campus with family also had negative experiences with their living space in relation to their adjustment to first year. These students found that it was difficult to study effectively and maintain focus with other family members around the house, resulting in a more difficult adjustment to university.

Independence

Students stated in their responses that their living arrangements came with a unique sense of independence, which was either a positive or negative experience when trying to adjust to university. *Positive experiences* of independence were evident in several students' responses as they explicitly mentioned feeling positively about having gained a new sense of independence after moving out of their family home. This was especially common among students living off campus with other students. One such student wrote, "I think living away from home has definitely allowed me to become more independent and comfortable with trying things I'm typically not very familiar with, such as new extracurriculars." Another student explained that being on their own had made them feel more independent, and that "it has been very enjoyable." The opportunity for students to live away from home gave them new independence that they had not experienced prior to attending university.

A positive experience of independence was also noted by one participant living at home. For them, continuing to live at home and not gaining a new sense of independence was beneficial: "Living at home has kept me responsible and given me ample amounts of time to get done what needs to get done."

In contrast, some off-campus participants described gaining independence as a *negative experience* that made it harder to adjust to university. These students found that living with their peers resulted in more responsibilities around the house, including cleaning the house and shopping for groceries, since they could no longer rely on their parents' assistance with household chores. They cited the increased responsibilities as making adjustment to university more difficult.

Question 3

The third open-ended question asked students to describe specific ways that their friends supported them. This question was included specifically to help us answer our secondary research question: 'In what ways are students supported by their university friends?'. Table 9 presents the prominent themes and subthemes that emerged from students' responses to this question.

Table 9
Prominent themes and subthemes in responses to open-ended question 3

Themes	Subthemes
Emotional Support	• General emotional support • Listening • Showing empathy
Instrumental support	• Food • Academic support
Social Interaction	• *No subthemes*

Emotional Support

Many participants expressed that emotional support from their friends was vital to their support needs. Emotional support can be defined as verbal and nonverbal processes that communicate support and care to another individual (Federici & Skaalvik, 2014). A subtheme present in participants' responses was *general emotional support*. A large majority of respondents indicated that their university friends made them feel welcomed and accepted, and were there to provide support when they needed it. For instance, a student expressed that their peers supported them by "checking in on my mental health, reaching out, [and] offering to talk if I'm not in a good place." General emotional support was also characterized by the students' perception that they can turn to their friends for advice and encouragement.

Students' responses revealed that *listening* was a critical component of emotional support. Receiving emotional support from peers allowed students to feel more connected and willing to explain how they are feeling. For example, a respondent mentioned that their friends "providing a listening ear [...] when I feel overwhelmed" made them feel supported. Students also noted that reciprocal listening was present in their friendships.

Respondents indicated in their responses that *empathy* from their friends showed their support. Empathy was characterized as support through shared first-year experiences. One participant noted: "I feel that my friends support me in having the same mutual feeling when it comes to not knowing anything about university" Similarly, another said that their friends "connect me to resources when they have gone through a similar experience and [tell me] how I can combat the barrier I have at hand." It is evident that having shared experiences with friends creates the opportunity for these friends to provide support through resources that they know to be helpful.

Instrumental Support

Students also described how their friends provided them with what could be classified as *instrumental support*, defined as tangible assistance wherein one receives help in a material form (Federici & Skaalvik, 2014). Nearly all responses that mentioned instrumental support could be further classified into subthemes of *academic support* and *food*.

Students indicated in their responses that support through *food* was a large factor in how their friends supported them. The use of food was important for students because they felt that it comforted them in their times of need, and their friends' support through the bringing and sharing of food alleviated some of their stress. For example, one student

stated that receiving food from their friends when they were sick helped immensely as they were unable to buy it themselves. Other students mentioned feeling supported by the small gesture of being brought food by their friends. Similarly, students were supported by their friends when they shared meals together as it was more desirable to eat with a friend rather than alone.

Academic help was another frequent response from students when describing the type of instrumental support they acquire from friends. Academic support was represented as working together on assignments, providing help with difficult homework questions, and giving advice on coursework. The ability for their peers to assist them in coursework alleviated stress, which in turn led to a stronger sense of support in their friendships. As such, tangible academic support was an important part of feeling socially supported.

Social Interaction

A common theme that appeared from participants' responses was that their friends supported them through social interaction. The students' social interaction with their peers included a large emphasis on their physical presence and the support it provided. For instance, students who lived in residence noted that social interaction occurred most often from walks together or going to get food together. These responses indicated that those who lived on campus were able to interact with their peers in person, which offered them strong, frequent support through their physical presence. Similarly, support from their peers was cited in general by students as being able to meet with their friends and hangout with them. The students' ability to spend time with their friends in person provided meaningful social interaction in person. Social interaction was noted by some students as important support for when they felt lonely or upset, as it provided a distraction. Overall, the general theme of social interaction was characterized by their peers' support by having a physical presence when needed.

Discussion

This study examined the relationships between housing accommodation, social integration, and adjustment to university through quantitative measures and qualitative responses detailing subjective experiences. The following section will connect the quantitative and qualitative findings to each other, our guiding theories, and the literature we reviewed to highlight and expand on important conclusions.

Housing and Social Integration

Quantitative results revealed that social integration was highest for students living off campus with other students and lowest for students living off campus with family, however these differences were not significant. This lack of significance contradicted the literature we reviewed, which overwhelmingly stated that social integration was typically highest among students living in residence and lowest among students living at home, as a result of the additional opportunities for social interaction in residence (Dumford et al., 2019; Joseph, 2021; Wilcox et al., 2005). Qualitative findings, specifically responses to the first open-ended question (In what ways do you think that your living arrangements affected your ability to make friends and receive social support?), aligned with the literature. Here, a prominent theme was the idea that living in residence facilitated social interaction and therefore increased social integration; this idea was strongly supported as it was expressed not only by students who had experienced it through living in residence, but

also by students who had chosen not to live in residence and believed doing so would have improved their social integration. Likewise, off-campus students expressed feelings of social isolation that they believed were a direct result of their off-campus accommodation. Regarding the relationship between housing and social integration, our qualitative—but not quantitative—findings confirmed existing literature.

Housing and Adjustment

Analysis of our quantitative results revealed that students living in residence had the highest levels of adjustment, followed by students living off campus with other students, and then students living off campus with their family, but that these differences were not significant. This pattern—but not the lack of significance—was predicted by the literature, which suggests that students in residence have better adjustment as a result of greater social integration (Dumford et al., 2019; Fosnacht et al., 2019; Lamont Strayhorn, 2008). This relationship will be discussed in depth in a subsequent section.

