

Adolescent Friendships, Mental Health, and Well-Being: A
Comprehensive Analysis of Friendship Interventions,
Friendship Quality, and Moderating Variables



Tanya Manchanda

Department of Psychiatry

St Cross College

University of Oxford

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Abstract

Adolescence is a prolonged period of rapid neurobiological, psychological, and social development. This rapid development can put adolescents at risk for mental health difficulties and low well-being. Finding ways to address these difficulties in an acceptable and scalable way is especially important to ensure they do not persist into adulthood. One way to address these difficulties is through the lens of supportive interpersonal relationships, which become increasingly important as adolescents' social motivations and need for independence intensify. While literature has focused in depth on the importance of familial relationships, there has been minimal research conducted on the roles of friends and how they might have changed for the modern adolescent, especially given the rise in digital connections.

Friends help fulfil adolescents' needs for belonging, trust, and attachment; forming and maintaining them becomes a primary developmental goal. Friends are also a key source of support that adolescents turn to when they are distressed. However, the support they provide is not always perceived as helpful. Therefore, this thesis employs a mixed-methods approach to address this gap and understand the role friendships can play in adolescents' mental health and well-being. This thesis had three overarching aims: 1) to map the existing literature on friendship interventions for adolescent mental health and identify any gaps, 2) to understand the associations between friendships, mental health, and well-being, as well as how variables might moderate that relationship, and 3) to evaluate adolescents' support-seeking and help-giving preferences and discuss implications.

Following the introductory chapter, Chapter 2 addressed the first aim by employing a scoping and systematic review to map interventions involving adolescents' friends. Existing interventions were diverse, with no single intervention being endorsed more than the others. Interventions typically addressed adolescents' friends as a secondary outcome. They varied in terms of where they were delivered (school or community), who delivered them (teachers or trained professionals), and how they were delivered (online, in-person, or a combination of both). They targeted diverse concerns (e.g., friendship building, mental health literacy, male-specific support) such that it was difficult to compare and contrast them. None measured direct effects on the friend who may have been on the receiving end of the support. Friendship quality was also not evaluated.

Chapters 3A, 3B, and 4 addressed the second aim. Using a large dataset of secondary school adolescents, I showed that high friendship quality was associated with better mental health and well-being, with individual-level variables moderating these links. Girls and older adolescents rated their friends higher across all friendship functions (as measured by the McGill Friendship Function Questionnaire). Boys were sensitive to friendship quality; low-quality friendships showed a larger reduction in their well-being (compared to other genders). Adolescents with exclusively online friends reported better well-being than those with mixed online and in-person friends, and also rated their online friends higher across various friendship functions. In Chapter 4, these associations were similar in adolescents starting university, using a longitudinal dataset that examined student level (undergraduate vs. postgraduate) and status (domestic vs. international). In-person support was largely preferred and more endorsed by the end of the academic year; however, qualitative analyses of free-text responses revealed the unique advantages of online support. Friendship quality was important for both undergraduate and postgraduate students, indicating an equal need for friendship-building efforts. Across studies, gender-diverse (GD) and neurodivergent adolescents struggled more with mental health, well-being, and friendship quality. Despite GD adolescents reporting more low-quality friendships, they proportionally turned to their friends more than boys and girls. Better friendship quality was more strongly linked to better well-being than reduced mental health difficulty.

To address the third aim, Chapter 5 included semi-structured interviews and a vignette study using hypothetical friends to explore adolescents' support-seeking and help-giving preferences. Four themes emerged following reflexive thematic analysis: 1) friendship quality differed from support quality, 2) adolescents were strategic in support, 3) schools serve as formal safety nets, and 4) adolescents had diverse needs and wanted preparedness to support their friends. Finally, in Chapter 6, I discussed implications, suggesting whole-school approaches rather than standalone interventions, given the universality of friendships. I recommended integrating friendships into the school curriculum, discussing in-person and online support-seeking, and training teachers on how they can help foster students' friendships at the classroom level. I also proposed approaches at the university level, recognising the importance of these relationships throughout adolescence.

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Declaration

The work summarised in this dissertation was carried out between October 2021 and September 2025 under the supervision of Professor Mina Fazel and Professor Alan Stein. I declare that this dissertation, entitled *“Adolescent Friendships, Mental Health, and Well-Being: A Comprehensive Analysis of Friendship Interventions, Friendship Quality, and Moderating Variables”*, is the result of my own work.

Chapter 2 is published as a paper in a peer-reviewed journal, and several papers are under preparation for publication from Chapters 3A, 3B, 4, and 5. I declare that no part of this dissertation has been submitted for any other degree at the University of Oxford or another institution. I also confirm that, as per the requirements of the Medical Sciences Division and the Department of Psychiatry, this dissertation does not exceed the 50,000-word limit (excluding the pages preceding Chapter 1, tables, figures, references, and appendices) and contains fewer than 150 figures.

I declare that OpenAI’s ChatGPT (Models 4 and 5) was used for assistance with coding in Chapters 3A, 3B, and 4; all LLM output utilised for these analyses was thoroughly reviewed, edited, and checked by me; no analyses were carried out directly by generative AI. OpenAI’s ChatGPT (Models 4 and 5) and Grammarly were also used to provide feedback on grammar, clarity, and writing style in the text. However, no lines of this manuscript were produced directly using generative AI. Images of hypothetical adolescent friends used in the vignette study in Chapter 5 were created using OpenAI’s ChatGPT (Model 4), and interviews were initially transcribed using Microsoft Teams’ built-in AI transcription service.

Finally, I declare that data for Chapter 3A was collected before I began my DPhil, by the OxWell Student Survey team. While I contributed to the survey questions for data used in Chapters 3B and 4, the data collection was completed by the OxWell Student Survey team and the U-Flourish team, respectively.

I declare no conflicts of interest.

Table of Contents

<i>Abstract</i>	<i>ii</i>
<i>Acknowledgements</i>	<i>iv</i>
<i>Declaration</i>	<i>vi</i>
<i>Table of Contents</i>	<i>vii</i>
<i>Publications</i>	<i>x</i>
<i>List of Tables</i>	<i>xi</i>
<i>List of Figures</i>	<i>xiii</i>
<i>List of Abbreviations</i>	<i>xvii</i>

Chapter 1. Introduction	1
1.1 Adolescence	3
1.1.1 A Vulnerable Period for Mental Health and Well-Being	4
1.1.2 Adolescence as a Window of Opportunity	7
1.4 Friendship During Adolescence	8
1.4.1 The Authentic Social Group	10
1.5 The Role of Schools	11
1.6 Is There Potential for Friendship Interventions?	16
1.7 Thesis Overview	17
1.8 A Brief Note on Positionality	20

Chapter 2. The role of friendship interventions on the mental health and well-being of adolescents

2.1 Introduction	36
2.1.1 The Current Study	36
2.1.2 Research Questions	37
2.2 Search Strategy and Selection Criteria	37
2.3 Scoping Review	37
2.3.1 Methods	37
2.3.2 Results	38
2.4 Systematic Review	46
2.4.1 Methods	46
2.4.2 Results	47
2.5 Discussion	59
2.5.1 Strengths and Limitations	62
2.5.2 Implications	63
2.6 Conclusion	64

Chapter 3A. Friendship quality, mental health and well-being: results from a large cross-sectional student survey

3.1 Introduction	73
3.1.1 The Current Study	74
3.1.2 Research Questions	74
3.2 Methods	74
3.2.1 Measures	75
3.2.2 Analytical Approach	77
3.3 Results	79
3.4 Discussion	95
3.4.1 Strengths and Limitations	101
3.4.2 Implications	102
3.5 Conclusion	103
 Chapter 3B. Friendship quality, mental health and well-being: the impact of support preferences, online friends, gender, year group, neurodivergence, and ethnic identity	
4.1 Introduction	117
4.1.1 The Current Study	117
4.1.2 Research Questions	118
4.2 Methods	119
4.2.1 Measures	119
4.2.2 Analytical Approach	123
4.3 Results	125
4.4. Discussion	162
4.4.1 Strengths and Limitations	170
4.4.2 Implications	171
4.5 Conclusion	172
 Chapter 4. Friendships of first-year university students and their association with mental health and well-being	
5.1 Introduction	185
5.1.1 The Current Study	185
5.1.2 Research Questions	186
5.2 Methods	186
5.2.1 Measures	187
5.2.2 Analytical Approach	189
5.3 Results	191
5.4 Discussion	224
5.4.1 Strengths and Limitations	229
5.4.2 Implications	232
5.5 Conclusion	233

Chapter 5. “We’re not talking about how we can actually get help”: A qualitative study of adolescents’ support-seeking and help-giving preferences, both from lived experience and in hypothetical situations

6.1 Introduction	242
6.1.1 The Current Study	243
6.1.2 Research Questions	243
6.2 Methods	243
6.2.1 Study Materials	244
6.2.3 Data Analysis	247
6.3 Results	247
6.3.1 Theme 1: Friendship quality and support quality are interrelated but distinct	248
6.3.2 Theme 2: Adolescents as strategic support-seekers and help-givers	253
6.3.3 Theme 3: The role of schools in adolescent support-seeking and help-giving	256
6.3.4 Theme 4: Diversity and preparedness across friend support	260
6.4 Discussion	265
6.4.1 Reflexivity and the Researcher’s Position	269
6.4.2 Strengths and Limitations	270
6.4.3 Implications	271

Chapter 6. Discussion & Conclusion 280

7.1 Summary of Findings	281
7.1.1 Friendships for the Modern Adolescent	285
7.2 Strengths and Limitations	285
7.3 Implications for Schools	290
7.3.1 Targeted Approaches for Boys	292
7.3.2 Considering Diversity: Neurodivergent and Gender-Diverse Adolescents	293
7.3.3 Strategies at the University Level	294
7.3.4 Important Considerations	294
7.4 Implications for Researchers	295
7.5 Conclusion	298

Appendices

<i>Appendix A</i>	307
<i>Appendix B</i>	308
<i>Appendix C</i>	315
<i>Appendix D</i>	318

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List of Tables

Chapter 2

Table 2.1. Characteristics of included items for the scoping review organised by theme.	40
Table 2.2. Characteristics of the studies included in the systematic review	52

Chapter 3A

Table 3A.1 Statistical models	78
Table 3A.2 Sample demographics	79
Table 3A.3 Multiple Linear Regression Output for RCADS-25 using friendship quality, gender, and year group as covariates	81
Table 3A.4 Multiple Linear Regression Output for WEMWBS using friendship quality, gender, and year group as covariates	82
Table 3A.5. Pairwise Contrasts for Estimated Differences in RCADS-25 Scores by Friendship Quality for Gender	84
Table 3A.6. Pairwise contrasts for estimated differences in RCADS-25 scores by friendship quality for year group	85
Table 3A.7 Pairwise Contrasts for Estimated Differences in WEMWBS Scores by Friendship Quality for Gender	87
Table 3A.8 Contrasts table comparing the estimated marginal means of WEMWBS score for the three levels of friendship quality and year group	88
Table 3A.9. Logistic Regression Analysis of Adolescents' Perception of Helpful Friend Support in Relation to Mental Health, Well-being, and Gender	90

Chapter 3B

Table 3B.1 Statistical models	123
Table 3B.2 Sample distribution of secondary school and further education college students	126
Table 3B.3 Chi-squared tests: Univariable associations for individual-level and situational characteristics	127
Table 3B.4 Linear regression model output for RCADS-11 as a predictor	129
Table 3B.5 Linear regression model output with SWEMWBS as a predictor	131
Table 3B.6 Pairwise contrasts for estimated differences in RCADS-11 scores by friendship quality stratified by group	138
Table 3B.7 Pairwise contrasts for estimated differences in SWEMWBS scores by friendship quality stratified by group	144
Table 3B.8 Significant adjusted odds ratios for reported self-harm regressed on friendship quality and individual-level variables (main effects model)	144

Table 3B.9 Significant interaction effects with friendship quality: gender and neurodivergent status	144
Table 3B.10 Individual-level Predictors of Adolescent Loneliness: Linear Regression Model	146
Table 3B.11 Correlations between Friendship Functions and RCADS-11 Scores	147
Table 3B.12 Correlations between Friendship Functions and SWEMWBS Scores	147
Table 3B.13 Significant comparisons of means within groups across friendship functions fulfilled by close friends.	149
Table 3B.14 Significant odds ratios for individual-level predictors of friendship stability	157
Table 3B.15 Adjusted odds ratios and 95% confidence intervals from logistic regression predicting the likelihood of finding in- person and online friend support helpful	160
Table 3B.16 Adjusted odds ratios and 95% confidence intervals from logistic regression predicting the likelihood of rating in- person support from friends as important when experiencing distress	161
 Chapter 4	
Table 4.1 Statistical models	189
Table 4.2 Demographics of respondents at baseline survey	192
Table 4.3 Multiple linear regression output with GAD-7	194
Table 4.4 Multiple linear regression output with SWEMWBS	195
Table 4.5 Friendship quality effects on GAD-7 and SWEMWBS, with cross-model tests	196
Table 4.6 Logistic regression odds ratios for reported past self-harm	197
Table 4.7 Significant Pairwise Contrasts for Estimated Differences in GAD-7 Scores by Friendship Quality Stratified by Group	206
Table 4.8 Significant Pairwise Contrasts for Estimated Differences in SWEMWBS Scores by Friendship Quality Stratified by Group	207
Table 4.9. Significant comparisons within groups across friendship functions fulfilled by close friends.	209
Table 4.10 Adjusted Odds Ratios for finding in-person support important when distressed	210
Table 4.11. Themes, sub-themes, and exemplifying quotations from thematic analysis	213
Table 4.12. Significant results from paired t-tests of GAD-7 scores from baseline to follow-up, total score and by individual-level variables	222
Table 4.13. Significant results from paired t-tests of SWEMWBS scores from baseline to follow-up, total score and by individual- level variables	223

List of Figures

Chapter 1

Figure 1.1. Cumulative proportion of individuals diagnosed with selected neurodevelopmental and mental health disorders across three age groups	6
Figure 1.2. The social convoy model for modern adolescent friendship processes and mental health.	11
Figure 1.3. An adolescent friendship approach of Bronfenbrenner's ecological systems framework	13
Figure 1.4. Interactional schema of child and adolescent public mental health	15
Figure 1.5. Visual summary of research aims	19

Chapter 2

Figure 2.1. Flowchart depicting a summary of searches and results for scoping review.	39
Figure 2.2. Mapping targets of the included friendship interventions.	43
Figure 2.3. Flowchart depicting summary of searches and results for systematic review	49
Figure 2.4. An overview of the studies evaluated in the systematic review, illustrating the typical implementation and results of the included interventions.	50

Chapter 3A

Figure 3A.1. Proportion of Adolescents Reporting Friendship Quality by Gender	80
Figure 3A.2. Boxplot showing a significant relationship between RCADS-25 scores and friendship quality.	82
Figure 3A.3. Boxplot showing a significant relationship between WEMWBS scores and friendship quality.	83
Figure 3A.4. Estimated marginal means of RCADS-25 scores by friendship quality and gender.	84
Figure 3A.5. Estimated marginal means of RCADS-25 scores by friendship quality and gender.	85
Figure 3A.6 Estimated marginal means of RCADS-25 scores by friendship quality and gender.	87
Figure 3A.7 Estimated marginal means of RCADS-25 scores by friendship quality and gender	88
Figure 3A.8. Predicted Probability of Perceiving Friend Support as Helpful by RCADS-25 Score and Gender.	91
Figure 3A.9. Predicted Probability of Perceiving Friend Support as Helpful by WEMWBS Score and Gender	91
Figure 3A.10 Proportion of Adolescents Seeking Friend Support by Gender	92

Figure 3A.11 Proportion of Adolescents Seeking Friend Support by Year Group	93
Figure 3A.12 The proportion of adolescents who were offered or not offered support when they sought it out from their friends	94
Figure 3A.13 Proportion of Adolescents Reporting How Often They Feel They Have No One to Talk To, by Gender	95

Chapter 3B

Figure 3B.1 Proportion of students reporting high, intermediate, or low friendship quality by individual-level and situational characteristics	128
Figure 3B.2 Estimated marginal means of RCADS-11 scores by friendship quality and gender	132
Figure 3B.3 Estimated marginal means of SWEMWBS scores by friendship quality and gender	133
Figure 3B.4 Estimated marginal means of RCADS-11 scores by friendship quality and year group	134
Figure 3B.5 Estimated marginal means of SWEMWBS scores by friendship quality and year group.	134
Figure 3B.6 Estimated marginal means of RCADS-11 scores by friendship quality and ethnic group.	135
Figure 3B.7 Estimated marginal means of SWEMWBS scores by friendship quality and ethnic group	135
Figure 3B.8 Estimated marginal means of RCADS-11 scores by friendship quality and amount of close online friends	136
Figure 3B.9 Estimated marginal means of SWEMWBS scores by friendship quality and amount of close online friends	137
Figure 3B.10 Estimated marginal means of RCADS-11 scores by friendship quality and neurodivergent status	138
Figure 3B.11 Estimated marginal means of SWEMWBS scores by friendship quality and neurodivergent status	138
Figure 3B.12 Predicted probability of self-harm showing the interaction between friendship quality and gender	145
Figure 3B.13 Predicted probability of self-harm showing the interaction between friendship quality and neurodivergent status	145
Figure 3B.14 Proportional distribution of friendship function ratings across gender groups	152
Figure 3B.15 Proportional distribution of friendship function ratings across year groups.	153
Figure 3B.16 Proportional distribution of friendship function ratings across ethnic groups.	154
Figure 3B.17 Proportional distribution of friendship function ratings across amount of close online friends.	155
Figure 3B.18 Proportional distribution of friendship function neurodivergent status.	156

Figure 3B.19 Number and percentage of adolescents who reported seeking support from in-person friends	158
Figure 3B.20 Percentage of adolescents who were offered support from in-person friends	159
Figure 3B.21 Percentage of adolescents who rated the support they received from in-person friends	160
Figure 3B.22 Percentage of adolescents rating the importance of meeting their friend in person for support when distressed	161

Chapter 4

Figure 4.1. Proportional distribution of friendship quality levels by individual-level variables at baseline.	193
Figure 4.2 Friendship quality differences across clinically anxious and not clinically anxious scoring students	195
Figure 4.3 Estimated marginal means of gender moderating the relationship between friendship quality and GAD-7.	198
Figure 4.4. Estimated marginal means of gender moderating the relationship between friendship quality and SWEMWBS.	198
Figure 4.5. Estimated marginal means of student status moderating the relationship between friendship quality and GAD-7.	199
Figure 4.6 Estimated marginal means of student status moderating the relationship between friendship quality and SWEMWBS.	200
Figure 4.7. Estimated marginal means of student type moderating the relationship between friendship quality and GAD-7.	201
Figure 4.8. Estimated marginal means of student type moderating the relationship between friendship quality and SWEMWBS.	201
Figure 4.9. Estimated marginal means of ethnic group moderating the relationship between friendship quality and GAD-7.	202
Figure 4.10. Estimated marginal means of ethnic group moderating the relationship between friendship quality and SWEMWBS.	203
Figure 4.11 Estimated marginal means of amount of close online friends moderating the relationship between friendship quality and GAD-7	204
Figure 4.12 Estimated marginal means of amount of close online friends moderating the relationship between friendship quality and SWEMWBS.	204
Figure 4.13. Estimated marginal means of neurodivergent status moderating the relationship between friendship quality and GAD-7.	205
Figure 4.14. Estimated marginal means of neurodivergent status moderating the relationship between friendship quality and SWEMWBS.	206
Figure 4.15. Percentage of participants rating the importance of seeing a friend in person when distressed at baseline and follow-up	211
Figure 4.16. Pathways for adolescents seeking support from their friends	219

Figure 4.17. Differences in ratings of friendship quality across participants who completed both baseline and follow-up surveys	221
Figure 4.18. Stacked bar plot showing how those who endorsed each level of friendship quality at the start of the academic year changed by the end of the academic year	221

Chapter 5

Figure 5.1. Vignettes of hypothetical friends shown to adolescents.	246
Figure 5.2. Thematic overview of the findings	248
Figure 5.3. Friendship quality and support quality as distinct but interrelated domains in shaping adolescents' experiences of friend support.	253

List of Abbreviations

ADHD	Attention Deficit Hyperactivity Disorder
AIC	Akaike Information Criterion
AOR	Adjusted Odds Ratios
CI	Confidence Interval
DF	Degrees Of Freedom
EMMs	Estimated Marginal Means
GAD-7	General Anxiety Disorder-7
GD	Gender Diverse
GND	Gender Non-Disclosing
LMIC	Low- And Middle-Income Country
LRT	Likelihood Ratio Test
MFQ-FF	McGill Friendship Questionnaire–Friend’s Function
MH	Mental Health
ONS	Office For National Statistics
RCT	Randomised Control Trial
RCADS-25/RCADS-11	Revised Children’s Anxiety And Depression Scale–25-Item/11-Item
SD	Standard Deviation
SE	Standard Error
SENCO	Special Educational Needs Coordinator
SWEMWBS	Short Warwick–Edinburgh Mental Wellbeing Scale
tMHFA	Teen Mental Health First Aid
WEMWBS	Warwick–Edinburgh Mental Wellbeing Scale
WHO	World Health Organisation

Chapter 1

Introduction

Cross-cultural research consistently shows that mental health difficulties increase during adolescence (Habib et al., 2023; McGorry et al., 2024; Murshid, 2017). Recent WHO estimates suggest that one in seven adolescents is affected by a mental health disorder and that these difficulties contribute over 15% of their global burden of disease (WHO, 2025). And these figures may, in fact, be underestimates, as many adolescent mental health issues go undetected and untreated (Kessler et al., 2007; Radez et al., 2021).

When adolescents are dealing with mental health struggles, the first people they turn to for support are often their friends. Data from a large national UK survey show that after self-harm, adolescents were most likely to seek support from friends rather than from informal sources or formal services such as CAMHS or GPs (Geulayov et al., 2022). Other research, including studies with adolescents as young as 13, similarly suggests that friends were often preferred over parents when adolescents feel distressed (Wright et al., 2023). However, there is minimal insight on how friends' natural role in support provision might be harnessed to improve psychological outcomes, for example, in a school-based setting. This is a major deficit in both literature and practice, as for adolescents, friends might represent their *preferred* source of support.

Filling this deficit must be done with care, though, because research also suggests that among adolescents who turned to their friends for support, less than half reported finding that support helpful (Geulayov et al., 2022). This gap, between the support sought from friends and the perceived helpfulness of that support, is less understood. While growing recognition in policy and research find that social determinants play a central role in the lives of adolescents (Das et al., 2016; Robins et al., 2024), with burgeoning evidence linking personal relationship variables with depression and anxiety across socioeconomically and racially diverse populations (Yang et al., 2023; Robbins et al., 2024; Prokosh et al., 2022), there is relatively little research exploring how friendships might have an influence on adolescent mental health and well-being. Friendships are dynamic and less understood in the literature for *modern* adolescents, one reason being the rise of digital platforms that change the availability and nature

of social connections. Therefore, to address this gap, it is essential to first understand how the changing nature of friendships relates to mental health and well-being.

Schools are a natural place for both adolescent friendships and implementing interventions for mental health and well-being (Schaefer et al., 2011; Fazel & Soneson, 2023). Despite systematic reviews evaluating the evidence on school-based peer interventions (King & Fazel, 2021), there is currently no evidence to support the effectiveness of friendship interventions in a school setting.

Given the prevalence of adolescent mental health difficulties, the natural preeminence of friends in adolescents' lives (Furman & Buhrmester, 1992; Cohen, 2004; Holt-Lunstad et al., 2015; Geulayov et al., 2022; Wright et al., 2023), and the central positioning of schools (Hayes et al., 2025; Fazel & Soneson, 2023), in my thesis, I suggest that leveraging these natural support systems might present an opportunity for a promising, yet largely unexplored avenue for scalable interventions in contexts where formal resources are limited.

I begin this chapter by first outlining the key developmental changes that characterise adolescence, including neurobiological and psychological shifts that create both vulnerabilities and opportunities for growth. I then review the prevalence, risks, and consequences of mental health difficulties during this transitional period and highlight the pressing need for effective support. Next, I examine how friendships assume a central role in adolescent development, introduce the concept of the authentic social group, and define the unique function of schools in shaping friendships and intervention opportunities. I also draw on the social convoy model, Bronfenbrenner's ecological systems theory and Fazel & Soneson's (2023) interactional public health schema to provide a theoretical and evidence-based foundation for understanding adolescent friendships and presenting schools as the ideal intervention space. Finally, I outline the gaps this thesis addresses, my research aims, and provide an overview of the five studies conducted to investigate the relationship between friendships, mental health, well-being, and the potential for school-based interventions.

1.1 Adolescence

While visible physical changes can indicate different stages of lifespan development, the changes in the brain during various developmental phases are not always as apparent. This is especially true during adolescence: a transitional period between childhood and adulthood, during which biological age has been widely debated (Crone & Dahl, 2012; Sawyer et al., 2018). Advances in neurodevelopmental research, earlier pubertal onset, and shifts in social expectations (e.g. an increase in the anticipated age for completing education, marriage, and parenthood) broaden and require the definition of adolescence to be more inclusive (Sawyer et al., 2018; Jaworska & MacQueen, 2015; Casey et al., 2010). In this thesis, I define **adolescence** as the age range from 10 to 24 years, as it more accurately reflects the modern adolescent (Sawyer et al., 2018).

Social, behavioural, and physical changes, including significant structural and functional development of the brain, are central to adolescence (Sawyer et al., 2018; Blakemore & Choudhury, 2006; Foulkes & Blakemore, 2018). Some of these changes are driven by pubertal maturation, a biological process that begins between the ages of 9 and 12 years and marks the start of adolescence (Crone & Dahl, 2012; Blakemore et al., 2010). Puberty is a developmental stage marked by increased hormonal activity, leading to sexual and physical maturation, including facial structure changes, altered sleep and circadian regulation, voice and body changes, shifts in metabolism, new drives and motivations, and social, behavioural, and psychological transformations (Abreu & Kaiser, 2016; Blakemore et al., 2010). Ultimately, puberty is a key marker of emerging adulthood. The hormonal and physical changes which occur during this period shape adolescents' behaviours, perceptions, and motivations.

Adolescence is also characterised by profound neurobiological changes that may occur independently of hormonal changes (Casey et al., 2008; Griffin, 2017). One of these changes is an increase in white matter and a decrease in grey matter (Giedd, 2006; Miguel-Hidalgo, 2014). This process is known as synaptic pruning, and it is believed to involve the elimination of unused brain connections to enhance cognitive efficiency (Blakemore & Choudhary, 2006). Researchers note that this may sometimes incur unexpected effects, such as adolescents experiencing a temporary decline in face recognition ability during puberty (McGivern et al., 2002; Blakemore, 2018). Along the same lines, changes

in myelination have also been observed with an increase in circuits which support higher cognition (Corrigan et al., 2021).

Brain maturation during adolescence is not uniform. The subcortical areas involved in emotion and memory (i.e., the amygdala and hippocampus) tend to mature earlier in adolescence, whereas frontal cortical regions mature later (Sisk & Gee, 2022; Tamnes et al., 2010). The prefrontal cortex, which is responsible for executive functions such as planning, decision-making, and inhibitory control, is one of the last brain regions to reach full maturity, with development extending into the mid-twenties (Arain et al., 2013; Luciana, 2013). Many basic cognitive abilities reach adult levels by mid-adolescence, but the prefrontal cortex keeps refining into adulthood (Blakemore, 2018).

At the same time, changes in the reward-processing circuits of the brain include an increased appreciation for rewarding stimuli, involving limbic system areas like the extended amygdala, hypothalamus, ventral striatum, and the front parts of the temporal cortex (Casey et al., 2008; Galván, 2010). The difference in development between cognitive skills and reward-driven behaviours can sometimes cause an imbalance, making reward and emotion-related circuits more influential when cognitive control and executive functions are still maturing (Ahmed et al., 2015; Blakemore & Choudhury, 2006; Padmanabhan et al., 2011). As one result of this asynchronous brain development, researchers observe an increase in adolescents' novelty-seeking, risk-taking, and peer influence (Padmanabhan et al., 2011; Albert et al., 2013).

1.1.1 A Vulnerable Period for Mental Health and Well-Being

The changes that adolescents undergo can make this developmental period sensitive for mental health and well-being. Mental health is defined by the WHO as a vital component of health, representing a state where individuals recognise their abilities, can handle normal stressors, work effectively, and contribute to their community (WHO, 2025). In contrast, well-being refers to a positive state of life satisfaction and functioning, shaped by social, economic, and environmental factors (WHO, 2021). Thus, while mental health and well-being are related, they exist as distinct constructs, which is increasingly recognised in the literature (Wren-Lewis & Alexandrova, 2021; Franken et al., 2018; Westerhof & Keyes, 2010; Patalay & Fitzsimons, 2016). For instance, well-accepted findings from the UK Millennium Cohort Study indicate they should be considered independently because they are associated with different

predictors; children with chronic illnesses, for example, did not always report having lower well-being (Patalay & Fitzsimons, 2016). Consequently, an individual might not experience a mental health difficulty but still experience low well-being.

