

**The difference that friends can make: A study on the transition to university for students  
with and without Attention Deficit/Hyperactivity Disorder (ADHD)**

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**Abstract**

There is limited research on the importance of friendship quality for students with ADHD, and which friendship quality dimensions are most implicated. An online questionnaire was completed by 350 second- and third-year university students with and without ADHD that measured students' adjustment to university, the quality of a close friendship at university, and ADHD symptomatology. Hierarchical regression analyses indicated that overall friendship quality predicted improved adjustment to university for students with and without ADHD. Individual friendship dimensions of stimulating companionship, help, intimacy, self-validation, emotional security, and reliable alliance predicted better adjustment to university for students with and without ADHD. ADHD symptomatology was not a moderator in the link between university adjustment and overall friendship quality. Using correlational analyses, it was found that for students with ADHD, the friendship dimensions of help, self-validation, and emotional security were related to increased university adjustment. For students without ADHD, the friendship dimensions of stimulating companionship, intimacy, reliable alliance, and self-validation were associated with better adjustment to university. Findings can support the advancement of research and inform potential differentiation of student interventions, resources, and services.

*Keywords:* friendship, transition to university, attention-deficit/hyperactivity disorder, university, ADHD, adjustment, friendship quality

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## Introduction

The transition to university is an important time for many emerging adults (Thompson et al., 2021), and a positive transition is associated with greater engagement in their education, with peers, and in university activities (Krause & Coates, 2008). However, the transition to university can be a tumultuous time for individuals (Thompson et al., 2021), and those with Attention Deficit/Hyperactivity Disorder (ADHD) are at greater risk of experiencing difficulties (Abecassis et al., 2017). For emerging adults, social support is important to support their university adjustment (McLean et al., 2022; Ruihua et al., 2025). More specifically, the literature suggests that friendship plays a positive role in the transition to university for both students with and without ADHD (Buote et al., 2007; Khalis et al., 2017). However, individuals with ADHD often experience greater social and interpersonal challenges (Sacchetti & Lefler, 2014), potentially impacting their friendships.

The role of friendship quality in this transition for students with ADHD has been relatively unexplored (McKee, 2014). Moreover, no studies have investigated how distinct dimensions of friendship quality are associated with a positive university adjustment for students with ADHD. Therefore, the current study aims to examine whether greater friendship quality with another peer is associated with better adjustment to university, and which specific dimensions of friendship quality are more strongly related to improved adjustment to university. This study will also investigate whether the severity of ADHD symptomatology plays a moderating role in the link between friendship quality and adjustment to university. Lastly, the proposed study will explore whether there are differences between students with ADHD compared to their counterparts regarding the specific friendship quality dimensions that are associated with a higher level of university adjustment.

## **The Transition to University**

Emerging adulthood is a distinct life stage between adolescence and adulthood in which individuals engage in a time of exploration and identity formation (Arnett, 2000). Many emerging adults will enter a post-secondary institution during this crucial stage of their lives (Arnett, 2015). Indeed, approximately half of Canadians between the ages of 18 and 24 were participating in post-secondary education in 2021 and 2022, with 33% attending university (Zeman, 2023). Therefore, the transition to university is an event that many Canadians will experience during their emerging adulthood.

However, the transition to university can be a challenging time for students (Briggs et al., 2012). The entrance to post-secondary education is marked by greater academic demands, with less structure and more autonomy. Students are expected to take greater responsibility within their education and may find themselves in bigger classrooms with less support from their professors than in previous educational experiences (Credé & Niehorster, 2012; Worsley et al., 2021). Some students may also experience unmet expectations and disappointment regarding their university experience while having challenges with taking on the identity of a university student (Briggs et al., 2012; Worsley et al., 2021). Students have also cited financial concerns during this transition and may be working part-time jobs to support themselves, resulting in increased stress (Worsley et al., 2021). This transition may also include a change in their social circumstances and separation from pre-established social support networks, such as their family or existing friends (Lamothe et al., 1995). Students must adapt to a new social environment, and many also have to adjust to being away from their friends and family back home (Credé & Niehorster, 2012). Students moving away from home will experience increased independence and may also have to adjust to living with new people (Worsley et al., 2021). Many students

experience loneliness during this time (Diehl et al., 2018). As a result, the transition to university can be a stressful and overwhelming time for emerging adults.

Given the stressors experienced within the transition to university, Gall et al. (2000) found that the period of first entering university was most difficult for students, in which reduced physical and mental health, lower amounts of support, and higher negative experiences were reported. Fisher and Hood (1987) also observed a decrease in psychological health in students after the first six weeks of university. Increases in depression and anxiety have been reported during this transition, which was associated with lower grades, reduced self-compassion, and reduced attachment to their school (Kroshus et al., 2021). Thus, the demands and changes that are part of the process of adjusting to university can prove to be difficult for students and impact their well-being.

### *Adjustment to University*

The adjustment to post-secondary education is understood to be multidimensional, involving adjustment in multiple domains (Baker & Siryk, 1984; Credé & Niehorster, 2012). Baker and Siryk (1984, 1999) outlined four domains of adjustment: (1) academic adjustment, (2) social adjustment, (3) personal-emotional adjustment, and (4) institutional attachment. Academic adjustment refers to the level to which students are able to engage with and meet the demands of their education. Social adjustment refers to a student's ability to meet interpersonal expectations within the social environment of their post-secondary institution. Personal-emotional adjustment reflects the psychological and physical experiences of students and how their mental and physical well-being is within the adjustment to the university environment. Lastly, institutional attachment refers to how much students feel a connection to their academic institution and their attitudes towards being in university. A positive adjustment to university is related to higher

grade attainment and greater educational retention of university students. In particular, academic adjustment is highly predictive of higher grades, while attachment to university is highly predictive of retention (Credé & Niehorster, 2012). A meta-analytic analysis by Credé and Niehorster (2012) found that the level of adjustment to university is associated with multiple factors, one of which is social support, and in particular, peer support.

### **Social Support Theory**

Cohen and Wills (1985) posit that social support can act as a buffer for stress, supporting one's perceived or actual ability to handle a stressor. The perception of having support can reduce the stress response that one experiences because of the expectation that they will receive the support they require. Furthermore, one's social support can provide the help and support that they need to resolve or handle a stressor. The support offered by others can also improve the way that individuals cope with a stressor (Lakey & Cohen, 2000). The researchers argue that the type of support is important in the buffering relationship, in that support can better buffer stress if the type of support offered is aligned with the stressful situation and the needs of the individual experiencing the stressor. Cohen and Wills (1985) discuss four types of support: (1) esteem support, (2) informational support, (3) social companionship, and (4) instrumental support. Esteem support can also be referred to as emotional support, and it is the level to which one feels understood and valued by others, regardless of any personal shortcomings. Informational support can come in the form of advice or guidance and can support individuals in understanding and handling their stressors. Social companionship refers to the support one receives by socializing and being around others, and can provide a distraction or meet needs for connection with others. Instrumental support is the tangible support that one receives from others, which includes receiving help with finances, goods, or services.

Gall et al. (2000) identified the transition to university as an acute stressor. Therefore, the understanding that social support can buffer the impact of stress (Cohen & Wills, 1985) is important for students during their adjustment to university. Indeed, reduced stress during the period of university adjustment is associated with more favourable outcomes for students, including better psychological health, academic functioning, and life satisfaction (Zhao et al., 2023). Additionally, the positive association between social support and improved well-being, coping, and academic engagement during university adjustment is a common finding in the literature on the transition to university (Chen et al., 2023; Holliman et al., 2022; Ruihua et al., 2025; Stokoe et al., 2024; Tao et al., 2000). Having a larger support network and being more satisfied with one's perceived support is associated with a more successful adjustment (Gall et al., 2000; Friedlander et al., 2007). The perception of having readily available social support predicted the well-being of students' mental health after their first year of university (Holliman et al., 2022). Stronger attachment to peers is a predictor of better adjustment to university, while challenges in peer relationships, such as conflict, bullying, and isolation, are associated with lower levels of adjustment (Maunder, 2018). A systematic review by Ruihua et al. (2025) analyzed the literature on how social support affects post-secondary students' well-being. Studies in this systematic review indicated that social support was associated with reduced stress for post-secondary students, which supports Cohen and Wills' (1985) stress buffering model of the social support theory. Ruihua et al. (2025) also found that all types of social support (i.e., emotional, informational, instrumental) were beneficial for students' well-being, which included increased life satisfaction, improved health behaviours, and better psychological health.

### **Friendship and the Transition to University**

Many students will make new friends during this transition, and friendship is a form of social support that plays an important role in the transition to university for emerging adults (Worsley et al., 2021). Research on post-secondary students' adjustment to university has also echoed the importance of friends and building a support system at university (e.g., Griffin et al., 2025; Thompson et al., 2021). Previous literature has demonstrated the positive link between friendship quality and adjustment to university (e.g., Buote et al., 2007; Pittman & Richmond, 2008). Students report that friends are important in supporting them through the novel and challenging experiences in the transition to university (Buote et al., 2007). Stronger social support based on friendship quality is associated with lower levels of loneliness during the first year of university (Calderon Leon et al., 2022). In a study conducted by Lee and Goldstein (2016), social support from friends buffered the relationship between stress and loneliness and was also related to lower levels of loneliness, independent of post-secondary students' stress levels. A longitudinal study also found that stronger friendship quality was associated with lower levels of internalizing challenges such as anxious and depressive symptoms, somatic disturbances, and withdrawal behaviours among college students (Pittman & Richmond, 2008). In a qualitative study, finding compatible friends that provided support was observed to be important for feeling a sense of belonging and integration, and suggested that friendships are significant in supporting academic retention (Wilcox et al., 2006). A positive link has also been made between having more friends during the transition to university and the long-term physical health of students, in which improved health outcomes and diet were observed (Klaiber et al., 2018). Therefore, it can be understood that fostering strong friendship quality between students can be beneficial for their transition to university. However, some students have reported that it can be difficult to make friends during this transition (Stokoe et al., 2024).

### ***Friendship Qualities of Emerging Adults***

The friendship qualities of emerging adults can be measured based on the functions of the friendship dyad and the extent to which these functions are fulfilled by the other person in the friendship (Mendelson & Aboud, 1999). These dimensions of friendship will serve to understand the functions of the social support provided within a friendship (Cohen & Wills, 1985).

Mendelson and Aboud (1999) differentiated the dimensions of friendship quality based on six functions: (1) stimulating companionship, (2) help, (3) intimacy, (4) reliable alliance, (5) self-validation, and (6) emotional security. Stimulating companionship is the level to which one engages in common activities with their friend that are fun, engaging, and exciting. Help reflects the level of assistance, guidance, or tangible support that a friend provides to the other. Intimacy is the level to which one can be honest and open with their friend and feel accepted. Reliable alliance refers to how much one is able to rely and depend on their friend, as well as the level of loyalty between the individual and the friend. Self-validation is the level of support one receives in their friendship, characterized by listening, validation, encouragement, and support for their self-esteem. Lastly, emotional security refers to the level of comfort and security the friend provides to the individual in situations that are new and intimidating.