Responses from our second open-ended question (In what ways do you think that your living arrangements affected your ability to adjust to university life?) provided greater insight into how students were perceiving the impact of their housing accommodation on their adjustment to university, including the discussion of factors beyond social integration.

Surprisingly, nearly equal numbers of residence students reported that their living arrangement contributed positively to their adjustments as contributed negatively. This lack of consensus corresponds with existing literature; some studies have found that students living in residence experience better adjustment (e.g., Joseph, 2021; López Turley & Wodtke, 2010; Wilcox et al., 2005), while others have found that residence students' adjustment suffers more than their off-campus counterparts (e.g., Thurber & Walton, 2012; Tochkov et al., 2010). Further research into the specific aspects of housing accommodations that contribute to the improvement or worsening of adjustment, such as proximity to campus and features of living space, is required to fully understand the relationship between housing and adjustment.

In contrast to mixed opinions from participants living in residence, off-campus students were more consistent in their responses. A large majority of students living off campus with family indicated feeling that their living arrangement had negative impacts on their adjustment to university. Most of these students felt that living away from campus kept them disconnected from their peers and the university community, which made it difficult to adjust. Previous literature has demonstrated that off-campus students who become more involved in school-based extracurriculars experience higher levels of social integration (Moore, 2020), so further research should be done to understand if this benefit can extend to off-campus students' adjustment.

In contrast to students living off campus with family, most off-campus students living with other students indicated that their living arrangement had positive effects on their adjustment to university. It appears that newfound feelings of independence and living in close proximity to campus are extremely important to adjustment, as these were the main differences noted between students living off campus with students and students living off campus with family. Furthermore, these factors seemed to be protective against the experiences of homesickness that our literature consistently associated with students

living away from home (Fisher & Hood, 1987; Thurber & Walton, 2012; Tochkov et al., 2010).

International students are a specific demographic that has been found to experience homesickness (Tochkov et al., 2010). Surprisingly, international students in our study reported significantly higher levels of adjustment than non-international students. It is possible that McMaster's programs and networks for international students are effective in mitigating the harmful effects of homesickness, thus aiding these students in their adjustment. Another possible explanation is that being unable to frequently visit home forces international students to become more socially integrated with other students, which elicits higher levels of adjustment. Further research into this topic is needed to better understand international students' levels of social integration and adjustment, and to discover the effectiveness of programs aimed at improving their adjustment to university.

Social Integration and Adjustment

Quantitative analysis revealed a positive association between social integration and adjustment, however the relationship was not significant. This lack of significance was unexpected as literature has long suggested that there is a robust association between these two variables (Lamothe et al., 1995; Maunder, 2018; Moeller et al., 2020; O'Keeffe, 2013; Pittman & Richmond, 2008; Wilcox et al., 2005). In fact, many scholars believe that social integration is essential to successfully transitioning to university life (Awang et al., 2014).

Housing, Social Integration, and Adjustment

Few studies considered the direct effect of housing on adjustment. Instead, it was suggested that social integration acted as a mediating variable, such that housing accommodation affected social integration, which in turn affected adjustment, rather than housing having a direct effect on adjustment (Dumford et al., 2019; Fosnatch et al., 2019; Lamont Strayhorn, 2008). Our quantitative findings did not support a significant indirect—mediating—effect of social integration, nor did they support a significant direct effect. However, qualitative data from students' responses provides strong support for social integration as a mediator between housing and adjustment. In response to the first open-ended question (In what ways do you think that your living arrangements affected your ability to make friends and receive social support?), students expressed beliefs that their housing had directly impacted their levels of social integration or isolation. In response to the second open-ended question (In what ways do you think that your living arrangements affected your ability to adjust to university life?), students identified social connectedness resulting from their housing accommodation as a positive influence on their adjustment to university, and social disconnectedness resulting from their housing accommodation as a negative influence on their adjustment to university. Taken together, these qualitative findings provide strong evidence for the mediating effect of social integration on the relationship between housing and adjustment. A larger sample size may have been required to detect the effect in quantitative analysis.

PSS and Adjustment

Our two-item subscale measuring PSS was significantly positively associated with adjustment. The two items in the subscale were 1) "I am comfortable asking those who live in close proximity to me for help" and 2) "I am satisfied with the number of people that I feel I can turn to for help." The correlation between PSS and adjustment was expected as previous literature has noted that first-year students who feel supported often have higher levels of emotional and social adjustment (Friedlander et al., 2007, as cited in Awang et al., 2014), which translate to optimal adjustment to university (Demaray et al., 2005, as cited in Awang et al., 2014). Contrary to expectations, the same relationship with adjustment was not found with belongingness—our second measure of social integration—or social integration as a whole. We speculate that the COVID-19 pandemic and its related restrictions interfered with this relationship; this will be discussed in a subsequent section.

Campus Visit Frequency and Adjustment

Analysis of our quantitative results identified a significant positive correlation between how often a student visits McMaster campus and their level of adjustment. Students who visited campus daily or close to daily reported the highest levels of adjustment, followed closely by students who rarely or never visited campus. Interestingly, students who visited McMaster campus weekly had the lowest levels of adjustment. There is not any existing literature on this topic that we could compare our results to; prior to the COVID-19 pandemic, it was exceedingly rare for students to attend university without physically visiting campus.

In the absence of existing literature, we speculate that students who never visited campus felt more adjusted than students who visited weekly because they made alternative efforts to adjust to university in place of frequently attending campus. Li and colleagues (2013) suggest that there are 'attaching behaviours' that can facilitate students' affiliation to their university community; these attaching behaviours include owning branded school merchandise, becoming involved in extracurriculars, and staying informed with news about the university (Li et al., 2013, as cited in Maunder, 2018)—all of which could be done virtually, from home while the university was closed due to the pandemic. Students who visited campus weekly might have been less likely to make these extra efforts to aid adjustment and may have inadvertently worsened their level of adjustment. As institutions cease public health protections and students are once again required to physically attend campus, we do not believe that further research to investigate this finding is necessary.

Residence Type, Social Integration, and Adjustment

Regarding room type, quantitative analysis revealed that students living in double residence rooms had higher levels of social integration and adjustment than students living in single residence rooms, but not significantly. This finding—but not the lack of significance—is consistent with Dumford and colleagues' (2019) finding that having a roommate was associated with a greater sense of belonging, which positively contributes to adjustment. Correspondingly, the four residence students who reported feeling that their housing accommodation was responsible for their feelings of social isolation in the first open-ended question were all single room residents.