Biological changes in adolescence often occur alongside psychosocial shifts, such as gaining independence and adopting new social roles (Arnett, 2001; Meeus, 2016). It is these concurrent changes that can place pressure on adolescents, making them vulnerable to mental health difficulties and low well-being. This complexity of changes is also reflected in adolescents' heightened sensitivity (Blakemore & Mills, 2014; Guyer et al., 2016; Towner et al., 2023), as they become more vulnerable to stress (Sisk & Gee, 2022) and are affected by peer dynamics, both positive and negative (Laursen & Veenstra, 2021).

Then, this heightened sensitivity has been shown in the literature to contribute to a rise in mental health difficulty (Falkenstein et al., 2025). For example, one study explicitly linked the occurrence of stressful life events during adolescence to anxiety and increased internalising symptoms (McLaughlin & Hatzenbuehler, 2009). Mental health difficulties, such as anxiety, have been found to be more common during adolescence than childhood (Waite & Cresswell, 2014).

Epidemiological studies support this literature. Pooled data from over 700,000 individuals from a meta-analytical review of epidemiological studies revealed that a significant proportion of mental health disorders reach their peak onset before the age of 18 (Solmi et al., 2022). These include depression, anxiety, substance use disorders, and even psychosis (Solmi et al., 2022; Paus et al., 2008; Walker, 2002; Luciana, 2013). Around 20% of adolescents experience a mental health difficulty, and over 60% of all people who will ever have a mental disorder experience their first one before the age of 25 (Solmi et al., 2022). For anxiety disorders specifically, about 40% of those who will ever develop one have already done so by age 14, as shown in Figure 1.1 (Solmi et al., 2022). Early mental health issues can have long-term effects, increasing the risk of chronic illnesses and co-occurring conditions (Caspi et al., 2020; Paus et al., 2008; Copeland et al., 2015). Additionally, many individuals with neurodevelopmental disorders like autism spectrum disorder and ADHD are typically diagnosed during adolescence (see Figure 1.1), and they often coincide with other mental health difficulties (Hansen et al., 2018).

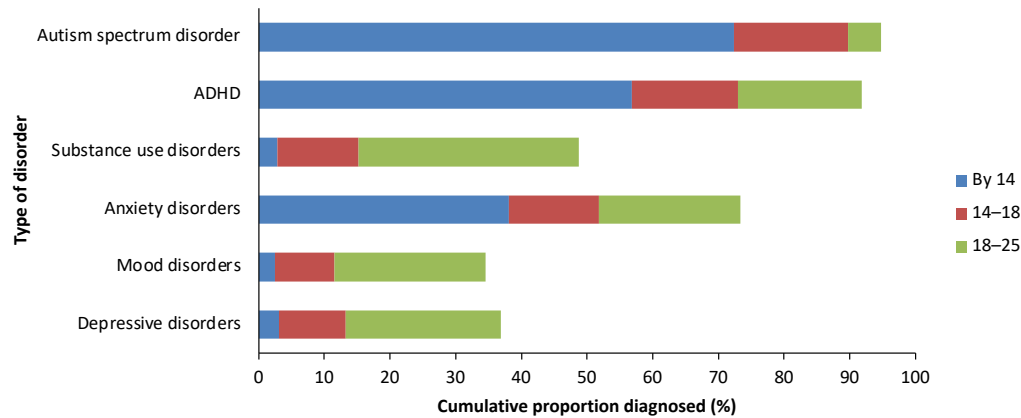


Figure 1.1. Cumulative proportion of individuals diagnosed with selected neurodevelopmental and mental health disorders across three age groups at which diagnosis was received based on pooled meta-analytic age-at-onset data retrieved from Solmi et al. (2022).

The broader consequences of adolescent mental health difficulty and poor well-being extend beyond the immediate psychological distress experienced by the individual. Adolescents with mental health difficulties are more likely to experience academic underachievement, school drop-out, and reduced likelihood of completing secondary or tertiary education (Kessler et al., 2005; Mojtabai et al., 2015; Dalsgaard et al., 2020). They might further be at risk of engaging in substance misuse, self-harm, risky sexual behaviour, and other health-compromising activities (Kim-Cohen et al., 2003; Roberts et al., 2007; Glied & Pine, 2002). Further, they may be more prone to face challenges later in life, such as difficulties in forming and maintaining healthy relationships (Patton et al., 2016), persistent or recurring mental health issues in adulthood, and increased risks of chronic mental illnesses, comorbid disorders, or suicide (Jones, 2013; Copeland et al., 2015). The impact of untreated adolescent mental health difficulties can negatively affect the well-being of the next generation, through influences on parenting and family stability (Belfer, 2008; Monaco, 2021). It can also impose a negative impact on society, through predicting lower earnings, reliance on social welfare programmes, and societal costs through lost productivity (in the short term for their families and in the long term for them) and increased healthcare use, thereby posing a public health challenge (Belfer, 2008; Knapp et al., 2016; McGorry et al., 2024; Armitage et al., 2024).

There is a need to expand evidence-based prevention and early intervention strategies for this population, with particular focus on making

these approaches developmentally appropriate, accessible, acceptable, and targeted (Das et al., 2016; Patton et al., 2016; McGorry & Mei, 2018).

1.1.2 Adolescence as a Window of Opportunity

The neurodevelopmental and social changes experienced by adolescents may also confer adaptive advantages, such as exploration, learning, and forming new social bonds beyond the family, when viewed from an evolutionary development lens (Casey et al., 2025). For example, reward-seeking behaviour might be adaptive as it could enable adolescents to step outside their comfort zone and explore new environments (Casey et al., 2025). Additionally, turning away from family towards friends might expose adolescents to new ways of thinking and learning beyond their immediate family unit. Cultural evolution research suggests that the increasing need for peer-group affiliation among adolescents is crucial, as it promotes peer-to-peer learning during this period (Lew-Levy et al., 2023). The adaptive benefits of adolescents turning to their peers are also reflected in improved emotional development, such as an increase in prosocial behaviour (Sullivan et al., 2022).

The neurodevelopmental changes that make adolescents susceptible to mental health difficulties are also the ones that can contribute to an increase in neuroplasticity and offer a unique “window of opportunity” (Munsch et al., 2025) for early mental health interventions. Neural circuits in adolescents, which undergo remodelling as explained above, can be shaped by experience more than at any other life stage. Research has demonstrated that when adolescents engage in enriching activities such as the creative arts, cultural activities, or physical activity, they can strengthen neural connections and promote healthy cognitive and emotional development (James et al., 2024; Rodríguez-Negro et al., 2024). Furthermore, the increased sensitivity during adolescence can also present an opportunity, as it can make individuals more receptive to social factors and support (Hanson et al., 2019; Luby et al., 2020). On this basis, a key observation is that interventions implemented during adolescence can capitalise on the neuroplasticity naturally present during this period, serving as tools to promote mental health and well-being among adolescents.

1.4 Friendship During Adolescence

There is extensive, longstanding evidence highlighting the importance of interpersonal relationships for humans (Furman & Buhrmester, 1992; Cohen, 2004; Holt-Lunstad et al., 2015; Blieszner et al., 2019; Hojjat & Moyer, 2017; Procidano & Heller, 1983). A key aspect of adolescence is learning how to navigate an increasingly complex social world, which involves forming and maintaining friendships (Crone & Dahl, 2012; Hartup, 1992). Friendships can be broadly defined as unique, voluntary, and emotionally rich relationships that play a central role in social development. They often grow in intimacy and importance over time, particularly as individuals transition out of childhood (Schreuders et al., 2021; Güroğlu, 2021; Buhrmester, 1990). Friends usually transcend parents as the primary source of social support during adolescence, which is not only evident in research (Furman & Buhrmester, 1992; Larson & Richards, 1991), but also supported by pioneering theories of child and adolescent development. One such example comes from Bowlby's attachment theory. This theory posits that children form attachment bonds with a specific caregiver (usually a parent) and that this attachment transfers during adolescence, to friends and romantic partners (Bowlby, 1969; Kobak et al., 2007). Indeed, adolescents, between the ages of 10 to 18, identify a friend as one of the most important figures in their lives (Kiesner et al., 2004). This becomes even more commonplace as adolescents transition to secondary school, where social networks naturally expand and affiliations with peer groups grow in importance (La Greca & Prinstein, 1999; Blakemore, 2018). Increased time at school and in extracurricular activities typically means adolescents usually spend more unsupervised time with their peers, which enhances the influence of friends (Lam, McHale, & Crouter, 2014; Güroğlu, 2021). The rise of social media has further intensified this trend, making peer connection constant through digital media and accessible at any time (Ahmed, 2019; Nesi et al., 2018). This constant availability to social connection, then, may contribute to changes in the nature of adolescents' friendships and consequently shape both their social and emotional development (Angelini et al., 2022; Odgers & Jensen, 2020).

Recent 2025 statistics by the Pew Research Center report that around 64% of adolescents report having between one and four close friends, with around 2% of them reporting having no close friends (Parker & Hurst, 2025). Friendship stability changes over the course of adolescence, with early

adolescence marked by high friendship turnover and dissolution (around one third to one half of friendships are unstable), whereas later adolescence shows higher friendship retention, with around 50 to 75% of friendships remaining stable over the school year (Berndt & Hoyle, 1985; Berndt et al., 1986; Degirmencioglu et al., 1998). Transitional periods in the lives of adolescents, however, seem to have a larger influence on friendship stability, with a large proportion of friendships dissolving in the year after secondary school (McMillan et al., 2025).

Recent neurobiological evidence shows that close friendships also occupy a distinct position in the adolescent brain. Interactions with close friends activate the ventral striatum, a region linked to reward, especially during mid-to-late adolescence, suggesting that friendships become more neurologically rewarding and stable as adolescents grow older (Schreuders et al., 2021). The ventral striatum is not only responsive to personal rewards during adolescence but also to rewards for close friends, with greater sensitivity in this area being linked to higher prosocial behaviours and lower risky behaviours (Güroğlu, 2021; Morelli et al., 2018; Schreuders et al., 2021).

However, friends can be a source of both risk and resilience. While peer influence may at times promote risky behaviours (Borsari & Carey, 2001), supportive friendships offer important protection, reducing the risk of depression and buffering the effects of negative peer experiences (Masten et al., 2010; Bukowski, Laursen & Hoza, 2010). Positive friendships are associated with lower stress reactivity, greater well-being, and enhanced cognitive and social functioning (Heinrichs et al., 2003; Hartup, 1996). The importance of adolescent friendships is recognised cross-culturally (Lu et al., 2021; Murshid, 2017; Wang et al., 2022), and their psychosocial advantages extend into adult life (Van Harmelen et al., 2017). For adolescence's stressors, such as bullying, close friends serve a protective function, with their presence demonstrated to mitigate adverse mental health outcomes (Bukowski, Laursen, & Hoza, 2010). The absence of close friendships may adversely affect well-being, as a meta-analysis revealed that social connections are predictive of mortality risk, on par with behaviours such as smoking and alcohol consumption (Holt-Lunstad, Smith, & Layton, 2010).

With many adolescents turning to their friends before seeking help from adults, friendships can be an essential source of support during periods of mental distress (Geulayov et al., 2022; Wright et al., 2023; Birrell et al., 2025).

However, while research documents the importance of friendships for adolescent mental health and well-being, much less is understood about how friends might offer *helpful* support or how the quality and stability of these friendships shape the effectiveness of that support. For example, though almost 36% of adolescents sought support from friends following self-harm, less than half report the support being helpful (Geulayov et al., 2022). This illuminates a large gap, where the mechanisms underlying the helpfulness of the support provided by friends are less understood, especially for mental health difficulties (Traylor et al., 2016; Wanzer & Czapla, 2022).

1.4.1 The Authentic Social Group

Given that adolescent friendship literature inconsistently and interchangeably uses the terms ‘friend’ and ‘peer’, I have defined the concept of an *authentic social group*, which is the focus of this thesis. An authentic social group is characterised by voluntary, reciprocal relationships that may differ in quality, can be dyadic or group-based, and can exist both in-person and/or online. In the context of adolescent friendships, these groups are not limited to classmates or peers but include any individuals with whom adolescents establish genuine bonds based on shared interests, experiences, and/or values. They are an essential component of an adolescent’s peer group affiliation.

The Social Convoy Model of Adolescent Friendships

Having defined the authentic social group as the focus of this thesis, it is important to consider how adolescent friendships are structured and how they function. The social convoy model, widely used in social relationship research, helps offer a perspective. It suggests that as people age, they move through life with a circle (or convoy) of social relationships shaped by personal and situational factors. These relationships can then influence their well-being (Kahn & Antonucci, 1980; Antonucci et al., 2014; Fuller et al., 2020). Typically applied to adult relationships, I present an adaptation of the model by Fuller et al. (2020) for adolescents in Figure 1.2. During this developmental period, friendships often become the central convoy.

The model positions friends as a convoy that accompanies adolescents throughout their development, although these relationships can change over time. These friendships can differ in closeness, quality, functions (such as offering help or emotional support), and structure (including size, composition,

frequency of contact, and proximity). These dynamics might be shaped by individual-level factors (e.g. age, gender, and ethnicity) and situational factors (e.g. online vs. face-to-face friendships or being a domestic vs. international student), which may influence mental health and well-being (Kahn & Antonucci, 1980; Antonucci et al., 2014).

Essentially, this model illustrates various ways in which different factors can influence friendship dynamics and potentially moderate the relationship between friendship and mental health and well-being. The bi-directional arrows show hypothesised mutual influences (e.g., higher-quality friendships lead to more effective support, and supportive behaviours enhance friendship quality). Importantly, this model emphasises the multiple pathways through which friendship dynamics may influence mental health and well-being outcomes. Overall, it offers a theoretical foundation for my thesis, particularly in exploring whether specific friendship dynamics might play a larger role in reducing mental health difficulties and promoting well-being.

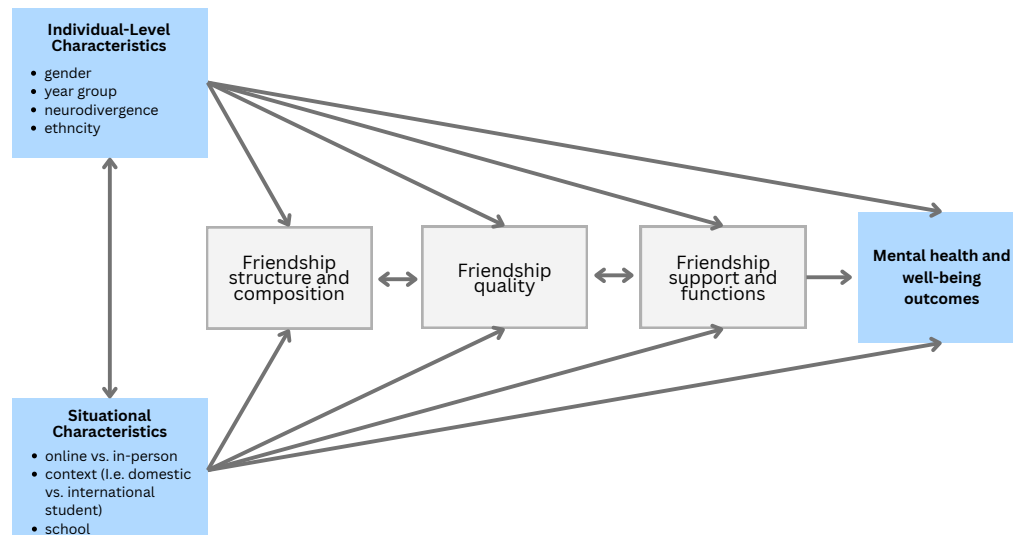


Figure 1.2. The social convoy model for modern adolescent friendship processes and mental health. (Adapted from Kahn & Antonucci, 1980; Antonucci et al., 2014; Fuller et al., 2020).

1.5 The Role of Schools

The social convoy model shows how friendship dynamics and individual-level and situational factors could relate to adolescent mental health and well-being. Yet schools, more than almost any other context, shape these relationships, given that they are the institutions adolescents spend the most time in. They offer a familiar environment, which might be less stigmatising

and more accessible for early mental health identification and intervention than traditional clinical settings (Fazel, Hoagwood, et al., 2014; Fazel, Patel, et al., 2014; Giri et al., 2025). Furthermore, teachers and staff might also play an important role in identifying and supporting at-risk students early, as suggested by some literature (Cruz et al., 2021; Dwyer et al., 2006; Knesting-Lund et al., 2015).

Schools are central to forming adolescent social groups through clubs, sports, and peer projects (Schaefer et al., 2011). They serve as key settings for friendships, social inclusion, social skills, and interaction (George & Hartmann, 1996; Roach, 2019). They can also deliver mental health education in ways that are acceptable for adolescents, via classroom learning and school activities, including assemblies (Fazel, Hoagwood, et al., 2014; Fazel, Patel, et al., 2014; Sapthiang et al., 2019).

Similarly, for older adolescents, higher education institutions provide environments that encourage friendship formation through shared interests, proximity (e.g., living in a university residence with other students) (Buote et al., 2007), and targeted institutional initiatives (e.g., events for first-year students) (Ajjawi et al., 2026). Research indicates that social relationships are vital for undergraduate students for similar reasons as for secondary school students, as increased loneliness among university students predicts lower academic performance (Bryan et al., 2024) and greater mental health difficulties (McIntyre et al., 2018).

Given their centrality in the lives of adolescents, schools and higher education institutions represent an important setting to implement mental health and well-being programmes for adolescents. School-based interventions are well established (Schachter et al., 2008; Hayes et al., 2025; Fazel & Soneson, 2023). What has received far less attention, however, are approaches that deliberately leverage adolescents' existing friendship groups for mental health and well-being. While this presents a notable gap in the field, it also provides an opportunity to potentially yield accessible, acceptable, and scalable interventions for adolescents.

Bronfenbrenner's Ecological Systems Framework: A Friendship Approach

Adolescents' authentic social groups are embedded in their lives through multiple, interconnected layers of influence. One developmental model that accounts for how friendships are embedded within schools

specifically is Bronfenbrenner's ecological systems framework, adapted below in Figure 1.3 to an adolescent friendship approach (Bronfenbrenner, 1979).

The ecological systems framework has five layers of factors influencing adolescent friendships' formation, retention, quality, and stability. Schools are a key factor in each layer, highlighting their role as a place where many friendships are formed and maintained.

The microsystem represents the environments where adolescents have direct interactions. These may include daily classroom exchanges with classmates or extracurricular activities, and interactions within digital spaces, such as on social media. Moving outward, the mesosystem involves how interactions between microsystems, such as classmates and social media, or classmates and extracurricular activities, can contribute to friendships. The exosystem comprises indirect environmental influences such as school policies related to anti-bullying or social exclusion, the school curriculum and climate, including assemblies and any outsourced campaigns or programmes that promote inclusivity. The macrosystem encompasses societal and cultural attitudes towards adolescent mental health and friendships. These include the school culture regarding the importance of friendship and social support (e.g. campaigns like Mental Health Awareness Week). Lastly, the chronosystem recognises how change over time, such as developmental milestones, transitional periods in adolescents' lives (e.g., moving to a new school), and global events (e.g., the COVID-19 pandemic), can impact friendships.

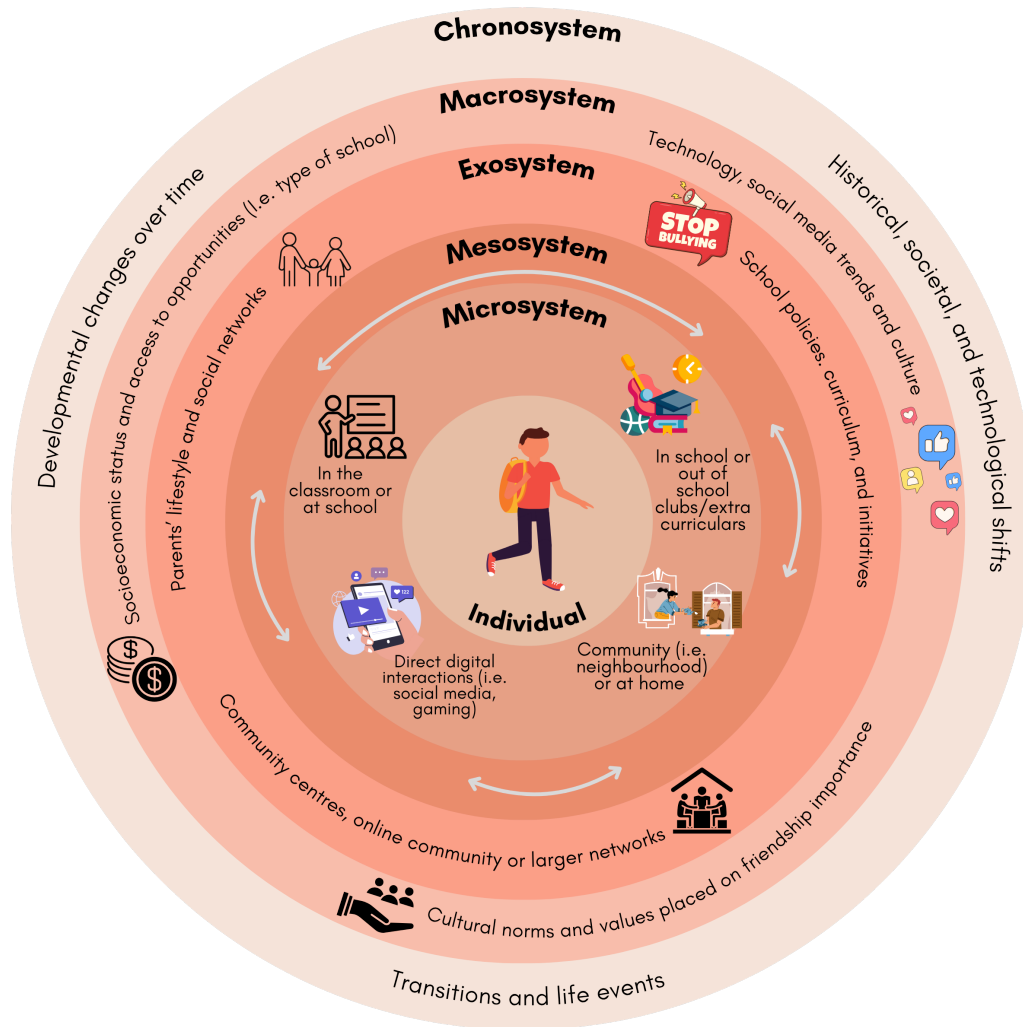


Figure 1.3. An adolescent friendship approach of Bronfenbrenner's ecological systems framework (Adapted from Bronfenbrenner, 1979).

Evidence for Public Mental Health Interventions: Argument for a School-based Approach

Although the adapted Bronfenbrenner's theoretical framework illustrates the role of school in helping the individual adolescent form and maintain friendships, its traditional individual-centric approach does not specify how these insights can be applied to intervention design. One approach that illustrates schools as a central component is provided by Fazel and Sonesson (2023), who propose an interactional public mental health schema for child and adolescent mental health (Figure 1.4) that positions schools at the intersection of interpersonal, community, and institutional systems, making them an ideal space for intervention.

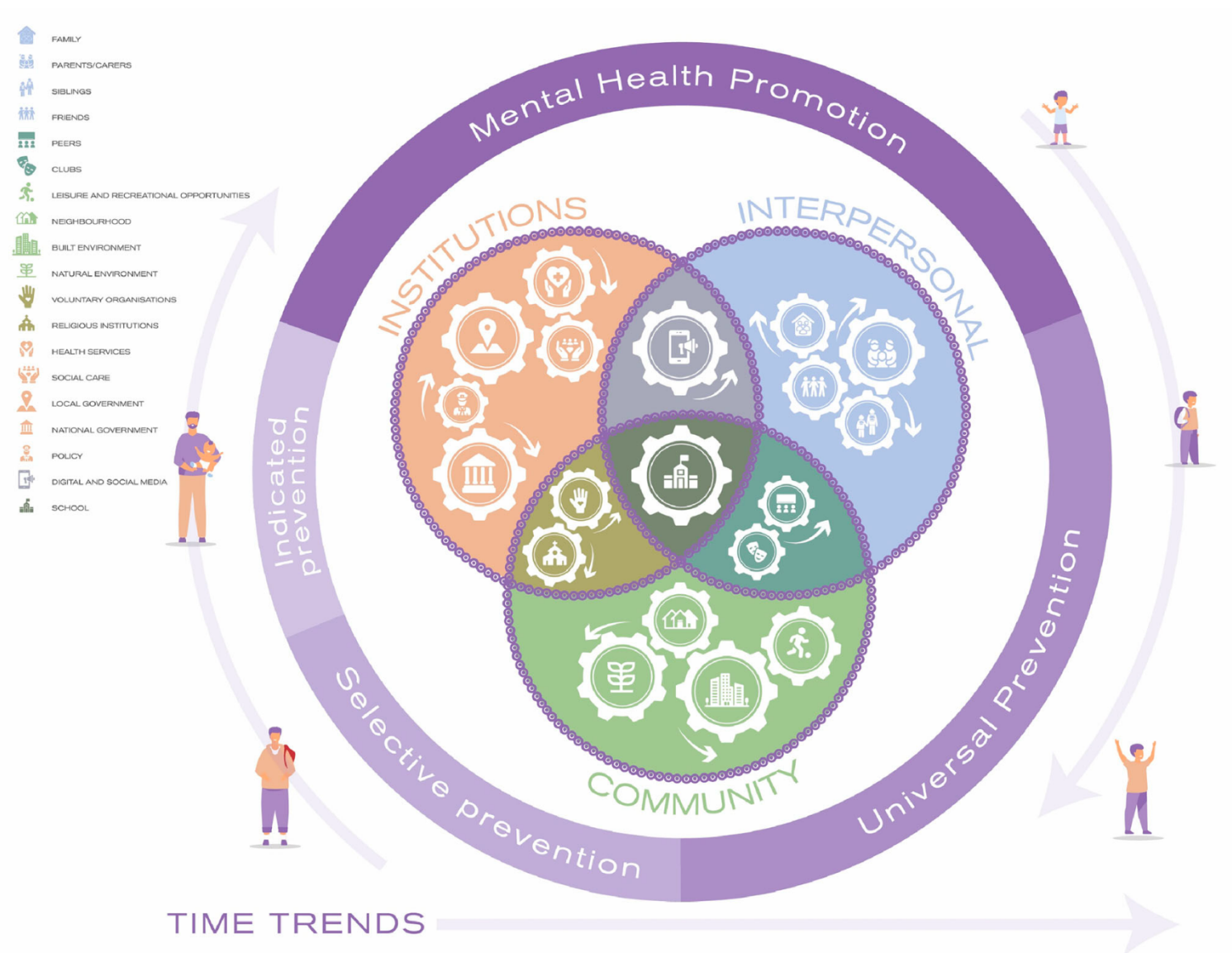


Figure 1.4. Interactional schema of child and adolescent public mental health (Fazel & Soneson, 2023).

Fazel and Soneson (2023) synthesise evidence from 58 systematic reviews of school-based interventions, showing effects of both universal and targeted approaches on outcomes such as anxiety, depression, bullying, and well-being. They argue that although these effects are modest at the individual level, they are important at the population level because of schools' broad reach. They recommend that schools serve as an ideal and natural setting for public health interventions, and interventions should consider the complexity of design, such as how different influences interact. In the context of this thesis, this might include understanding how various friendship dynamics and individual-level variables interact to influence mental health and well-being.

These three models collectively help build a theory-based rationale for a school-centred approach involving friends to address adolescent mental health and well-being. The social convoy model illustrates how friendships are central during adolescence, with multiple factors that may interact to shape friendship dynamics and influence mental health and well-being. Bronfenbrenner's ecological framework situates these friendships within the broader school system, illustrating how various components of the school can influence friendships. Then, Fazel and Soneson's (2023) public mental health perspective furthers this argument by illustrating how schools sit at the intersection of interpersonal, community, and institutional systems. Therefore, schools are not only the natural context for adolescent friendships but also a promising setting for implementing friendship interventions to support adolescent mental health.

1.6 Is There Potential for Friendship Interventions?

The potential for friendship interventions related to mental health and well-being remains largely unexplored. Schools are described as an especially promising setting for friendship-focused interventions due to their proximity to adolescents' social lives (Fazel & Soneson, 2023). However, schools are also complex institutions, and research highlights barriers and challenges to implementing school-based interventions, such as the differences within how sub-systems of the school operate (March et al., 2022). Given that friendship interventions are currently scarce in the academic literature, one gap is finding a way to implement them in schools that is most acceptable to both adolescents and schools.

A recent comprehensive review compiled evidence from various disciplines to define adolescent friendships as encompassing intimacy, trust, affection, support, conflict management, and time investment (Roach et al., 2019). However, this review was intended for nursing research and practice, and fewer studies have directly examined the dynamics of friendships among modern adolescents to inform how they might be utilised in the school-based intervention space for mental health. Online interactions add complexity as they do not replicate face-to-face encounters but may reflect a different type of social engagement (Mittmann et al., 2022; Scott et al., 2021; Nesi et al., 2018). Research is mixed; some studies find that online interactions with friends value similar qualities as offline interactions (Yau & Reich, 2018).