**Friendship Qualities that Support the Adjustment to University.** A qualitative study by Buote et al. (2007) asked university students how friends contributed to supporting their transition to university. Students indicated that friends provided companionship and helped them to feel a sense of belonging at school. Friends were also reported to provide tangible support (e.g., showing them how to complete certain tasks), as well as encouragement and advice. Friends acted as role models for participants and helped them expand their social network by introducing their other friends to them. Friends were noted to reduce the stress of students by

providing fun engagement, as well as listening and providing emotional and verbal support. Friends were also reported to help students feel less alone by sharing their struggles. In another qualitative study by Worsley et al. (2016), students reported that friends provided emotional and instrumental support, as well as a sense of belonging. Similar findings were observed in a study by Picton et al. (2017) in which students indicated that friends supported them in providing emotional support about the difficulties of school, were someone to share time and socialize with, and were someone with whom they could engage in learning while providing support and feedback.

Stokoe et al. (2024) conducted a qualitative study on Canadian students regarding the type of support they had during the transition to university (i.e., information, instrumental, and emotional). When asked about what type of support they wished they had during their transition, emotional support was listed the most, followed by informational. Relatively fewer students indicated desiring instrumental support from their friends; however, in this study, instrumental support was focused on financial support, support with developing skills (e.g., budgeting, independent living), and academic tutoring. In contrast, in Picton et al.'s (2017) study, students reported that friends provided feedback and support regarding their schoolwork, which in turn increased students' motivation and enthusiasm to complete and engage in their academics. As Cohen and Wills (1985) posited, the function of the social support offered by individuals to provide buffering effects for stressors is important to meet the needs that arise within stressful situations.

### **Attention Deficit Hyperactivity-Impulsivity Disorder (ADHD)**

According to The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR; American Psychiatric Association, 2022), ADHD is a

neurodevelopmental disorder which is characterized by symptoms of inattention and hyperactivity-impulsivity. Inattention is marked by challenges in maintaining attention to tasks, active listening, completing activities from start to finish, and organization. Inattention may also include a demonstration of avoidance behaviours for tasks which require prolonged mental effort, often losing things, being easily distracted, and forgetfulness. Hyperactivity is characterized by fidgeting, challenges with staying still, feeling restless, excessive talking, and an inability to engage in activities quietly. Impulsivity is distinguished by difficulties waiting to speak in conversations, interrupting, and having trouble waiting for one's turn. Individuals with ADHD may display one group of symptoms more predominantly than the other or have a combined presentation. For a diagnosis, individuals must have experienced an onset of symptoms in childhood, before 12 years of age.

Despite much of the focus in the ADHD literature being on the child and youth population (Singh et al., 2015), ADHD is a disorder that often persists beyond childhood and continues to impair the individual throughout adulthood (Turgay et al., 2012). Many studies have attempted to determine the prevalence rate of adult ADHD, with some placing the prevalence rate at 2.5% (Simon et al., 2009), 3.4% (Fayyad et al., 2007), and 4.4% (Kessler et al., 2006). ADHD symptoms of inattention and hyperactivity-impulsivity have also been seen to remain relatively stable across adulthood (Henning et al., 2024). However, ADHD symptoms may present differently in adulthood, with a broader range of deficits (Adler et al., 2017). Adler et al. (2017) found that adult ADHD symptoms were characterized by executive dysfunction/inattention, hyperactivity, impulsivity, and emotional dysregulation. Millstein et al. (1997) observed symptoms of inattention to be most prevalent in adult ADHD compared to hyperactivity-impulsivity. Wender et al. (2006) outlined characteristics of adult ADHD to extend

beyond the symptoms outlined in the DSM, as the DSM often focuses on childhood symptoms. These characteristics include restlessness, difficulty relaxing, attention deficits, distractibility, forgetfulness, frequent mood shifts, irritability, over-reactivity to emotions, disorganization, impatience, and impulsivity.

### ***ADHD in the Transition to University***

It has been reported that over 2-8% of post-secondary student populations present with clinically significant ADHD symptomatology (DuPaul et al., 2009). ADHD is a hidden disability (Sedgwick-Müller et al., 2022), which may result in difficulties in post-secondary education for emerging adults (Abecassis et al., 2017). Canu et al. (2021) found that students with ADHD had lower levels of college readiness compared to their counterparts in areas of self-determination (e.g., goal setting, problem solving, decision making), daily living (e.g., getting adequate sleep, exercise, meal preparation), and academic skills (e.g., time management, note-taking). Additionally, the transition to university often results in a change in healthcare for students with ADHD, especially when they move away from home or age out of pediatric care, leading to inconsistencies or challenges in the level of support they receive (Benham-Clarke et al., 2021). Despite this, some studies have shown that students with ADHD can be, and are, successful in the university context (Wolf, 2001), and they have been observed to experience decent adjustment to university (Blase et al., 2009). For example, Baczewski et al. (2022) investigated the adjustment to university for neurotypical students, students who had autism, and students who had ADHD. They investigated adjustment in multiple areas, including academic, social, and emotional domains, as well as their attachment to their university. The researchers found that there were not many significant differences in various levels of adjustment between these first-year students.

However, many other studies have demonstrated that students with ADHD often experience challenges in multiple domains of university functioning (e.g., Abecassis et al., 2017; Blase et al., 2009). Those with ADHD have been found to experience greater academic challenges than their counterparts, including lower Grade Point Averages (GPAs; Blase et al., 2009; DuPaul et al., 2021), lower demonstration of study skills (DuPaul et al., 2021), greater likelihood of withdrawing from university, and challenges with keeping up with academic demands (Abecassis et al., 2017). Emotional difficulties have also been observed in student populations with ADHD, such as higher levels of depressive symptoms and lower levels of emotional stability (Blase et al., 2009). Studies have also found that students with ADHD are more likely to experience social difficulties in the university context, with higher levels of ADHD-predicted social impairment (Sacchetti & Lefler, 2014). Students with ADHD have also reported feeling more concerned regarding their social life and connections with others (Blase et al., 2009). Alongside personal difficulties, university students may also experience social stigma from their peers as a result of their ADHD, as found in Canu et al.'s (2008) study. Undergraduate students were more likely to appraise their peers with ADHD negatively compared to those without ADHD, particularly in an academic or professional context. Students also demonstrated lower levels of desire to initiate a social relationship with those who had ADHD.

### ***Friendship and ADHD***

Those with ADHD may be more likely to experience difficulties in their friendships (McKee, 2014; Rokeach & Wiener, 2017). However, there is limited research on friendships of emerging adults or university students with ADHD (McKee, 2014). Research conducted on adolescent populations indicates that youth with ADHD experience more difficulties in their peer relationships than their counterparts (Gardner & Gerdes, 2013; Maya Beristain & Wiener, 2020).

The reason for this association may be because those with ADHD can experience social impairments in interacting with peers due to greater displays of inappropriate behaviours (e.g., impulsivity), as well as difficulties with maintaining attention in social interactions, problem-solving, perspective-taking, self-regulation, and emotional regulation (Bodalski et al., 2019; Gardner & Gerdes, 2013; Mikami, 2010). Robertz et al. (2024) conducted a qualitative study on adolescents with ADHD and their experiences with friendship. The researchers found that adolescents reported three themes: (1) the importance of bonding with friends through mutual understanding and interests, (2) the adolescent's role in the relationship while managing their ADHD symptomatology and other friendship challenges, such as conflict, and (3) the importance of friendship for adolescents and their well-being. Therefore, friendship is important for adolescents with ADHD; however, they experience unique or increased challenges due to their ADHD symptoms.

In adolescent studies, Rokeach and Wiener (2017) investigated how the quality of friendships differs between those with ADHD and those without ADHD, while accounting for age and gender. The researchers found that ADHD status moderated the association between the age of adolescents and self-reported social support. Adolescents between the ages of 16-18 had lower perceived social support in friendships than their typically developing peers, whereas no differences were observed for those between the ages of 13-15. These results suggest that as adolescents get older, the developmental expectations of friendships may change and therefore, may be more difficult for adolescents with ADHD to meet. Contrastingly, Maya Beristain and Weiner (2020) conducted a qualitative study interviewing adolescents who were between 16 and 18 years old with ADHD and found that participants reported lower levels of peer difficulties later in adolescence, compared to their early adolescence. The researchers also found three major

themes in the data: (1) adolescents experienced bullying, exclusion, and loneliness within peer relationships, which led to them (2) becoming discouraged from trying to make friends due to their negative experiences; however, (3) these adolescents eventually made friends with those who were similar to them (i.e., hobbies, interests), and with whom they had close proximity, and were able to develop meaningful friendships. Nonetheless, these research results would indicate that those with ADHD do experience difficulties within their friendships.

However, another study by Glass et al. (2010) examined the link between ADHD symptoms and the quality of friendships for adolescents, using data from adolescents with ADHD, a close friend, as well as parents and teachers. The researchers found that greater ADHD symptomatology was not associated with poorer peer quality. In fact, greater severity of ADHD symptoms was associated with more positive close friendships among adolescents, from both the perspective of the adolescent with ADHD and the friend. In this unexpected result, the researchers discussed how adolescents with ADHD may have a positive illusory bias, in which the adolescents perceive their own friendships more positively than they actually are. In line with this thought, parent and teacher reports from the study indicated that those with higher ADHD symptomatology were perceived to have more challenges with their peers, including a greater likelihood to be rejected and dismissed. Adolescents with ADHD were also observed to self-report having more friends than parent reports indicated. However, a positive illusory bias does not explain the result that the close friends of adolescents with high ADHD severity also rated the friendship more positively.

For emerging adults, McKee (2014) found that university students with higher levels of ADHD symptomatology reported greater perceived challenges in providing emotional support and managing conflict between their friends. However, despite these differences, the author

concluded that there are still many friendship characteristics which are similar between those with low or high ADHD severity. For aspects of friendship regarding starting social interactions, sharing personal details, and expressing dissatisfaction with a friend, students with high levels of symptomatology reported feeling equally as capable as students with low levels of symptomatology. Interestingly, when investigating the type of friends that students with ADHD are more likely to have, McKee (2014) found that university students were more likely to perceive individuals with similar levels of ADHD symptomatology to them more positively. Students with high levels of inattention symptoms were also more likely to be friends with others with high levels of inattention symptoms. McKee (2014) speculated that these results may be because those with similar levels of inattention difficulties are able to better understand and relate to one another, while also providing emotional support, while hyperactivity-impulsivity symptoms could have proved to be more of a challenge in friendships. Therefore, the research findings on the friendship quality of emerging adults with ADHD are scant and inconclusive; however, there is reason to believe that those with ADHD may experience challenges within their friendships and with the quality of their friendships.