Regarding washroom type, quantitative analysis revealed that students with access to a common washroom reported the highest levels of social integration, while students with access to ensuite washrooms reported the highest levels of adjustment in comparison to students with access to other types of washrooms. Washroom type was not considered in the literature we consulted, however these results make logical sense. Sharing a washroom with all the residents on one's floor is likely related to higher social integration because it provides more opportunities for residents to come in contact with each other, but is likely more difficult to adjust to, given the dramatic difference between sharing a washroom with a few family members and sharing with 30+ neighbours. Moreover, having access to an ensuite washroom is likely correlated with better adjustment because it is a smaller change to get used to, but likely related to lower levels of social integration due to having fewer reasons to leave one's room and potentially interact with others.

Types of Social Support

To address our secondary research question (In what ways are students supported by their university friends?), our third open-ended question (In what ways do your friends support you?) focused specifically on social support. The responses to this question suggest that students feel supported by their university friends in three major ways: emotional support, instrumental support, and social interaction.

As previously reviewed, the Main-Effect Model argues that one's level of social support directly impacts well-being (Cohen & Wills, 1985). Initially, we intended to utilize this theory to inform the themes for our third open-ended question, however, once we began qualitative data analysis, we realized that the responses we received from students were not best explained by the three major pathways of social support to well-being detailed by the Main-Effect Model. While some of the findings were indirectly related to the three pathways, it was not fitting to code the responses as such. Instead, we decided to take an inductive approach and classify responses based on common themes that emerged from the data itself.

Students' responses indicated that, as suggested by Buote and colleagues (2007), friends fulfill several key functions in helping students adjust to their new environment. From the provision of emotional and academic support, and bringing food, to merely the physical presence of another student, our data illustrates that friends contribute significantly to other students' well-being in more ways than one. Considering the novelty of the university environment and the significant changes that accompany the transition to university, it is no surprise that students rely heavily on one another for support. Illustrated through the responses to our third open-ended question, and further backed by corresponding literature, real-life connections are crucial.

The themes from this open-ended question correspond with other research. Coinciding with our theme of social interaction, Joseph (2021), López Turley & Wodtke (2010), and Wilcox and colleagues (2005) all found that physically living in residence provided significantly more opportunities to make friends and connect with others, leading to better adjustment to university. The importance of social interaction was emphasized further by Friedlander and colleagues (2007), who found that post-secondary students that were highly supported had better social and emotional adjustment. Our qualitative findings echoed this, as students emphasized the importance of the social connection received from physically being with their peers in residence.

Instrumental support was another theme highlighted within our qualitative data, specifically referring to the significance of sharing meals and providing academic support. Corresponding with existing research by Buote and colleagues (2007), students felt that support in these domains alleviated stress and encouraged healthy behaviours. Through these connections, students were encouraged toward health-positive behaviours, aligning with the Main-Effect Model's social influence pathway (Cohen & Wills, 1985; Cohen et al., 2000; Kawachi & Berkman, 2001).

Student responses also indicated that emotional support from their peers was vital to their well-being, specifically noting the importance of listening and empathy within these interactions. Depicted through our results, perceivable support was noted to be a highly valued form of social support by students. Our findings correspond with other research, exemplified most clearly through the work of Sun and colleagues (2020), whose study highlighted the benefits of perceived available peer support in addressing issues such as depressive symptoms, in the context of the COVID-19 pandemic.

Ultimately, students' responses to our third open-ended question gave us a deeper understanding of the support which students receive from their peers. This allowed us to grasp a greater and more raw expression of what students value in their relationships and the contributing factors to students' well-being and perceived social support.

Relation to Theories

Our study was guided by two theories: the Need to Belong Theory (NBT; Baumeister & Leary, 1995) and the Main-Effect Model (Cohen & Wills, 1985). We used these theories to create our social integration scale, formulating items to correspond with specific ideas put forth by the theories. For example, we created the item "I am satisfied with the number of really close friends that I have" based on the assumption of the NBT that people prefer a few high quality close relationships to a larger number of weak relationships (Baumeister & Leary, 1995), and the item "I am satisfied with the number of people that I feel I can turn to for help" based on the proposition of the Main-Effect Model that the perceived availability of support is more predictive of well-being than actual support (Cohen & Wills, 1985; Cohen et al., 2000). Taken together, these theories led us to expect that individuals with a strong sense of belonging and high level of perceived social support would experience greater well-being.

We intended to use these theories alongside our review of the literature to interpret our quantitative and qualitative results, however our quantitative findings lacked significance, which made applying the theories to these results more difficult. According to the NBT and the Main-Effect Model, students who reported higher levels of social integration should have also reported better adjustment to university, however we did not find that to be the case, as the association between the two variables was not significant. Students who lived in residence—an environment with more opportunity for social interaction (Dumford et al., 2019; Joseph, 2021; Wilcox et al., 2005)—should have reported higher levels of social integration and adjustment, but did not. Overall, the lack of significance in the majority of our quantitative findings meant that the NBT and the Main-Effect Model did not clearly align with these results.

In contrast, the results of our qualitative analysis were much more aligned with the expectations of the NBT and the Main-Effect Model. In responses to our first open-ended question, common themes of social integration and social isolation referenced the

importance of having social connections and support proposed by the NBT and the Main-Effect Model. Likewise, in the responses to our second open-ended question, social connection emerged as a prominent factor in students' perception of their ability to adjust to university. As previously discussed, responses to our third open-ended question were not best coded into categories based on the three pathways of social support to well-being, however they were still somewhat connected.

The Main-Effect Model has three major pathways in which social support can indirectly benefit well-being: social influence, positive psychological states, and neuroendocrine responses (see Figure 1 in Kawachi & Berkman, 2001). First, the social influence pathway suggests that members of a social group guide one another towards healthy behaviours through encouragement of health-positive behaviours or provision of information about relevant health resources (Cohen et al., 2000; Kawachi & Berkman, 2001). Some responses describing emotional and instrumental support may be linked to this pathway. For example, it can be inferred that students who receive support in the form of encouragement to talk about their feelings and information about support resources were being guided towards healthy coping behaviours. Similarly, students who receive instrumental support in the form of food may also be being guided towards healthy behaviour if their friends are attempting to improve their eating habits. Second, the positive psychological states pathway refers to the idea that social support and integration elicit positive psychological states—such as a sense of purpose and of belonging—which motivate people to engage in higher levels of self-care and help sustain an overall better sense of well-being (Cohen & Wills, 1985; Cohen et al., 2000; Kawachi & Berkman, 2001). Responses that expressed that their friends made them feel positively may be related to this pathway, however none explicitly mentioned a positive psychological state motivating them to improve their well-being. Third, the neuroendocrine response to stress typically increases when people are socially isolated, however a feeling of being socially supported helps regulate and minimize this response (Cohen & Wills, 1985; Cohen et al., 2000; Kawachi & Berkman, 2001). While responses did not mention neuroendocrine responses to stress being alleviated by social interaction, they did cite social interaction as a form of support that made them feel better. Through these indirect connections, the pathways of the Main-Effect Model were helpful in interpreting qualitative results.