While friendships are important, the literature lacks clarity on a few aspects. First, to what degree are friendships already integrated within interventions, and is there an approach that is most effective? Then, as recent systematic reviews of universal school-based programmes suggest that the effectiveness of interventions varies by intervention type and target group (Hayes et al., 2025), there is a need to identify which groups may benefit most from a friendship intervention. Currently, there is a lack of recent evidence showing how individual-level and situational characteristics, as illustrated by the social convoy model for adolescent friendships, moderate the relationship between friendship dynamics, mental health, and well-being. Friendships are dynamic: they shift and vary, which makes it vital to consider *when* they matter, *how* they matter, and for *whom*. Understanding these dynamics fills a clear gap in the literature and strengthens the design of interventions, particularly in schools where friendships play such a central role.

To respond to these gaps, this thesis draws on both quantitative and qualitative methods across five studies. Mixed-methods research has been highlighted as especially valuable for work on mental health (Demkowicz et al., 2025), and it is used here to capture the complexity of adolescent friendships and their role in mental health and well-being.

1.7 Thesis Overview

This thesis addresses three primary research aims across five chapters, as summarised in Figure 1.5. The first aim, addressed in Chapter 2, was to map and evaluate the existing landscape of friendship interventions for adolescent mental health and well-being, assessing their efficacy data and highlighting

gaps in current research. A scoping and systematic review is presented that maps the breadth of the literature on existing interventions, evaluates their effectiveness, and provides a clear foundation for subsequent empirical studies.

The second aim was to understand the relationships between friendship quality, mental health, and well-being among adolescents. Building on the social convoy model of adolescent friendships, this aim was to explore how support-seeking from friends varies. In particular, it considered the role of individual factors such as neurodivergence, gender identity, and ethnicity, alongside situational contexts including online versus offline friendships and different educational settings (secondary school versus university). This aim was addressed in Chapters 3A, 3B, and 4. Chapter 3A uses a large cross-sectional dataset from secondary schools in England to quantitatively explore the link between friendship quality and adolescent mental health, along with support-seeking from friends for mental health. It includes preliminary analyses of differences across gender and year groups. In Chapter 3B, the analysis is expanded with more detailed information on online friendships, friendship functions, and characteristics such as neurodivergence, gender identity, and ethnicity. Chapter 4 then takes this forward by examining these in a university setting. It draws on a longitudinal dataset and uses a mixed-methods approach to explore additional factors relevant to older adolescents.

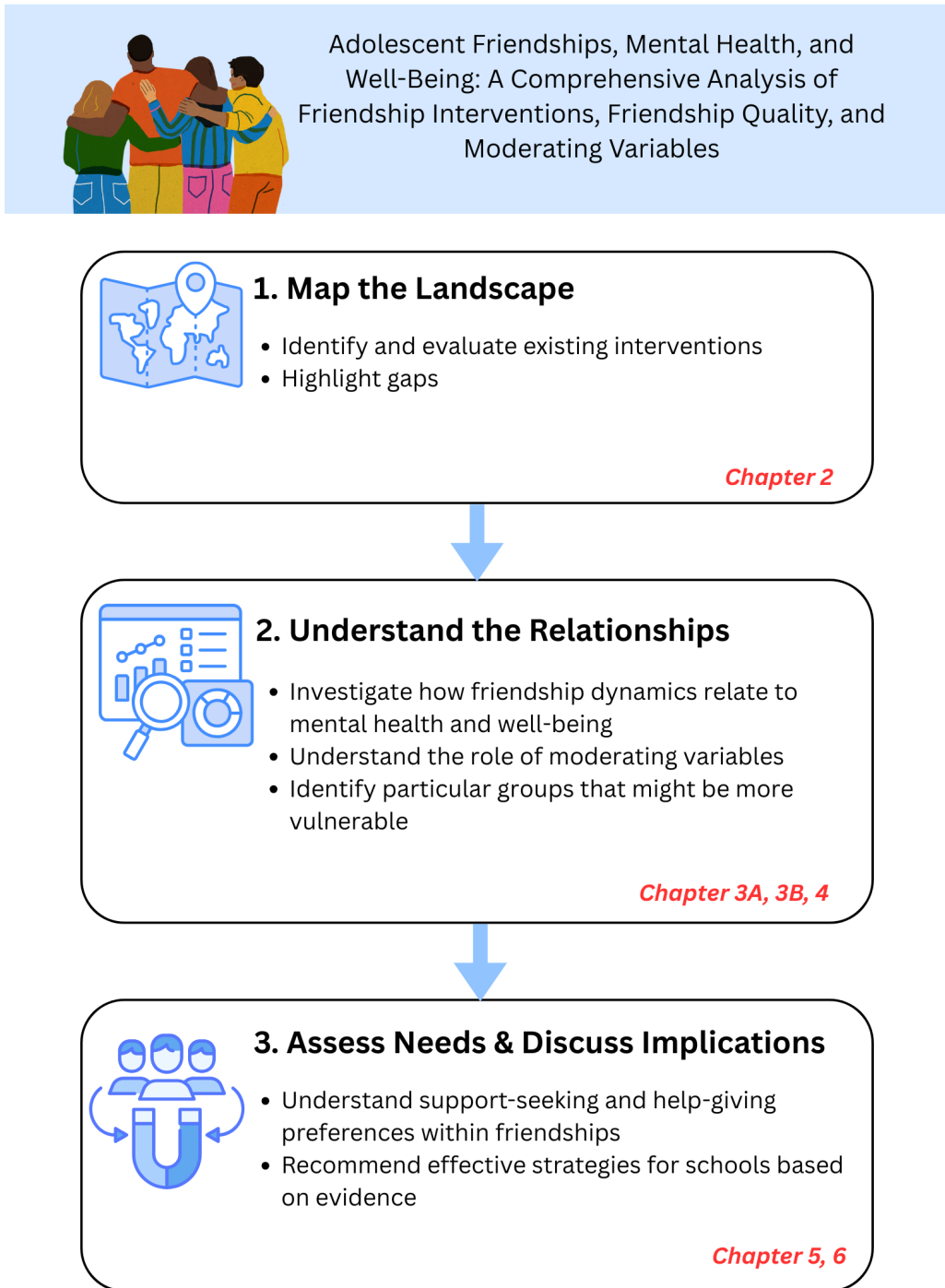


Figure 1.5. Visual summary of research aims and logic with corresponding chapters

The final aim, addressed in Chapters 5 and 6, was to explore adolescents' attitudes towards help-giving and support-seeking, determine adolescents' perceived need for and openness to friendship interventions in the school setting, and provide recommendations. Chapter 5 employs qualitative methods, including interviewing adolescents and also examining their responses to different hypothetical scenarios, to gain insight into adolescents' lived experiences and preferences. This approach underscores the importance of considering adolescents' lived experiences and involving adolescents when considering interventions that might be useful to them (Fazel & Soneson, 2023). Collectively drawing on the findings, Chapter 6 concludes with evidence-based recommendations for school-based friendship interventions to support adolescent mental health and well-being.

1.8 A Brief Note on Positionality

In this thesis, I draw on secondary data from broader research studies conducted by a team within the OxWell Student Survey and the U-Flourish Survey. In these studies, my role included adding questions related to friendship quality, covering both in-person and online experiences. However, key mental health and well-being constructs used in both studies were chosen before I joined the team, and some decisions, such as the multiple imputation of certain variables, were made by the broader team.

Since my analysis of the 2021 wave of the OxWell Student Survey preceded my analysis of the U-Flourish data, I held pre-existing assumptions about the relationships I expected to observe between friendship quality, mental health, and well-being. To minimise the risk that my prior expectations would influence my overall conclusions, I regularly met with my supervisors to discuss ongoing analyses, interpretations, and conclusions. I also documented analytical decisions with a pre-registration for all secondary analyses and sought statistical consultancy where necessary. I further discuss my positionality as a researcher and reflexive practise when analysing qualitative data, in Chapter 5.

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Chapter 2

The role of friendship interventions on the mental health and well-being of adolescents

Chapter overview

Background. Friendships gain increasing importance during adolescence. Some evidence suggests adolescents turn to their friends more for mental health support compared to other informal and formal sources of support. Friendship interventions might reveal one underexplored avenue to leverage the supportiveness of friends in a meaningful way.

Objectives. Past research has investigated peer interventions, but there is a lack of evidence when it comes to interventions involving an adolescent's authentic social group. This chapter addressed the first aim of the thesis and employed a scoping review approach to first map the breadth of friendship interventions and then investigated their efficacy using a systematic review.

Findings and Implications. Twenty-four studies were included in the scoping review, and eighteen in the systematic review. Data from 12,815 adolescents were analysed; three key themes emerged. Mental health literacy was the most common theme, followed by promoting help-seeking and friendship-building/combating isolation. Most evaluations focused on the individuals who received the intervention, rather than their wider friends, who could have been potential contacts and experienced any altered interactions. Of the studies focusing on friendship-building, all showed positive short-term outcomes but had inconclusive long-term effects. Two studies recruited close friends from an individual's authentic social group. While opportunities for improving mental health literacy and help-seeking emerged as key themes, the role of friends in mental health interventions has only been included in a small number of studies.

2.1 Introduction

In recent years, there has been an increase in studies on peer-support-based interventions for mental health among adolescents (Davidson et al., 2012; Gopalan et al., 2017). Researchers have described distinct types of peer-support programs, including those classified as “self-help” programs, which involve simultaneously helping oneself and others (Knight, 2006). Another type of peer-support program is “mutual support,” where individuals or friendship groups voluntarily come together to help each other address common problems and share concerns (Davidson et al., 1999). Most popularly, research on “peer interventions” has focused on an assigned-buddy system to help adolescents with mental health difficulties. This is when an adolescent is matched with a peer, often older, for mentorship, usually with similar mental health experiences (King & Fazel, 2021).

There was an absence of recent systematic reviews that examined the literature on the breadth of adolescent friendship interventions for mental health involving an adolescent’s authentic social group. Though past reviews explored peer-mentor interventions and their mental health effects (King & Fazel, 2021), friendships remained unrepresented in this field despite their developmental significance during adolescence, as discussed in the previous chapter (Hartup, 1992).

2.1.2 The Current Study

The objective of this review was to address this gap in the literature using a two-fold approach. Given the lack of evidence of using friends and friendships to improve and support adolescent mental health outcomes, a scoping review approach, followed by a systematic review, was employed. First, the scoping review aimed to identify, map, and synthesise the existing literature on friendship interventions and their potential roles in supporting adolescent mental health outcomes. A systematic review was then conducted to assess the studies that have evaluated the efficacy of friendship interventions on mental health outcomes in adolescents.

This combined review aimed to inform the growing evidence on friendship interventions and mental health outcomes for adolescents, while highlighting those with more evidence-based data on effectiveness.

2.1.3 Research Questions

I addressed two research questions in this study:

1. What kind of interventions exist in the literature involving an adolescents' authentic social group?
2. How effective are existing interventions and what do they consist of?

2.2 Search Strategy and Selection Criteria

Past peer-based interventions have varied dramatically from each other, and it is unclear how an adolescent's authentic social group has been formally utilised as a part of these mental health interventions. Therefore, to best synthesise the literature, broad search terms were translated across the following databases in April 2022: EMBASE, Scopus, Web of Science, ERIC, CENTRAL, and MEDLINE. Google Scholar and OpenGrey were further searched for grey literature. For the Google Scholar searches, I screened the results from the first twenty pages. These pages produced 200 results, and this search approach was used based on the very low likelihood that relevant results would appear after twenty pages (Haddaway et al., 2015). The initial search terms listed in the protocol were further developed with the assistance of a librarian from the Oxford Bodleian Libraries (EH), who then conducted the searches. The appendix contains an example search from one of the databases (Appendix A: Search terms); pilot searches were conducted with the librarian, and terms were refined to ensure the search returned relevant results. Searches were kept as consistent as possible across databases, and MeSH terms and Boolean operators (along with truncations) were used. The search was limited to papers published between 2000 and 2022, with no language restrictions. Forward and backward citation searches were conducted on the papers included in the study, as well as any related papers.

2.3 Scoping Review

2.3.1 Methods

I conducted my scoping review following the methodological framework proposed for scoping reviews by Arksey and O'Malley (2005) and adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines (Tricco et al., 2018). The protocol was pre-registered online (Manchanda et al., 2022). A descriptive, thematic method was used to summarise the results. Once the included papers

were identified, they were categorised into themes based on what each study was targeting, following a similar method to the 2021 review by King and Fazel.

Inclusion Criteria

The same search strategy was used for both reviews. The scoping review included all interventions, regardless of study type and quality. After removing duplicates, titles and abstracts were screened before a full-text review. I used Rayyan to screen titles and abstracts for relevant papers. Studies were coded for inclusion based on preliminary eligibility criteria from the protocol. For the scoping review, I broadened inclusion to studies with at least 10 participants to maximise coverage in an area with a limited evidence base on friendship-focused interventions.

As this review aimed to inform analyses for the subsequent chapters, the population of interest was adolescents in secondary school and higher education (defined as 12–24 years). Studies were included if they involved a structured intervention or proposed intervention, defined as a planned programme delivered in person or remotely (e.g., online modules, apps, telehealth, or hybrid formats), with the intent to influence mental health, wellbeing, or related psychosocial processes. Where interventions were described across multiple publications, the most relevant or most recent publication was selected.

Studies were included only if they involved authentic social groups, operationalised as pre-existing friendships rather than generic peer or classroom groupings. Because the literature frequently uses the term “peer” interchangeably with “friend,” “peer intervention” was included as a search term; however, studies were manually excluded at full-text screening if peers were not existing friends or if friendship was not explicitly described as part of the intervention structure, target, or mechanism. Studies delivered to general peer groups without reference to friendship were excluded.

Finally, I excluded studies that did not have mental health or well-being as outcomes. All outcomes reported by study authors were extracted and synthesised, including mental health symptoms, wellbeing, mental health literacy, help-seeking, and related psychosocial outcomes, rather than limiting extraction to a single outcome.

2.3.2 Results

The search resulted in a total of 37,585 articles, of which 37,284 were excluded. Following the screening of the abstracts of the remaining 301 articles, 276 articles were excluded. A final total of 24 studies and grey literature items were included in the scoping review. See Figure 2.1 for a summary of the search results. The included studies consist of randomised controlled trials (RCTs), quasi-experimental studies, pre-post studies, protocols, and programmes for adolescent friendship support and intervention. They are summarised in Table 2.1.

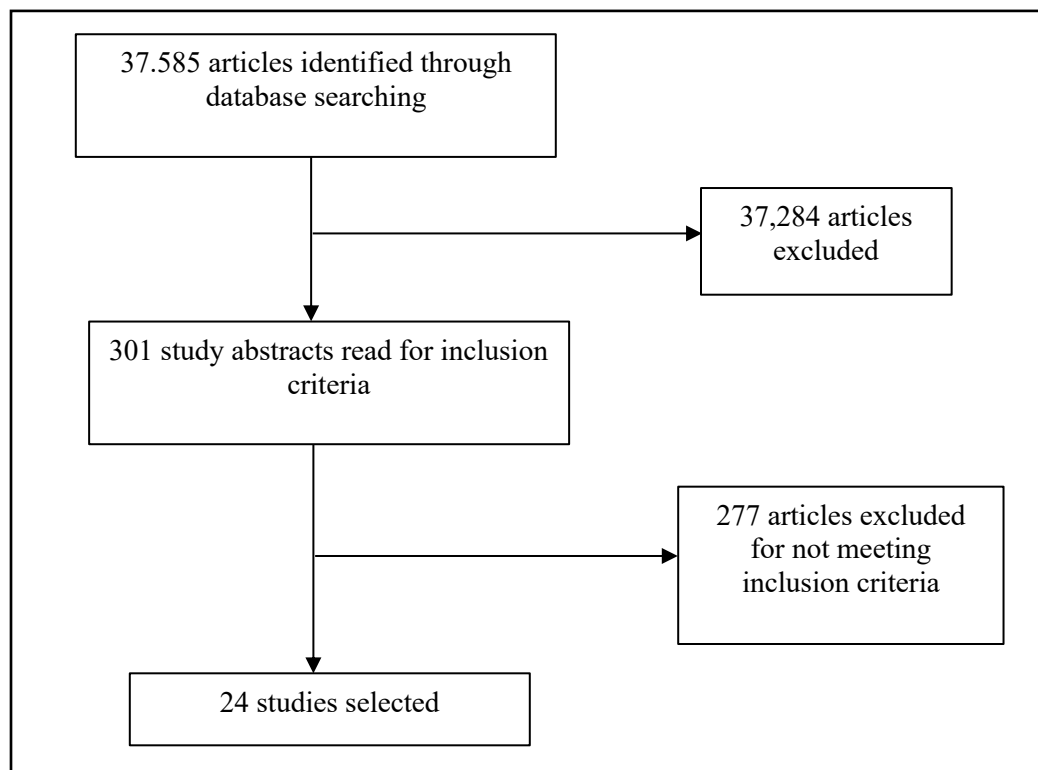


Figure 2.1. Flowchart depicting a summary of searches and results for scoping review.

Table 2.1. Characteristics of included items for the scoping review organised by theme.

Author and Year	Location	Average Age	In-Person (IPR) or Remote (RMT)	Intervention Characteristics
Eating Disorder				
Damour et al. (2015)	United States of America	13.9–14.9	IPR	Eighth and ninth-grade class lessons to females on identifying a potential eating disorder in themselves or their friends. The intervention aimed to teach them to approach an adult if they suspect a friend has an eating disorder and how to support them.
Friendship-building/Social Connectedness				
Boda et al. (2020)	Switzerland	First year undergraduates	IPR	First-year undergraduate engineering students were randomly assigned to groups for a few hours on a student information day to facilitate friendships, especially mixed-gender friendships, to combat feelings of isolation and increase well-being and support.
Devassy et al. (2021)	India	18–35	RMT	A telephone-based intervention to encourage participants to seek support from their social circle (friends, family, significant others) to combat depressive symptoms, anxiety, etc.
Haslam et al. (2016)	Australia	20.2	IPR	Pilot study of an intervention for university students to improve students' well-being, mental health, and social connectedness by helping participants build a social support network of friends and social group identity through a group-based intervention.
Rose et al. (2014)	Australia	12.22	IPR	Whole classrooms of adolescents were taught skills to make friendships in the first intervention, followed by a second intervention in conjunction to reduce depressive symptoms and increase general well-being, while promoting support skills for friends.
General mental health and well-being				
Ashoorian et al. (2018)	Australia	24	IPR	Mental Health First Aid (MHFA) intervention for university student groups that are well-placed to provide early intervention to their peers (ex. student representatives, student leaders, etc.) by teaching them skills to recognize signs of mental distress/illness. Students were trained to apply MHFA skills to their friends.
Birrell et al. (2022)	Australia	15.9	IPR and RMT	A smartphone peer support app and introductory classroom lesson aimed at empowering adolescents to access evidence-based information and tools to better support peers regarding anxiety, depression, and substance use-related issues. The programme contains external links for adolescents to access if they are concerned about a friend or themselves.
The Check-In App. BeyondBlue (mHealth App)	Australia	Young people	RMT	A smartphone app co-produced by young people to facilitate talking to a friend who might be struggling with mental illness. The app provides the user with advice for how to help their friend, while also looking after their own mental health. The interface also provides online and phone resources.
ConNetica. Chats for life (mHealth App)	Australia	Young people	RMT	A smartphone app co-designed with young people to help them plan a conversation with a friend who may be struggling with a mental health issue. The app provides video guides for users for how they can support their friends' mental health and well-being.
Rushing et al. (2021)	United States of America	15–24	RMT	BRAVE is a text message-based intervention for Native youth to promote mental well-being and help-seeking skills. Text messages and role-model videos are sent to Native youth participating in the study in an effort to increase social support, help-seeking, mental health literacy, and well-being.

Davies et al. (2018)	United Kingdom	19.9	RMT	Mental health literacy and first aid training using MHFA intervention for medical students to teach them how to recognize signs of mental illness, and increase confidence in providing mental health support to friends.
Pavarini et al. (2022)	United Kingdom	16–18	RMT	A training programme with the aim of teaching adolescents how to best support their friends' mental well-being during the COVID-19 pandemic. The programme was delivered to adolescents by a trained team of Youth Era peer support experts over five consecutive days.
Yamaguchi et al. (2020)	Japan	15–16	IPR	Short Mental Health Program (SMHLP) is a 50 min teacher-led intervention to teach adolescents about mental health symptoms, improve help-seeking behaviours and increase intentions to support a friend displaying signs of mental distress.
Male mental health				
Calear et al. (2021)	Australia	16–18	IPR	An intervention to promote help-seeking for emotional distress and self-harm amongst adolescent males. The intervention aimed to encourage adolescent males to seek help from and provide support to friends in times of distress or suicide risk.
Liddle et al. (2021)	Australia	14.3	IPR	A 45 min workshop, Help Out a Mate (HOAM), designed to educate male adolescents on mental health, support skills, and how to access appropriate resources for themselves or a friend. The intervention was delivered in a sports setting and included a PowerPoint presentation, facilitated discussions between participants and presenters, and brief role-plays.
Psychotherapy/Peer Counselling				
Bernecker et al. (2020)	United States of America	24.6	RMT	An intervention called "Crowdsourcing mental health (CMH)", a self-guided web-based course, teaches reciprocal supportive psychotherapy skills to pairs of friends. Dyads alternate between helper and receiver role.
Reduction of self-harm				
Aseltine and DeMartino (2004)	United States of America	Grades 9–12	IPR	Signs of Suicide (SOS) school-based prevention programme to teach adolescents how to recognize the signs of depression and/or self-harm and empower them to support and intervene when a friend may be exhibiting these signs.
Coleman et al. (2019)	United States of America	20.5	RMT	An online suicide-prevention gatekeeper training intervention called "Kognito Face2Face" was given to enhance adolescents' help-seeking attitudes and peer-help attitudes. The trainee adolescent is put in a simulated college social environment in Kognito and interacts with virtual peers. The trainee has to identify peers who may be at risk by engaging in dialogue, deciding if a professional referral is needed, and referring their peer to a professional for help.
Hart et al. (2022)	Australia	15.87	IPR	Teen Mental Health First Aid (tMHFA) is a mental health literacy programme implemented in secondary schools in a classroom setting by trained professionals to teach adolescents how to respond to a friend at risk of self-harm. Students are trained to recognize signs of mental distress and suicidality in their peers. Training involves vignettes of virtual peers in distress. Changes in providing support are measured through a survey administered before training and a survey administered 12 months after training.
McGillivray et al. (2021)	Australia	14.4	IPR	Implementation of a universal mental health programme, Youth Aware of Mental Health (YAM) to reduce suicidal ideation and depression, and increase help-seeking. YAM includes discussions and role-plays based on the following topics: What is mental health, self-help advice, stress and crisis, depression and suicidal thoughts, helping a friend in need, and getting advice: who to contact.

Wyman et al. (2010)	United States of America	15–16	IPR and RMT	Schoolwide suicide prevention intervention (Sources of Strength) delivered through trained peer leaders to encourage their friends to seek help for themselves and their friends at risk of suicide.
Substance misuse				
Berridge et al. (2011)	Australia	15	IPR	A school-based health promotion programme (<i>MakingTheLink</i>) that promotes help-seeking behaviour for mental health issues and cannabis use among young people. Scenarios are used to train students in how to respond if a friend shows similar signs.
Lubman et al. (2017)	Australia	14.9	IPR	A school-based health promotion programme (<i>MakingTheLink</i>) where secondary school students were presented with two vignettes of peers, Sarah and Samuel, depicting depression and alcohol misuse to improve help-seeking intentions and encourage adolescents to support their friends.
Well-being related to other illnesses				
Greco et al. (2001)	United States of America	13.1–13.6	IPR	Diabetic adolescents and one of their friends participated in an intervention to improve knowledge about diabetes, social support, and social functioning. The intervention aimed to increase positive peer involvement and emotional support for friends with diabetes.

Eight areas related to mental health and well-being emerged from examining the included papers (N = 24) (see Table 2.1). Most interventions involved training adolescents to better recognise signs of mental illness in friends and to provide support or encourage help-seeking. All but one study took place in a high-income country, and nearly all were conducted in English-speaking countries. More studies occurred in Australia (n = 12), followed by six in the United States of America, three in the United Kingdom, and one each in Japan, Switzerland, and India. The high number of Australian studies likely reflects the prominence of Mental Health First Aid (MHFA) and its evaluation across the country (Morgan et al., 2020).

Both younger adolescents (aged 12–18) and older adolescents (aged 19–24) were included in the review. Out of the 24 papers, 60% (14) were interventions delivered in person, 32% (8) were interventions exclusively delivered using virtual platforms, and 8% (2) were interventions with both an in-person and remote delivery component. Figure 2.2 illustrates a diagram mapping the types of studies included in the review and the themes under which they were categorised. Three major themes emerged from the review: general mental health and well-being, improving help-seeking, and friendship-building/combating isolation.

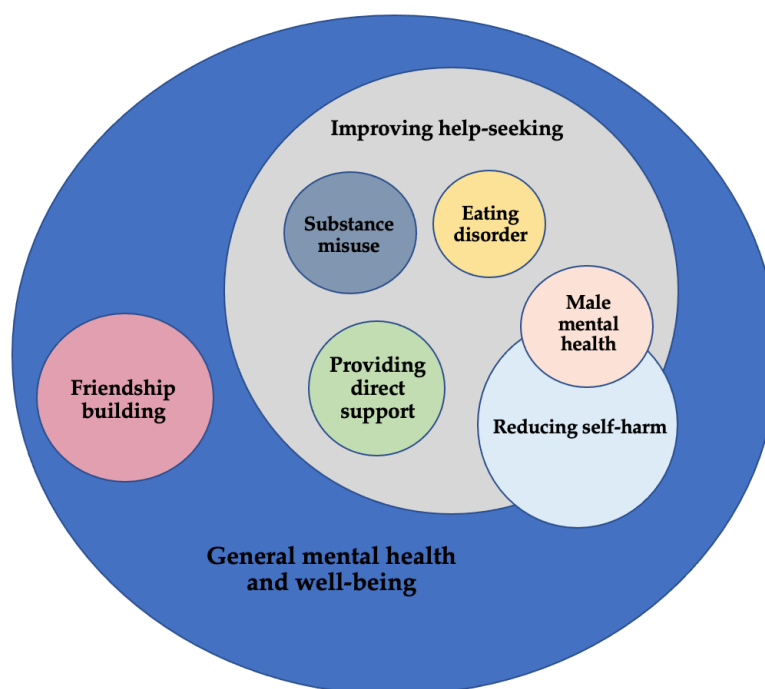


Figure 2.2. Mapping targets of the included friendship interventions.

General Mental Health and Well-Being

Eight papers focused solely on general mental health and well-being. Most of these programmes were delivered through virtual platforms ($n = 5$) (Rushing et al., 2021; Davies et al., 2018; Pavarini et al., 2022; BeyondBlue, n.d.; ConNetica, n.d.), with two programmes held in person (Ashoorian et al., 2019; Yamaguchi et al., 2020) and one delivered both in person and remotely (Birrell et al., 2022). Interventions ranged from a single 50-minute session to programmes spanning six weeks. Trained teachers led some in schools, while others were guided by trained ‘experts’. Two of the included studies involved self-guided mental health apps aimed at equipping adolescents with skills and knowledge to support their friends in managing mental illness. These apps contained resources like videos that help adolescents develop the skills to manage their mental health and support friends in need. Two studies used the MHFA intervention to enhance mental health literacy and help-seeking abilities among adolescents (Davies et al., 2018; Ashoorian et al., 2019). The intensity varied; for instance, one remote intervention involved a virtual platform where trained peer support experts interacted with participants for four hours daily over five consecutive days (Pavarini et al., 2022), while another involved sending multiple text messages to participants weekly over eight weeks (Rushing et al., 2021).

Improving Help-Seeking

Adolescents face barriers to accessing help and concerns about supporting others (Camara et al., 2017). Many studies aimed to improve help-seeking attitudes, either for themselves or friends. Two studies focused solely on male adolescents' mental health, aiming to boost help-seeking. Both were in-person: one targeting a male sports team to improve MH literacy and resource access (Liddle et al., 2021). This intervention was called “Help Out a Mate (HOAM)” and involved slideshow presentations, facilitated discussions between participants and facilitators, and role-play exercises. Male volunteers with lived experience of mental illness conducted the intervention. The other study introduced a psychoeducational programme titled “Silence is Deadly,” a 45–50 minute presentation delivered in secondary schools by trained presenters who served as male role models, including local celebrity athletes as guest speakers (Calear et al., 2021). This presentation featured videos,

informational handouts, and a resource website, primarily aimed at reducing self-harm in male adolescents by fostering discussions tailored to the male audience, offering strategies to help a struggling friend, and guiding adolescent males on how to seek help from adults or professionals when necessary.

Two studies examined substance use and mental health. Both employed the “Making the Link” intervention, a school-based programme specifically designed for teachers to integrate into their curriculum to encourage student help-seeking. The intervention involved fictional scenarios, videos, and discussions, including a session where students considered the best way to speak to a friend who might need professional help. Of the two studies using this intervention, one focused on mental health and cannabis use (Berridge et al., 2011), while the other addressed alcohol abuse and depression (Lubman et al., 2017).

There were five studies with the primary aim of suicide prevention amongst adolescents; three were delivered in person (Aseltine & DeMartino, 2004; McGillivray et al., 2021; Hart et al., 2022), one was delivered remotely (Coleman et al., 2019), and one was delivered both in person and remotely (Wyman et al., 2010). Hart et al. (2022) employed a Teen Mental Health First Aid (tMHFA) intervention, which aims to enhance general mental health literacy while also increasing help-seeking confidence and intentions.