### ***Friendship on the Transition to University for Students with ADHD***

Despite the potential challenges that emerging adults with ADHD may face in their friendships (McKee, 2014), research indicates that friendship is beneficial for students with ADHD in the transition to university. Using a sociometric methodology, Khalis et al. (2017) examined whether friendship could mitigate the difficulties of the transition to university for students in Canada who were living away from home. They investigated whether levels of social acceptance and the number of reciprocated friendships of university students could predict lower levels of internalizing difficulties, greater attachment to university, and a higher GPA, while

examining the moderating role of ADHD. It was determined that greater peer acceptance was associated with higher levels of university attachment and a higher GPA, while a greater number of reciprocated friendships was associated with higher levels of university attachment. ADHD symptomatology was seen to moderate the link, in that higher symptomatology resulted in a significant association between a greater number of reciprocated friendships with lower levels of internalizing difficulties and a greater attachment to university, while lower ADHD symptomatology did not.

Mikami (2010) has also posited that those with ADHD may benefit more from positive friendships than their counterparts. Additionally, post-secondary students with ADHD have reported that friends provide important support for them, such as helping with studying, remembering deadlines, and maintaining time commitments to class (Meaux et al., 2009). Students with higher levels of ADHD symptomatology have also reported receiving more support from their friends compared to the level of support they provided to their friends (McKee, 2014). Therefore, the current literature suggests that friendship can support the transition to university for students with ADHD, and that this link may be more significant for students with ADHD compared to students without ADHD.

### **Gaps in the Literature**

Currently, there is a lack of research within the ADHD literature on the emerging adulthood population. Much of the research has been focused on childhood and adolescence (Singh et al., 2015), and there is limited research on how students with ADHD fare in the post-secondary context (Blase et al., 2009). Additionally, there is a lack of research on ADHD and friendship in the literature, particularly as it pertains to friendship quality (Mikami, 2010). The study by Khalis et al. (2017) investigated the link between friendship quantity and adjustment to

university for students with ADHD symptoms, but did not investigate friendship quality.

However, research by Buote et al. (2007) found that the quality of friendship was more impactful in predicting positive adjustment to university compared to the quantity of friendships. This finding suggests that the quality of friendships could play an important role in the transition to university and is an area that should be examined more in depth.

Contrastingly, another study by Reeble et al. (2024) examined how the quantity of social support and quality of social support moderate the association between ADHD symptoms and impairment for college students. The results of the study indicated that social support quantity moderated the link, while social support quality did not. In other words, those with higher ADHD symptomatology demonstrated reduced levels of impairment with a higher quantity of social support, rather than a higher perceived quality of social support. However, it is important to note that social support is not the same as a friendship with one close peer, and although impairment across multiple domains was measured (e.g., school, family, work, self-concept, internalizing difficulties), adjustment to university was not. Regardless, the research in this area is not definitive, and the current research could bring value to an area of study which has not yet been explored by many. Additionally, there have been no studies that have examined the differences in the association between specific dimensions of friendship quality and university adjustment for students with ADHD compared to students without ADHD.

Further understanding the link between friendship and the transition to university and exploring the differences between students with ADHD and students without ADHD regarding this link can be helpful in further understanding the different needs of these students and also contribute to the literature in a novel way. Building a better understanding of the differing needs of students and the various elements that support students during the transition to university can

inform the development and application of resources, services, and tools. These insights can be used to build university services, programs, and practices that effectively support students in navigating the transition to university. Findings can also support by informing practitioners and individuals who work closely with university students in delivering targeted interventions to improve the transition into university.

### **The Present Study**

To contribute to and fill gaps in the current literature on the transition to university, friendship, and ADHD, the present study was conducted. The study investigated the link between friendship quality and the adjustment to university for both students with and without ADHD, while examining which dimensions of friendship quality are most important in this association. This research also determined whether greater ADHD severity results in a greater association between friendship quality and the adjustment to university. Lastly, as an exploratory area, this research examined whether any specific friendship quality dimensions are more strongly associated with a higher level of university adjustment for students with ADHD, compared to students without ADHD. The findings of this research provide valuable insights into supporting students in their transition to university, particularly for students with ADHD, who may be more at risk during this time (Abecassis et al., 2017).

It was hypothesized that: (1) overall friendship quality would be positively associated with better university adjustment for both students with and without ADHD, (2) the following dimensions of friendship quality (stimulating companionship, help, intimacy, self-validation, and emotional security) would be positively associated with adjustment for both students with and without ADHD, (3) ADHD would have a moderating effect on the association between friendship quality and adjustment to university, in that greater levels of ADHD symptomatology

would result in a stronger positive association between overall friendship quality and adjustment to university, and (4) although exploratory, it was expected that different dimensions of friendship quality would be associated with a higher level of adjustment between students with ADHD compared to students without ADHD.

## Methods

### Procedure

Ethics approval was obtained from the Saint Paul University and the University of Ottawa Research Ethics Boards (REBs). A one-time self-report survey was administered to second- and third-year university students in the Fall of 2025 via the online survey platform Qualtrics (2026). Participants were recruited using the University of Ottawa's Integrated System of Participation in Research (ISPR) student pool. The ISPR student pool program enables researchers to recruit current undergraduate students at the University of Ottawa for research studies. In exchange, students were compensated with 0.5 course credit for their participation. Students who were part of the ISPR student pool program were provided with study information and accessed the research survey using the ISPR platform. Participants were also recruited using virtual and physical recruitment methods. Details regarding the study and how to participate were shared through a poster, which was disseminated around the Saint Paul University campus and other community locations, such as coffee shops. Interested individuals were directed on the poster to email the researcher, and participants were provided a link to complete the survey on Qualtrics in an email response.

Upon beginning the Qualtrics survey, participants were provided relevant information about the study and prompted to provide informed consent. Those who did not provide informed consent were directed to an ineligibility page thanking them for their time. Those who consented to participate were asked screening questions to confirm that they were 18 years of age or older, currently completing an undergraduate degree, and in their second or third year of studies. Any individuals who did not meet this criterion were also directed to the ineligibility page. In total, 592 individuals signed up and consented to participating in the survey, and from these

individuals, 362 individuals met the eligibility criteria. Those who were eligible to participate in the study were asked demographic questions and study questions regarding their adjustment to university, friendship quality with one of their closest friends at university, and ADHD symptomatology and severity. This survey was intended to be completed within 15–30 minutes ( $N = 350$ ,  $Mdn = 15.7$  minutes). After completing the survey, participants were directed to a debriefing page.

### **Sample Characteristics**

There were a total of 350 participants in the study sample, with a mean age of 19.9 years ( $n = 336$ , range = 18–45 years). All participants who indicated their current location of residence were from Canada ( $n = 346$ ). More participants identified as women ( $n = 222$ , 63.4%) than men ( $n = 120$ , 34.4%), with a few participants reporting that they were gender non-binary ( $n = 3$ , 0.9%), that there was not an option that applied to them ( $n = 2$ , 0.6%), or that they preferred not to specify ( $n = 2$ , 0.6%). Many from the sample indicated being White ( $n = 162$ , 46.3%), followed by those who were Black ( $n = 46$ , 13.1%), Arab ( $n = 29$ , 8.3%), East Asian, ( $n = 28$ , 8.0%), biracial or multiracial ( $n = 20$ , 5.7%), South Asian ( $n = 19$ , 5.4%), Southeast Asian ( $n = 11$ , 3.2%), Latin American/Hispanic ( $n = 9$ , 2.6%), West Asian ( $n = 6$ , 1.7%), and Indigenous ( $n = 5$ , 1.4%). A few participants indicated that there was not an option that applied to them ( $n = 8$ , 2.3%), or that they preferred not to specify ( $n = 7$ , 2.0%). Most participants indicated being single ( $n = 245$ , 70.0%), followed by those who indicated having a partner but not living together ( $n = 80$ , 22.9%), living with a partner ( $n = 14$ , 4.0%), and married ( $n = 6$ , 1.7%). Some participants indicated that they preferred not to specify ( $n = 3$ , 0.9%) or that there was not an option that applied to them ( $n = 2$ , 0.6%).

Participants were either in their second year ( $n = 280, 80.0\%$ ) or third year ( $n = 70, 20.0\%$ ) of university. Most of the participants were completing their degree in business and management ( $n = 180, 51.4\%$ ), followed by those in health and medical sciences ( $n = 63, 18.0\%$ ), social sciences ( $n = 61, 17.4\%$ ), natural sciences ( $n = 13, 3.7\%$ ), arts and design ( $n = 5, 1.4\%$ ), education ( $n = 4, 1.1\%$ ), humanities ( $n = 3, 0.9\%$ ), computer and information sciences ( $n = 2, 0.6\%$ ), and engineering and technology ( $n = 2, 0.6\%$ ). Multiple participants indicated that there was not an option that applied to them ( $n = 16, 4.6\%$ ), and one participant answered that they preferred not to specify ( $0.3\%$ ). More participants indicated that they relocated for university ( $n = 182, 52.0\%$ ) than those who indicated commuting from their family home ( $n = 165, 47.1\%$ ). A few participants answered that there was no option that applied ( $n = 3, 0.9\%$ ). From the sample, 88 participants self-identified as having ADHD ( $25.1\%$ ) and 51 participants self-identified as having a diagnosis of ADHD from a licensed healthcare professional ( $14.6\%$ ).

### ***ADHD Subgroup***

There were 80 participants included in the ADHD subgroup among the total 350 participants. This group had a mean age of 19.6 years ( $n = 72, \text{range} = 18\text{--}28$  years). Most individuals self-identified as women ( $n = 51, 63.7\%$ ), followed by men ( $n = 25, 31.3\%$ ), gender non-binary ( $n = 2, 2.5\%$ ), those who indicated there was not an option that applied to them ( $n = 1, 1.3\%$ ), and those who preferred not to specify ( $n = 1, 1.3\%$ ). A large number of participants indicated themselves as being ethnically White ( $n = 47, 58.8\%$ ), followed by those who were Black ( $n = 7, 8.8\%$ ), biracial or multiracial ( $n = 7, 8.8\%$ ), Arab ( $n = 5, 6.3\%$ ), South Asian ( $n = 3, 3.8\%$ ), East Asian ( $n = 2, 2.5\%$ ), Indigenous ( $n = 2, 2.5\%$ ), Latin American/Hispanic ( $n = 2, 2.5\%$ ), and Southeast Asian ( $n = 1, 1.3\%$ ). A few individuals indicated that they preferred not to specify ( $n = 3, 3.8\%$ ) or that there was not an option that applied to them ( $n = 1, 1.3\%$ ). Within

the subgroup of participants who were identified as meeting ADHD criteria from the study, most of the participants indicated being single ( $n = 51, 63.7\%$ ), with fewer individuals indicating that they have a partner but are not living with them ( $n = 23, 28.7\%$ ), that they were living with their partner ( $n = 3, 3.8\%$ ), that they preferred not to specify ( $n = 2, 2.5\%$ ), or that there was not an option that applied to them ( $n = 1, 1.3\%$ ).