Impact of the COVID-19 Pandemic

Given that we were conducting our research in the context of a global pandemic, we expected that students' experiences would differ slightly from the existing literature; however, data analysis revealed the COVID-19 pandemic impacted our results much more than we had initially anticipated. As a consequence of the pandemic, everyone has had to modify the ways in which they interact with their family and friends in order to avoid feeling lonely and isolated. This change was likely even more difficult for students transitioning into their first year of university, as they faced the additional challenges of forming new social relationships and simultaneously trying to adjust to a new stage of life, all while following COVID-19 health restrictions that reduced social interaction.

As was previously discussed, our quantitative data revealed a significant positive correlation between adjustment and our two-item PSS subscale, but not between adjustment and belongingness or adjustment and social integration. In times of such constant change and uncertainty, it is logical that students seem to value feeling socially

supported more than feeling like they belong with their peers; living in a context of ongoing crisis makes having someone to turn to a *need* rather than a *want* in the event that something negative does occur. This significant relationship confirms existing literature that considers PSS in the context of the COVID-19 pandemic. Labrague and colleagues (2021) found that adequate social support is protective against loneliness and stress in post-secondary students, and boosts their psychological well-being, which other research in our literature review indicated is critical in successful adjustment to university (Morton et al., 2020; Tao et al., 2000; Thurber & Walton, 2012).

Limitations

There were several significant limitations of our study, including a small, non-representative sample, the confounding influence of the COVID-19 pandemic, the cross-sectional survey design, the questions used in the survey, and our own biases as researchers.

The Sample

Despite repeated efforts to contact as many McMaster student-run groups and recruit as many first-year students as possible, we were only able to produce a final sample of 45 students. If any significant relationships did exist between our variables of interest, this sample size was not large or diverse enough to detect it. Moreover, students were recruited through non-random sampling methods. As a result, this sample was not representative of the first-year population at McMaster, as evidenced by the demographic results section. In particular, women were overrepresented. Because of this, our findings cannot be generalized.

The Context of the Pandemic

Another significant limitation to our research was that it was conducted over a three-month period wherein COVID-19-related health policies, regulations, and guidelines were continually changing. Table 10 provides a brief summary of the course of COVID-19 trends and regulations throughout our data collection period.

Table 10

Timeline of COVID-19 restrictions and policies relevant to first-year McMaster students

Month	Events
November 2021	• Omicron variant first detected in Ontario (Public Health Ontario, 2022a) • Plans for a fully in-person Winter 2022 semester in place (McMaster University, n.d.) • McMaster libraries and various lecture halls open for students to study (McMaster University, n.d.)
December 2021	• New COVID-19 cases in Ontario surpass 19 000 (Public Health Ontario, 2022b)

	• Social gathering and capacity limits are reduced (Office of the Premier, 2021); all meetings are to be done virtually (McMaster University, n.d.) • McMaster announces a one week delay to in-person instruction for the Winter 2022 term (McMaster University, n.d.)
January 2022	• COVID-19 cases steadily decrease, but remain at over 2500 new daily cases (Public Health Ontario, 2022b) • McMaster further delays in-person instruction for Winter 2022 term (McMaster University, n.d.) • January 31, 2022: in-person classes begin for first-year students (McMaster University, n.d.)
February 2022	• Capacity limits are removed from indoor public settings where proof of vaccination is required (McMaster University, n.d.; Office of the Premier, 2022)

The many changes outlined above all influenced the university experience in some capacity. Most significantly for first-year students, the surge in COVID-19 cases as a result of the Omicron variant forced McMaster to delay the beginning of in-person instruction twice—some first-years had to wait five months into their university careers to step foot on McMaster soil for the first time. The uncertainty of the situation and the additional change of transitioning from virtual to in-person learning mid-semester likely impacted students' adjustment to university. Moreover, the general experience of continually changing guidelines and restrictions also likely acted as a stressor for students, impacting their overall well-being.

Another point of consideration is that these changing circumstances likely affected where students were living. As a Community Advisor in residence, Kate Cooper had anecdotal evidence that students who officially lived in residence were actually spending significant amounts of time at home. Anticipating that this may affect our results, we included a question about how far from campus students lived a majority of the time to help address it. An independent chi-square test comparing living distance to housing type frequencies confirmed Cooper's observation: six of the 24 students who reported living in residence also reported living farther than eight kilometers from campus a majority of the time. This complexity may explain why our quantitative results failed to show any significant associations between housing accommodation, social integration, and adjustment. However, it is also possible that these results reflect human error rather than the effects of complicated housing situations: participants may have misunderstood the question as asking where they domiciled, rather than where they spent the majority of their time. Unfortunately, the anonymous nature of our study made it impossible to verify with our participants.

Although we anticipated that the COVID-19 pandemic would have some impact on students' first year experience, we designed this survey in October 2021 before the Omicron variant was first detected, and therefore elected not to include questions specifically asking students about the impact of COVID-19 on their housing accommodations, social integration, and adjustment. Unfortunately, COVID-19 did end

up being a significant factor throughout our data collection period—particularly in the Winter 2022 semester—and our survey was limited by not including questions specifically about this impact. As such, we can only speculate on its effects.

The Survey Design

Our research consisted of a cross-sectional survey, meaning that any conclusions drawn from quantitative data were only correlational and could not be interpreted as evidence of causation. To reduce the impact of this limitation on our findings, we included open-ended questions about our main variables of interest. The inclusion of students' subjective experiences, particularly their beliefs about the *impacts* of housing and social integration on their adjustment to university, allowed us to make conclusions about causation in the context of students' perceptions. However, this open-ended survey question design was a limitation in itself. Compared to the data that could have been obtained by conducting one-on-one interviews, open-ended survey questions produced shorter, more disorganized, and less relevant responses.