One of the interventions focused on eating disorders in adolescent girls (Damour et al., 2015). This intervention took place during a brief classroom lesson, delivered by the school psychologist. The intervention provided 13-year-olds with the skills necessary to identify and support potential eating disorders in their friends. They were provided with sample scripts, including appropriate language, for how to support a friend with an eating disorder, making them aware of the fact that friends turn to each other when under mental distress and the importance of support and guidance towards professional help.

Finally, two of the included studies aimed to promote direct support from friends. One study adopted a psychotherapy / peer counselling approach (Bernecker et al., 2020). This online intervention aimed to help dyads of friends develop skills to support one another during times of distress. The participants practised providing psychological support in a scenario both before and after the intervention during a laboratory visit. The second study involved a friend to improve the well-being of adolescents with type 1 diabetes, as well as

increase the emotional support offered by their friends (Greco et al., 2001). The adolescent with diabetes was asked to bring a close friend to an appointment. This friend was educated about their diabetic friend's condition and received training to support them directly.

Friendship-Building/Combating Isolation

A study by Boda et al. (2020) focused on isolation and loneliness, delivering an in-person intervention to first-year engineering students. During a university induction, students formed groups for activities to foster friendships, aiming to reduce social isolation and support mental well-being.

There were two interventions: one conducted in India (Devassy et al., 2021) remotely via phone, and the other in Australia (Rose et al., 2014) in person. Adolescents mainly learned skills to build social support and friendships. In India, trained professionals supported 10–15 students through phone calls, listening to their distress, offering counselling, and helping them access support from friends and family. The Australian program combined the Resourceful Adolescent Program and Peer Interpersonal Relatedness to address depression through friendship-building.

One intervention delivered in person in Australia focused on social connectedness as a primary outcome (Haslam et al., 2016). This pilot study was delivered by trained leaders under the supervision of clinical psychologists to psychologically distressed and socially isolated university students.

All of these interventions aimed to improve mental health literacy in various ways. Some interventions aimed to improve mental health literacy among adolescents directly (Davies et al., 2018; Hart et al., 2022), and most sought to enhance mental health literacy before teaching participants how to apply these skills by supporting a friend who may be experiencing mental distress.

2.4 Systematic Review

To better understand the evidence on the effectiveness of the included friendship interventions, a systematic review was conducted to identify, appraise, and synthesise studies with available evaluation and post-intervention data.

2.4.1 Methods

The PICO (population, intervention, comparator, outcome) approach was employed for this review (Amir-Behghadami & Janati, 2020). The systematic

review was completed following the PRISMA 2009 guidelines (Moder et al., 2009) and registered with Prospero (CRD42022354516). In studies with control or comparison groups, results were summarised by examining within-group changes over time for participants receiving the intervention, with comparisons between groups excluded from the synthesis.

Inclusion Criteria

The inclusion criteria for the systematic review are described above, as it followed the scoping review with a few additions; it only included published papers that assessed an intervention and were either RCTs, quasi-experimental studies, or pre-post studies. There was no limit placed on the number of participants in the study.

Quality of Included Studies

I used the Mixed Methods Appraisal Tool (MMAT) for quality assessment of the included studies. Four studies were then forwarded to MF to evaluate independently; three were chosen at random, and one was directly selected as its evaluation was complex.

The included studies had some variation in their methodological quality. Most of the included studies were judged to contain possible limitations in at least one criterion (94.4%, 17/18). Almost all of the studies were clear in their description of study participants or the process of recruiting a sample representative of the population of interest (94.4%, 17/18). All but one study (Greco et al., 2001) included a total sample size of 50 or more adolescents, which allowed the authors to warrant conclusions about the efficacy of the interventions. All of the studies targeted mental health outcomes or well-being in some way and had a clear research objective that they addressed in their study.

2.4.2 Results

Description of Studies

A total of 37,585 studies were identified after database searching and screened for relevance. Out of these studies, 18 were eligible for inclusion in the systematic review (see Table 2 for data summarisation and Figure 3 for flowchart). The included studies contained an approximate total sample size of 12,815 adolescents. The adolescents ranged from the age of 12.2 to 24.6. Of the included studies, ten were randomized control trials (Rushing et al., 2021;

Davies et al., 2018; Pavarini et al., 2022; Lubman et al., 2017; Aseltine & DeMartino et al., 2004; Coleman et al., 2019; Wyman et al., 2010; Bernecker et al., 2020; Boda et al., 2020; Rose et al., 2014), three were pre-post studies (Berridge et al., 2011; McGillivray et al., 2021; Greco et al., 2001), with one study each of a cluster randomised crossover trial (Hart et al., 2022), a two-arm controlled trial (Calear et al., 2021), a non-randomized control trial (Haslam et al., 2016), a cluster randomised controlled trial (Liddle et al., 2021), and a quasi-experimental trial (Yamaguchi et al., 2020). All of the included studies were in peer-reviewed publications and evaluated the short-term and/or long-term effects of an intervention. All of the studies included both friendship-related interventions or outcomes and mental health outcomes. Sample sizes ranged from N=42 to N=2456. Included interventions addressed general mental health and well-being, depression, self-harm, male mental health, and isolation/loneliness. All of the interventions included MH and well-being literacy as part of their outcomes. Most took place in school or classroom settings, consistent with where many adolescent friendships occur (La Greca & Prinstein, 1999). Some interventions were delivered exclusively in-person, others were exclusively remote or online, and some had both in-person and remote components. Interventions ranged from a single 45-minute session to a weekly session spanning 11 weeks.

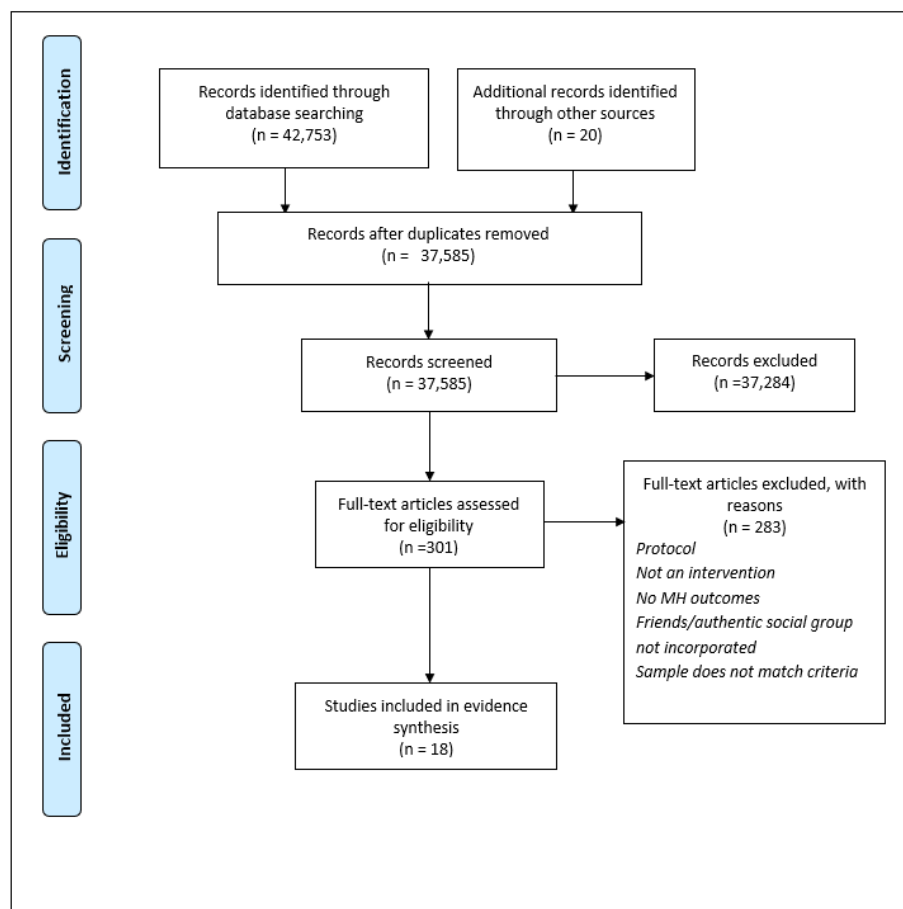


Figure 2.3. Flowchart depicting summary of searches and results for systematic review. *From:* Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097.

Intervention Outcomes

The interventions included in the systematic review had great variation in the outcomes they reported. General mental health and well-being interventions were the most popular, and all studies reported better mental health outcomes and literacy among *friends trained* (FT) in the intervention. Information about *friends receiving* (FR) help from their trained friends was inferred, as it was not directly assessed in most of the interventions. Figure 4 depicts an overview of the studies included in the systematic review. Participants were recruited from three different sources in the included studies (schools, universities/colleges, or their communities). The interventions were delivered either remotely, in person, or using a combination of the two. There

were two main sets of outcomes for the included interventions: outcomes on FT and inferred outcomes on FR, which are discussed below.

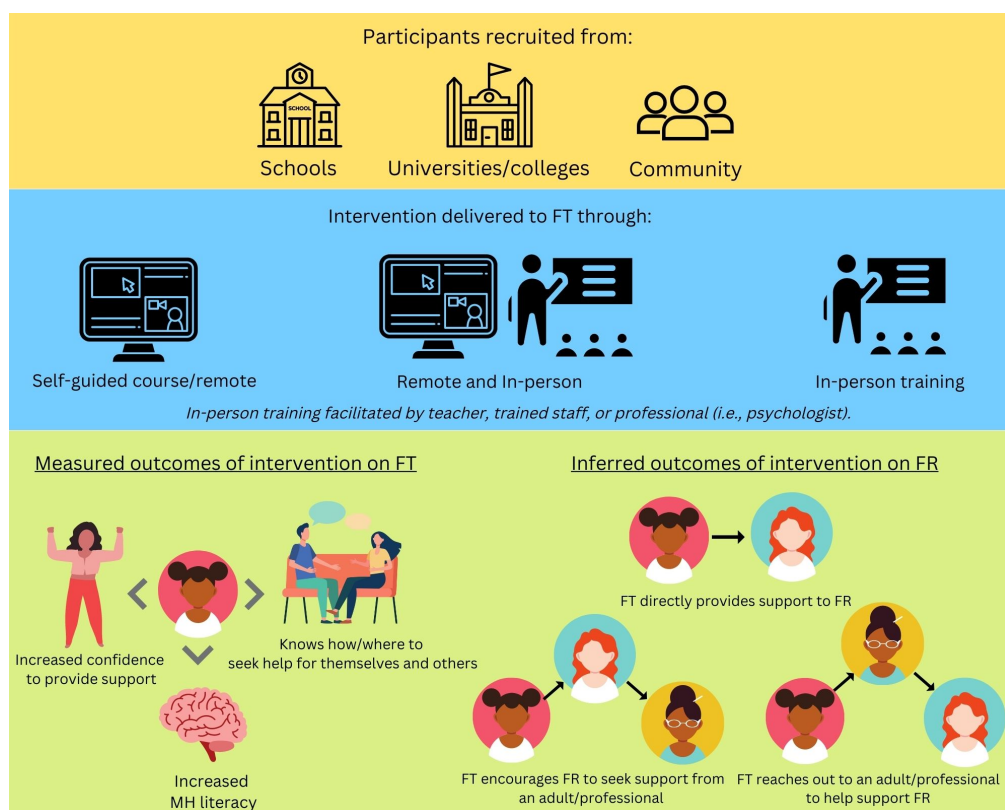


Figure 2.4. An overview of the studies evaluated in the systematic review, illustrating the typical implementation and results of the included interventions.

Note: FT denotes friends *trained* in the intervention. FR denotes friends *receiving* support. MH denotes mental health.

Inferred Outcomes of Intervention on FR

The outcomes of the intervention on FR were not directly measured but were inferred from self-reported data in studies by FT. There were three primary inferred outcomes of the intervention on FR. First, the intervention enabled FT to provide direct support to FR. In some studies, such as the one by Hart et al. (2022), the follow-up survey revealed that FT had used their newly learned skills to provide help to a friend in need (Hart et al., 2022). Similarly, Rushing et al. (2021) found that adolescents who received the text-message intervention reported helping a friend in need using their acquired knowledge (Rushing et al., 2021). A zoom-based intervention also had FT report that they helped a friend with mental health difficulties following the intervention

(Pavarini et al., 2022). Next, a common outcome was that FT would encourage FR to seek support for their mental health from an adult or a professional, such as a psychologist or counsellor. Damour et al. (2015) reported that the trained adolescents would encourage their friends whom they noticed suffered from disordered eating to ask for support from a school counsellor (Damour et al., 2015). Lastly, FR were helped by FT to reach out directly to an adult or professional to provide help. Damour et al. (2015) also reported this as an outcome of their intervention, where FT reported directly seeking help from an adult for a friend they were concerned about (Damour et al., 2015). Similarly, a study employing the *MakingTheLink* intervention reported that FT sought help from adults following concerns about a friend (Berridge et al., 2011).

Outcomes of Intervention on FT

There were three major outcomes of the interventions on FT that were measured and reported: FT showed an increase in mental health literacy, knew where to seek support for themselves and others (improved help-seeking), and had increased confidence to support their friends.

Mental Health Literacy

The systematic review included 18 interventions, 10 of which aimed to improve adolescent mental health literacy (see Table 2). These varied in dosage, target population, and follow-up time, but all showed promising results. One, a five-lesson program over three weeks, evaluated through a single-arm trial, found that the Youth Aware of Mental Health (YAM) programme improved mental health literacy and reduced depression severity ($p < 0.001$) at post- and six-month follow-up (McGillivray et al., 2021). Another, a three-lesson program called tMHFA, showed increased mental health literacy, with trained adolescents rating adults as helpful sources after 12 months (Hart et al., 2022). A 45-minute male-targeted intervention, Help Out a Mate (HOAM), increased knowledge about depression and anxiety, with knowledge retained for four weeks (Liddle et al., 2021).

Table 2.2. Characteristics of the studies included in the systematic review

Author, year, and location	Research Design	N	Approximate average participant age	Intervention type	Frequency/duration of program	Participant and peer selection process	Training	Intervention outcomes and findings
Aseltine & DeMartino (2004), USA	RCT	2100	14-18*	Mental illness prevention intervention	2 days	Whole classes recruited from secondary schools.	Signs of Suicide (SOS) is a school-based prevention program delivered in a classroom to help students identify markers of suicide in themselves and their friends. Schools receive a kit of materials containing the DVD of informational videos, discussion guide, screening forms, and other educational and promotional items. They also receive the procedure manual that describes how to implement the program.	Short-term effects on students' behaviours were observed with more adaptive attitudes towards depression and suicide. Students were more likely to provide support to friends showing signs of distress. Discussions conducted in classes several months after exposure to the program revealed that students were unlikely to seek out school staff for MH concerns, primarily because of confidentiality. Instead, students reported that friends were the first people they would turn to when feeling depressed.
Bernecker et al. (2020), USA	RCT	60	24.6	MH literacy and support skills intervention	Course taken over four weeks.	Recruited participants asked to recruit a friend from their existing social circle.	Participants were brought into the laboratory to first talk about their stressors before the course. Then participants completed an online training course and had to use skills learned to go through helper and talker role in vignettes.	Participants in the intervention group changed some behaviours to better support peers (e.g.: talking less about themselves and listening more when a friend shares a problem). No change in feelings of supportiveness or closeness with their friends was reported.
Berridge et al. (2011), Australia	Pre-post	182	15	MH literacy and help-seeking intervention	Two class lessons.	Students recruited from year 10 (aged 15) classes.	A school-based intervention where facilitators with backgrounds in teaching and mental health deliver the programme in classrooms.	Students and teachers reported feeling better informed about mental health and substance abuse disorders. Students who completed the programme reported increased confidence to seek help for themselves or a friend.

Boda et al. (2020), Switzerland and	RCT	226	18-19*	Friendship building and MH support	Range	An incoming cohort of engineering students recruited	Students were randomly assigned to groups during their orientation week and completed activities to facilitate friendship.	Students in the intervention group developed more friendships and had more individuals they could turn to for emotional support. 12-month follow up revealed that friendships did not last.
Calear et al. (2021), Australia	Two-arm controlled trial	594 (males only)	16-18	MH help-seeking (male targeted)	45-60 minute presentation	Government colleges and private secondary schools invited to participate.	Menslink 'Silence is Deadly' programme is a psychoeducational intervention including key statistics about mental health presented alongside personal experiences of the presenters. It includes a presentation, supporting website, videos, and wristband.	Intervention significantly increased help-seeking intentions of participants from friends for emotional problems and mental distress. No difference was found for confidence to support their friends or reduce MH stigma.
Coleman et al. (2019), USA	RCT	69	20.5	Suicide prevention and gate-keeper training	Range	Recruited from two large undergraduate lecture courses.	Participants were given an avatar-based online training where they were trained in identifying and clarifying risk and then in encouraging an at-risk friend to seek help.	The intervention was successful in increasing participants' intention to provide support to a friend with mental illness and increased chances of referring a friend to professional services (i.e. counselling center).
Rushing et al. (2021), USA	RCT	833	15-24	MH literacy and help-seeking	8 weeks	Social media and SMS recruitment of American Indian and Alaska Native teenagers from the community.	SMS text messages about wellness, MH, help-seeking etc., were sent out to participants three times per week for eight weeks.	Participants reported using the informative SMS text messages to help family and friends. Follow up after 3 months revealed 22.4% of participants reported using skills learned from SMS messages to offer help and by 8 months there was increase to 54.6% of participants.
Davies et al. (2018), UK	RCT	55	19.9	MH literacy and support skills	6 weeks	Medical students recruited.	MHFA course E-learning	Intentions and confidence to help a friend with mental illness increased and stigma towards mental illness decreased. An increase in MH first-aid skills was also found.
Greco et al. (2001), USA	Pre-post	42	13.1-13.6	Integrating friends into care	4 weeks	Diabetic adolescents asked to bring a 'best-friend'.	Four 2-hour education and support group sessions led by licensed psychologists.	Friend support increased following the intervention. Trained 'friends' were more educated on their friend's condition and learned how to help support the well-being of a diabetic friend.

Hart et al. (2022), Australia	Cluster randomised crossover trial	1605	15.87	MH literacy and peer support training for suicide prevention	Three 75-minute classroom sessions	Students recruited from high schools.	MH literacy intervention provided to adolescents with activities and vignettes led by an external instructor.	Students receiving tMHFA training more likely to report improved recognition of suicidality and appropriately respond to and provide first aid intentions towards a peer at risk of self-harm than students in active control arm.
Haslam et al. (2016), Australia	Non-randomized control trial	51	20.2-20.95	Friendship building and isolation	60-75 min modules once a week over four weeks. Last module delivered a month after the 4th.	University undergraduates and students from a concurrent study (control). All participants screened and only those with some kind of psychological distress or social isolation included.	5-module psychological intervention targeting the development and maintenance of social group relationships to improve psychological distress arising from social isolation.	Groups 4 Health (G4H) intervention was successful in increasing mental health outcomes, well-being, and social connectedness, both on program completion and 6-month follow up. Participants also had improved social connectedness with peers and increased group-identification.
Liddle et al. (2021), Australia	Cluster randomised controlled trial	102 (males only)	14.3	MH literacy and help-seeking intervention	45-minute session.	Recruited from a male community football club.	Presentation, facilitated discussions and brief role-plays delivered in a sports context. Adolescents were provided with a card listing support and resource options. Volunteer student facilitators with lived experience of mental illness led the workshop.	Compared to the control group, the adolescents receiving the intervention showed improvements in mental health literacy for anxiety and depression, along with intentions to provide help to a friend. Further, improvements in attitudes that promote help-seeking and reduce stigma were also observed.
Lubman et al. (2017), Australia	RCT	2456	14.9	MH literacy and help-seeking intervention	Range	Participants recruited from secondary schools.	<i>MakingTheLink</i> is a school-based intervention where participants are presented with vignettes (depression and alcohol misuse) and	Pre-post survey results revealed that after the intervention, adolescents were more likely to seek help for friends showing signs of depression or alcohol misuse. They were also more likely to seek help for themselves.

								asked to respond to scenarios to provide help.	
McGillivray et al. (2021), Australia	Pre-post	556	14.4	MH literacy and suicide prevention	5 classroom lessons over three weeks.	Secondary schools invited to participate.	Youth Aware of Mental Health (YAM) program is a school-based program delivered by trained facilitators and includes booklets, discussions, and role-play activities which allow adolescents to discuss mental health and improve problem-solving and emotional functioning in difficult real-life situations.	There was a reduction in depression severity and suicidal ideation, and an increase in help-seeking intentions at 3-month post-intervention and 6-month follow-up.	
Pavarini et al. (2022), UK	RCT	100	16-18	MH literacy and support skills intervention	5 days	Poster/advertisement community recruitment.	Uplift peer support training course delivered online (Zoom). Interactive sessions including sharing and hands-on activities were delivered through breakout rooms or WhatsApp.	All participants reported an increase in MH knowledge and reported using the learned skills to support at least one friend/peer in their social circle with mental health difficulties.	
Rose et al. (2014), Australia	RCT	210	12-22	Friendship building	9-11 weekly sessions lasting 40-50 minutes each.	Cluster randomization of 14 classes across 4 schools.	Combination of 2 interventions (RAP and PIR) implemented together in a school during class time by trained facilitators, where one targets social network building and the other targets depression prevention.	Students reported significantly higher levels of peer interpersonal relatedness when reassessed 12 months after the intervention. Significant increases in social functioning with peers was also noted.	
Wyman et al. (2010), USA	RCT	2675	15-16	Suicide prevention and gate-keeper training	3 phases: (1) school and community preparation, (2) peer leader training, and (3) schoolwide messaging. Phase 1 and 3 ranged in time and phase 2 was 4 hours long.	Students recruited from high school. Peer leaders chosen to reflect a diverse range of friendship groups.	Certified trainers focused training on coping skills and available resources such as friends. Trained students (peer leaders) encouraged their friends to reach out to trusted adults and disseminated messages about the intervention through PSAs and social media.	Trained peer leaders were more likely to refer a suicidal friend to an adult and the intervention increased perceptions of adult support in students with a history of suicidal ideation. The intervention was also found to increase acceptability of seeking help and confidence to seek and provide support.	

Yamagu chi et al. (2020), Japan	Quasi- experimen tal	899	15-16	MH and skills intervention	literacy support	50 minutes	Participants recruited from a high school.	Teacher-delivered intervention through films, discussions, and role-play.	The intervention showed short-term and long-term (2 months) effects. Students' intention to seek help and intention to help a peer with signs of mental illness increased.
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Note: * Denotes approximate age of participants, as the study provided grade information only.

Improving Help-Seeking

One trial evaluating the teen Mental Health First Aid (tMHFA) intervention reported that participants receiving the intervention provided better quality support to hypothetical friends in a fictional scenario with a mental illness (Hart et al., 2022). This study also found that confidence in helping a friend significantly improved after the tMHFA intervention and was retained for 12 months. A few of the included interventions employed MHFA (Hart et al., 2022; Ashoorian et al., 2019; Davies et al., 2018), and all yielded positive results. Consequently, there is reasonable evidence to support the use of MHFA programmes, which increase MH literacy in adolescent friendship interventions and equip them with the confidence to seek help and provide support.

Similarly, a study employing a student help-seeking programme called “Making the Link” found that students were more likely to seek help for themselves and a friend and were more informed about mental health and substance abuse disorders (Berridge et al., 2011). Another RCT found similar increases in help-seeking behaviour when employing the same intervention for a different substance abuse disorder (Lubman et al., 2017). The intervention included a shorter training time than the one by Hart et al. (2022), consisting of two brief sessions, in the hope that “Making the Link” could be a scalable intervention incorporated into the school curriculum.

The Youth Aware of Mental Health (YAM) programme successfully increased the help-seeking intentions of FT towards their friends ($p < 0.001$) at post-intervention and six months following the intervention period (McGillivray et al., 2021).

One study used a pre-post design to evaluate the individuals’ skills to support their friends with diabetes (Greco et al., 2001). Diabetic adolescents were asked to bring a best friend with them to the intervention. The intervention aimed to improve the quality of direct support provided by FT and was successful in increasing individuals’ knowledge about their friend’s condition and teaching them ways to offer support. Following the intervention, FT provided significantly more support to their diabetic friends.

The study by Bernecker et al. (2020) involved a web-based intervention where participants invited someone from their social circle. Pairs took turns as ‘helper’ and ‘support receiver.’ This was the only peer-counselling intervention

found in literature, assessing if friends can be trained in psychological support. Results showed participants improved as listeners and supporters after the course.

A 2015 study by Damour et al. improved FT help-seeking attitudes towards friends with eating disorder signs (Damour et al., 2015). Post-intervention, FT were more likely to seek adult help for at-risk friends. Variables like willingness to discuss eating behaviours, encourage talking to an adult, and direct communication were measured at baseline, post-intervention, and three months later, comparing eighth and ninth graders. Results indicate such programmes can be successfully implemented in schools to reduce or manage disordered eating and related risks.

Friendship Building

The three studies aimed at friendship building as a primary outcome had different long-term findings. One of these interventions for younger adolescents (12.2 years old) used two different kinds of interventions concurrently (RAP and PIR) to improve adolescent social networks, promote depression literacy and help-seeking, and teach support skills (Rose et al., 2014). RAP incorporates cognitive behavioural therapy and interpersonal psychotherapy principles. PIR teaches adolescents about the importance of friendships, (e.g. what peers look for in a friend, social skills training). This combination reduced depressive symptoms while increasing social functioning with friends (Rose et al., 2014). Another friendship-building intervention looked at older adolescents (first-year undergraduates) and assigned students to groups for friendship-building activities. The study evaluated both short-term and long-term effects of the intervention and found that although students made friendships through which they sought emotional support in the short-term, these friendships diminished by one-year follow-up (Boda et al., 2020).

One intervention (Kognito Face2Face) incorporated the use of simulations and virtual peers to train adolescents in how to support their friends with a mental illness or in times of emotional distress (Coleman et al., 2019). The intervention was successful in eliciting supportive responses from participants, who were more likely to support a friend in times of mental distress afterwards.

2.5 Discussion

This chapter addresses the first aim of this thesis: mapping the underexplored literature on friendship interventions for adolescent mental health and highlighting the gaps. There are compelling reasons to focus on friendships for adolescent mental health interventions, given the prominence of these relationships for this age group.

The studies included targeted three broad areas: general mental health and well-being, help-seeking attitudes among individuals in the intervention or their friends, and friendship building and combating social isolation. The identified studies highlight that, particularly in the area of mental health literacy, there is good evidence that this approach is likely to be helpful, especially for the friend being trained in the intervention (FT) and possibly for the friend receiving the intervention (FR).

In the scoping review of 24 studies, almost all the interventions focused on how FT can support members of their own social circle who may present with mental health difficulties or distress. Only two of the studies reported the effects of the intervention on the FR's mental health support (Bernecker et al., 2020; Greco et al., 2001). A broad range of different interventions were tried, covering those improving general mental health literacy to male-only interventions targeting the reduction of self-harm. Some interventions, such as MHFA and "Making the Link", have been well-studied with consistent positive findings (Ashoorian et al., 2019; Berridge et al., 2011; Hart et al., 2022; Lubman et al., 2017). The majority of other interventions are novel, or at least novel in their implementation as an adolescent friendship intervention.

The systematic review assessed the efficacy and feasibility of friendship interventions for adolescent mental health. The included RCTs mostly evaluated the effects of the interventions on FT. A total of 12,815 adolescents were included in the 18 studies identified in the systematic review. The mental health first aid interventions were most promising for increasing mental health literacy among adolescents and were also the most commonly used. Long-term effects of the interventions on either FT or FR were not assessed. However, all of the included studies reported some positive effects of the intervention on adolescents' mental health and well-being.

The first onset of major depressive disorder tends to occur around the time of early adolescence (McFarlane et al., 1994). As adolescents are more vulnerable to mental health disorders, it is imperative to explore prevention

and intervention methods to reach larger populations. Past research has demonstrated that friendships during adolescence can reduce depressive symptoms, especially in high-risk populations who can be harder to reach by mental health professionals (van Harmelen et al., 2016). Therefore, it's important to understand the potential role of informal mental health supports, such as friends.

Of the relatively small number of friendship mental health interventions that have been conducted, most vary in their training time, trainer qualifications, and delivery methods (in-person and/or online), making comparisons difficult. Interventions delivered in person and remotely both offered positive outcomes. For example, a zoom-delivered intervention (Pavarini et al., 2022) reported that FT utilised skills to help a friend with mental illness, and a text-message-based intervention also reported FT using their newly learned skills to help a friend (Rushing et al., 2021). Along the same lines, interventions delivered in person also yielded positive outcomes (increased mental health literacy and enhanced ability to provide support).

The shortest intervention, delivered in a single 45–60-minute in-person session, reported improved help-seeking intentions for FT but did not find an improvement in confidence to support a friend (measured before the intervention) (Calear et al., 2021). This may suggest that a single-session intervention is insufficient. Another 45-minute single-session intervention reported that the intervention increased intentions to provide help to a friend; however, no improvement was observed in help-seeking attitudes or intentions (Liddle et al., 2021). While both studies were in-person, male-targeted, and brief in length, it remains unclear why they had different outcomes.