There were more participants in their second year of university ( $n = 63, 78.8\%$ ) than in their third year ( $n = 17, 21.3\%$ ) within the ADHD subgroup. Many individuals in the subgroup were completing a degree in business and management ( $n = 35, 43.8\%$ ), followed by those in social sciences ( $n = 20, 25.0\%$ ), health and medical sciences ( $n = 12, 15.0\%$ ), natural sciences ( $n = 4, 5.0\%$ ), humanities ( $n = 2, 2.5\%$ ), and education ( $n = 2, 2.5\%$ ). A few participants indicated that no option applied to them ( $n = 5, 6.3\%$ ). Within this group, more participants indicated that they relocated for university ( $n = 42, 52.5\%$ ) than those who indicated that they commute from their family home ( $n = 36, 45.0\%$ ). Two participants indicated that there was no option that applied to them (2.5%).

### ***Non-ADHD Subgroup***

The non-ADHD group included 96 participants from the total 350 participant sample. This subgroup had a mean age of 20.5 years ( $n = 93, \text{range} = 18\text{--}45$  years). More individuals were women ( $n = 58, 60.4\%$ ) than men ( $n = 35, 36.5\%$ ), with few indicating that they preferred not to specify ( $n = 1, 1.0\%$ ) or that there was not an option that applied to them ( $n = 1, 1.0\%$ ). Ethnically, a large number of this subgroup indicated being White ( $n = 42, 43.8\%$ ), followed by those who were Black ( $n = 16, 16.7\%$ ), East Asian ( $n = 12, 12.5\%$ ), South Asian, ( $n = 6, 6.3\%$ ), Arab ( $n = 3, 3.1\%$ ), biracial/multiracial ( $n = 3, 3.1\%$ ), Indigenous ( $n = 3, 3.1\%$ ), West Asian ( $n = 3, 3.1\%$ ), Latin American/Hispanic ( $n = 2, 2.1\%$ ), and Southeast Asian ( $n = 1, 1.0\%$ ). A few

individuals responded that they preferred not to specify ( $n = 3$ , 3.1%) or that there was not an option that applied to them ( $n = 2$ , 2.1%). Within the non-ADHD subgroup, most participants were single ( $n = 71$ , 74.0%), followed by those who had a partner they were not living with ( $n = 18$ , 18.8%), those who were living with a partner ( $n = 4$ , 4.2%), those who were married ( $n = 2$ , 2.1%), and those who preferred not to specify ( $n = 1$ , 1.0%).

There were more participants in the non-ADHD subgroup in their second year of university ( $n = 64$ , 66.7%) compared to those in their third year of university ( $n = 32$ , 33.3%). Most participants in this group were completing their degree in business and management ( $n = 49$ , 51.0%), followed by those in health and medical sciences ( $n = 22$ , 22.9%), social sciences ( $n = 12$ , 12.5%), arts and design ( $n = 4$ , 4.2%), natural sciences ( $n = 3$ , 3.1%), computer and information sciences ( $n = 1$ , 1.0%), education ( $n = 1$ , 1.0%), and engineering and technology ( $n = 1$ , 1.0%). A few participants indicated that there was not an option that applied to them ( $n = 3$ , 3.1%). Within the ADHD subgroup, more participants indicated having relocated for university ( $n = 61$ , 63.5%) than those who indicated commuting from their family home ( $n = 35$ , 36.5%).

## **Measures**

### ***Adjustment to University***

Adjustment to university was assessed using the Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1984, 1999), a 67-item self-report measure. This measure examined adjustment to university in the four domains discussed above: academic adjustment, social adjustment, emotional adjustment, and attachment to college. Some items assessed multiple domains of adjustment and were included in more than one subscale. There were 24 items assessing academic adjustment (e.g., "I have been keeping up to date on my academic work"), 20 items assessing social adjustment (e.g., "I feel that I fit in well as part of the college

environment”), 15 items assessing emotional adjustment (e.g., “I have been feeling tense or nervous lately”), and 15 items assessing attachment to university (e.g., “I am pleased now about my decision to go to college”). There were two items in the measure which are not part of any of the subscales, but were included in the full scale score to determine overall adjustment: “I feel I have good control over my life situation at college,” and “I feel confident that I will be able to deal in a satisfactory manner with future challenges here at college.” Participants were asked to indicate the level to which they think the statement applies to them on 9-point Likert scales ranging from 1 (*applies very closely to me*) to 9 (*doesn't apply to me at all*). Higher scores indicated a greater level of adjustment to university. The internal consistency and criterion validity of this scale have been established by the original authors (Baker & Siryk, 1999). Furthermore, this scale has been widely used in the literature and has been validated and used in various university populations across the world (e.g., Beyers & Goossens, 2002; Manee et al., 2024). The current study only used the full scale for analyses. The internal consistency for this measure was excellent ( $\alpha = .94$ ).

### ***Friendship Quality***

The McGill Friendship Questionnaire-Friendship Function Short Version (MFQ-FF; Mendelson & Aboud, 1999) measured the overall friendship quality and distinct dimensions of friendship quality of the participants' friendship with a close friend from university. This 30-item scale examined specific friendship qualities based on six distinct subscales, each comprised of five items. The subscales were: stimulating companionship (e.g., “Has good ideas about entertaining things to do”), help (e.g., “Helps me when I need it”), intimacy (e.g., “Is someone I can tell private things to”), reliable alliance (e.g., “Would want to stay my friend if we didn't see each other for a few months”), self-validation (e.g., “Makes me feel smart”), and emotional

security (e.g., “Would make me feel comfortable in a new situation”). Participants were asked to answer the questions based on their friendship with their closest friend at university. Participants indicated their level of agreement with the statement as it pertains to their friend on a 9-point Likert scale from 0 (*never*) to 8 (*always*). This scale was found to have high internal consistency by the original author, and convergent and divergent validity were established in a university sample (Mendelson & Aboud, 1999). In this study, the internal consistency for this measure was excellent ( $\alpha = .99$ ). The internal consistencies of the subscales were also excellent: stimulating companionship ( $\alpha = .95$ ), help ( $\alpha = .94$ ), intimacy ( $\alpha = .95$ ), reliable alliance ( $\alpha = .96$ ), self-validation ( $\alpha = .94$ ), and emotional security ( $\alpha = .95$ ). As part of this study, additional questions were also asked about the friend to further understand the relationship between the participant and their friend.

### ***ADHD Symptomatology and Severity***

The Barkley Adult ADHD Rating Scale-IV Short Version (BAARS-IV; Barkley, 2011) was used to assess the participants’ ADHD symptomatology and severity. This self-report measure consisted of 27 items, which mapped onto the DSM-5-TR (American Psychiatric Association, 2022) criteria on three subscales: inattention, hyperactivity, and impulsivity. The measure also included a subscale which assessed symptoms of sluggish cognitive tempo. There were nine items examining inattention (e.g., “Fail to give close attention to details or make careless mistakes in my work or other activities), five items for hyperactivity (e.g., “Fidget with hands or feet or squirm in seat”), four items for impulsivity (e.g., “Blurt out answers before questions have been completed, complete others’ sentences, or jump the gun”), and nine items for sluggish cognitive tempo (e.g., “Prone to daydreaming when I should be concentrating on something or working”). Participants were asked to rate the level to which each item describes

their behaviour in the last six months on a 4-point Likert scale, 1 (*never or rarely*) to 4 (*very often*). There were three additional questions in the original scale to understand the onset and impairment of participants' symptoms: "Did you experience any of these 27 symptoms at least "Often" or more frequently?" "If so, how old were you when these symptoms began?" "If so, in which of these settings [school, home, work, social relationships] did those symptoms impair your functioning?" The reliability and validity of this scale have been established by the original author (Barkley, 2011). The internal consistency, test-retest reliability, and concurrent validity have also been established (Caroline et al., 2024). The current study only used the full scale for analyses. Internal consistency was excellent for this scale ( $\alpha = .95$ ).

### ***Demographics***

Participants were asked for information regarding their current educational level, field of study, grade point average, year of study, whether they are a commuter or resident student, gender, age, ethnicity, residence location, and primary language.

## Results

### Data Cleaning

A total of 592 individuals registered for the study and consented to participating. Of those interested individuals, 362 participants met the eligibility criteria based on the type of degree they were obtaining, their year of study, and their age. Those who did not meet the eligibility criteria were screened out of the study. The remaining participants were examined for the quality of their responses. Those who did not respond to the majority of the items on the dependent variable, the SACQ (Baker & Siryk, 1984, 1999), and the main independent variable, the MFQ-FF (Mendelson & Aboud, 1999), were removed from the dataset ( $n = 12$ ). The remaining 350 participants were examined for speeding on the survey. The dataset was examined to determine if any participants had a survey duration of less than three minutes ( $n = 0$ ). Participants with study durations more than three standard deviations above the median duration ( $n = 350$ ,  $Mdn = 940$  seconds,  $SD = 24524.8$ ) were temporarily excluded from the dataset ( $n = 5$ ). A new median duration ( $n = 345$ ,  $Mdn = 929$  seconds,  $SD = 6577.0$ ) was determined. Participants who had study durations that were over three standard deviations above the new median duration ( $n = 11$ ) or below 1/3 of the new median duration ( $n = 14$ ; Ibarra et al., 2018) were marked for further examination. Of these individuals, those who had the same response for more than half of the SACQ (i.e., straightlining; Baker & Siryk, 1984, 1999), a measure with reverse-coded items, were marked as not meeting the filter criteria ( $n = 6$ ). The rest of the dataset was also examined for obvious straightlining, and those that were identified were also marked ( $n = 3$ ).<sup>1</sup> The scale measures were computed, and  $z$ -scores were computed for the scales to examine any outliers.

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<sup>1</sup> The regression analyses were run with and without the data from participants that were marked as not meeting the filter criteria. Results did not differ in significance or directionality; therefore, it was decided to leave these participants in the dataset to avoid removing any participants with genuine responses.

Those who had  $z$ -scores values that were  $\pm 3$  were identified ( $n = 2$ ), and their survey results were examined more closely. However, no concerns were found among these participants. As a result, 350 participants remained in the dataset after cleaning the data.

After cleaning the dataset, the ADHD and non-ADHD subgroups were created to examine differences between the groups under hypothesis four. Those in the ADHD subgroup ( $n = 80$ ) were determined based on whether they self-reported a diagnosis of ADHD from a licensed health professional or met the criteria for adult ADHD as specified in the DSM-5-TR (American Psychiatric Association, 2022) using their survey responses under the BAARS-IV (Barkley, 2011). For the study, eligibility for the ADHD subgroup was specified as those who answered “Often” or “Very Often” to five or more items on the scale, reported an age of onset of symptoms as younger than 12, and reported two or more areas of impairment. Those in the non-ADHD subgroup ( $n = 96$ ) were determined based on their responses to the BAARS-IV (Barkley, 2011). Those who answered “Often” or “Very Often” to two or fewer items and had levels of impairment in one or fewer areas were identified to be included in the non-ADHD group.