The Materials

For this study, we were required to create our own survey questions rather than use validated scales. While this was an excellent learning experience, and we value the lessons learned from it, it was a significant limitation to our findings. We did not test the validity of our scales, so it cannot be known whether our survey questions were truly good measures of our variables of interest, particularly social integration and adjustment. Of our four items measuring adjustment, only two were relevant to all participants. This may have reduced the validity of the measure by not adequately capturing all underlying facets of the concept. The scope of our study also restricted us from including other measures related to social integration and adjustment, such as academic performance, involvement in extracurriculars, and overall mental well-being.

Our Positionality

As former first-year students ourselves, our lived experiences likely influenced our research. As discussed in the introduction, our first-year experiences led us to investigate the topic of housing, social integration, and adjustment among first-year students. Our experiences also likely impacted our interpretations of our data, as well as the quantitative results we decided to present. It is possible that we interpreted students' responses to our open-ended questions in ways consistent with our own experiences, and that our speculations about the possible explanations for certain quantitative findings derive from our preconceived notions about first year. As such, our analyses should not be taken as objective.

Significant Insights

Despite the limitations of our research and the lack of significance in our primary quantitative findings, our research still presents many important insights and implications for the future. Our research unexpectedly provided insight into the effects that the COVID-19 pandemic has had on first-year university students. Contrary to previous findings (e.g., Fosnacht et al., 2019; Lamont Strayhorn, 2008; Dumford et al., 2019), our sample of McMaster first-year students reported low adjustment to university despite high ratings of social integration. During the ongoing COVID-19 pandemic, our findings can help inform

post-secondary institutions' decisions regarding how to offer courses in the future (fully in-person, fully online, or hybrid). Multiple students cited online courses and COVID-19 restrictions as factors that contributed to their inability to adjust to university, which indicates that in-person courses might be particularly important for first-year students. Further research is recommended to assess this.

Additionally, the information yielded by our study can contribute to the implementation of better social programs for first-year students. The need for effective social programs is particularly relevant in these times, as the ongoing COVID-19 pandemic and its ever-changing guidelines and restrictions on social interaction have evidently affected university students. With greater knowledge of the ways in which students feel supported by their peers, as provided by responses to our third open-ended question, institutions can implement new and modify existing programs and strategies to offer support in ways that students value. In order to feel supported by their university friends, first-year students must first meet and develop friendships with their peers. While many programs, including McMaster's Welcome Week, do aim to facilitate social interaction and the development of social relationships, our findings indicate that more must be done to ensure that students feel socially integrated within the school community.

Emotional support was mentioned by over half of our participants in their open-ended responses, suggesting that post-secondary institutions should consider expanding counselling services to include a peer support option in addition to professional counselling. In 2012, a team of recent graduates from McMaster University assembled a proposal for peer support resources to be integrated into McMaster's efforts to support their students' well-being (Brar et al., 2012). Their review discussed countless benefits of peer support including creating an empathetic environment that can increase students' level of comfort when seeking support (Hoffman et al., 2004, as cited in Brar et al., 2012; Mead & MacNeil, 2006, as cited in Brar et al., 2012). McMaster does offer peer support through various clubs including the Student Health Education Centre (SHEC) and Togetherall, but does not promote these services to the same degree as the professional support services in the McMaster Student Wellness Centre (SWC). Given the evidence from our research suggesting students' value of peer support, and from previous research indicating its benefits, along with the limited availability of support services through the SWC, peer support services should be better advertised to McMaster students. We also call for peer support services to be made available to students in all post-secondary institutions.

First-year students in our study also indicated that they value instrumental support and being supported through social interaction. Previous research has also found that students tend to perform better on academic assessments after studying with other students than when they study alone (Nofsinger & Petry, 1999). At an institutional level, universities can implement frequent program-run study nights, particularly when required courses have upcoming tests or assignments due. Providing students with opportunities to study with their peers can help them feel supported, and can contribute to improving their grades—another factor commonly associated with better adjustment to university (Anderman, 2002; Anderman, 2003; Goodenow, 1993b; Goodenow & Grady, 1993; Roeser et al., 1996). Hosting these events with food available might also increase students' perceptions of being supported, as food was frequently cited in our study as a way that students are supported by their friends. Program study nights would 'kill two

birds with one stone' as they would provide students with a productive opportunity for social interaction at a time of presumably increased levels of stress. The prominent themes of instrumental support and social interaction in our third open-ended question also confirm the effectiveness and necessity of peer mentoring programs within post-secondary institutions, and we encourage all institutions to expand and promote programs of this nature.

While our study did not yield the results that we expected, many significant insights and future implications can be drawn from our findings. Our study has revealed, through the consequences of the COVID-19 pandemic, that first-year students thrive when provided with opportunities to meet and interact with their peers in normal settings such as the classroom. We encourage post-secondary institutions to attend to the needs of first-year students and provide them with in-person learning opportunities wherever possible, as well as consider the ways in which their students want to be supported when implementing policies and selecting resources to make available to students.

Conclusion

As the first year of university is known for its tumultuous and chaotic nature, we felt that it was important to explore the factors that influence the transition to university. Merely in our own research team, our experiences as first-year students have differed significantly, inspiring us to explore the relationship between housing arrangements, social integration, and adjustment further. Articles compiled for our research supported the notion that the type of housing is related to levels of social integration, which in turn influences adjustment to university and overall well-being. After collecting our background research, we expected to see themes and trends within our research that were similar to those in previously analyzed literature. While current literature failed to contain a lot of information surrounding our specific areas of focus, it helped us to begin our analytical journey to answer our two research questions, 'What are the relationships between housing accommodation, sense of social integration, and adjustment to university?' and 'In what ways are students supported by their university friends?'

Our research consisted of a cross-sectional survey that utilized both quantitative and qualitative methods. While the majority of our findings lacked significance, our quantitative results highlighted that despite reporting high levels of social integration, first-year students at McMaster were not well adjusted to university. Furthermore, students' responses to our third open-ended question provided us and future researchers with valuable insight regarding the ways in which students are supported, which is extremely beneficial in the process of creating and implementing programs at a university-based level.

While conducting our research, our group encountered multiple limitations. One of our most notable limitations involved our sample size, as we were only able to recruit a final sample of 45 students. Another significant limitation to our research was the impact of COVID-19, specifically referring to the ever-changing health policies, regulations, and guidelines. Our survey design was influenced by COVID-19 as well, as we were limited to open-ended survey questions which produced lower quality results than one-on-one interviews. Our research was further impacted by its cross-sectional design and lack of validated scales.

Despite limitations and lack of significant quantitative findings, our research has helped to highlight valuable insights that can be used towards creating a supportive, safe, and caring environment for first-year university students. Our findings underscore the importance of physical, in-person learning and emphasize the necessity of effective social programs, peer support opportunities, and relevant clubs and societies which emphasize student integration and well-being.