Sample characteristics in the studies were varied and included students attending public or private schools, as well as university students from less deprived backgrounds. Rushing et al. (2021) included an entire sample from a less-represented group, and Aseltine and DeMartino (2004) included a partial sample of students from a disadvantaged neighbourhood. The results need to take into account potential differences in these samples; it might be that adolescents who face adversity may be at higher risk of mental health disorders, and as a result, may potentially benefit more from such interventions (van Harmelen et al., 2016). Furthermore, adolescents from disadvantaged backgrounds may turn to informal sources of support more readily, as there

might be limited provision in their areas or they might have delayed access to formal supports.

There were few interventions that directly targeted an adolescent's social group. Most indirectly targeted adolescents' friends by teaching MH support skills and increasing MH literacy so that adolescents could better support their friends who may be going through mental distress in the future. Only two studies brought in members from an adolescent's authentic social group to teach them how to support their friends (Bernecker et al., 2020; Greco et al., 2001). Of note, both these studies reported successful outcomes and worked to promote support skills.

Figure 2.2 maps out the range of the interventions included in the review. While the interventions addressed different concerns, several gaps were identified through this review. First, the interventions lacked information about the direct outcomes on FR, with minimal information providing evaluations of friend helpfulness on FR.

Second, the included studies did not identify the types of friends adolescents may turn to, such as whether these friends are primarily in-person or online. This is an important area to clarify, as the online era has enabled adolescents to stay connected with their friends and develop their friendships through various platforms, such as social media. Adolescents often blend online and offline communication with little distinction (Ahmed, 2019; Mittman et al., 2022). Besides social media, online gaming is another popular way for adolescents to connect, as working together on tasks can strengthen friendships (Cacciatore et al., 2021). This is why it is important to introduce interventions that involve online friends and understand whether these interventions can play a role in enhancing online friendships (Boniel-Nissim et al., 2022).

Third, none of the studies looked at interventions to help adolescents support each other in times of grief, trauma, or loss, even though research suggests that emotional support is the most desired type of support following a traumatic loss (Cacciatore et al., 2021; Bergersen et al., 2022).

Fourth, the interventions included here did not employ evidence-based active ingredients, such as behavioural activation, which works by increasing engagement with positive activities and has been proven successful in reducing depression among young people (Tindall et al., 2017). Another active ingredient not employed was self-evaluation, with positive self-evaluation

having been recognised in the treatment of adolescent depression (Orchard et al., 2021).

Finally, the included studies did not investigate social inclusion as a component of their intervention. Interventions should have explored educating adolescents about the poor mental health outcomes of being socially excluded, as research shows that some adolescents are prosocial and empathetic towards their socially excluded peers (Masten et al., 2010). Adolescents struggling with mental illness can also often feel ostracised among their friend groups, and so finding ways to reduce that might be needed to enable their friends to become more socially included with their larger peer group.

2.5.1 Strengths and Limitations

This review is the first of its kind to comprehensively investigate the literature on friendship interventions and their role in adolescent mental health outcomes. The review was comprehensive, encompassing multiple large databases and extensive search terms to capture all interventions, including those related to friends/friendships. The scoping study allowed me to capture and report non-peer-reviewed literature that contributes to the overall representation of friendship interventions in mental health research. Organising the papers by theme painted a clearer picture of the types of mental health outcomes targeted by friendship interventions for adolescents. Systematically reviewing the interventions published and tested highlighted the gaps in the literature, such as the lack of studies evaluating FR and the lack of long-term outcomes for interventions.

This review has several limitations. Firstly, although the search criteria were broad, they may not have captured all of the papers involving friendship interventions. Friendship interventions are sparse and remain largely unexplored. The terminology used in papers that employ friendship interventions is inconsistent and not well-defined in the literature. As a result, some papers using unconventional terminology may have been missed. Similarly, studies that measure mental health indirectly or involve friends (e.g. interventions delivered to a friendship group or through social influence) may be overlooked. An example can be seen in certain studies focusing on bullying in schools. For instance, a recent 2025 study by Moody and Stahel found that close friends who uphold norms or share attitudes about anti-bullying are more effective in influencing bullying behaviour.

Secondly, the mental health and well-being outcomes of most interventions were not empirically measured using a valid and reliable scale or measure of mental health. This could not allow us to effectively determine the impact of adolescent friendship interventions on adolescent mental health.

While broad age ranges of adolescents were represented in the review, it is still unclear which of the included interventions, if any, can be used interchangeably for younger or older populations of adolescents. The interventions also mostly focused on self-help or improving mental health literacy. The focus was seldom solely on offering support to friends, as this was usually a secondary or tertiary outcome.

Additionally, because long-term effects of the interventions were not assessed, it remains uncertain whether booster doses are necessary periodically to maintain adolescents' knowledge and their ability to provide helpful support to friends.

Another notable limitation is how the intervention programmes are delivered. Some interventions involved trained staff disseminating the programme, while others trained teachers in a school or recruited youth volunteers with lived experience of mental illness. This could have introduced biases in how the intervention was presented, as some trained leaders might have had pre-existing relationships with the students (i.e., teachers). Finally, most interventions came from English-speaking countries, limiting adaptation to different socio-cultural contexts. Friendship dynamics and values vary across cultures (Baumgarte, 2016), so future research should specify which type of interpersonal interaction is targeted when applying these interventions in a new setting.

2.5.2 Implications

Friendship interventions present a promising avenue for improving the mental health and well-being of adolescents; however, this study highlights a significant research gap regarding which aspects of friendship interventions are most effective and for which populations. Therefore, one implication is for future researchers to understand how friendship interventions for adolescent mental health can be targeted, either at the individual level or within a specific context, as this is likely to lead to improved outcomes for adolescent well-being (Fazel et al., 2014; Zbukvic et al., 2023).

Many of the included interventions comprised an element of interactivity during the training process (e.g. in the form of role-plays, group/partner discussions, and fictional scenarios), which showed promising results (e.g. Hart et al., 2022). One implication, then, is that future programs and interventions should consider this factor as important for encouraging engagement among adolescent participants.

2.6 Conclusion

Overall, this chapter addressed the first research aim of my thesis by mapping the field of friendship interventions and evaluating their effectiveness, highlighting gaps in the literature. Due to the diversity of interventions that have emerged, there is insufficient evidence to draw conclusions or recommend one intervention over another. It is also challenging to make specific recommendations without first understanding how friendship dynamics may vary among different groups of adolescents. The following chapters will help fill this gap.

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Chapter 3

Part A

Friendship quality, mental health and well-being: results from a large cross-sectional student survey

Chapter overview

Background. The previous chapter revealed friendship interventions with varying aims, results, and content. While the interventions showed promise, few were grounded in existing friendship research. A significant next step involves exploring the relationship between adolescent friendship quality, mental health, and well-being.

Objectives. This chapter used data from a large cross-sectional study of secondary school adolescents in England to:

1. Investigate the association between adolescent friendships, mental health difficulties, and well-being.
2. Examine the relationship between mental health and well-being in adolescents who received either helpful or unhelpful support from friends.
3. Describe individual differences among adolescents seeking support from friends.

Findings and Implications. Friendship quality was associated with both mental health difficulties and well-being. High friendship quality was linked to lower RCADS-25 scores and higher WEMWBS scores. Gender and year group also moderated this relationship. Furthermore, gender-based differences were evident regarding the helpfulness of support from friends. Experiencing support from friends as helpful was also related to mental health scores. The gender results have potential implications for intervention development that consider gender and preference for tailored interventions over generalised ones.

3.1 Introduction

There are limited friendship interventions addressing adolescent mental health; those that do exist vary considerably in their delivery methods, content, and the involvement of authentic friends in the process. One major gap in the previous study was the lack of targeted interventions, either based on individual characteristics of adolescents, such as gender, or on situational factors like the context in which they are implemented.

Adolescent Friendship Quality

While the quality of adolescents' authentic social groups can vary, it remains uncertain how this can impact their mental health and overall well-being. There is a consensus among researchers that further investigation into the maintenance and quality of interpersonal relationships is needed, especially when it comes to adolescent mental health and well-being (Diendorfer et al., 2021; Fazel et al., 2021; Fuligni et al., 2025; Holt-Lunstad et al., 2010; Patterson & Vakili, 2014; Sawyer et al., 2007). However, few methods for assessing the quality of adolescent friendships exist (Mendelson & Aboud, 1999; Ponti et al., 2010). A key characteristic of an authentic social group is an individual's perception of their rapport with friends, particularly regarding the importance of homophily (or similarity) in friendship dyads and groups (Kandel, 2007; McPherson et al., 2001; Block & Grund, 2014). Sharing commonalities with friends can enhance feelings of closeness (Laursen, 2017). Therefore, this chapter expands on adolescents' perceptions of how well they get along with friends as an indicator of friendship quality. While studies have examined egocentric network size (the number of friends to whom an individual is connected) from an evolutionary perspective (Dunbar, 2010) and also in relation to mental health or social integration (Thompson et al., 2024), fewer studies have investigated the relationship between mental health, well-being, and an adolescent's self-reported friendship quality.

Mental Health and Well-being

The likelihood of experiencing depression rises from 5% in early adolescence to around 20% in late adolescence (Thapar et al., 2012). Adolescents experience more severe anxiety symptoms and higher rates of comorbid depressive disorders (Waite & Cresswell, 2014). Depression and

anxiety in adolescence have been linked with suicide as well as poor long-term outcomes in adulthood (Kalin, 2021).

More adolescents (35.9%) seek support from friends rather than parents (25%) or others after self-harm, with nearly half finding this support unhelpful (Geulayov et al., 2022). This highlights a gap in understanding friendship-based mental health support. This chapter examines how individual factors vary support-seeking from friends to help address this gap.

3.1.1 The Current Study

This study is conducted as a preliminary step to investigate the relationship between friendships, mental health, and well-being, with a focus on support-seeking from friends. I also investigate differences across gender and year group, two factors which have previously been associated with mental health difficulties in adolescents (Deighton et al., 2019). Given that this study was exploratory, there were no directional hypotheses.

3.1.2 Research Questions

Three main research questions were investigated in these analyses.

1. How is friendship quality associated with mental health, and how is it associated with well-being?
2. What is the relationship between individual-level factors, mental health, and well-being, and the nature of help received by adolescents from their friends (helpful versus unhelpful)?
3. How does support-seeking from friends differ across sub-groups of adolescents?

3.2 Methods

Data: The OxWell Student Survey 2021

This chapter used data collected from May to July 2021 from the OxWell Student Survey. The OxWell Student Survey is a repeated cross-sectional survey for school-aged students that measures the mental health and well-being of children and young people in England (Mansfield et al., 2021). The target population for the survey consists of children and adolescents in primary school, secondary school, and further education colleges (FECs) aged 8-18 years. Students are required to provide informed consent (or assent with the consent of their parents/guardians) before participating in the survey. For

those under 16, a parental opt-out process is used. The survey is conducted online within schools, where students are often given the survey to complete in a dedicated class or form time. Schools were recruited with support from local authorities situated in four English counties: Oxfordshire, Berkshire, Buckinghamshire, and Merseyside. No directly identifiable information (such as names, date of birth, address) about the students is collected. Once we collected the data, the OxWell senior statistician, Dr Simon White, cleaned the data file for use. The study was approved by the University of Oxford Research Ethics Committee (Ref: R62366).

Participants

The participants included in the analyses for this chapter were adolescents in secondary school and further education colleges from year groups 8-13 who participated in the 2021 OxWell Student Survey.

3.2.1 Measures

The variables used for these analyses were cleaned. Some variables were dichotomised where needed, described on a per-variable basis below.

Outcome Variables

Mental Health

RCADS-25:

The Revised Child Anxiety and Depression Scale-25 (RCADS-25) is a brief 25-item self-report questionnaire intended to evaluate symptoms of anxiety and depression in children and adolescents (Mansfield et al., 2021; Ebesutani et al., 2012). It includes statements such as “I feel sad or empty”. Each item is scored on a 4-point scale ranging from 0 (Never) to 3 (Always), yielding raw scores for Total Anxiety, Total Depression, and a combined Total Anxiety and Depression. These raw scores are subsequently transformed into standardised T-scores, adjusted for age and gender.

The RCADS-25 has demonstrated good to excellent internal consistency and construct validity in adolescent populations, with reported Cronbach’s alpha values typically exceeding .80 for total and subscale scores (Ebesutani et al., 2012; Ebesutani et al., 2017). The validated clinical cut-off for depression and anxiety symptoms was for scores ≥ 65 (Ebesutani et al., 2012).

For the analyses within this chapter, standardised T-scores for the combined Total Anxiety and Depression scale were used, with higher scores on the RCADS-25 indicating greater depression and anxiety symptomology (i.e. poorer mental health).

Past mental health problem:

A single-item question was included to assess past mental health problems. This item was analysed as a binary variable.

"Have you ever felt you had a mental health problem?"

'Yes'

'No'

Well-being

WEMWBS:

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) is a validated measure for assessing mental well-being in adolescents aged 11 years and older in the UK (Melendez-Torres et al., 2019), but it is not a measure of mental illness (Mansfield et al., 2021). The WEMWBS provides a single score for mental well-being based on 14 positively worded statements that encompass both hedonic and eudaimonic aspects of mental health (Tennant et al., 2007). Items are summed to produce a total well-being score, with higher scores indicating better well-being. Previous studies report high internal consistency in adolescent populations (α typically $> .85$; Tennant et al., 2007; Melendez-Torres et al., 2019; Ringdal et al., 2018). The total WEMWBS score was used in all analyses.

Support seeking from friends

I investigated support-seeking from friends using a single question that comprised two conditional components. This question was part of a larger question that allowed adolescents to indicate if they had sought support from both informal and formal sources. I filtered for adolescents who selected "Friend(s)" as an option. A binary outcome variable was created, categorising those who indicated having sought support from a friend into one of two groups based on whether they were offered support. In the same vein, among those who indicated seeking support, the variable was further divided into two groups: those who perceived the support they received as helpful and those who did not.

"Have you ever tried to ask for support for a mental health problem from the following:

'Friend(s)'

Regarding this support, are you...

'Currently being offered support	] Offered support
Previously been offered support	
Not been offered support/been turned away	] Not offered support
Changed mind before getting the support'	
Regarding this support, was it helpful?	
'Not helpful at all	] Not helpful
Not helpful enough	
Just about helpful enough	
Quite helpful	] Helpful
Very helpful''	

Availability of friends for support

The availability of friends for support was descriptively presented using the following question:

"How often do you feel you have no one to talk to?
'Never, Often, Sometimes'.

Covariates

Friendship Quality

Adolescent friendship quality was measured with a single-item question:

"How well do you get along with your friends?
'Very well or well (*High*)
Most of the time well (*Intermediate*)
Not well or not at all'" (*Low*)

Socio-demographic variables were included for all students:

- gender: 'boy', 'girl', 'other/prefer not to answer' (*relabelled to "gender diverse/gender non-disclosing (GD/GND)"*) and
- year group: 8-13.

3.2.2 Analytical Approach

My statistical analysis plan was pre-registered on the OxWell OSF page (<https://osf.io/7rx4f>).

The characteristics of the variables, the formulated hypotheses, and the specific aims tied to each research question informed the selection of the statistical analyses. I used R (version 4.2.2) for all of my analyses and figures. The dataset underwent preliminary exploration and verification before generating descriptive statistics, models, and visual plots.

My first research question investigated the relationship between the quality of friendships, mental health, and well-being in adolescents. Multiple linear regression was used, and two models were created (see Table 3A.1). To circumvent omitted variable bias, gender and year group were included in both models as both can vary mental health and well-being (Buhrmester & Furman, 1987).

Post hoc tests were conducted by calculating estimated marginal means (EMMs) and performing contrast analyses, with Bonferroni–Holm adjustments applied to account for multiple testing.

A chi-squared test was conducted to measure the relationship between friendship quality and having experienced a mental health problem.

Logistic regression was employed to investigate the second research question. The model incorporated RCADS-25 scores and gender as covariates. A likelihood ratio test (LRT) was conducted to assess whether the inclusion of the year group covariate enhanced the model fit. Adjusted and unadjusted odds ratios (OR) and 95% confidence intervals (CI) were computed.

Descriptive and exploratory analyses were used to examine the differences between adolescents who sought mental health support from friends and those who did not.

Missing data were addressed using complete case analysis, where only participants with complete data on the variables included in each analysis were retained. This approach was applied consistently throughout this chapter to ensure comparability across models.

Table 3A.1 Statistical models

Model type	Equation
Multiple Linear Regression (2 models)	$RCADS25 = \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{gender})$ $WEMWBS = \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{gender}) + \beta_3(\text{year group}) + \epsilon$
Estimated Marginal Means (4 models)	$RCADS25 = \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{gender}) + \beta_3(\text{friendship quality} \times \text{gender}) + \epsilon$ $WEMWBS = \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{year group}) + \beta_3(\text{friendship quality} \times \text{year group}) + \epsilon$
Logistic Regression (2 models)	$\log\left(\frac{P(Y = 1)}{P(Y = 0)}\right) = \beta_0 + \beta_1 RCADS25 + \beta_2 \text{gender}_{boy} + \beta_3 \text{gender}_{GD/GND}$

$$\log\left(\frac{P(Y=1)}{P(Y=0)}\right) = \beta_0 + \beta_1 \text{WEMWBS} + \beta_2 \text{gender}_{\text{boy}} + \beta_3 \text{gender}_{\text{GD/GND}}$$

3.3 Results

Participants

A total of 33,556 students from 181 primary and secondary schools and further education colleges (FECs) participated in the survey. Due to the confidential nature of this survey and the lack of information on the number of students invited, it is difficult to decipher the different reasons why students did not participate. However, the large sample size still enables meaningful analyses. Possible reasons include 1) parental opt-out during the consent process, 2) their school not inviting them/all classes to participate for logistical reasons, or 3) a lack of interest or decision by the students directly to not participate (for example by not completing the mandatory consent questions in the survey) (Soneson, 2022). Survey responses from students who completed it in less than 10 minutes due to lack of engagement were discarded (3,218; 9.6%). This left a pool of 30,338 participants, and my analysis concentrated on a final sample of 10,762 students, filtering for those in secondary schools and FECs.

Scores on the WEMWBS scale ranged from 14 to 70, and scores on the RCADS-25 scale ranged from 27 to 113. Additional sample demographics are reported in Table 3A.2.

Table 3A.2 Sample demographics

Category	N (%)
Gender	
Girl	5878 (54.7%)
Boy	4254 (39.6%)
GD/GND	621 (5.8%)
Year Group	
Y08	4060 (37.7%)
Y09	3602 (33.5%)
Y10	2614 (24.3%)
Y11	198 (1.8%)
Y12	233 (2.2%)
Y13	55 (0.5%)
Friendship Quality	
Low	176 (1.6%)
Intermediate	3491 (32.6%)
High	7030 (65.7%)
RCADS-25 Clinical Cutoff¹	
Above Clinical Cutoff	2656 (24.8%)

Below Clinical Cutoff

8041 (75.2%)

Note:

1. Clinical cutoff scores referred to adolescents who scored over 65 on RCADS-25 (Ebesutani et al., 2012).

Friendship Quality and Mental Health Association

A chi-square test of independence revealed a significant association between friendship quality and experiencing a mental health problem, $X^2 = 275.79$, $df = 2$, $p < .0001$. However, the effect size (Cramér's $V = 0.2$) suggested a medium (or moderate) association.

A larger proportion of GD/GND adolescents had friendships that were not perceived as high-quality, as shown in Figure 3A.1.

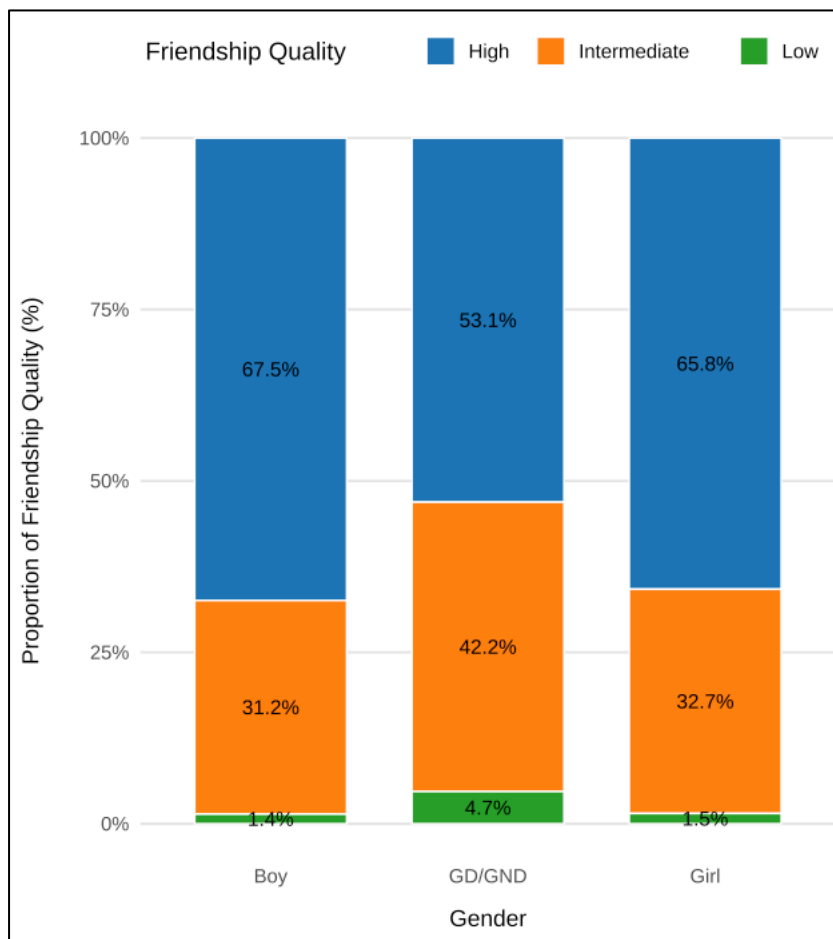


Figure 3A.1. Proportion of Adolescents Reporting Friendship Quality by Gender (Girl: $N = 5848$, Boy: $N = 4227$, GD/GND: $N = 614$)

Linear Regression Model: RCADS-25

Refer to Table 3A.3 for the results of the multiple linear regression model. An inverse relationship was observed between friendship quality and RCADS-25 scores. This model explained 17% of the variability in RCADS-25 scores. The relationship between friendship quality and RCADS-25 scores is further illustrated in a box plot presented in Figure 3A.2.

Table 3A.3 Multiple Linear Regression Output for RCADS-25 using friendship quality, gender, and year group as covariates (N = 10,641).

Variable	Coefficient	Std. Error	t-value	p-value
(Intercept)	52.351	0.304	172.228	<.001***
Friendship Quality				
Intermediate	8.154	0.321	25.440	<.001***
Low	18.369	1.185	15.507	<.001***
Gender				
Boy	-8.466	0.312	-27.095	<.001***
GD/GND	8.759	0.657	13.333	<.001***
Year Group				
Y09	1.453	0.354	4.099	<.001***
Y10	3.894	0.390	9.990	<.001***
Y11	1.138	1.129	1.007	0.314
Y12	5.906	1.038	5.692	<.001***
Y13	6.831	2.091	3.267	<.001***
F-Statistic: 244.5 on 9 and 10631 DF				<.001***

Note: The adjusted R-squared is 0.171. The highest level of friendship quality, "Girl" gender group and year group Y08 are used as the reference categories.

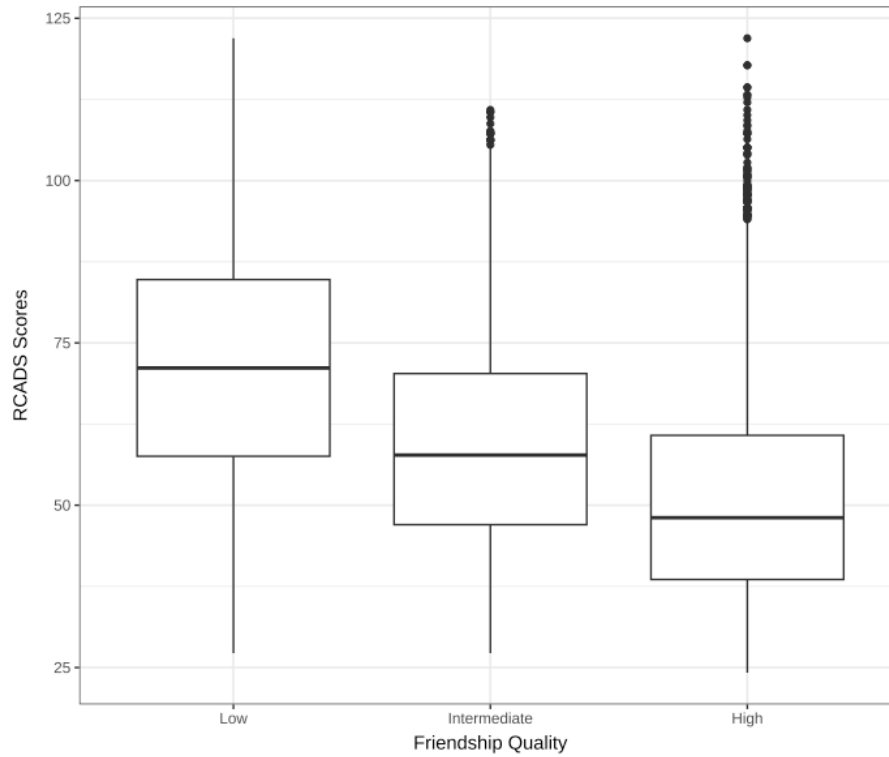


Figure 3A.2. Boxplot showing a significant relationship between RCADS-25 scores and friendship quality.

Main effects of gender and year group: RCADS-25

After accounting for friendship quality and year group, boys reported better mental health compared to girls (see Table 3A.3). Conversely, GD/GND and older adolescents exhibited the poorest mental health.

Friendship Quality and Well-Being Scores

Linear Regression Model: WEMWBS

The results for the model using WEMWBS as the outcome variable are presented in Table 3A.4. A positive relationship was observed between friendship quality and well-being scores. The model accounted for 22% of the variance in WEMWBS scores. This relationship is further illustrated in a box plot below (see Figure 3A.3).

Table 3A.4 Multiple Linear Regression Output for WEMWBS using friendship quality, gender, and year group as covariates (N = 8921).

Variable	Coefficient	SE	t-value	p-value
(Intercept)	45.998	0.208	221.260	<.001***
Friendship Quality (Ref: High)				
Low	-12.925	0.803	-16.090	<.001***
Intermediate	-6.357	0.219	-29.024	<.001***

Gender (Ref: Girl)				
Boy	6.484	0.214	30.269	<.001***
GD/GND	-4.788	0.436	-10.988	<.001***
Year group (Ref: Y08)				
Y09	-2.016	0.242	-8.341	<.001***
Y10	-2.657	0.268	-9.908	<.001***
Y11	-0.731	0.768	-0.952	0.341
Y12	-4.603	0.741	-6.213	<.001***
Y13	-4.605	1.576	-2.921	0.004**

Note: The adjusted R-squared is 0.22.

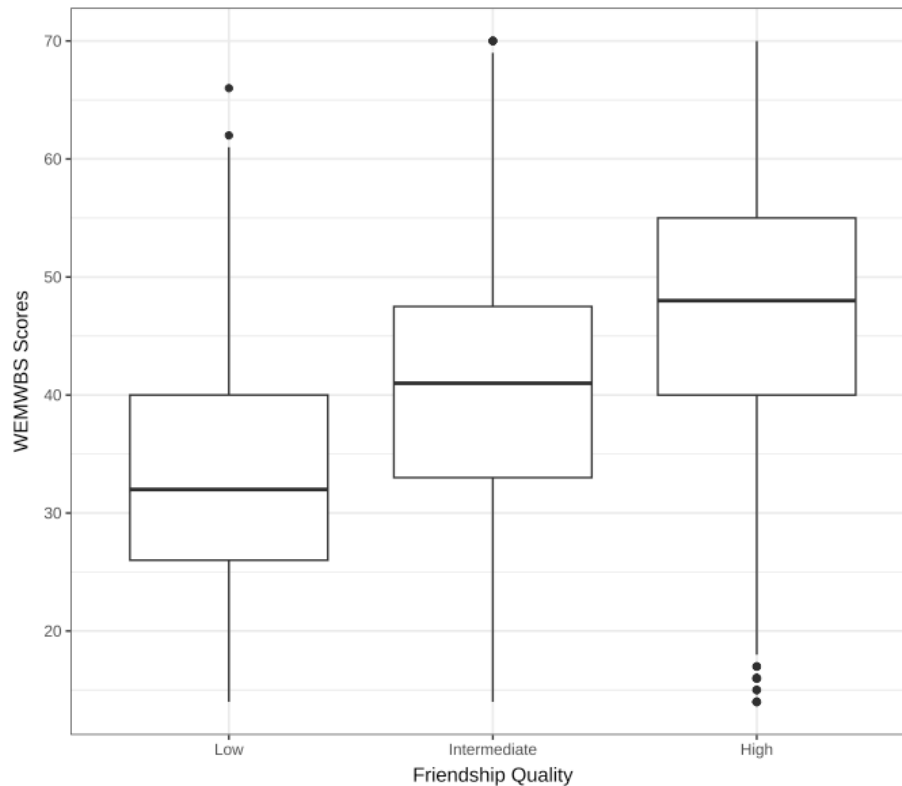


Figure 3A.3. Boxplot showing a significant relationship between WEMWBS scores and friendship quality.