### **Preliminary Correlation Analyses Between Study Variables**

Descriptive statistics were calculated for the main study variables and are reported in Table 1.

Bivariate correlations were also conducted for the variables and are reported in Table 2. Notably, the preliminary findings indicate that adjustment to university was positively associated with overall friendship quality,  $r = .24, p < .001$ . Adjustment to university was also positively associated with all dimensions of friendship quality, including stimulating companionship,  $r = .23, p < .001$ , help,  $r = .23, p < .001$ , intimacy,  $r = .21, p < .001$ , reliable alliance,  $r = .24, p < .001$ , self-validation,  $r = .25, p < .001$ , and emotional security,  $r = .22, p < .001$ . Adjustment to

university was negatively associated with ADHD symptomatology scores,  $r = -.55, p < .001$ , and therefore, it was included as a covariate when running the regression analyses to examine the relationship between adjustment to university and friendship quality (both overall friendship quality and the individual dimensions).

**Table 1**

*Descriptive Statistics of the Main Variables*

Measure	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
1. SACQ	350	367.4	66.4	135.0	524.0
2. MFQ-FF	350	5.7	2.0	0.0	8.0
3. Stimulating Companionship	350	6.1	1.9	0.0	8.0
4. Help	350	5.8	2.0	0.0	8.0
5. Intimacy	350	5.3	2.3	0.0	8.0
6. Reliable Alliance	350	6.0	2.1	0.0	8.0
7. Self-Validation	350	5.7	2.0	0.0	8.0
8. Emotional Security	350	5.6	2.1	0.0	8.0
9. BAARS-IV	349	53.8	16.8	27.0	98.0

*Note.* SACQ = Student Adaptation to College Questionnaire. MFQ-FF = McGill Friendship Questionnaire-Friendship Function. BAARS-IV = Barkley Adult ADHD Rating Scale-IV.

**Table 2**

*Bivariate Correlation Analyses Between Study Variables*

Measure	<i>N</i>	1	2	3	4	5	6	7	8	9
1. SACQ	350	–								
2. MFQ-FF	350	.24***	–							
3. Stimulating Companionship	350	.23***	.95***	–						
4. Help	350	.23***	.94***	.89***	–					
5. Intimacy	350	.21***	.94***	.85***	.83***	–				
6. Reliable Alliance	350	.24***	.94***	.89***	.85***	.86***	–			
7. Self-Validation	350	.25***	.94***	.89***	.88***	.84***	.85***	–		
8. Emotional Security	350	.22***	.95***	.87***	.86***	.90***	.85***	.85***	–	
9. BAARS-IV	349	-.55***	-.02	-.02	-.06	.02	-.03	-.04	-.01	–

*Note.* †  $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . SACQ = Student Adaptation to College

Questionnaire. MFQ-FF = McGill Friendship Questionnaire-Friendship Function. BAARS-IV = Barkley Adult ADHD Rating Scale-IV.

### **Assumptions**

Assumption checking was completed for the regression analyses in the current study. Assumptions of normality were met, as indicated by histograms of the dependent variables, as well as the histograms and *P-P* plots of the residuals in the regression analyses (i.e., a normal curve and adherence to the trend line). Assumptions of homoscedasticity and linearity were also met, as determined by examining the scatterplots of the residuals in the regression analyses. The Variation Inflation Factor and Tolerance values were assessed for the independent variables within the regression analyses to check the assumption of multicollinearity by ensuring that VIF values were below 10 and all Tolerance values were above 0.2. All independent variables within the regression analyses met the assumption of multicollinearity, except for the interaction variable between friendship quality and ADHD symptomatology. To mitigate issues with multicollinearity for the relevant regression analysis, the standardized *z*-scores of the variables were used instead, producing acceptable values for multicollinearity. To assess the assumption of undue influence, values of Leverage, Mahalanobis Distance, and Cook's Distance were calculated for the regression analyses. There were no values outside of the acceptable ranges for Leverage or Cook's Distance. However, all analyses had some values above the acceptable ranges for the Mahalanobis Distance. Therefore, all regression analyses were rerun while filtering out cases that were above the acceptable thresholds for Mahalanobis Distance values; however, no changes were seen in significance or directionality of the results. Additionally, the sensitivity of the Mahalanobis Distance for identifying outliers has been indicated to be problematic (Leys et al., 2018). As a result, the regression analyses were completed with the original values.

To check the assumptions of the correlation subgroup analyses, scatterplots of the variables, histograms, *P-P* plots, kurtosis values, and skewness values were produced. The assumption of linearity was met, and no obvious multivariate outliers were observed. When examining the visual normality of the independent and dependent variables with a histogram, the variables of friendship quality and friendship dimensions displayed a negative skew. However, the *P-P* plots did not demonstrate major deviations from the trend line and values of kurtosis and skewness were acceptable (i.e., less than  $\pm 2$  for kurtosis and skewness). However, as a precaution, all variables were square root transformed, and the analyses were rerun. As there were no major differences<sup>2</sup>, the original analyses with the raw values were reported to aid interpretability.

### **Overall Friendship Quality and Adjustment to University**

A hierarchical regression analysis was conducted to test hypothesis one, which examined whether overall friendship quality predicted adjustment to university, while controlling for ADHD symptomatology (see Table 3). Scores of ADHD symptomatology were entered into Step 1 as a covariate, and the predictor variable of overall friendship quality was entered in Step 2. Model 1 revealed significant results, indicating that 31% of the variance in adjustment to university was explained by ADHD symptomatology,  $R^2 = .31$ ,  $F(1, 347) = 152.26$ ,  $p < .001$ . Model 2 was also significant, in that an additional 5% of the variance in adjustment to university

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<sup>2</sup> Both regression analyses and correlation analyses were rerun with the transformed variables. No changes in significance or directionality were found for the regression analyses. For the correlation subgroup analyses, no changes in directionality were observed, however, some significance values that were marginally significant in the original analyses shifted in statistical significance at the .05 alpha level. Marginally significant values are noted in the correlation tables. In particular, the following statistical significance changes were found for the subgroup correlation analyses for the ADHD subgroup: the correlation between the SACQ and stimulating companionship was marginally significant ( $p = .058$ ) and became significant ( $p = .030$ ), and the correlation between the SACQ and intimacy also was marginally significant ( $p = .063$ ) and became significant ( $p = .038$ ). For the non-ADHD group, the following change was observed: the correlation between the SACQ and self-validation was significant ( $p = .043$ ) and became marginally non-significant ( $p = .056$ ).

was explained by overall friendship quality, while holding ADHD symptomatology constant,  $\Delta R^2 = .05$ ,  $\Delta F(1, 346) = 27.83$ ,  $p < .001$ . Overall friendship quality had a significant positive association with adjustment to university,  $\beta = .23$ ,  $p < .001$ , providing support for hypothesis one.

**Table 3***Hierarchical Regression Analysis for Overall Friendship Quality on Adjustment to University*

Measure	Model 1				Model 2			
	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>
BAARS-IV	-2.18	0.18	-.55	<.001	-2.16	0.17	-.55	<.001
MFQ-FF					7.68	1.46	.23	<.001
Total $R^2$			.31				.36	
$\Delta R^2$			.31				.05	
<i>p</i>			<.001				<.001	

*Note.*  $N = 349$ . BAARS-IV = Barkley Adult ADHD Rating Scale-IV. MFQ-FF = McGill

Friendship Questionnaire-Friendship Function.

**Friendship Quality Dimensions and Adjustment to University**

To test hypothesis two, six hierarchical regression analyses were conducted to investigate the friendship dimensions that predict adjustment to university. It was hypothesized that friendship dimensions of stimulating companionship (see Table 4), help (see Table 5), intimacy (see Table 6), self-validation (see Table 7), and emotional security (see Table 8) would be positively associated with adjustment to university. The association between the friendship dimension of reliable alliance was also examined (see Table 9). All analyses included ADHD symptomatology as a covariate. ADHD symptomatology was entered into Step 1, and the corresponding friendship dimensions were entered into Step 2 for each of the regression analyses. As noted above, results in Model 1 of the analyses indicated that 31% of the variance in adjustment to university was explained by ADHD symptomatology,  $R^2 = .31$ ,  $F(1, 347) = 152.26$ ,  $p < .001$ .

**Table 4***Hierarchical Analysis for the Friendship Dimension of Stimulating Companionship on**Adjustment to University*

Measure	Model 1				Model 2			
	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>
BAARS-IV	-2.18	0.18	-.55	<.001	-2.17	0.17	-.55	<.001
MFQ-FF – Stimulating Companionship					7.53	1.48	.22	
Total $R^2$			.31				.35	
$\Delta R^2$			.31				.05	
<i>p</i>			<.001				<.001	

*Note.*  $N = 349$ . BAARS-IV = Barkley Adult ADHD Rating Scale-IV. MFQ-FF = McGill

## Friendship Questionnaire-Friendship Function.

The friendship dimension of stimulating companionship explained 5% of the variance in adjustment to university when controlling for ADHD symptomatology,  $\Delta R^2 = .05$ ,  $\Delta F(1, 346) = 25.86$ ,  $p < .001$ . The association between stimulating companionship and adjustment to university was significant,  $\beta = .22$ ,  $p < .001$ .

**Table 5***Hierarchical Analysis for the Friendship Dimension of Help on Adjustment to University*

Measure	Model 1				Model 2			
	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>
BAARS-IV	-2.18	0.18	-.55	<.001	-2.14	0.17	-.54	<.001
MFQ-FF – Help					6.42	1.45	.19	<.001
Total $R^2$			.31				.34	
$\Delta R^2$			.31				.04	
<i>p</i>			<.001				<.001	

*Note.*  $N = 349$ . BAARS-IV = Barkley Adult ADHD Rating Scale-IV. MFQ-FF = McGill

## Friendship Questionnaire-Friendship Function.

The analysis demonstrates that 4% of the variance in adjustment to university was explained by the friendship dimension of help after controlling for ADHD,  $\Delta R^2 = .04$ ,  $\Delta F(1,$

346) = 19.59,  $p < .001$ , and help was positively associated with adjustment to university,  $\beta = .19$ ,  $p < .001$ .

**Table 6***Hierarchical Analysis for the Friendship Dimension of Intimacy on Adjustment to University*

Measure	Model 1				Model 2			
	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>
BAARS-IV	-2.18	0.18	-.55	<.001	-2.19	0.17	-.56	<.001
MFQ-FF – Intimacy					6.26	1.25	.22	<.001
Total $R^2$			.31				.35	
$\Delta R^2$			.31				.05	
<i>p</i>			<.001				<.001	

*Note.*  $N = 349$ . BAARS-IV = Barkley Adult ADHD Rating Scale-IV. MFQ-FF = McGill

Friendship Questionnaire-Friendship Function.