Future Directions

Transitioning to university is an extremely difficult time as students are met with multiple changes in a variety of separate life domains. Our research team wanted to highlight this, while also working to inform the McMaster student body and relevant institutions of possible solutions for their students to make this transition easier. By providing insight regarding how students are developing social connections and adjusting to university, we hope that institutions are better able to understand the student experience and use this information towards effective solutions for their students. Further research should investigate the impact of COVID-19 on social integration and adjustment to university, with special consideration for incoming classes of first-year students lacking in social skills as a result of experiencing COVID-19 during high school. We hope that this work may inform additional research in this topic area, conducted with larger sample sizes and within academic institutions across the globe.

References

Anderman, E. M. (2002). School effects on psychological outcomes during adolescence. *Journal of Educational Psychology*, *94*(4), 795-809. https://doi.org/10.1037/0022-0663.94.4.795

Anderman, L. H. (2003). Academic and social perceptions as predictors of change in middle school students' sense of school belonging. *The Journal of Experimental Education*, *72*(1), 5-22. https://doi.org/10.1080/00220970309600877

Anderman, L. H. (1999). Classroom goal orientation, school belonging and social goals as predictors of students' positive and negative affect following the transition to middle school. *Journal of Research & Development in Education, 32*, 89-103.

Anderman, L. H., & Anderman, E. M. (1999). Social predictors of changes in students' achievement goal orientations. *Contemporary Educational Psychology*, *24*(1), 21-37. https://doi.org/10.1006/ceps.1998.0978

Aneshensel, C. S., & Frerichs, R. R. (1982). Stress, support, and depression: A longitudinal causal model. *Journal of Community Psychology, 10*(4), 363-376. https://doi.org/10.1002/1520-6629(198210)10:4%3C363::AID-JCOP2290100407%3E3.0.CO;2-8

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of college student personnel*, *25*(4), 297-308. http://chawkinson.pbworks.com/w/file/fetch/122997693/Student_Involvement_A_Development_Theory_for_Highe.pdf

Awang, M. M., Kutty, F. M., & Ahmad, A. R. (2014). Perceived social support and well being: First-year student experience in university. *International Education Studies, 7*(13), 261-270. http://dx.doi.org/10.5539/ies.v7n13p261

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497-529. https://doi.org/10.1037/0033-2909.117.3.497

Baumeister, R. F., & Tice, D. M. (1990). Anxiety and social exclusion. *Journal of Social and Clinical Psychology, 9*, 165-195. https://doi.org/10.1521/jscp.1990.9.2.165

Berkman, L. F., & Syme, S. L. (1979). Social networks, host resistance, and mortality: A nine-year follow-up study of Alameda County residents. *American Journal of Epidemiology, 109*(2), 186-204. https://doi.org/10.1093/oxfordjournals.aje.a112674

Blazer, D. G. (1982). Social support and mortality in an elderly community population. *American Journal of Epidemiology, 115*(5), 684-694. https://doi.org/10.1093/oxfordjournals.aje.a113351

Bowlby, J. (1969). *Attachment and loss: Vol. I. Attachment.* New York: Basic Books

Brar, I. K., Ryu, J. E., Shaikh, K., Altman, A., & Ng, J. (2012). University campus peer support centres: Benefits for student emotional and mental well-being. *The Meducator, 1*(21), 1-4. https://doi.org/10.15173/m.v1i21.791

Buote, V. M., Pancer, S. M., Pratt, M. W., Adams, G., Birnie-Lefcovitch, S., Polivy, J., & Wintre, M. G. (2007). The importance of friends: Friendship and adjustment among 1st-year university students. *Journal of Adolescent Research, 22*(6), 665-689. https://doi.org/10.1177%2F0743558407306344

Choenarom, C., Williams, R. A., & Hagerty, B. M. (2005). The role of sense of belonging and social support on stress and depression in individuals with depression. *Archives of Psychiatric Nursing, 19*(1), 18-29. https://doi.org/10.1016/j.apnu.2004.11.003

Christie, H., Munro, M. & Rettig, H. (2002). Accommodating students. *Journal of Youth Studies, 5*(2), 209-235. https://doi.org/10.1080/13676260220134458

Cohen, S., Gottlieb, B. H., & Underwood, L. G. (2000). Social relationships and health. In S. Cohen, L. G. Underwood, & B. H. Gottlieb (Eds.), Social support measurement and intervention: A guide for health and social scientists (pp. 3-25). Oxford University Press.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*(2), 310-357. https://doi.org/10.1037/0033-2909.98.2.310.

Demaray, M. K., Malecki, C. K., Davidson, L. M., Hodgson, K. K., & Rebus, P. J. (2005). The relationship between social support and student adjustment: A longitudinal analysis. *Psychology in the Schools, 42*(7), 691-706. http://dx.doi.org/10.1002/pits.20120

Donovan, E., Bluth, K., Scott, H., Mohammed, M., & Cousineau, T. M. (2021). Feasibility and acceptability of implementing the Making Friends with Yourself intervention on a college campus. *Journal of American College Health, 69*(1), 1-8. https://doi.org/10.1080/07448481.2021.1891077

Dumford, A. D., Ribera, A. K., & Miller, A. L. (2019). Where and with whom students live: Impacts on peer belonging and institutional acceptance. *Journal of College & University Student Housing, 46*(1), 10-29.

Federici, R. A., & Skaalvik, E. M. (2014). Students' Perceptions of Emotional and Instrumental Teacher Support: Relations with Motivational and Emotional Responses. *International Education Studies, 7*(1), 21-36.

Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research, 59*(2), 117-142. https://doi.org/10.3102/00346543059002117

Fosnacht, K., Gonyea, R., Fassett, K., & Graham, P. (2019). Assessing the Quality of Undergraduate Living Arrangements: Relationships with Engagement and Persistence [PowerPoint Presentation]. https://scholarworks.iu.edu/dspace/bitstream/handle/2022/24562/AI19_Assessing%20the%20Quality%20of%20Undergraduate%20Living%20Arrangements.pdf?sequence=1&isAllowed=y

Freud, S. (1930). *Civilization and its discontents* (J. Riviere, Trans.). London: Hogarth Press.