Main effects of gender and year group: WEMWBS

Adjusting for friendship quality and year group, boys had mean WEMWBS scores that were higher than girls, whereas GD/GND adolescents and older adolescents scored lower (see Table 3A.4).

Moderation Effects: Estimated Marginal Means (EMM) & Contrasts

EMM and contrast analyses for gender and year group concerning both outcomes are reported below with standard error bars using 95% confidence intervals.

Moderation of Friendship Quality & RCADS-25

Gender as a Moderator

Figure 3A.4 visualises the EMMs. Higher friendship quality is associated with lower RCADS-25 scores across all three genders, with GD/GND adolescents having elevated scores. The contrasts table (see Table 3A.5) highlights the extent of the differences in RCADS-25 scores, with the difference between high and low friendship quality being more pronounced for boys.

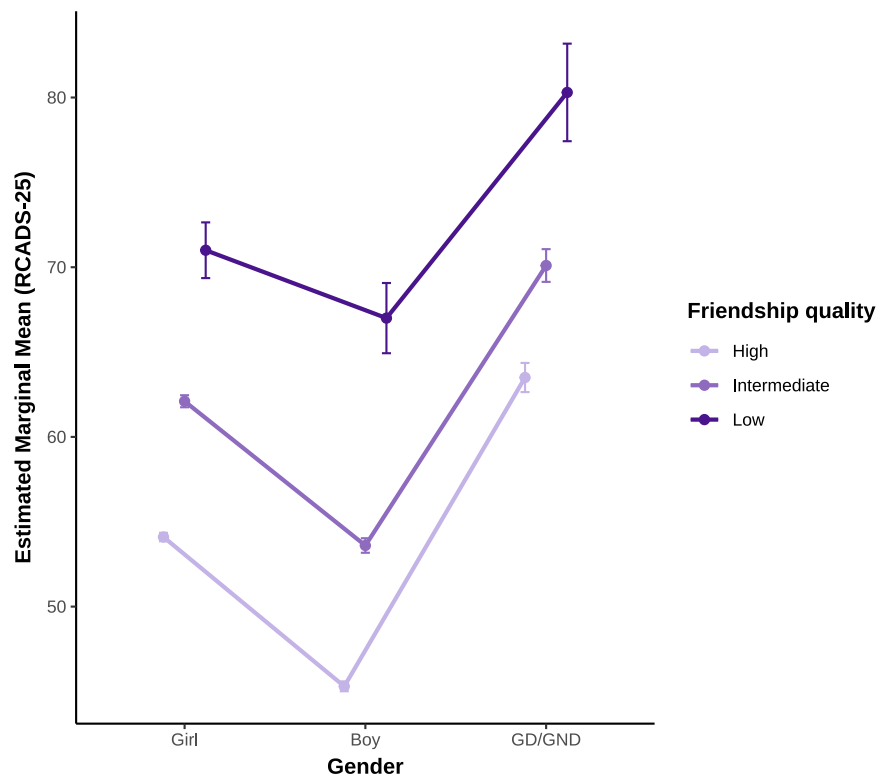


Figure 3A.4. Estimated marginal means of RCADS-25 scores by friendship quality and gender. Sample sizes: Girl (n=5846), Boy (n=4225), GD/GND (n=618).

Table 3A.5. Pairwise Contrasts for Estimated Differences in RCADS-25 Scores by Friendship Quality for Gender

Gender	Contrast	Estimate (SE)	t-ratio	p-value
Girl	High - Low	-16.85 (1.66)	-10.15	< .001***
	High - Intermediate	-8.01 (0.43)	-18.44	< .001***
	Low - Intermediate	8.84 (1.68)	5.27	< .001***

Boy	High - Low	-21.77 (2.09)	-10.42	< .001***
	High - Intermediate	-8.32 (0.52)	-16.10	< .001***
	Low - Intermediate	13.44 (2.11)	6.36	< .001***
GD/GND	High - Low	-16.80 (3.00)	-5.60	< .001***
	High - Intermediate	-6.57 (1.29)	-5.08	< .001***
	Low - Intermediate	10.23 (3.03)	3.37	0.0007

Year Group as a Moderator

EMMs in Figure 3A.5 reveal that younger students (Y08, Y09, and Y10) showed the largest and most significant differences in RCADS-25 scores between high- and low-quality friendships (see contrasts in Table 3A.6).

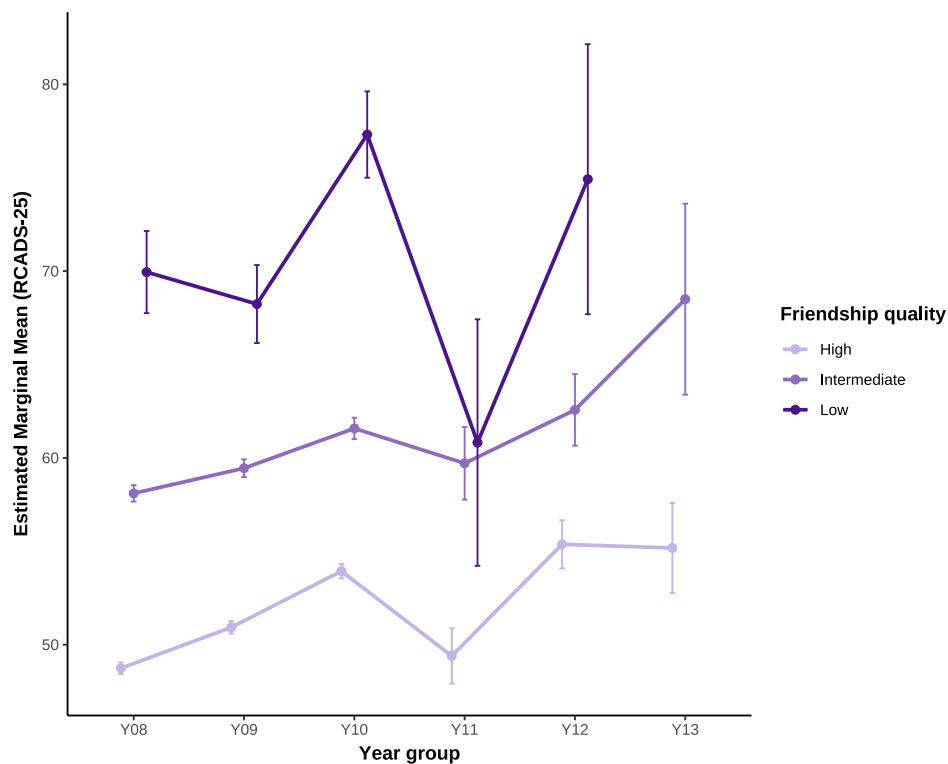


Figure 3A.5. Estimated marginal means of RCADS-25 scores by friendship quality and gender. Sample sizes: Y08 (n=4038), Y09 (n=3583), Y10 (n=2593), Y11 (n=195), Y12 (n=233), Y13 (n=55).

Note: Due to the very small sample size for Y13, some estimates were unavailable.

Table 3A.6. Pairwise contrasts for estimated differences in RCADS-25 scores by friendship quality for year group

Year Group	Contrast	Estimate (SE)	t-ratio	p-value
Y08	High - Low	-21.21 (2.22)	-9.54	< .001***
	High - Intermediate	-9.37 (0.54)	-17.33	< .001***

	Low - Intermediate	11.85 (2.24)	5.28	< .001***
Y09	High - Low	-17.31 (2.11)	-8.19	< .001***
	High - Intermediate	-8.52 (0.58)	-14.69	< .001***
	Low - Intermediate	8.79 (2.14)	4.11	< .001***
Y10	High - Low	-23.38 (2.34)	-9.98	< .001***
	High - Intermediate	-7.64 (0.69)	-11.04	< .001***
	Low - Intermediate	15.73 (2.38)	6.61	< .001***
Y11	High - Low	-11.42 (6.76)	-1.69	0.1824
	High - Intermediate	-10.32 (2.44)	-4.22	< .001***
	Low - Intermediate	1.11 (6.88)	0.16	0.8721
Y12	High - Low	-19.55 (7.34)	-2.66	0.0156
	High - Intermediate	-7.20 (2.31)	-3.11	0.0056
	Low - Intermediate	12.35 (7.48)	1.65	0.0987
Y13 ¹	High - Low	NA (NA)	NA	NA
	High - Intermediate	-13.32 (5.65)	-2.36	0.0554
	Low - Intermediate	NA (NA)	NA	NA

1. Year group 13 had a very small sample size, so the estimates and degrees of freedom for some of the answers were unavailable.

Moderation of Friendship Quality & WEMWBS

Gender as a Moderator

The relationship between friendship quality and gender followed the same trend observed with RCADS-25 scores. Within all three gender levels, adolescents reporting high-quality friendships had the highest WEMWBS scores. Across the gender levels, boys with high-quality friendships had the highest EMM of WEMWBS scores (see Figure 3A.6). The GD/GND group exhibited lower WEMWBS scores across friendship quality. At the low friendship quality level, both girls and boys had comparable scores; however, GD/GND adolescents scored significantly lower.

Contrast analyses are presented in Table 3A.7. Boys exhibited the largest difference in scores between the high and low friendship quality levels, followed by GD/GND.

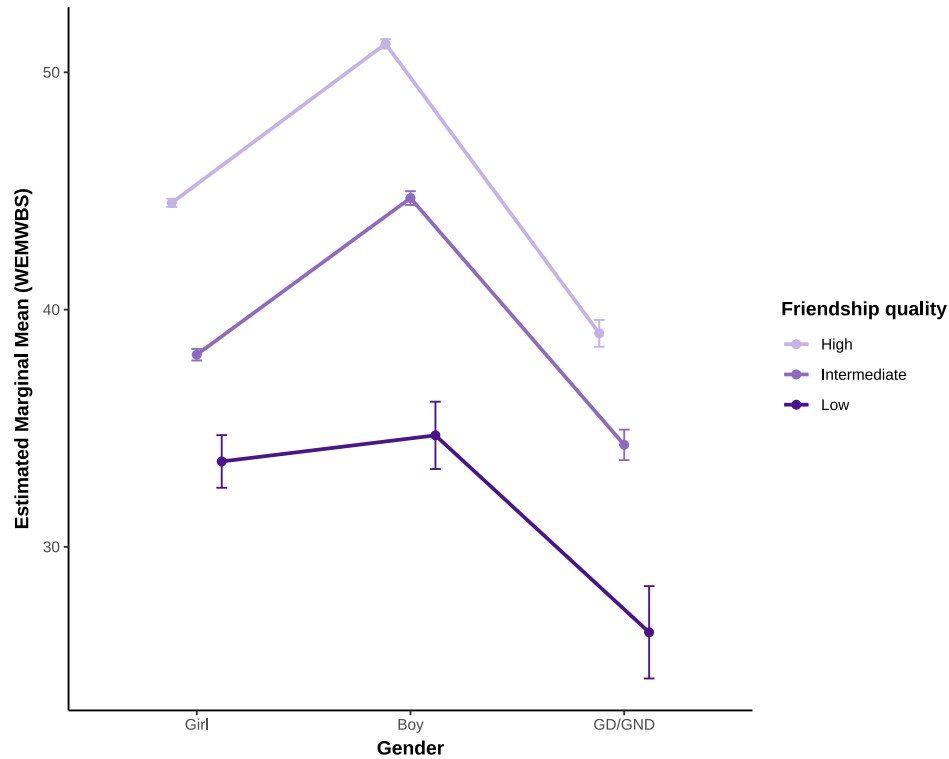


Figure 3A.6 Estimated marginal means of RCADS-25 scores by friendship quality and gender. Sample sizes: Girl (n=4839), Boy (n=3566), GD/GND (n=555).

Table 3A.7 Pairwise Contrasts for Estimated Differences in WEMWBS Scores by Friendship Quality for Gender

Gender	Contrast	Estimate (SE)	t-ratio	p-value
Girl	High - Low	10.89 (1.12)	9.70	< .001***
	High - Intermediate	6.34 (0.30)	21.18	< .001***
	Low - Intermediate	-4.54 (1.14)	-4.00	< .001***
Boy	High - Low	16.54 (1.43)	11.54	< .001***
	High - Intermediate	6.48 (0.35)	18.39	< .001***
	Low - Intermediate	-10.05 (1.45)	-6.94	< .001***
GD/GND	High - Low	12.60 (2.03)	6.22	< .001***
	High - Intermediate	4.65 (0.86)	5.44	< .001***
	Low - Intermediate	-7.95 (2.05)	-3.88	< .001***

Year Group as a Moderator

Figure 3A.7 and Table 3A.8 present the EMM and contrast analyses examining the moderating effect of year group on WEMWBS and friendship quality. The largest differences in WEMWBS scores were observed in the younger year groups (Y08, Y09, Y10) between high and low friendship quality.

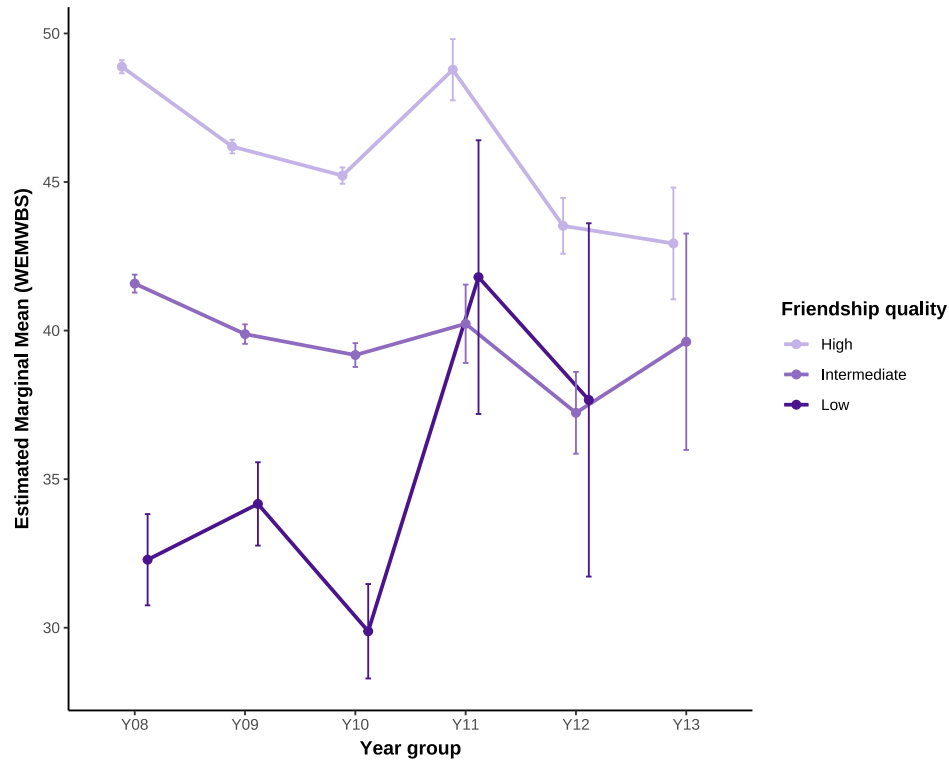


Figure 3A.7 Estimated marginal means of RCADS-25 scores by friendship quality and gender. Sample sizes: Y08 (n=3421), Y09 (n=3036), Y10 (n=2126), Y11 (n=168), Y12 (n=179), Y13 (n=38).

Note: Due to the very small sample size for Y13, some estimates were unavailable.

Table 3A.8 Contrasts table comparing the estimated marginal means of WEMWBS score for the three levels of friendship quality and year group

Year Group	Contrast	Estimate (SE)	t-ratio	p-value
Y08	High - Low	16.59 (1.55)	10.70	< .001***
	High - Intermediate	7.30 (0.37)	19.55	< .001***
	Low - Intermediate	-9.29 (1.57)	-5.94	< .001***
Y09	High - Low	12.03 (1.42)	8.47	< .001***
	High - Intermediate	6.31 (0.40)	15.75	< .001***
	Low - Intermediate	-5.72 (1.44)	-3.97	< .001***
Y10	High - Low	15.34 (1.61)	9.51	< .001***
	High - Intermediate	6.04 (0.49)	12.44	< .001***
	Low - Intermediate	-9.30 (1.64)	-5.67	< .001***
Y11	High - Low	6.98 (4.72)	1.48	0.2783
	High - Intermediate	8.55 (1.67)	5.11	< .001***
	Low - Intermediate	1.57 (4.79)	0.33	0.743
Y12	High - Low	5.86 (6.02)	0.97	0.6609

	High - Intermediate	6.29 (1.67)	3.78	0.0005
	Low - Intermediate	0.44 (6.10)	0.07	0.9432
Y13 ¹	High - Low	NA (NA)	NA	NA
	High - Intermediate	3.31 (4.10)	0.81	1
	Low - Intermediate	NA (NA)	NA	NA

1. Year group 13 had a relatively small sample size, so some estimates and degrees of freedom were unavailable.

Perceived Helpfulness of Received Friend Support

Five logistic regression models were run: (1) an unadjusted model with gender only; (2) an unadjusted model with RCADS-25 only; (3) an adjusted RCADS-25 model including gender; (4) an unadjusted model with WEMWBS only; and (5) an adjusted WEMWBS model including gender. Upon conducting the LRT, the p-value was non-significant for the model with year group; therefore, the model was retained without year group. Results are summarised in Table 3A.9.

Gender

Compared to girls, boys had 1.5 times higher odds of reporting support received by friends as helpful in the unadjusted model. GD/GND adolescents had lower odds.

RCADS-25

In the unadjusted and adjusted models, higher RCADS-25 scores were associated with lower odds of perceiving support from friends as helpful. In the adjusted model, boys showed 1.4 times higher odds. Results for GD/GND adolescents were not significant.

Figure 3A.8 plots the predicted probabilities of perceiving friend support as helpful by gender and RCADS-25 score with 95% confidence intervals.

WEMWBS

Higher WEMWBS scores increased the odds of receiving friend support as helpful in the unadjusted and adjusted models. Adjusted differences by gender were not significant.

Figure 3A.9 plots the predicted probabilities of perceiving friend support as helpful by gender and WEMWBS score.

Table 3A.9. Logistic Regression Analysis of Adolescents' Perception of Helpful Friend Support in Relation to Mental Health, Well-being, and Gender

Model	Variable	OR [95% CI]	p-value
Unadjusted Gender Model	Boy	1.52 [1.17, 1.97]	0.002**
	GD/GND	0.69 [0.51, 0.92]	0.013*
Unadjusted RCADS-25 Model	RCADS-25	0.97 [0.96, 0.97]	< .001***
	RCADS-25	0.97 [0.96, 0.98]	< .001***
Adjusted RCADS-25 Model	Boy	1.40 [1.07, 1.82]	0.014*
	GD/GND	0.83 [0.61, 1.13]	0.246
Unadjusted WEMWBS Model	WEMWBS	1.07 [1.06, 1.08]	< .001***
	WEMWBS	1.07 [1.05, 1.08]	< .001***
Adjusted WEMWBS Model	Boy	1.20 [0.90, 1.61]	0.221
	GD/GND	0.83 [0.59, 1.16]	0.273

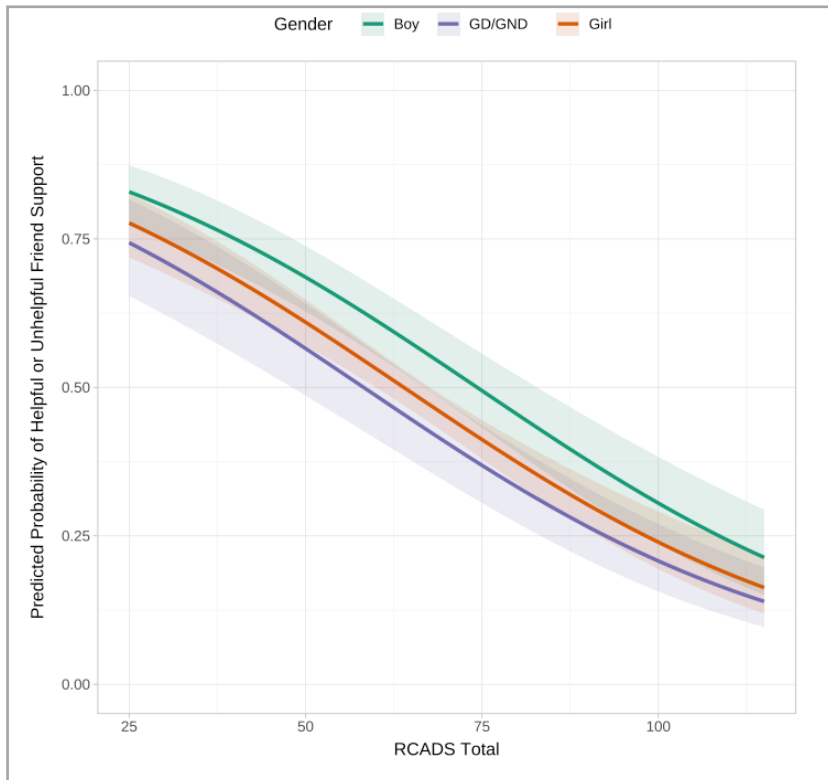


Figure 3A.8. Predicted Probability of Perceiving Friend Support as Helpful by RCADS-25 Score and Gender.

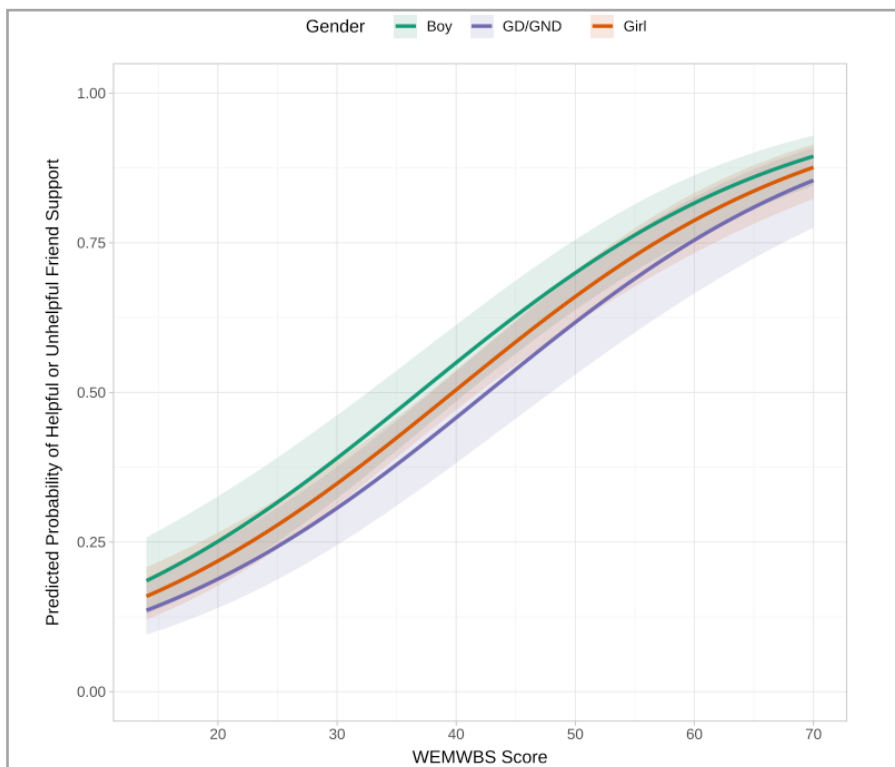


Figure 3A.9. Predicted Probability of Perceiving Friend Support as Helpful by WEMWBS Score and Gender.

Individual differences in support-seeking from friends

Descriptive statistics revealed adolescents identifying as GD/GND sought support from friends more frequently than both girls and boys (refer to Figure 3A.10). Older adolescents (Y12 and Y13) proportionally turned to friends for support more (see Figure 3A.11). Figure 3A.12 displays the proportion of adolescents who reported turning to friends and were offered/not offered support. A larger proportion of GD/GND adolescents were not offered support by their friends when sought. Lastly, Figure 3A.13 shows that a larger proportion of GD/GND adolescents reported they felt they often had no one to talk to.

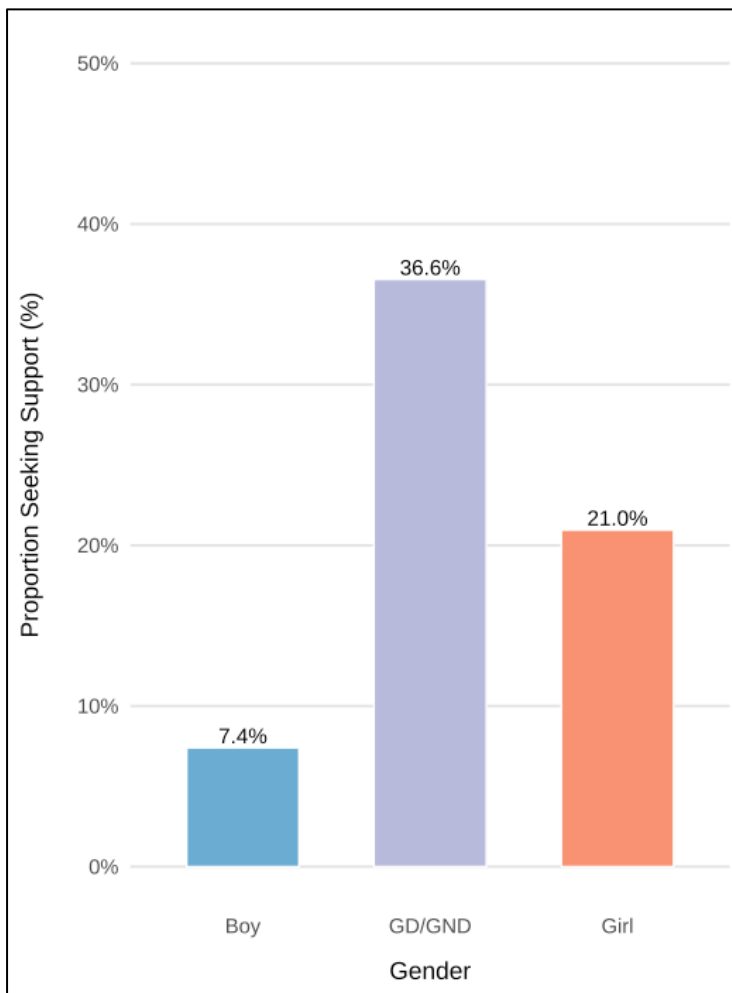


Figure 3A.10 Proportion of Adolescents Seeking Friend Support by Gender (N: Girl = 5878, Boy = 4254, GD/GND = 621)

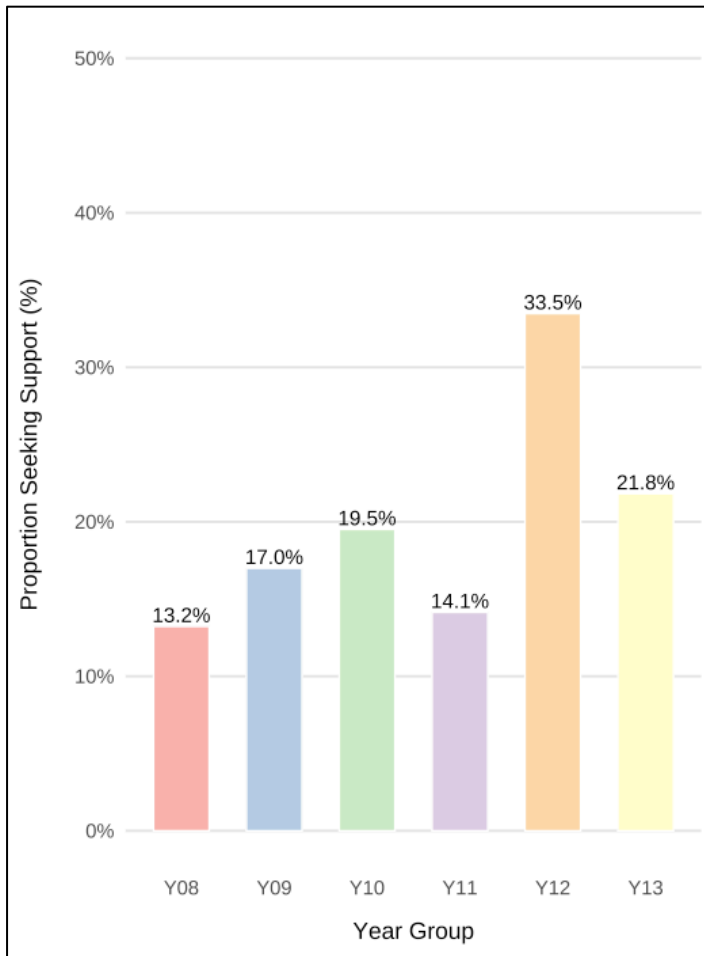


Figure 3A.11 Proportion of Adolescents Seeking Friend Support by Year Group (N: Y08 = 4060, Y09 = 3602, Y10 = 2614, Y11 = 198, Y12 = 233, Y13 = 55).