The friendship quality of intimacy explained 5% of the variance in university adjustment after controlling for ADHD symptomatology,  $\Delta R^2 = .05$ ,  $\Delta F(1, 346) = 25.01$ ,  $p < .001$ . Intimacy had a significant positive association with university adjustment,  $\beta = 0.22$ ,  $p < .001$ .

**Table 7***Hierarchical Analysis for the Friendship Dimension of Self-Validation on Adjustment to University*

Measure	Model 1				Model 2			
	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>
BAARS-IV	-2.18	0.18	-.55	<.001	-2.15	0.17	-.55	<.001
MFQ-FF – Self-Validation					7.34	1.40	.22	<.001
Total $R^2$			.31				.36	
$\Delta R^2$			.31				.05	
<i>p</i>			<.001				<.001	

*Note.*  $N = 349$ . BAARS-IV = Barkley Adult ADHD Rating Scale-IV. MFQ-FF = McGill

Friendship Questionnaire-Friendship Function.

Results determined that 5% of the variance in adjustment to university was explained by the friendship dimension of self-validation when ADHD symptomatology was held constant,  $\Delta R^2 = .05$ ,  $\Delta F(1, 346) = 27.33$ ,  $p < .001$ . Self-validation was positively associated with adjustment to university,  $\beta = 0.22$ ,  $p < .001$ .

**Table 8**

*Hierarchical Analysis for the Friendship Dimension of Emotional Security on Adjustment to University*

Measure	Model 1				Model 2			
	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>
BAARS-IV	-2.18	0.18	-.55	<.001	-2.17	0.17	-.55	<.001
MFQ-FF – Emotional Security					6.44	1.34	.21	<.001
Total $R^2$			.31				.35	
$\Delta R^2$			.31				.04	
<i>p</i>			<.001				<.001	

*Note.*  $N = 349$ . BAARS-IV = Barkley Adult ADHD Rating Scale-IV. MFQ-FF = McGill

Friendship Questionnaire-Friendship Function.

Emotional security as a friendship dimension explained 4% of the variance in adjustment to university after controlling for ADHD symptomatology,  $\Delta R^2 = .04$ ,  $\Delta F(1, 346) = 23.10$ ,  $p < .001$ . This association between emotional security and adjustment to university was positive,  $\beta = .21$ ,  $p < .001$ .

Results indicated that 5% of the variance in adjustment to university was explained by the friendship dimension of reliable alliance, when ADHD symptomatology was held constant,  $\Delta R^2 = .05$ ,  $\Delta F(1, 346) = 25.73$ ,  $p < .001$ . The association between reliable alliance and adjustment to university was positive,  $\beta = .22$ ,  $p < .001$ .

**Table 9**

*Hierarchical Analysis for the Friendship Dimension of Reliable Alliance on Adjustment to University*

Measure	Model 1				Model 2			
	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>
BAARS-IV	-2.18	0.18	-.55	<.001	-2.15	0.17	.55	<.001
MFQ-FF – Reliable Alliance					6.86	1.35	.22	<.001
Total $R^2$			.31				.35	
$\Delta R^2$			.31				.05	
<i>p</i>			<.001				<.001	

*Note.*  $N = 349$ . BAARS-IV = Barkley Adult ADHD Rating Scale-IV. MFQ-FF = McGill

Friendship Questionnaire-Friendship Function.

These results provide support for hypothesis two, in that the friendship dimensions of stimulating companionship, help, intimacy, self-validation, and emotional security positively predict the adjustment to university. Results also indicate that the friendship quality of reliable alliance predicts adjustment to university.

### **ADHD Symptomatology as a Moderator**

A regression analysis with an interaction term between ADHD symptomatology and overall friendship quality was conducted to test hypothesis three, which investigated ADHD symptomatology as a moderator of the association between adjustment to university and overall friendship quality (see Table 10). The individual variables of ADHD symptomatology and overall friendship quality were entered into Step 1, and an interaction variable of ADHD symptomatology and friendship quality was entered into Step 2.

The results indicate that the individual variables of ADHD symptomatology and overall friendship quality explained 36% of the variance in the adjustment to university,  $R^2 = .36$ ,  $F(2, 346) = 95.93$ ,  $p < .001$ . However, the presence of ADHD symptomatology did not moderate the

association between overall friendship quality and the adjustment to university, and there was no significant interaction. These results do not support hypothesis three.

**Table 10**

*Hierarchical Analysis on the Interaction of ADHD Symptomatology in the Association between Overall Friendship Quality on Adjustment to University*

Measure	Model 1				Model 2			
	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>
BAARS-IV	0.23	0.04	.23	<.001	0.23	0.04	.23	<.001
MFQ-FF	-0.55	0.04	-.55	<.001	-0.55	0.04	-.55	<.001
BAARS-IV*MFQ-FF					0.02	0.04	.22	.61
Total $R^2$			.36				.36	
$\Delta R^2$			.36				.00	
<i>p</i>			<.001				.61	

*Note.*  $N = 349$ . BAARS-IV = Barkley Adult ADHD Rating Scale-IV. MFQ-FF = McGill

Friendship Questionnaire-Friendship Function. Standardized  $z$ -scores of the variables were used to meet the assumptions of the analysis.

### **Differences Between the ADHD and Non-ADHD Groups**

Bivariate correlation analyses were conducted to examine hypothesis four and investigate subgroup differences between students with ADHD and students without ADHD in the association between friendship quality, friendship dimensions, and the adjustment to university. This analysis was exploratory in nature and was aimed at understanding whether there are any subgroup differences. One correlation analysis was conducted for those in the ADHD group (see Table 11), and another correlation analysis was conducted for those in the non-ADHD group (see Table 12).

For the ADHD subgroup, overall friendship quality and adjustment to university had a significant positive association,  $r = .27$ ,  $p = .017$ . Regarding friendship dimensions, help,  $r = .27$ ,

$p = .014$ , self-validation,  $r = .31$ ,  $p = .005$ , and emotional security,  $r = .29$ ,  $p = .010$ , had a significant positive association with adjustment to university.

**Table 11**

*Bivariate Correlation Analysis for the ADHD Subgroup*

Measure	<i>N</i>	<i>M</i> ( <i>SD</i> )	1	2	3	4	5	6	7	8
1. SACQ	80	343.1 (70.6)	–							
2. MFQ-FF	80	5.8 (2.0)	.27*	–						
3. Stimulating Companionship	80	6.2 (2.0)	.21†	.95***	–					
4. Help	80	5.8 (1.9)	.27*	.89***	.89***	–				
5. Intimacy	80	5.3 (2.4)	.21†	.93***	.86***	.76***	–			
6. Reliable Alliance	80	6.1 (2.2)	.20†	.92***	.88***	.77***	.84***	–		
7. Self-Validation	80	5.8 (2.0)	.31**	.93***	.84***	.84***	.84***	.83***	–	
8. Emotional Security	80	5.6 (2.3)	.29*	.95***	.89***	.79***	.90***	.83***	.86***	–

Note. †  $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . SACQ = Student Adaptation to College

Questionnaire. MFQ-FF = McGill Friendship Questionnaire-Friendship Function. BAARS-IV = Barkley Adult ADHD Rating Scale-IV.

**Table 12**

*Bivariate Correlation Analysis on the Non-ADHD Subgroup*

Measure	<i>N</i>	<i>M</i> ( <i>SD</i> )	1	2	3	4	5	6	7	8
1. SACQ	96	401.9 (56.3)	–							
2. MFQ-FF	96	5.7 (1.9)	.25*	–						
3. Stimulating Companionship	96	6.0 (1.9)	.31**	.96***	–					
4. Help	96	5.8 (2.0)	.20†	.97***	.92***	–				
5. Intimacy	96	5.1 (2.2)	.24*	.93***	.84***	.86***	–			
6. Reliable Alliance	96	5.9 (2.0)	.28**	.94***	.92***	.91***	.82***	–		
7. Self-Validation	96	5.7 (2.0)	.21*	.96***	.91***	.91***	.88***	.85***	–	
8. Emotional Security	96	5.6 (2.1)	.18†	.96***	.88***	.92***	.89***	.86***	.92***	–

Note. †  $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . SACQ = Student Adaptation to College

Questionnaire. MFQ-FF = McGill Friendship Questionnaire-Friendship Function. BAARS-IV = Barkley Adult ADHD Rating Scale-IV.

For the non-ADHD subgroup, overall friendship quality and adjustment to university were also significantly positively associated,  $r = .25, p = .015$ . The friendship dimensions of stimulating companionship,  $r = .31, p = .002$ , intimacy,  $r = .24, p = .020$ , reliable alliance,  $r = .28, p = .006$ , and self-validation,  $r = .21, p = .043$ , had a significant positive association with the adjustment to university.

## Discussion

Friendship remains an important part of an emerging adult's well-being during their transition to university. Previous literature has indicated the importance of friendship during this time, as it is associated with reduced loneliness and reduced mental health challenges (Kulari et al., 2025; Pittman & Richmond, 2008), and improved ability to navigate through the new experiences that students are faced with during their adjustment to university (Buote et al., 2007). Research has reported the importance of friendship quality over friendship quantity for emerging adults (Demir et al., 2015), and therefore, the current research sought to further understand the link between friendship quality and adjustment to university. The present study also investigated individual friendship quality dimensions of stimulating companionship, help, intimacy, reliable alliance, self-validation, and emotional security (Mendelson & Aboud, 1999) in this link. Previous research has indicated that students with ADHD may experience a more difficult time in the transition to university in academic, social, and emotional domains (Abecassis et al., 2017; Blase et al., 2009; Lipka et al., 2020), and those with higher levels of symptomatology may benefit more from friendships (Mikami, 2010). Therefore, the present study included ADHD symptomatology to further understand the link between friendship quality and adjustment to university by investigating it as a moderator and looking at subgroup differences between students who do not have ADHD compared to those who have been diagnosed with ADHD or meet the clinical criteria of ADHD.

Hypothesis one predicted that overall friendship quality would be positively associated with improved adjustment to university for students with and without ADHD. The second hypothesis expected that the friendship dimensions of stimulating companionship, help, intimacy, self-validation and emotional security would be positively associated with university

adjustment for students with and without ADHD. Hypothesis three predicted that ADHD symptomatology would be a moderator in the association between overall friendship quality and university adjustment. The fourth hypothesis expected that different friendship dimensions would be associated with better university adjustment between the ADHD and non-ADHD subgroups.

Indeed, the study results supported hypotheses one and two, in that greater overall friendship quality predicted better adjustment to university, and that the friendship dimensions of stimulating companionship, help, intimacy, self-validation, and emotional security also predicted better adjustment to university for students with and without ADHD. In fact, all six dimensions of friendship quality were positive predictors of adjustment to university, including reliable alliance. Overall friendship quality and the various friendship dimensions predicted better adjustment to university when ADHD symptomatology was included as a covariate.