Friedlander, L. J., Reid, G. J., Shupak, N., & Cribbie, R. (2007). Social support, self-esteem, and stress as predictors of adjustment among first-year undergraduates. *Journal of College Student Development, 48*(3), 259-274. http://dx.doi.org/10.1353/csd.2007.0024

Goodenow, C. (1993a). Classroom belonging among early adolescent students: Relationships to motivation and achievement. *The Journal of Early Adolescence, 13*(1), 21-43. https://doi.org/10.1177%2F0272431693013001002

Goodenow, C. (1993b). The psychological sense of school membership among adolescents: Scale Development and educational correlates. *Psychology in the Schools, 30*(1), 79-90. https://doi.org/10.1002/1520-6807(199301)30:1<79::aid-pits2310300113>3.0.co;2-x

Goodenow, C., & Grady, K. E. (1993). The relationship of school belonging and friends' values to academic motivation among urban adolescent students. *The Journal of Experimental Education, 62*(1), 60-71. https://doi.org/10.1080/00220973.1993.9943831

Hagerty, B. M., Lynch-Sauer, J., Patusky, K., Bouwsema, M., & Collier, P. (1992). Sense of belonging: A vital mental health concept. *Archives of Psychiatric Nursing, 6*(3), 172-177. https://doi.org/10.1016/0883-9417(92)90028-H

Heisserer, D. L., & Parette, P. (2002). Advising at risk students in college and university settings. *College Student Journal, 36*(1), 69-83. https://advising.sdes.ucf.edu/wp-content/uploads/sites/63/2019/06/Article20-20Advising20At-risk20Students20in20College1.pdf

Henderson, S. (1981). Social relationships, adversity and neurosis: An analysis of prospective observations. *British Journal of Psychiatry, 138*(5), 391-398. https://doi.org/10.1192/bjp.138.5.391

Henderson, S., Byrne, D. G., Duncan-Jones, P., Scott, R., & Adcock, S. (1980). Social relationships, adversity and neurosis: A study of associations in a general population sample. *British Journal of Psychiatry, 136*(6), 574-583. https://doi.org/10.1192/bjp.136.6.574

Hoffman, M., Richmond, J., Morrow, K., & Salomon, K. (2004). Investigating 'sense of belonging' in first-year college students. *Journal of College Students Retention: Research, Theory and Practice, 4*(3), 227-256. https://doi.org/10.2190/DRYC-CXQ9-JQ8V-HT4V

Holdsworth, C. (2006). 'Don't you think you're missing out, living at home?' Student experiences and residential transitions. *The Sociological Review, 54*(3), 495-519. https://doi.org/10.1111/j.1467-954X.2006.00627.x

Housing & Conference Services. (n.d.). *Double room.* Living at McMaster. https://housing.mcmaster.ca/room/double/

Joseph, M. (2021). Feels like home: On campus housing and its effect on sense of belonging. *Masters Theses, 4871*. https://thekeep.eiu.edu/theses/4871

Kantanis, T. (2000). The role of social transition in students' adjustment to the first-year of university. *Journal of Institutional Research, 9*(1), 100-110. http://www.aair.org.au/app/webroot/media/pdf/JIR/Journal%20of%20Institutional%20 Research%20in%20Australasia%20and%20JIR/Volume%209,%20No.%201%20May %202000/Kantanis.pdf

Kawachi, I., & Berkman, L. F. (2001). Social ties and mental health. *Journal of Urban Health: Bulletin of the New York Academy of Medicine, 78*(3), 458-467. https://doi.org/10.1093/jurban/78.3.458

Labrague, L. J., De los Santos, J. A. A., Falguera, C. C. (2021). Social and emotional loneliness among college students during the COVID-19 pandemic: The predictive role of coping behaviors, social support, and personal resilience. *Perspectives in Psychiatric Care, 57*(4) 1578-1584. https://doi.org/10.1111/ppc.12721

Lamont Strayhorn, T. (2008). Sentido de pertenencia: A hierarchical analysis predicting sense of belonging among Latino college students. *Journal of Hispanic Higher Education, 7*(4), 301-320. https://doi.org/10.1177/1538192708320474

Lamothe, D., Currie, F., Alisat, S., Sullivan, T., Pratt, M., Pancer, S. M., & Hunsberger, B. (2009). Impact of a social support intervention on the transition to university. *Canadian Journal of Community Mental Health, 14*(2), 167-180. https://doi.org/10.7870/cjcmh-1995-0023

Li, M., Frieze, I. H., Nokes-Malach, T. J., & Cheong, J. (2013). Do friends always help your studies? Mediating processes between social relations and academic motivation. *Social Psychology of Education, 16*(1), 129-149. https://doi.org/10.1007/s11218-012-9203-5

Li, Y., Shelley, M. C., & Whalen, D. E. (2005). Contributors to residence hall student retention: Why do students choose to leave or stay?. *Journal of College and University Student Housing, 33*(2(B)), 28-36. https://lib.dr.iastate.edu/pols_pubs/69

Li, L. Z., & Wang, S. (2020). Prevalence and predictors of general psychiatric disorders and loneliness during COVID-19 in the United Kingdom. *Psychiatry Research, 291*, 113267. https://doi.org/10.1016/j.psychres.2020.113267

López Turley, R. N., & Wodtke, G. (2010). College residence and academic performance: Who benefits from living on campus?. *Urban Education, 45*(4), 506-532. https://doi.org/10.1177%2F0042085910372351

Mackie, S. (1998). Jumping the hurdles, paper presented at *Higher Education Close Up Conference,* University of Central Lancashire, July 6-8. Available online at: http://www.leeds.ac.uk/educol/documents/000000689.doc.

Maslow, A. H. (1968). *Toward a psychology of being.* New York: Van Nostrand.

Maunder, R. E. (2018). Students' peer relationships and their contribution to university adjustment: The need to belong in the university community. *Journal of Further and Higher Education, 42*(6), 756-768. https://doi.org/10.1080/0305764X.2016.1259389

McMaster University. (n.d.). *News & updates.* COVID-19: Back to Mac. https://covid19.mcmaster.ca/updates/

Mead, S., & MacNeil, C. (2006). Peer support: What makes it unique? *International Journal of Psychosocial Rehabilitation, 10*(2), 29-37.

Moeller, R. W., Seehuus, M., & Peisch, V. (2020). Emotional intelligence, belongingness, and mental health in college students. *Frontiers in Psychology*, *11*, 93. https://doi.org/10.3389/fpsyg.2020.00093

Moore, J. (2020). *Where do I belong: A mixed methods study of belonging for first-year commuter student success.* [Unpublished doctoral dissertation]. Arizona State University.