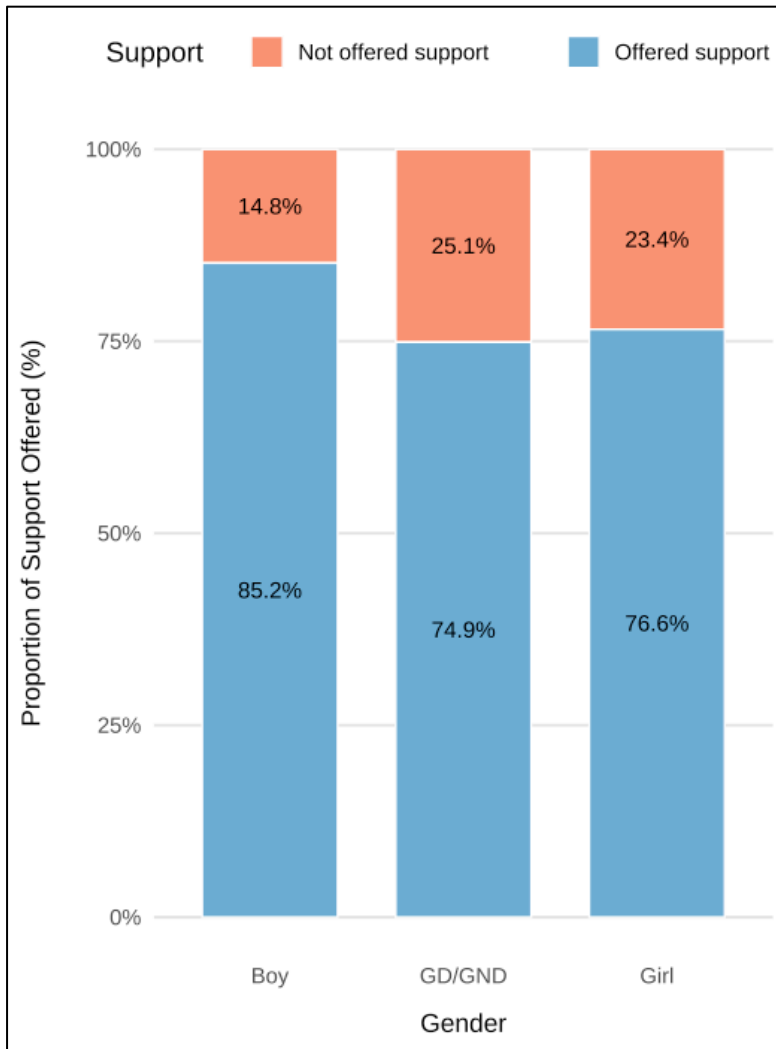


Figure 3A.12 The proportion of adolescents who were offered or not offered support when they sought it out from their friends (Girl: N = 1139, Boy: N = 297, GD/GND: N = 215).

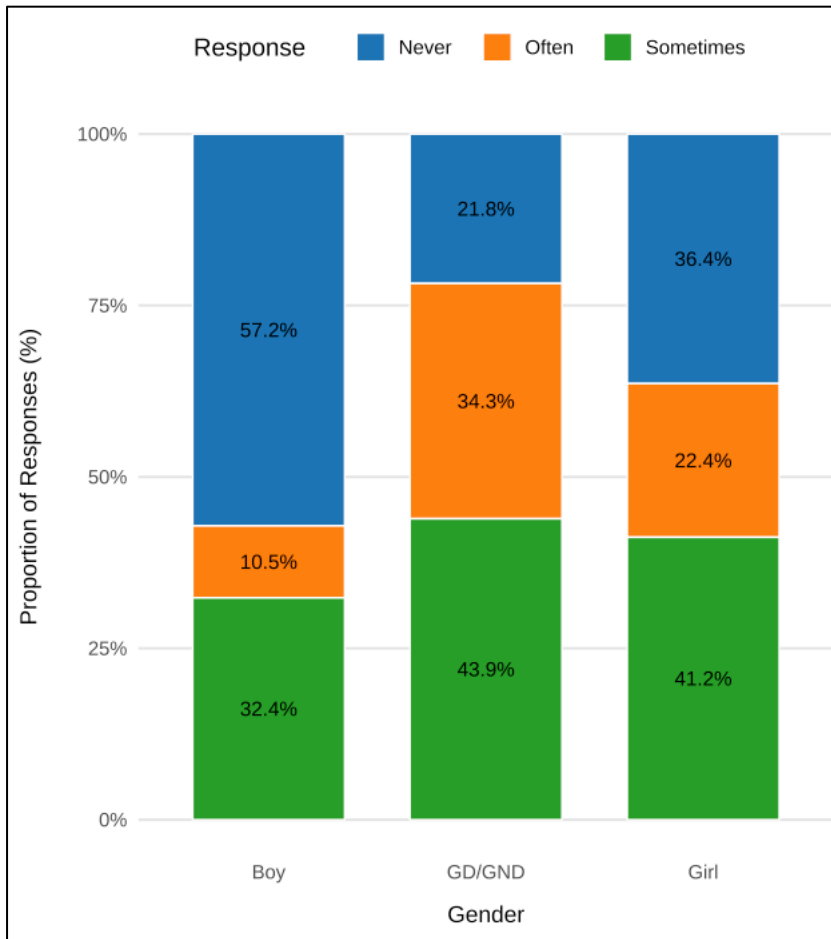


Figure 3A.13 Proportion of Adolescents Reporting How Often They Feel They Have No One to Talk To, by Gender (Girl: N = 5850, Boy: N = 4214, GD/GND: N = 615)

3.4 Discussion

This chapter helped address the second aim of this thesis and examined the associations between adolescent friendship quality, mental health, and well-being among a large and diverse sample of secondary school students in England. Guided by established theories and evidence around adolescent friendships (Sullivan, 2013; Hartup, 1996; Güroğlu, 2022; Berndt, 2002), my analyses focused on three key research objectives: 1) the association between friendship quality and adolescents' mental health and well-being, 2) the relationship between individual-level factors, mental health, and well-being, and perceptions of the helpfulness of friend support, and 3) the demographic and personal characteristics linked to adolescents' likelihood of seeking mental health support from friends.

Summary of Research Findings

Higher-quality friendships were associated with better mental health and improved well-being. However, adolescent mental health and well-being varied by gender and year group, which also moderated the relationship between friendship quality, mental health, and well-being. Boys experienced fewer mental health issues (than other genders), while GD/GND adolescents consistently faced mental health difficulties and lower well-being. Nonetheless, when friendship quality was low, boys showed a significantly large increase in RCADS-25 scores, and the largest decline in WEMWBS scores, underscoring that friendship quality might be especially important for them.

To answer my second research question, adolescents with greater mental health difficulties were more likely to perceive the support from friends as unhelpful. The same trend was observed for well-being. Boys, although less likely to seek the support of friends, were more likely than girls or GD/GND adolescents to perceive their friends' support as helpful when sought, both in the unadjusted model and after adjusting for RCADS-25.

Finally, regarding factors linked to support-seeking behaviours from friends, GD/GND adolescents were the least likely to rate mental health support from friends as helpful, despite seeking it more than boys and girls. Older adolescents also reported turning to their friends for mental health support more often than younger ones. Below, I discuss these results in the context of wider literature.

Friendship quality, mental health, and well-being

My findings align with previous research emphasising the link between weak friendships and increased depressive symptoms (Jose, 2015; Kamper & Ostrov, 2013; Oppenheimer & Hankin, 2011), as well as high friendship quality and better well-being (Alsarrani et al., 2022). However, some studies have identified that adolescents with depressive symptoms are also more likely to perceive their relationships as poor and may have a diminished view of high-quality connections (Narr, Allan, Tan, & Loeb, 2019; Oppenheimer & Hankin, 2011). Reverse causation might therefore also offer an explanation, as students' perceptions of low-quality friendships could be influenced by their current mental health difficulties, or those students with mental health difficulties might not be able to make high-quality friendships. One important consideration here is that subjective quality (i.e. perceived intimacy, trust, and

support) is key in friendships, and individuals with mental health difficulties might have a poorer subjective view of their friendship quality (Hoffmann et al., 2021; Langheit & Poulin, 2022). As friendships naturally evolve over time (Antonucci & Akiyama, 1987; Augustsson et al., 2025), understanding and measuring the subjectiveness of friendship quality might be a useful next step.

Other variables may also partly explain this relationship, as the chi-squared test revealed a significant yet medium/moderate effect size of the association between friendship quality and having experienced a mental health problem. Some explanations can be gathered from analyses in this chapter that considered gender and year group as covariates, as both can influence friendships (Rose & Rudolph, 2006) and mental health (Patalay & Fitzsimons, 2018). However, other variables not measured in this analysis, but known to influence adolescent mental health, such as academic stress (Anniko et al., 2019) and school climate (Aldridge & McChesney, 2018), may also have an influence.

GD/GND adolescents showed more mental health difficulties, reduced well-being, and had a higher proportion of low-quality friendships, compared to girls and boys. Boys had the highest proportion of high-quality friendships, followed closely by girls. Girls also had greater mental health difficulties and lower well-being than boys.

Additionally, gender moderated the association between friendship quality, mental health, and well-being. Even when friendship quality was high, girls had more mental health difficulties and lower well-being than boys, while GD/GND adolescents were even worse off. In contrast, boys showed the largest differences in well-being and mental health difficulties across levels of friendship quality, such that boys with low-quality friendships reported particularly low well-being and more mental health difficulties. While high-quality friendships might serve as a protective factor for all genders, they might be especially important for boys in terms of both mental health and well-being.

For GD/GND adolescents, who reported both the highest proportion of low-quality friendships and marked differences in mental health and well-being across friendship quality levels, what stands out is the need to consider how we might help these adolescents develop better friendships, especially because social support is a well-established protective factor for mental health, helping to mitigate stress and promote resilience (Loades et al., 2020; Meyer, 2003). For GD adolescents, mental health struggles have been linked to the stress of dealing with issues related to their gender identity such as

discrimination, bullying, and exclusion. These negative experiences have been connected to higher risks of mental health problems (Delozier et al., 2020; Toomey et al., 2018). Research highlights the widespread impact of minority stress, which includes external stressors (e.g., societal stigma) and internalised stress (e.g., negative self-image), on the mental well-being of GD adolescents (Hunter et al., 2021).

Year group also moderated the relationship between friendship quality, mental health, and well-being. The largest differences in mental health and well-being appeared among the younger year groups (Years 8, 9, and 10). This pattern suggests that they may be especially sensitive to their friendship quality, which is understandable, as belonging to a peer group becomes increasingly important during the early stages of adolescence (Brown et al., 1986; Mitic et al., 2021). In contrast, older year groups demonstrated more variability in mental health scores across different friendship quality levels, although many differences were not statistically significant, likely due to small samples.

Various factors likely contribute to increased mental health difficulties and lower well-being among older adolescents. Some include academic pressures, especially in preparation for exams and future transitions to university, along with developmental factors such as growing struggles for independence and identity development (Compas et al., 2017; Schulenberg & Zarrett, 2006). Research also shows that the incidence of mental health disorders rises markedly during adolescence, nearly doubling from early (ages 13–14) to late adolescence (ages 17–18) (Kessler et al., 2007; Merikangas et al., 2010).

Factors contributing to helpfulness of support

To address my second research question, logistic regression analyses revealed three key findings. 1) When considering just gender, boys had greater odds of perceiving friend support as helpful. In contrast, GD/GND adolescents had reduced odds (compared to girls). 2) Greater mental health difficulties were associated with lower odds of perceiving friend support as helpful. However, when controlling for mental health difficulties, boys still showed higher odds of perceiving friend support as helpful, but no significant differences emerged for GD/GND adolescents. And 3) better well-being was

associated with greater odds of perceiving friend support as helpful, but gender, when adjusted for well-being, showed no significant differences.

Being a boy was associated with perceiving support from friends as more helpful than girls, and one explanation for this comes from earlier models, which showed that boys experienced lower mental health difficulties and higher well-being. GD/GND adolescents experienced greater mental health difficulties and lower well-being than other genders. At the friendship level, the result around boys could be explained by how they seek and value support. For example, while boys might seek practical or problem-focused help from their peers, girls may seek emotional support, such as having someone who will listen (Rose, 2002; McKenzie et al., 2018). Girls may have higher expectations for support from close friends and may be more affected by negative peer environments than boys (Rueger et al., 2008). As a result, when the support they receive does not meet their expectations or when they perceive their friendships negatively, they may find that support from friends less helpful.

However, the non-significant results for gender, when adjusted for well-being, suggest that well-being may be a more important indicator of whether friend support is perceived as helpful. GD/GND adolescents also showed no significant differences in the RCADS-25 adjusted model. These findings may indicate that when well-being is high, adolescents, regardless of gender, are more likely to perceive their friends as helpful. A longitudinal social network study found that high well-being predicted better social relationships, such that when well-being was high, adolescents had a positive view of friends (Tejada-Gallardo et al., 2023). For GD/GND adolescents, it is possible that efforts to enhance their friendship quality might inadvertently boost their overall well-being, potentially making it more likely that they find friend support helpful.

One reason which might explain why adolescents with greater mental health difficulties might find friend support unhelpful could be that friends might not have the right training to offer advice that is meaningfully helpful. Supporting a friend struggling with their mental health, in this case, showing elevated depression and anxiety symptoms, might require some degree of mental health literacy (Renwick et al., 2024). Thus, it could be that adolescents are providing support that is well-meaning, but in practice, is unhelpful (Freeman et al., 2016; McLoughlin et al., 2021). A systematic review found that

over 90% of studies report limited knowledge of mental health, along with perceived social stigma and embarrassment as barriers to help-seeking (Radez et al., 2021). While that review assessed barriers to formal help-seeking, similar reasons could exist for adolescents in this study with mental health difficulties who are turning to their friends, such as difficulty articulating their needs or stigma around disclosure to a friend. Reducing mental health stigma and increasing mental health literacy might be one way to improve how helpful friends can be, and this has also been supported by researchers (Gulliver et al., 2010). The relationship between poor mental health and unhelpful support from friends may be bidirectional. Poor mental health can negatively influence friendships, as distressed adolescents struggle to engage with their friends (Rudolph et al., 2008). Conversely, unhelpful support can increase feelings of isolation and worsen mental health (Vannucci et al., 2018).

Support seeking from friends

Addressing my last research question, I found that GD/GND adolescents reached out to their friends the most often for support. Moreover, older adolescents, particularly those in year groups 12 and 13, were more likely to seek mental health support from friends compared to younger students. These results are somewhat consistent with the fact that both groups faced more mental health challenges.

However, the results concerning GD/GND adolescents were surprising. Around 25% reported that they did not perceive that their friends had offered support, despite seeking proportionally more support than other genders. GD/GND adolescents also reported, proportionally more than other genders, that they often felt they had no one to talk to (34.3%), compared to around 10% of boys.

These results may suggest that GD/GND adolescents rely more on informal sources, such as friends, for support when distressed, but may lack the friendships to meet this need. GD/GND adolescents experience higher rates of mental health issues, including depression, anxiety, and suicidal ideation, compared to their cisgender peers (Marconi et al., 2023; Delozier et al., 2020). This could stem from distress caused by a mismatch between gender identity and assigned sex at birth (Marconi et al., 2023) and larger biopsychosocial complexities of being gender diverse. GD adolescents may also receive less support from their family (McGregor et al., 2024; Barras & Jones,

2024), and this may lead them to depend more on their friends. GD/GND adolescents may have unique needs overall, as one study found that GD adolescents viewed both formal and informal support as less helpful than their cisgender peers (White et al., 2024).

Older adolescents often turn to friends for mental health support more than younger ones. This could be because, as friendships become deeper and more trusting with age, older adolescents feel more comfortable opening up about personal issues. At the same time, growing academic pressure and the need to make decisions about their future may push them to seek reassurance from people their own age. In other words, they not only need more emotional support but may also have closer friends who are available to provide it (Ajrouch et al., 2024; Bleiszner & Roberto, 2004).

3.4.1 Strengths and Limitations

The primary strength of this study lies in its large and diverse sample. The OxWell Student Survey is also confidential, so students may have been more willing to respond accurately. Additionally, validated clinical scales were employed for mental health assessment, which ensures a more robust evaluation of adolescents' mental health and well-being. The adolescents' self-reports on how well they got along with their friends aligned with the well-documented phenomenon of homophily, which has been studied more in the friendship literature than the limited specific scales measuring friendship quality (Goodreau et al., 2009; McMillan, 2022; Mehta & Strough, 2009).

The present study has several limitations that would benefit from addressed in future research. The cross-sectional nature of the data limits any exploration of causality, making it unclear whether friendship quality impacts mental health and well-being or vice versa. The measure for assessing friendship quality might not have captured adolescents' true perceptions of their friendships, such as their willingness to help, perceived reliability, or perceived intimacy. Using additional measures alongside the friendship quality single-item question, like the McGill Friendship Questionnaire to investigate what functions of friendships that close friends fulfil, could add some nuance to the findings (Mendelson & Aboud, 1999). Features of friendship, such as intimacy and trust, often addressed in literature, were not examined, although they are important for assessing quality (Berndt, 2002; Mendelson & Aboud, 1999).

Many demographic variables were not considered in this study, for example, the nature of friendships varies cross-culturally (Baumgarte, 2016), and individuals facing socioeconomic struggles might find it challenging to invest the energy and effort needed for friendships, leading to lower-quality relationships or a smaller authentic social group (Evans & Kim, 2013; Li et al., 2020; White & Gager, 2007).

Significant findings emerged from GD/GND adolescents. However, the OxWell Student Survey limited participants to a single option for identifying with a gender outside of boy or girl such that gender-diverse adolescents were conflated with those who preferred not to disclose their identity, which may be an inaccurate representation of their experiences. As a result of this conflation, some adolescents may have refrained from answering altogether (Soneson et al., 2024). For adolescents, gender identity formation is part of key identity development during this period (Larsen & Luna, 2018), and future studies should be intentional in their inclusion of GD adolescents, such as allowing them options to distinguish between their gender identities to ensure that research remains inclusive. The significant findings regarding gender-diverse adolescents highlight the need for in-depth research into their friendship experiences and how schools can better foster informal social support for them.

Young people seek support and connect with friends online and digitally. This study did not examine the various platforms through which adolescents seek support, nor did it compare online preferences with those of face-to-face interactions. My scoping and systematic review identified interventions that took place entirely online or were a hybrid combination of online and in-person formats. Thus, to determine whether the medium of support-seeking or friendship interactions matters, it is crucial to understand where and how adolescents search for support.

Lastly, the sample sizes for higher year groups were relatively small, which could have influenced the results. Recruiting more secondary schools and FECs to increase the sample sizes for higher year groups could improve the study's statistical power.

3.4.2 Implications

This chapter demonstrates the association between high-quality friendships, fewer mental health difficulties, and improved well-being. It is

important to emphasise the value of authentic social groups in schools and among clinicians working with adolescents, as friends are often the first point of contact for mental health support. The gender and year group findings can be used to identify targets for future interventions, such as for GD and older adolescents who face more mental health challenges. As friendships often begin in the classroom, the results hold implications for schools. For example, measures taken by teachers, such as classroom seating arrangements, have proven effective in promoting friendships among students (Faur & Laursen, 2022). Therefore, educators might want to consider how they can emphasise the importance of friends in a school environment.

The findings also suggest that attention should be directed towards the support adolescents provide to their friends and the information that can be given to schools to help enhance this support. For at-risk groups, such as GD adolescents who reach out to their friends most often, equipping them with the skills to support one another may be particularly important. Interventions aimed at increasing friendships and the quality of friendships may also be beneficial for this group, as many report not having someone to talk to. Additionally, since boys with high-quality friendships experienced a significant boost in well-being scores, it indicates that interventions aimed at enhancing the quality of boys' friendships may effectively improve their overall well-being.

GD adolescents often struggle to find supportive friendships (Craig et al., 2021). As a minoritised group, they may have fewer chances to connect with similar friends, increasing feelings of social isolation, and thereby having a negative effect on their well-being (Veale et al., 2021). As a result, support strategies could incorporate friendship-building.

Social interactions are key such that research shows that social isolation can activate the same area of the brain as hunger (Tomova et al., 2020). For adolescents, friendships may be particularly powerful. The findings discussed in this chapter expand on earlier research that highlights social support as a key factor in psychological health and overall well-being (Berndt, 2002; House et al., 1988; Thoits, 1995). These results are relevant for schools, researchers, clinicians, and anyone involved in supporting adolescents.

3.5 Conclusion

Overall, this chapter helped address the second aim of this thesis through preliminary analyses that investigated the association between friendship quality, mental health, and well-being, while also examining the roles of gender and year group and exploring support-seeking preferences. However, as shown in Chapter 1, the social convoy model for adolescent friendships theorises that additional individual and situational variables may also influence friendships and mental health. Additional friendship dynamics might also be at play here, such as differences in friendship intimacy across groups. Therefore, to address the limitations of the data in this chapter, I will continue this investigation in the second part.

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Chapter 3

Part B

Friendship quality, mental health and well-being: the impact of support preferences, online friends, gender, year group, neurodivergence, and ethnic identity

Chapter overview

Background. The first part of this chapter found that higher friendship quality was associated with fewer mental health difficulties and higher well-being. Gender and year group also played a role in the association between friendship and mental health and well-being.

Objectives. This chapter used data from the 2023 wave of the OxWell Student Survey to:

1. Further investigate the relationship between adolescent friendships and mental health, with a focus on the quality and functions of friendships.
2. Examine how individual differences moderate the link between friendships and mental well-being.
3. Investigate adolescents' preferences for online versus in-person friendships, and how those preferences relate to their mental health.

Findings and Implications. In a large cross-sectional study of adolescents, higher friendship quality was associated with lower RCADS-11 scores, higher SWEMWBS scores, reduced loneliness, and lower odds of self-harm. The friendship function of “help” showed the strongest associations with mental health and well-being, and moderation analyses identified boys with low-quality friendships, GD adolescents, and neurodivergent adolescents as subgroups for whom targeted friendship-based interventions may be most helpful. Preferences for in-person support were far more common than for online support; however, the amount of close online friends had mixed effects on mental health and well-being.

4.1 Introduction

In the first part of this chapter, I found that high friendship quality was associated with fewer mental health difficulties and lower well-being. Gender and year group moderated that association. Building on those findings, this chapter examined the role of additional individual-level and situational characteristics. As a high proportion of adolescents report self-harm (Geulayov et al., 2024; Hawton et al., 2012; Moss et al., 2023), this chapter includes both self-harm and loneliness as additional measures of mental health. I expanded on my measurement of friendship quality for the modern adolescent by including the functions of friendships and compared online versus in-person support from friends.

4.1.1 The Current Study

Aside from gender and year group, other key variables can influence the relationship between friendship quality, mental health, and well-being, as demonstrated in Chapter 1 by the social convoy model adapted for adolescent mental health. The transition to high school is a pivotal time for forming authentic social groups, and certain groups of adolescents might struggle with their friendships (Rokeach & Wiener, 2020). Neurodivergent adolescents, for example, may struggle with social and communication impairments (Chan et al., 2023), experience higher levels of academic stress (Fielding et al., 2025), and face difficulties in regulating their emotions and behaviour (Ros & Graziano, 2020). These challenges can influence aspects of their friendships and how supportive they feel (Sharman & Seedorf, 2025; Spender et al., 2023), which might then influence their mental health and well-being (Graber et al., 2016).

Adolescents from different ethnic backgrounds may also navigate and perceive their friendships differently. Ethnicity can influence personal identity, social relationships within groups (Ford & Harawa, 2010; Ford & Kelly, 2005), and has been linked to mental health (Liu & Suyemoto, 2016; Miller et al., 2011). In countries like England, where diverse populations coexist, social challenges may arise from perspectives shaped by cultural identities. However, individuals may also experience positive social relationships with increased diversity, as one study has shown (Bai et al., 2020). Specifically for adolescents, ethnicity has been linked to social inclusion and exclusion (Cooley et al., 2019), as well as social learning experiences (van Andel et al., 2022).

Online Friendships

For the modern adolescent, an increase in online platforms and the digital world provides new opportunities for friendships, such as social identity formation through social media, and feelings of closeness in friendships through increased communication (Al-Jbouri et al., 2024; Raižienė et al., 2020). However, this increased communication can be in the form of self-disclosure (e.g. support-seeking for distress), which has been linked to adolescent depression and social anxiety (Mýlek et al., 2024). Research on online friendships and online support from friends is still in its early stages of development and remains largely mixed, with some researchers finding that active and passive use of online social platforms have differential effects on mental health (Scott et al., 2022; Escobar-Viera et al., 2018). Researchers have attempted to differentiate between online communication with virtual (friends made solely online) and real (friends made in person) friends. Frequent online communication with ‘real’ friends has been found to positively influence well-being (Anthony et al., 2023). Considering their emerging nature, it is important to investigate their role.

4.1.2 Research Questions

I focused on three overarching questions in my analyses:

1. What is the relationship between adolescent friendships and mental health, as well as adolescent friendships and well-being, specifically in terms of friendship quality and friendship functions?
2. How do adolescent friendships vary at the individual level, and how do individual-level variables moderate the relationship between friendship and mental health and well-being?
3. What preferences do adolescents show for online vs. in-person friendships, including online vs. in-person support seeking, and how do these relate to their mental health and well-being?

While this study was largely exploratory, given the results from the previous chapter, I hypothesised that higher friendship quality and higher ratings of close friends on friendship functions would be associated with fewer mental health difficulties and better well-being. I also expected adolescent friendships to show variation at the individual-level and moderate the relationship between friendship quality, mental health, and well-being.

4.2 Methods

Data: OxWell Student Survey 2023

This chapter utilised the 2023 wave of the OxWell Student Survey, for which data were collected from February to March 2023. Individuals spending less than 10 minutes on the survey were excluded from my analyses, as this likely indicated non- or low engagement. The previous chapter outlined the survey's characteristics, design, and recruitment process. Below, I describe the variables that differed in this survey and highlight the new variables I introduced.

Participants

In 2023, the survey offered two age-specific versions: primary (for students in years 5 to 6) and secondary (for students in years 7 to 13). These analyses only include students from secondary schools and FECs, as some key measures, such as the friendship function variables, were only applicable to these age groups.

4.2.1 Measures

The variables were cleaned and are presented below.

Outcome Variables

Mental Health

RCADS-11:

Adolescent mental health was measured using the 11-item Revised Child Anxiety and Depression Scale (RCADS-11). The RCADS-11 effectively screens for anxiety and depressive disorders in adolescents, showing sensitivity and specificity values over .75, similar to the full RCADS-47. It consists of a six-item anxiety subscale and a five-item depression subscale, using a four-point Likert scale from 'never' (0) to 'always' (3). It also includes two supplemental questions assessing symptom impact, with responses from 'not at all' (0) to 'a great deal' (3). Higher scores indicate greater mental health difficulties. The scores are totalled to form a combined internalising symptom score for anxiety and depression, which is then binarised and interpreted using cut-offs of ≥ 14 for boys and ≥ 18 for girls. (Radez et al., 2021).

I used multiple imputations for missing responses; if a student missed one question in either subscale, their mean score was imputed by the senior

OxWell statistician (SW). Only the total imputed mean scores were included in my analyses.

Self-Harm:

Self-harm was assessed using the following question:

“Have you ever deliberately self-harmed (for example, by taking an overdose or injuring yourself on purpose in some way)?” Response options: “Yes, No, Prefer not to say, Not sure what this means”.

For the purpose of my analyses, I excluded the latter two response categories.

Well-being

SWEMWBS:

The 7-point Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS) was used to evaluate well-being (Rogers et al., 2018; Stewart-Brown et al., 2007). It is acceptable for use in adolescents and shows a strong correlation of 0.954 with the longer 14-item version used in Chapter 3A (Anthony et al., 2022; Pakpour et al., 2024; Stewart-Brown et al., 2009). Higher scores indicated better well-being. The total SWEMWBS score was used for analyses.

Perceived Helpfulness of Support from Friends

Perceptions of how helpful received friend support was were divided into 'helpful' and 'unhelpful' categories. This question was unchanged from Chapter 3A, except that adolescents could choose between two support options: an in-person friend and an online friend.

Loneliness

UCLA Loneliness Scale

Loneliness was measured with the 3-item UCLA Loneliness Scale (Hughes et al., 2004). Response options were 'hardly ever or never', 'some of the time', and 'often'.

Covariates

Friendship Quality

The friendship quality variable remained unchanged from the 2021 analysis.

Friendship Stability

A single-item question measuring friendship retention and formation was used as a component of friendship dynamics, specifically friendship stability.

“How easy do you find it to make and keep friends?” (Very difficult, Quite difficult, Sometimes difficult, Quite easy, Very easy)

Friendship Functions

Five items selected from the 30-item short-form McGill Friendship Questionnaire-Friend's Function were used to assess friendship quality and dynamics, accounting for the multifunctionality of friendships and the different roles they serve in adolescents' lives (Buhrmester & Furman, 1986; Mendelson & Aboud, 1999). Participants were asked to consider their closest friends when rating these friendships on a scale from 'Never' (0) to 'Always' (8). Due to constraints on survey length within the OxWell Student Survey and the lack of widely accepted short measures of friendship quality in the literature, I adapted a shortened version of the questionnaire through a two-stage process. First, I selected 15 items from the original MFQ–FF to ensure a broad representation of the six core friendship functions. I selected these items with the consultation of my supervisors. Then, I consulted a YPAG in Oxford, England, comprising three boys and three girls, who discussed which aspects of friendship mattered most to them using a Google Jamboard activity and discussion. Following this, the group was asked to rank these 15 items in order of perceived importance. From this, I selected the five highest-ranked items for the final measure: two items from 'reliable alliance', one from help/support, one from intimacy, and one from emotional security. The final items are listed below, with the specific function indicated in red. This process was conducted to ensure the measure remained both theoretically sound and relevant to the lived experiences of young people. Single-item scores were used from each included MFQ–FF item.