Unexpectedly, ADHD symptomatology did not have a moderating role in the link between overall friendship quality and adjustment to university, and therefore, the third hypothesis was not supported. The fourth hypothesis was supported, and differences between the ADHD and non-ADHD subgroups were observed regarding friendship dimensions that were associated with adjustment to university. The ADHD subgroup uniquely had significant associations between help and emotional security with adjustment to university, while the non-ADHD subgroup uniquely had significant associations between stimulating companionship, intimacy, and reliable alliance with adjustment to university. Both the ADHD and non-ADHD subgroups had a significant association between self-validation and adjustment to university.

### **Friendship Quality and the Transition to University**

The study finding of overall friendship quality predicting an improved adjustment to university for students with and without ADHD is aligned with the current literature on this

topic, which highlights the link between friendship quality and academic, social, emotional, and psychological well-being during this time (Bagwell et al., 2005; Buote et al., 2007). The current results also align with Cohen and Wills' (1985) social support theory, as social support in the form of increased friendship quality was related to improved university adjustment in the current study. This theory may help explain the mechanism behind this link, in that a stronger friendship provides greater social support to students and buffers the stressors that are experienced during this transition. Buote et al.'s (2007) qualitative study provides additional insight into this link, as students reported that friends support them in various ways that are related to stressors common to the transition to university, such as adjusting to a new environment away from home, making new friends, managing academic stressors, and navigating the programs and opportunities within the university.

### ***Friendship Quality Dimensions and the Transition to University***

All six dimensions of friendship quality were implicated in the link between friendship quality and adjustment to university for students with and without ADHD in the current study: stimulating companionship, help, intimacy, reliable alliance, self-validation, and emotional security. Stimulating companionship is the level to which a friend provides fun or enjoyment in shared activities (Mendelson & Aboud, 1999). Help refers to the instrumental support that a friend provides, such as guidance or aid (Mendelson & Aboud, 1999). Intimacy is how much one feels accepted to divulge personal details about themselves in a friendship (Mendelson & Aboud, 1999). Reliable alliance refers to how much one perceives the friendship as being continuous and able to withstand difficulties (Mendelson & Aboud, 1999). Self-validation is the level to which one sees their friend as supporting their own sense of self and esteem (Mendelson & Aboud, 1999). Emotional security refers to how much one feels secure when with that friend (Mendelson

& Aboud, 1999). All of the dimensions accounted for a similar percentage of variance in the adjustment to university. Between the six friendship dimensions, stimulating companionship resulted in the greatest change in adjustment to university per unit increase. Cohen and Wills' (1985) social support theory explains that the type of support that is most beneficial in buffering stress is largely dependent on the stressor itself, and what the individual needs based on the stressor they are experiencing. Within the transition to university, students encounter an array of stressors that involve multiple areas of their lives and daily functioning. Therefore, it is plausible that these varying stressors may elicit the need for different types of support, depending on the stressor that is experienced by the individual.

For example, many students move away from home and must adjust to a new environment, make new friends, and become more self-reliant. In this situation, one stressor that may arise for students is difficulty finding fun activities to do with friends, in which stimulating companionship might be most helpful. Another stressor that may be related to this adjustment is feeling uncomfortable or nervous to engage in new activities or make new friends. In such a case, the friendship dimension of emotional security may support an individual in buffering this stressor. Different students may require different forms of support from a friend to buffer the stressors they are experiencing within this transition, yet the current results suggest that there is no one friendship quality dimension that is not important during this transition for students with and without ADHD.

Another possible explanation is related to Bowlby's (1973, 1982) attachment theory, which theorizes how humans use closeness and security with an attachment figure, most fundamentally their caregiver, for survival. The security provided by an attachment figure supports individuals in being able to explore and continue through the world and return to the

attachment figure, a secure base, for support and comfort. Through development, individuals will explore further from their secure base, but attachment behaviour remains an important and lifelong activity (Bowlby, 1988). Although caregivers remain important attachment figures throughout an individual's life, close friends may become attachment figures for individuals as they age and enter adulthood, by providing attachment functions such as closeness, comfort, promoting self-worth, and reassurance (Augustsson et al., 2025; Fraley & Davis, 1997; Markiewicz et al., 2006; Miljkovitch et al., 2021).

In this context, it can be postulated that friendship dimensions such as intimacy, reliable alliance, self-validation, and emotional security can facilitate important attachment functions that provide increased comfort and security during the transition to university. Indeed, research indicates that there are some links between attachment, friendship quality, and the transition to university. Increased attachment anxiety with a best friend is associated with decreased friendship quality (Oldeman et al., 2023). Experiencing greater challenges regarding attachment is associated with increased perceived stress and worse adjustment to university (Kural & Özyrt, 2023). Scharfe et al. (2017) also found that students who named friends as their first person in their social network, rather than family members, had more stable scores on anxiety, depression, and self-esteem during their transitions to university after six months, highlighting the potential benefit of strong attachment to friends during this time of change. Therefore, although the current study did not examine attachment, it may be that improved friendship quality is important for students in the transition to university by supporting them with important attachment functions that help them in feeling increased security and comfort during a time of change and transition.

**Self-Validation.** It is noteworthy that self-validation was one of the friendship dimensions that predicted the greatest change in adjustment to university, and it was also the only friendship dimension significantly associated with adjustment to university for both the ADHD and non-ADHD subgroups. These results imply that self-validation is a particularly important friendship dimension for both students with and without ADHD during the adjustment to university. The friendship dimension of self-validation refers to the level to which one's self-identity and self-worth feel reassured or encouraged by their friend (Mendelson & Aboud, 1999). When examined through the theoretical lens of social support theory (Cohen & Wills, 1985), it is plausible that the friendship dimension of self-validation provides a level of support important to all students due to the common stressors they experience during their transition to university.

A broader explanation that may help understand the importance of the friendship dimension of self-validation is through the understanding of the emerging adulthood developmental stage and transition to university. As outlined by Arnett (2000), emerging adulthood is a life stage that is marked by instability and change, as well as identity exploration, where emerging adults ask questions about who they are, what they are good at, what they enjoy, and what they believe. Stronger self-esteem during emerging adulthood is related to better outcomes for identity exploration (Ryeng et al., 2013). This exploration can be a meaningful but difficult time for individuals, with many pursuing university educations to develop their sense of self (Brakke & Neely, 2014). The university transition can be a challenging time for students, in which they may experience many life changes, lower levels of support, and greater expectations (Briggs et al., 2012; Worsley et al., 2021). During the university adjustment, self-esteem has been seen to initially decrease (Chung et al., 2013). In undergoing this change, students may experience challenges to perceptions of their preparedness and ability to succeed during the

transition (Magier et al., 2025) and receiving support that fuels one's positive perception of self may be helpful. This is aligned with previous research, which found that increased self-esteem can act as a protective factor in the transition to university and predict lower levels of depression and improved adjustment in social and academic domains (Friedlander et al., 2007).

### **ADHD as a Moderator**

The lack of moderating effect observed by ADHD symptomatology on the association between overall friendship quality and the adjustment to university was an unexpected result. Although ADHD severity was not observed to be a moderator for the association between overall friendship quality and adjustment to university, no interaction regression analyses were conducted in the current study to investigate whether ADHD severity moderated the link between distinct dimensions of friendship quality and university adjustment.

Although limited, previous literature suggests that ADHD plays a moderating role in the link between friendship and adjustment to university. However, this link was established with friendship quantity based on new reciprocated friendships in university. The participant population were also students who moved away from home to attend university and had not met one another before their university transition (Khalis et al., 2017). Therefore, this suggests that the quantity of new friendships is more impactful for students with ADHD compared to those without ADHD during the transition to university, while the current study suggests that the quality of friendships with a close friend at university remains important for both groups. To add, participants in the current study may already have had an established close friendship with the close friend they were thinking of when completing the study, as students may attend the same university as pre-existing friends, whether they are commuter or resident students.

To situate this within the broader literature, Reeble et al. (2024) found that the quantity of social supports moderated the link between ADHD severity and impairment, while the quality of social supports did not. This result aligns with the current study's findings in the context of previous research. Reeble et al. (2024) suggested that receiving support from a wider network may be helpful to maximize the amount of support that they receive from others, without overly relying on a few sources of support. Additionally, studies often report that those with ADHD experience greater difficulties making friends (Maya Beristain & Wiener, 2020; Neprily et al., 2025), social exclusion (Maya Beristain & Wiener, 2020), social impairment (Sacchetti & Lefler; 2014), internalized and social stigmatization (Masuch et al., 2019; Mazur, 2026; Visser et al., 2024), higher levels of loneliness (Jong et al., 2024; Stickley et al., 2017), and increased sensitivity to perceived rejection (Müller & Pikó, 2024). It is therefore possible that ADHD moderates the link between friendship quantity and adjustment to university, particularly as it pertains to new friendships (Khalis et al., 2017). Specifically, the forming of new friendships may be more impactful for students with greater ADHD severity during the transition to university, given the challenges that individuals with ADHD may face in making friends during this time. However, as suggested by the results of the current study, this mechanism may not extend to the link between friendship quality and adjustment to university.

It is also possible that students with and without ADHD are more similar than they are different from one another. For instance, individuals with ADHD and autism reported that they do not feel they experience greater loneliness than their neurotypical counterparts (Verity et al., 2025). McKee (2014) also found that there were many similarities in the friendship quality characteristics of those with high ADHD symptomatology compared with those who had low ADHD symptomatology. Additionally, both students with and without ADHD have indicated

friendship and social support to be an important part of their transition to university (Buote et al., 2007; Khalis et al., 2017; Meaux et al., 2009). Therefore, the current study results indicate that strong friendship quality is predictive of better adjustment to university, regardless of the severity of an individual's ADHD.

The moderating effect of ADHD symptomatology on the relationship between friendship quality and university adjustment may also not have been observed in the current study due to a positive illusory bias. Those with ADHD, including college students, have been reported to exhibit a positive illusory bias, in which they may overestimate their capabilities on tasks and skills (Prevatt et al., 2011). This has been seen to extend to perceptions of peer relationships in adolescents with higher ADHD symptomatology, as self-reported ratings of relationships were more positive than parent and teacher ratings (Glass et al., 2010). As a result, self-reported friendship quality or adjustment to university may have been inflated among individuals with higher ADHD symptomatology, potentially obscuring the moderation results. However, in the context of the general study results, it is important to note that research has investigated the beneficial differences between perceived social support and actual social support on the well-being of individuals and found that perceived social support has a much stronger association than the latter (McDowell & Serovich; 2007; Wethington & Kessler, 1986). The current results suggest that, regardless of whether self-report scores of friendship quality were affected by a positive illusory bias, they still play an important role in the adjustment to university.