Nahemow, L., & Lawton, M. P. (1975). Similarity and propinquity in friendship formation. *Journal of Personality and Social Psychology*, *32*(2), 205-213. https://doi.org/10.1037/0022-3514.32.2.205

Nofsinger, J. R., & Petry, G. (1999). Student study behavior and performance in principles of finance. *Journal of Financial Education, 25,* 33-41. https://www.jstor.org/stable/41948298

Office of the Premier. (2021, December 17). *Ontario further strengthening response to Omicron.* Ontario Newsroom. https://news.ontario.ca/en/release/1001366/ontario-further-strengthening-response-to-omicron

Office of the Premier. (2022, February 14). *Ontario moving to next phase of reopening on February 17.* Ontario Newsroom. https://news.ontario.ca/en/release/1001600/ontario-moving-to-next-phase-of-reopening-on-february-17

O'Keeffe, P. (2013). A sense of belonging: Improving student retention. *College Student Journal*, *47*(4), 605-613.

Pascarella, E. T. (1984). Reassessing the effects of living on-campus versus commuting to college: A causal modeling approach. *Review of Higher Education, 7*, 247-260. https://doi.org/10.1353/rhe.1984.0016

Pedrelli, P., Nyer, M., Yeung, A., Zulauf, C., & Wilens, T. (2015). College students: Mental health problems and treatment considerations. *Academic Psychiatry*, *39*(5), 503-511. https://doi.org/10.1007/s40596-014-0205-9

Pittman, L. D., & Richmond, A. (2007). Academic and psychological functioning in late adolescence: The importance of school belonging. *The Journal of Experimental Education, 75*(4), 270-290. https://doi.org/10.3200/JEXE.75.4.270-292

Pittman, L. D., & Richmond, A. (2008). University belonging, friendship quality, and psychological adjustment during the transition to college. *The Journal of Experimental Education*, *76*(4), 343-362. https://doi.org/10.3200/JEXE.76.4.343-362

Public Health Ontario. (2022a, January 1). *Early dynamics of Omicron in Ontario, November 1 to December 23, 2021.* Enhanced Epidemiological Summary. https://www.publichealthontario.ca/-/media/documents/ncov/epi/covid-19-early-dynamics-omicron-ontario-epi-summary.pdf

Public Health Ontario. (2022b, March 30). *Counts and rates of recent COVID-19 cases by age group in Ontario.* Ontario COVID-19 Data Tool. https://www.publichealthontario.ca/en/data-and-analysis/infectious-disease/covid-19-data-surveillance/covid-19-data-tool?tab=ageSex

Resnick, M. D., Bearman, P. S., Blum, R. W., Bauman, K. E., Harris, K. M., & Jones, J. (1997). Protecting adolescents from harm. findings from the National Longitudinal Study on Adolescent Health. *JAMA: The Journal of the American Medical Association*, *278*(10), 823-832. https://doi.org/10.1001/jama.278.10.823

Roeser, R. W., Midgley, C., & Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology, 88*(3), 408-422. https://doi.org/10.1037/0022-0663.88.3.408

Shochet, I. M., Dadds, M. R., Ham, D., & Montague, R. (2006). School connectedness is an underemphasized parameter in adolescent mental health: Results of a community prediction study. *Journal of Clinical Child & Adolescent Psychology, 35*(2), 170-179. https://doi.org/10.1207/s15374424jccp3502_1

Simpson, D. B., & Burnett, D. (2019). Commuters versus residents: The effects of living arrangement and student engagement on academic performance. *Journal of College Student Retention: Research, Theory & Practice*, 21(3), 286-304. https://doi.org/10.1177%2F1521025117707516

Stack-Cutler, H. L., Parrila, R. K., & Torppa, M. (2015). University students with reading difficulties: Do perceived supports and comorbid difficulties predict well-being and GPA? *Learning Disabilities Research & Practice, 31*(1), 45-55. https://doi.org/10.1111/ldrp.12092

Sun, Y., Lin, S-Y., & Chung, K. K. H. (2020). University students' perceived peer support and experienced depressive symptoms during the COVID-19 pandemic: The mediating role of emotional well-being. *International Journal of Environmental Research and Public Health, 17*(24), 9308. https://doi.org/10.3390/ijerph17249308

Tao, S., Dong, Q., Pratt, M. W., Hunsberger, B., & Pancer, S. M. (2000). Social Support: relations to coping and adjustment during the transition to university in the People's Republic of China. *Journal of Adolescent Research, 15*(1), 123-144. https://doi.org/10.1177/0743558400151007

Taylor, R., & Mitra, R. (2021). Commute satisfaction and its relationship to post-secondary students' campus participation and success. *Transportation Research Part D: Transport and Environment, 96*, 102890. https://doi.org/10.1016/j.trd.2021.102890

Thomas, L. (2002). Student retention in higher education: The role of institutional habitus. *Journal of Education Policy, 17*(4), 123-144. https://doi.org/10.1080/02680930210140257

Thurber, C. A., & Walton, E. A. (2012). Homesickness and adjustment in university students. *Journal of American College Health, 60*(5), 415-419. https://doi.org/10.1080/07448481.2012.673520

Tochkov, K., Levine, L.K., & Sanaka, A. (2010). Variation in the Prediction of Cross-Cultural Adjustment by Asian-Indian Students in the United States. *College Student Journal, 44*, 677-689. https://link.gale.com/apps/doc/A238474689/AONE?u=anon~737affff&sid=googleScholar&xid=4d9ed3bf

Wehlage, G., Rutter, R., Smith, G., Lesko, N., & Fernendez, R. (1989). Reducing the risk: Schools as communities of support. *NASSP Bulletin, 73*(513), 50-57. https://doi.org/10.1177/019263658907351311

Wilcox, P., Winn, S., & Fyvie-Gauld, M. (2005). "It was nothing to do with university, it was just the people": The role of social support in the first year experience of higher education. *Studies in Higher Education, 30*(6), 707-722. https://doi.org/10.1080/03075070500340036

Wode, J. (2018). Identifying the factors that motivate students to choose off-campus housing. *Journal of College and University Student Housing, 44*(2), 44-63.

Wyatt, T. J., Oswalt, S. B., & Ochoa, Y. (2017). Mental health and academic performance of first-year college students. *International Journal of Higher Education, 6*(3), 178-187. https://doi.org/10.5430/ijhe.v6n3p178

Xiang, G., Teng, Z., Li, Q., Chen, H., & Guo, C. (2020). The influence of perceived social support on hope: A longitudinal study of older-aged adolescents in China*. Children and Youth Services Review, 119,* 1-9. https://doi.org/10.1016/j.childyouth.2020.105616