### **Differences Between the ADHD Group and Non-ADHD Group**

There were differences in the dimensions of friendship quality that were significantly associated with better adjustment to university between those in the ADHD subgroup and those in the non-ADHD subgroup. The friendship dimensions of help and emotional security were

associated with improved adjustment for those with ADHD, but not for the non-ADHD subgroup. For the non-ADHD subgroup, friendship dimensions of stimulating companionship, intimacy, and reliable friendship were associated with improved adjustment, but not for the ADHD subgroup. Interestingly, self-validation was the only friendship dimension that was associated with better adjustment to university for both the ADHD and non-ADHD subgroups. Self-validation also had the highest effect size for the ADHD subgroup. This finding further highlights the broad importance of self-validation across students both with and without ADHD during this transition, as discussed previously. Self-validation may be particularly important for those with ADHD, as individuals with ADHD report being stigmatized due to their symptoms and being viewed as a “troublemaker” (Frick et al., 2025). Strong self-validation in a friendship may support their sense of self and reduce the impact of such stigmatization on the individual, as having social support that reassures one’s worth is a predictor of improved mental health for youth with ADHD (Harris-Lane et al., 2021).

The differing significant results between the ADHD and non-ADHD subgroups may be explained again by social support theory (Cohen & Wills, 1985), as the type of support provided to buffer stress depends on the challenges faced by the individual, and this may vary based on whether a student has ADHD or not. For those without ADHD, the dimensions of stimulating companionship, intimacy, and reliable friendship were associated with increased adjustment to university. These associations were not found for the ADHD group. Stimulating companionship refers to how much one can engage in activities with their friend that are enjoyable and exciting (Mendelson & Aboud, 1999). Intimacy is the level to which one feels comfortable and accepted sharing personal details with a friend (Mendelson & Aboud, 1999). Reliable friendship is the level at which one feels that their friendship is loyal and can be sustained over time (Mendelson

& Aboud, 1999). Students have reported that having friends to do fun things with and being able to confide in were helpful in their transition to university, among other functions (Buote et al., 2007). A study by Langheit and Poulin (2022) found that companionship, which is operationally defined similarly to stimulating companionship, and reliable alliance increased in friendships during early adulthood. They also found high levels of intimacy in early emerging adulthood, which decreased thereafter. These findings would be aligned with the current study in demonstrating the friendship qualities which are important during this stage of individuals' lives.

However, for those with ADHD, other friendship dimensions may be more important in supporting their transition to university, as study results indicate that the dimensions of help and emotional security are associated with improved adjustment. The friendship dimension of help refers to the tangible support provided by a friend, including advice or assistance (Mendelson & Aboud, 1999). Students with ADHD face greater challenges in areas that are important for school, such as forgetfulness, time management, and organization (Sedgwick-Müller et al., 2022) and therefore, may be supported by greater tangible support from their friends, such as providing reminders about deliverables or class times (Meaux et al., 2009). As for the friendship dimension of emotional security being associated with adjustment to university for those with ADHD, emotional security refers to the level to which a friend provides comfort in a difficult situation (Mendelson & Aboud, 1999). One symptom of adult ADHD is difficulties with emotional regulation (Adler et al., 2017). Additionally, students with ADHD report facing increased emotional distress in the transition to university, such as increased depressive symptoms (Green & Rabiner, 2012; Rabiner et al., 2007). Therefore, it is understandable that greater emotional support and feelings of emotional security when with their close friend are important for students with ADHD during their university transition.

It is important to note that although these results were different in significance between groups at the alpha .05 level, there were marginally significant scores for some other dimensions between the subgroups. For instance, the dimension of stimulating companionship, intimacy, and reliable alliance was marginally significant for the ADHD subgroup at the  $p < .10$  level, while the dimensions of help and emotional security were marginally significant for the non-ADHD subgroup. Therefore, it cannot be completely concluded that there are stark and concrete differences between those with ADHD and those without ADHD regarding the friendship qualities that were associated with improved university adjustment. Future research can investigate these subgroup differences in greater depth and precision to further understand the differences between those with ADHD and their non-ADHD counterparts.

### **Study Limitations and Future Directions**

The current study contributes to the literature and understanding of the mechanisms and associations between friendship, ADHD, and the transition to university. There is currently little research on those with ADHD for the emerging adulthood population (Singh et al., 2015). There has also been no research conducted on friendship quality and the transition to university for students with ADHD, although a study by Khalis et al. (2017) investigated friendship quantity and university adjustment for those with ADHD. To the researcher's knowledge, this is the first research study that looks at distinct dimensions of friendship quality in predicting a better adjustment to university. Given that the current study results suggest the importance of friendship during the period of university adjustment for both students with and without ADHD, the results can be used to inform further directions to better understand the link between friendship and the transition to university for students and to continue to expand the literature.

The design for the current study is cross-sectional, and although the regression analyses enabled predictors, causation cannot be inferred. Future research could use a longitudinal design that follows students from before their entrance to university and measures multiple time points during their transition to confirm the direction of change and yield additional insights into the mechanisms involved in the association between friendship and adjustment to university for both students with and without ADHD. Future directions could also include a mixed-method design that integrates qualitative data collection to understand the various nuances of adjustment to university and investigate if there are commonalities and differences in themes presented by students with ADHD and without ADHD. The study design also only uses a participant sample from one region in Eastern Ontario, Canada, and predominantly from one university. More than half the study sample self-identified as being White. Using a population sample from a single region with limited diversity in demographics may reduce the study's generalizability, and the results may be more difficult to apply to other populations in different countries or in different cultural contexts.

The current research also did not use confounding variables such as other mental health diagnoses, whether those with clinically diagnosed ADHD were taking medication, or whether individuals had other sources of social support. These factors may have also played a role in the transition to university. Investigating these other variables can add more nuance to the results and support further understanding of the unique association between friendship in the transition to university. Co-occurring mental health conditions are not uncommon for emerging adults with ADHD and could increase difficulties for them in the transition to university (Anastopoulos et al., 2020). ADHD medication could support students in the transition to university, such as improving academic performance (Lu et al., 2017), although, the current literature on this area is

inconclusive, and many studies have not found changes in the transition to university based on medication adherence (Green & Rabiner, 2012; Rabiner et al., 2008). Future directions for research could also investigate romantic relationships as a source of social support during the transition to university. Romantic relationships become a significant source of support as individuals reach emerging adulthood (Camirand & Poulin, 2019), and the current research excluded this by solely examining close friendships. There may be differences in the magnitude or significance of the association between romantic relationship support and university adjustment.

Another limitation of the current study may be the criteria for the ADHD subgroup. Part of the ADHD subgroup was created using participants who met the DSM-5-TR (American Psychiatric Association, 2022) criteria for adults with ADHD based on the BAARS-IV (Barkley, 2011). Given that this relied on participants' self-reported symptomatology, it is possible that individuals over- or underreported their symptoms. The ADHD subgroup also included participants who self-reported a diagnosis of ADHD. For these participants, it is possible that they may have been using medication or received psychosocial treatment for their symptoms, which could have reduced their symptom severity. These factors may have introduced challenges in the cohesion within the ADHD subgroup and impacted the subgroup analysis.

The current study also used self-report data in understanding participants' transition to university, friendship quality with a close friend, and ADHD symptomatology. Self-report data may reduce validity, as variables are not being measured by multiple sources, particularly when assessing friendship quality. Other studies have involved both members of the friendship dyad to understand the perspectives of both individuals in the relationship (e.g., McKee, 2014). Social desirability bias may also be a factor when using self-report measures, in that participants may

have answered in certain ways to measures that feel more desirable, whether this was implicit or explicit (Latkin et al., 2018; Paulhus, 1984). For those with ADHD, positive illusory bias remains a consideration for self-report measures. Those with ADHD have been observed to perceive their own skills, abilities, and competencies to be better than they are rated by others (Prevatt et al., 2011; Volz-Sidiropoulou et al., 2016). To mitigate potential challenges with validity regarding using self-report data, future research can consider using multiple informants, such as family members or other friends, to answer questions or integrating a social desirability scale into the study, such as Paulhus' (1984) Balanced Inventory of Desirable Responding, which can assess for both unconscious and deliberate social desirability.

## **Study Implications**

### ***Implications for Post-Secondary Institutions***

The findings of the research can support universities and inform the development and structuring of student resources and services. Many universities offer services, accommodations, and resources for students with and without ADHD, including peer mentorship programs (Álvarez-Godos et al., 2023). Interventions and programs involving facilitating social support between university students have proven to be beneficial for the involved students (Alharthi, 2020; Pratt et al., 2000), including greater integration into their studies and institution (Yomtov et al., 2015), as well as improved academic performance (Rodger & Tremblay, 2003). Boda et al. (2020) found that early interventions that connected students had benefits early on in their transition to university regarding building friendships. Peer mentorship programs have also been indicated as helpful for students during the transition to university, as many students involved in the program reported benefits that align with important friendship dimensions, such as emotional support, encouragement, and tangible help (Yomtov et al., 2015). Many mentors and mentees

that are part of a mentorship program have also reported wanting to continue their friendship after completion of the program (Woods et al., 2013), indicating the possibility for a deepening in friendship quality with time. As friendship quality is important in the transition to university, orientation activities and services such as peer mentorship programs can target developing meaningful and beneficial friendships for students early on in their transition to university.

### ***Implications for Mental Health Practitioners***

As the current study findings indicate the importance of high-quality friendships, counselling services and mental health practitioners who work closely with university students with and without ADHD can encourage students to engage in friendships that would best support their adjustment to university. As emerging adults with ADHD may have a more difficult time with social functioning, including greater challenges with social skills and maintaining friendships (Barkley et al., 2008; LaCount et al., 2019), interventions can support students with ADHD in this area. However, many interventions exist that support students with ADHD in other areas of functioning, while interpersonal functioning has been noted to be more difficult to improve (Eddy et al., 2021). Social skills training may be employed to support emerging adults in improving their social skills and, therefore, make meaningful friendships more easily (Laugeson, 2017). Although social skills training has been previously noted in research to be useful for those with ADHD, it has been under-researched and underutilized (Gardner & Gerdes, 2013), and there is little research on social skills training for emerging adults. Additionally, the efficacy of social skills training is inconsistent across the literature (Willis et al., 2019), and there have been indications that greater improvements and development of social skills training may improve its efficacy, such as in-vivo interactions (Mikami et al., 2017).

### **Conclusion**

The transition to university remains an exciting yet challenging time for emerging adults (Thompson et al., 2021) and is often more difficult for those who have ADHD (Abecassis et al., 2017). The current study results indicate that higher friendship quality may support students during this transition, as increased friendship quality was associated with better adjustment. Higher levels in friendship quality dimensions of stimulating companionship, help, intimacy, reliable alliance, self-validation, and emotional security were also associated with improved adjustment to university. Although ADHD symptomatology was not a moderator in the link between overall friendship quality and the adjustment to university, some differences in the significant associations between certain friendship dimensions and the transition to university were observed between the ADHD group and the non-ADHD group. Therefore, there is importance in developing high-quality friendships for students during their adjustment to university, and future research directions can support further understanding of this link, while the application of these findings can support emerging adults during this transition.

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