Think about your closest friends while making the following ratings:

“Are people I can tell private things to” **Intimacy**

“Would stay my friend even if other people criticized me”
Reliable alliance
“Makes me feel better when I’m upset” **Emotional security**
“Would want to stay my friend even if we didn’t see each other
for a few months” **Reliable alliance**
“Helps me when I need it” **Help**

Online vs. In-Person Friendships

A single-item question measured the amount of online close friends kept by adolescents:

“Out of all the individuals you would identify as close friends, how many do you primarily meet with online (i.e. not in person)?” (All, Most, Some, A few, None)

A single-item question measured online vs. in-person support-seeking preferences from friends:

“When you are most distressed and want to speak to a friend, how important is it for you to meet them face-to-face and in-person?” (1 (Not at all important) to 5 (Very important))

Gender worry

A single-item question assessed gender-related worry:

“To what extent do you worry about the following topics: My gender identity” with response options: ‘Not at all worried’, ‘Not very worried’, ‘Quite worried’, ‘Worried’, ‘Extremely worried’.

Individual-level variables were included for all students:

Gender

Students could identify their gender in three ways: male, female, or other. Additionally, they could select "prefer not to say" if they wished not to disclose their gender. Should they choose "other," students could also provide further details in a free-text field. In this wave of OxWell, adolescents could self-identify after selecting the gender-diverse option. These responses were coded based on input from a YPAG, and likely disingenuous responses were discarded (Soneson et al., 2024). The responses were categorised into four

gender groups: girl, boy, gender diverse (GD), and gender non-disclosing (GND).

Year group: 7-13.

Ethnicity (categorised according to ONS 6a): White (aggregated), Mixed / multiple ethnic groups (aggregated), Asian / Asian British (aggregated), Black / African / Caribbean / Black British (aggregated), Arab, Other

Neurodivergent status “Do you consider yourself to be dyslexic/ dyspraxic, and/or autistic, and/or have ADHD (i.e. neurodivergent)?” (Yes, No, Not sure, Prefer not to say)

4.2.2 Analytical Approach

I pre-registered my statistical analysis plan on the OxWell OSF page (<https://osf.io/vd4eq>).

Table 3B.1 Statistical models

Model type	Equation
Multiple Linear Regression (2 models)	$\begin{aligned} RCADS11 \\ SWEMWBS = & \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{gender}) \\ & + \beta_3(\text{year group}) + \beta_4(\text{ethnicity}) \\ & + \beta_5(\text{amount of close online friends}) \\ & + \beta_6(\text{neurodivergent status}) + \epsilon \end{aligned}$
	$\begin{aligned} RCADS11 \\ SWEMWBS = & \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{gender}) \\ & + \beta_3(\text{friendship quality} \times \text{gender}) + \epsilon \end{aligned}$
Estimated Marginal Means (10 models)	$\begin{aligned} RCADS11 \\ SWEMWBS = & \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{year group}) \\ & + \beta_3(\text{friendship quality} \times \text{year group}) + \epsilon \end{aligned}$
	$\begin{aligned} RCADS11 \\ SWEMWBS = & \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{ethnicity}) \\ & + \beta_3(\text{friendship quality} \times \text{ethnicity}) + \epsilon \end{aligned}$
	$\begin{aligned} RCADS11 \\ SWEMWBS = & \beta_0 + \beta_1(\text{friendship quality}) \\ & + \beta_2(\text{amount of close online friends}) \\ & + \beta_3(\text{friendship quality} \\ & \times \text{amount of close online friends}) + \epsilon \end{aligned}$
	$\begin{aligned} RCADS11 \\ SWEMWBS = & \beta_0 + \beta_1(\text{friendship quality}) \\ & + \beta_2(\text{neurodivergent status}) \\ & + \beta_3(\text{friendship quality} \\ & \times \text{neurodivergent status}) + \epsilon \end{aligned}$
	$\begin{aligned} RCADS11 \\ SWEMWBS = & \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{year group}) \\ & + \beta_3(\text{friendship quality} \times \text{year group}) + \beta_4(\text{ethnicity}) \\ & + \beta_5(\text{friendship quality} \times \text{ethnicity}) + \beta_6(\text{amount of close online friends}) \\ & + \beta_7(\text{friendship quality} \times \text{amount of close online friends}) + \beta_8(\text{neurodivergent status}) \\ & + \beta_9(\text{friendship quality} \times \text{neurodivergent status}) + \epsilon \end{aligned}$

Ordinal Logistic Regression (1 model)	$\text{logit}[P(Y \leq j)] = \theta_j$ $- [\beta_1(\text{gender}) + \beta_2(\text{year group})$ $+ \beta_3(\text{ethnicity})$ $+ \beta_4(\text{amount of close online friends})$ $+ \beta_5(\text{neurodivergent status})]$
Logistic Regression (2 models)	$\log\left(\frac{P(Y = 1)}{P(Y = 0)}\right) = \beta_0 + \beta_1 \text{RCADS11} + \beta_2 \text{gender}_{\text{boy}}$ $+ \beta_3 \text{gender}_{\text{GD/GND}}$ $\log\left(\frac{P(Y = 1)}{P(Y = 0)}\right) = \beta_0 + \beta_1 \text{SWEMWBS} + \beta_2 \text{gender}_{\text{boy}}$ $+ \beta_3 \text{gender}_{\text{GD/GND}}$

Descriptive statistics were generated following preliminary data exploration and verification. Univariate associations between each covariate and both friendship quality and history of mental health difficulty were examined using chi-squared tests.

To address the main research questions, I developed multiple linear regression models to predict the continuous outcome variables of mental health (RCADS-11) and well-being (SWEMWBS) in relation to friendship quality. These models included covariates such as gender, year group, ethnicity, neurodivergent status, and number of close online friends. Estimated marginal means (EMMs) were calculated post hoc for regression models with significant interaction terms using the emmeans package in R. Bonferroni–Holm-adjusted pairwise comparisons were then conducted within each level of the key covariates.

I used logistic regression to examine the association between friendship quality and self-harm, controlling for gender, year group, ethnicity, number of close online friends, and neurodivergent status. To assess whether the effect of friendship quality varied by subgroup, I tested interaction terms between friendship quality and each covariate in separate models. I used LRTs to compare models with and without each interaction (Harrell, 2015).

For ordinal outcomes such as friendship stability, I fitted ordinal logistic regression models (polr, MASS package), using covariates consistent with the prior linear regression models.

Loneliness scores within individual-level variables were explored using a multiple linear regression model.

Analyses of friendship functions included independent samples t-tests to compare mean scores for different friendship functions between neurodivergent and neurotypical adolescents. ANOVA and post-hoc tests measured differences in friendship functions across demographic groups, mental health status, friendship quality, and preferred support medium (online vs. in-person). Correlational analyses and regression interaction terms examined whether the association between friendship quality and the valuation of specific friendship functions varied by age and gender (Baron & Kenny, 1986). Descriptive statistics were used to characterise adolescents with lower mental well-being and to contextualise findings for specific subgroups.

To answer my third research question, I used logistic regression to investigate which factors predicted whether adolescents perceived support from friends (in-person and online) as helpful. I estimated separate models for support from in-person friends and from online friends. In each model, I initially included all theoretically relevant covariates: RCADS-11 total score, friendship quality, gender, year group, ethnicity, number of close online friends, and neurodivergent status. Because the analytic sample sizes were relatively small for the subset who reported seeking support from friends, I used backward stepwise selection based on AIC to identify the most parsimonious models and to reduce the risk of overfitting. Missing data were handled using complete-case analysis, so all cases with missing or non-response data on any variable included in the final model were excluded from the analysis.

4.3 Results

Participants

Students from over 200 schools and FECs participated in the 2023 wave of the OxWell Student Survey. A total of 42,215 valid responses from consenting participants were obtained out of 43,735 survey log-ins. Among these valid responses, 32,965 individuals (78.09%) were students enrolled in school years 7 to 13 (ages 11 to 18) across 80 secondary schools and FECs. The percentage of students who chose not to consent to participate upon logging into the survey was 3.48% (1520/43,735), for which no data is available. Additionally, 4,263 students spent 10 minutes or less on the survey, and their responses were removed due to likely low engagement. In this wave of OxWell, adolescents

could self-identify after selecting the gender-diverse option. After coding for GD free-text responses, the sample size changed from 598 to 375 GD adolescents and from 905 to 907 gender-non-disclosing adolescents.

I included only adolescents with complete data on all variables of interest, resulting in a final sample of 29,271 (see Table 3B.2 for sample distribution). RCADS-11 scores ranged from 0 to 33, and scores on the SWEMWBS ranged from 7 to 35.

Table 3B.2 Sample distribution of secondary school and further education college students

	n	(%) ¹
Gender		
Boy	13276	(45.8)
GD	375	(1.3)
Girl	14406	(49.7)
GND	907	(3.1)
Year Group		
Y07	6280	(21.5)
Y08	5739	(19.6)
Y09	5461	(18.7)
Y10	4103	(14.0)
Y11	3812	(13.0)
Y12	2385	(8.1)
Y13	1491	(5.1)
Ethnicity		
White	15455	(64.9)
Mixed / Multiple Ethnic Groups	1649	(6.9)
Asian / Asian British	4074	(17.1)
Black / Black British / African / Caribbean	1423	(6.0)
Arab	550	(2.3)
Other ethnic group	670	(2.8)
Amount of close online friends		
All	1352	(5.3)
Most	3988	(15.6)
Some	4289	(16.7)
A few	7094	(27.7)
None	8915	(34.8)
Neurodivergent status		
Yes	5786	(19.8)
No	16789	(57.6)
Not sure	6005	(20.6)
Prefer not to say	569	(2.0)
UCLA Loneliness scale		
Not lonely (3)	6997	(26.5)
Mild (4, 5)	8024	(30.4)
Moderate (6, 7)	7822	(29.7)
Severe (8, 9)	3518	(13.3)
Past mental health problem		
No	12807	(54.4)
Yes (within past 12 months)	6241	(26.5)
Yes (more than a year ago)	2337	(9.9)
Prefer not to say	2144	(9.1)
School intake		

Girls' School	3901	(13.3)
Boys' School	2093	(7.2)
Mixed School	23277	(79.5)

1. Rounded percentage based on non-missing responses.

Univariate associations: Individual-level and situational characteristics

Several significant univariate associations were observed (Table 3B.3), although with generally modest effect sizes. The strongest association was found between gender worry and gender.

Figure 3B.1 visualises proportional differences. GD adolescents had the lowest proportion of high-quality friendships, while boys had the highest, at 61.5%. Those in higher year groups generally reported a greater proportion of high-quality friendships than those in lower year groups. Adolescents with all their close friends online had the highest proportions of both high and low-quality friendships, at 66.1% and 7.9%, respectively.

Table 3B.3 Chi-squared tests: Univariable associations for individual-level and situational characteristics

Variables Compared	χ^2 (df)	p-value	Cramér's V	Interpretation of association
Friendship Quality × Gender	113.72 (6)	***	0.046	Very small
Past Mental Ill Health × Gender	1595.1 (9)	***	0.151	Small
Gender Worry × Gender	5280.90 (12)	***	0.250	Medium
Gender Worry × Friendship Quality	847.95 (8)	***	0.127	Small to medium
Friendship Quality × Year group	82.93 (12)	***	0.039	Very small
Past Mental Ill Health × Year group	703.86 (18)	***	0.100	Small
Friendship Quality × Ethnicity	47.19 (10)	***	0.033	Very small
Past Mental Ill Health × Ethnicity	321.05 (15)	***	0.074	Very small
Friendship Quality × Amount of close online friends	297.14 (8)	***	0.076	Very small
Past Mental Ill Health × Amount of close online friends	90.45 (12)	***	0.036	Very small
Friendship Quality × Neurodivergent status	439.33 (6)	***	0.091	Very small
Past Mental Ill Health × Neurodivergent status	2393.2 (9)	***	0.184	Small to medium

Note: Interpretation of Cramér's V follows Cohen (1988), with 0.1 representing a small effect, 0.3 a medium effect, and 0.5 a large effect (adjusted for degrees of freedom).

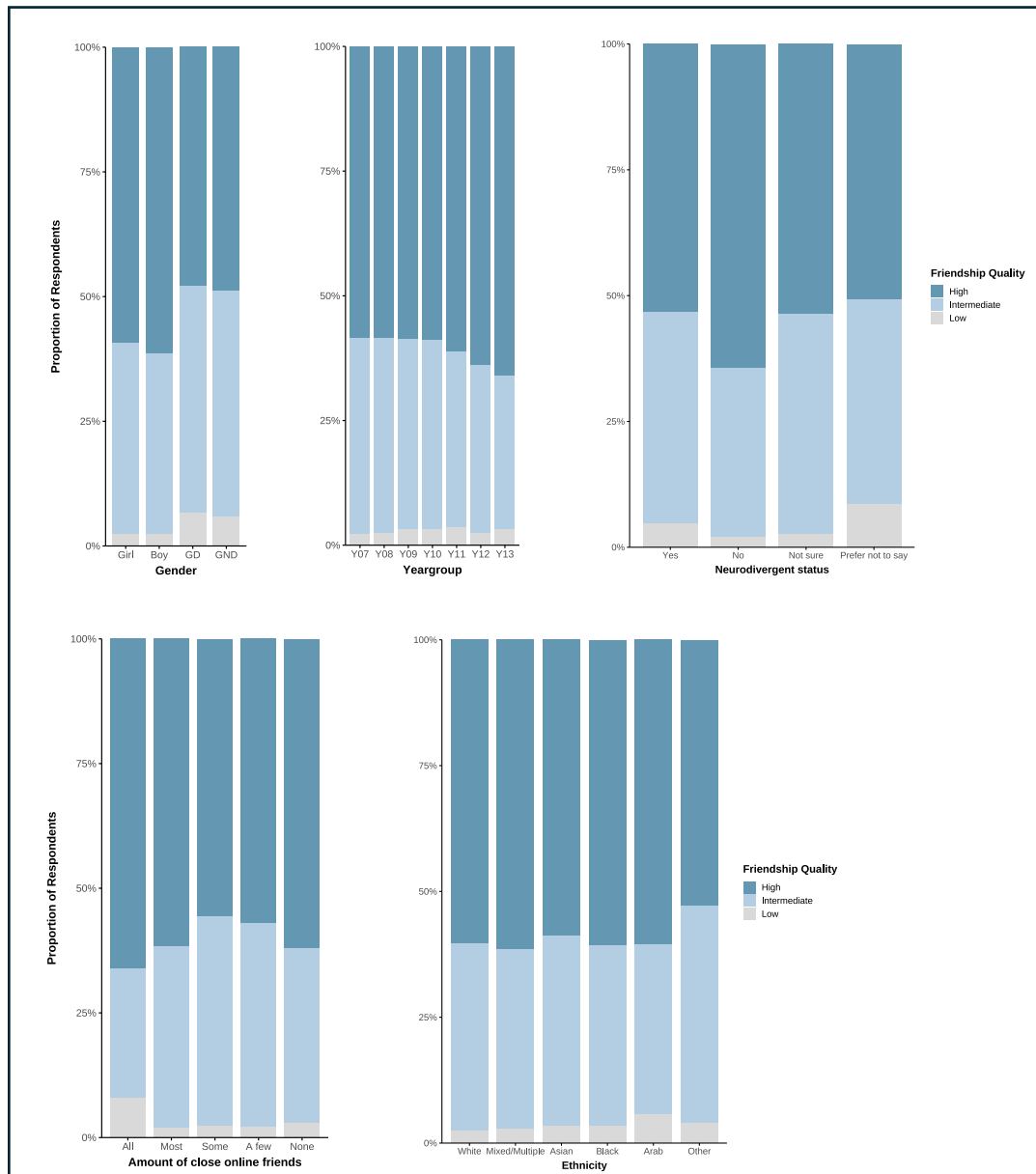


Figure 3B.1 Proportion of students reporting high, intermediate, or low friendship quality by individual-level and situational characteristics

Multiple Linear Regression Analyses and Main Effects

RCADS-11

The multiple regression model (Table 3B.4) illustrates the main effect of friendship quality on adolescents' RCADS-11 scores. Low-quality friendships were associated with a significant increase of 8.28 points.

A significant main effect of gender was observed on RCADS-11 scores. Boys reported RCADS-11 scores that were 5.10 points lower than those of girls. On the other hand, GD adolescents had RCADS-11 scores that were significantly higher, with an increase of 3.59 points compared to girls.

Year group had a significant main effect, with older students generally reporting higher RCADS-11 scores. Although Year 12 students recorded one of the highest RCADS-11 scores, they showed a slight decline from Year 11, diverging from the overall upward trend.

RCADS-11 scores varied significantly across ethnicities for all groups except 'Other and Mixed/Multiple'. All other groups showed slightly lower RCADS-11 scores compared to White students.

Compared to those who reported having no close online friends, those with any amount of online close friends showed a significant increase in RCADS-11 scores.

Lastly, neurodivergent adolescents exhibited the highest increase in RCADS-11 scores compared to their non-neurodivergent peers, followed by those who were unsure and those non-disclosing.

Overall, the model accounted for 24.6% of the variance in RCADS scores, which is deemed acceptable for this research field (Ozili, 2022). The model's F-statistic was 274.7 ($p < .0001$).

Table 3B.4 Linear regression model output for RCADS-11 as a predictor (n = 19354)

	Estimate (SE)	t-value	P-value
Intercept	12.90 (0.29)	44.743	<.001***
Friendship Quality (ref: 'high' n = 11660)			
Intermediate (n = 7226)	2.98 (0.11)	27.467	<.001***
Low (n = 468)	8.28 (0.34)	24.382	<.001***
Gender (ref: 'girl' n = 10269)			
Boy (n = 8237)	-5.10 (0.11)	-47.500	<.001***
GD (n = 288)	3.59 (0.43)	8.290	<.001***
GND (n = 560)	1.09 (0.31)	3.466	<.001***
Year Group (ref: 'Y07' n = 3899)			
Y08 (n = 3770)	1.01 (0.16)	6.190	<.001***

Y09 (n = 3736)	1.50 (0.16)	9.150	<.001***
Y10 (n = 2716)	1.66 (0.18)	9.250	<.001***
Y11 (n = 2628)	2.75 (0.18)	15.180	<.001***
Y12 (n = 1630)	2.45 (0.21)	11.559	<.001***
Y13 (n = 975)	3.15 (0.26)	12.219	<.001***
Ethnicity (ref: 'white' n = 12730)			
Mixed/Multiple Ethnic Groups (n = 1306)	0.35 (0.21)	1.660	0.097
Asian/Asian British (n = 3382)	-0.43 (0.14)	-3.042	<.01**
Black/Black British/African/Caribbean (n = 1061)	-0.81 (0.23)	-3.503	<.001***
Arab (n = 392)	-0.88 (0.37)	-2.398	<.05*
Other ethnic group (n = 483)	-0.23 (0.33)	-0.692	0.4889
Amount of close online friends (ref: 'none' n = 6864)			
All (n = 964)	0.68 (0.25)	2.725	<.01**
Most (n = 2944)	0.82 (0.16)	5.174	<.001***
Some (n = 3197)	0.85 (0.15)	5.345	<.001***
A few (n = 5385)	1.02 (0.13)	7.811	<.001***
Neurodivergent status (ref: non-neurodivergent' n=11562)			
Neurodivergent (n = 3529)	4.14 (0.14)	28.935	<.001***
Not sure (n = 3970)	3.74 (0.13)	27.887	<.001***
Prefer not to say (n = 293)	3.16 (0.43)	7.416	<.001***

SWEMWBS

The multiple regression model (Table 3B.5) reports the main effect of friendship quality on adolescents' SWEMWBS scores. Low-quality friendships were associated with a significant decrease of 5.18 points, relative to those with high-quality friendships.

A significant main effect of gender was observed: boys had a 2.08-point increase in SWEMWBS scores compared to girls, while GD and GND adolescents showed a decrease.

SWEMWBS scores generally showed a negative association with increasing year groups, except for Year 12.

Compared to adolescents in the White ethnic group, students identifying as Asian and Black experienced a slight increase in their SWEMWBS scores.

Adolescents who reported that all their close friends were online experienced a 0.36-point increase in SWEMWBS scores ($p=0.019$) compared to those who reported having no close online friends.

Finally, neurodivergent adolescents experienced a 2.05-point significant decrease in SWEMWBS score relative to non-neurodivergent adolescents.

Overall, the model accounted for 19.2% of variance in SWEMWBS scores, and the F-statistic was 196.5 ($p < .0001$).

Table 3B.5 Linear regression model output with SWEMWBS as a predictor (n = 18930)

	Estimate (SE)	t-value	P-value
Intercept	22.47 (0.10)	229.609	<.001***
Friendship Quality (ref: 'high' 11423)			
Intermediate (n = 7058)	-2.14 (0.07)	-31.959	<.001***
Low (n = 449)	-5.18 (0.21)	-24.492	<.001***
Gender (ref: 'girl' n = 10010)			
Boy (n = 8099)	2.08 (0.07)	31.414	<.001***
GD (n = 283)	-1.32 (0.27)	-4.948	<.001***
GND (n = 538)	-0.75 (0.20)	-3.854	<.001***
Year Group (ref: 'Y07' n = 3764)			
Y08 (n = 3662)	-0.51 (0.10)	-5.004	<.001***
Y09 (n = 3642)	-0.85 (0.10)	-8.374	<.001***
Y10 (n = 2663)	-1.05 (0.11)	-9.498	<.001***
Y11 (n = 2603)	-1.73 (0.11)	-15.485	<.001***
Y12 (n = 1621)	-1.54 (0.13)	-11.818	<.001***
Y13 (n = 975)	-1.79 (0.16)	-11.369	<.001***
Ethnicity (ref: 'white' n = 12450)			
Mixed/Multiple Ethnic Groups (n = 1295)	-0.03 (0.13)	-0.221	0.825
Asian/Asian British (n = 3303)	0.24 (0.09)	2.757	<.01**
Black/Black British/African/Caribbean (n = 1026)	0.61 (0.14)	4.248	<.001***
Arab (n = 379)	0.29 (0.23)	1.252	0.210
Other ethnic group (n = 477)	0.12 (0.20)	0.606	0.545
Amount of close online friends (ref: 'none' n = 6673)			
All (n = 945)	0.36 (0.15)	2.340	<.05*
Most (n = 2885)	-0.30 (0.09)	-3.095	<.01**
Some (n = 3120)	-0.62 (0.10)	-6.447	<.001***
A few (n = 5307)	-0.47 (0.08)	-5.823	<.001***
Neurodivergent status (ref: non-neurodivergent' n=11285)			
Neurodivergent (n = 3463)	-2.05 (0.09)	-23.225	<.001***
Not sure (n = 3898)	-1.87 (0.08)	-22.666	<.001***
Prefer not to say (n = 284)	-2.04 (0.27)	-7.708	<.001***

Moderation Effects

Tables 3B.6 and 3B.7 present pairwise contrasts of estimated marginal means for RCADS-11 and SWEMWBS, respectively, by levels of friendship quality within subgroups. EMMs are shown per group with standard error bars using 95% confidence intervals.

Gender

RCADS-11

Across all gender categories, high friendship quality was consistently associated with lower mean RCADS-11 scores (see Figure 3B.2). However, the magnitude of the differences varied (see contrasts in Table 3B.6), with girls and boys generally exhibiting the greater improvements in RCADS-11(lower) scores as friendship quality increased.

SWEMWBS

Boys had the highest SWEMWBS scores across friendship quality (Figure 3B.3), but greatest drop in scores from high to low friendship quality (Table 3B.7). GD adolescents had lowest scores and smallest change across friendship quality.

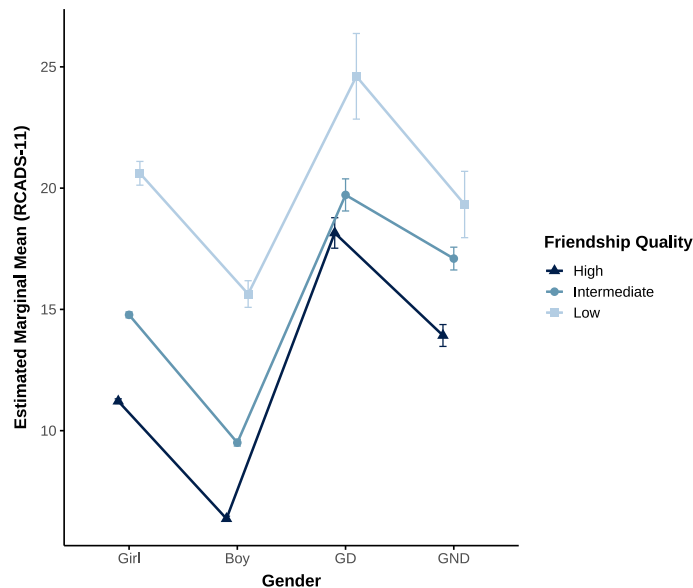


Figure 3B.2 Estimated marginal means of RCADS-11 scores by friendship quality and gender. Sample sizes: Girl (n=10,269), Boy (n=8237), GD (n=288), GND (n=560).

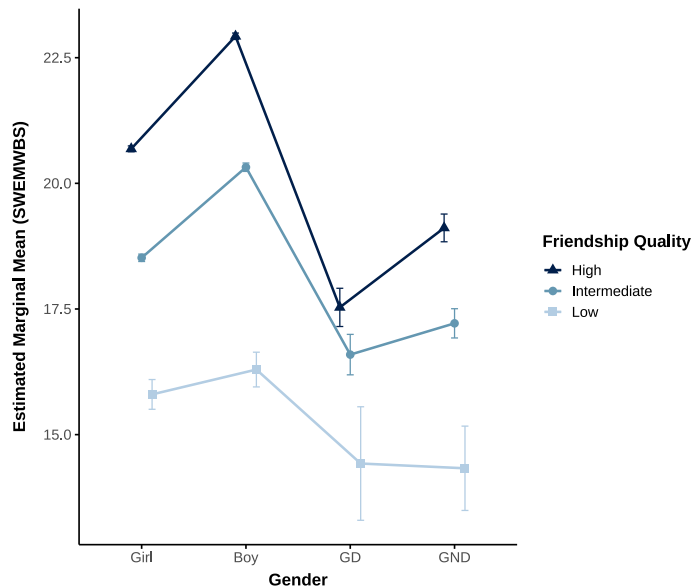


Figure 3B.3 Estimated marginal means of SWEMWBS scores by friendship quality and gender. Sample sizes: Girl (n=10,010), Boy (n=8099), GD (n=283), GND (n=538).

Year Group

RCADS-11

Year group moderated the relationship between RCADS-11 scores and friendship quality (see Figure 3B.4). The gap in RCADS-11 scores between high and low friendship quality was largest in early and middle year groups. RCADS-11 scores followed an arch-shaped trajectory across year groups, peaking in Years 10–12 before declining in Year 13.

SWEMWBS

EMMs of SWEMWBS scores declined across year groups, indicating a decrease in well-being as students progressed through secondary school (Figure 3B.5). Older year groups had the greatest difference in SWEMWBS scores between low and high-quality friendship levels (Table 3B.7).

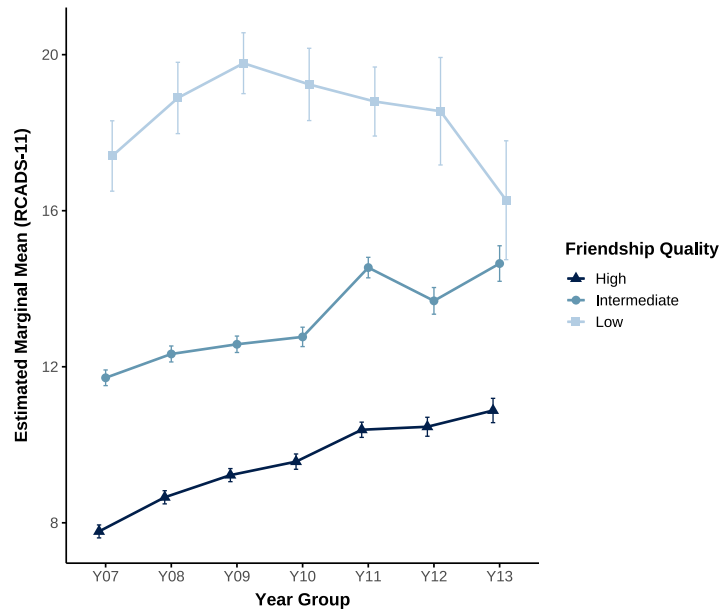


Figure 3B.4 Estimated marginal means of RCADS-11 scores by friendship quality and year group. Sample sizes: Y07 (n=3,899), Y08 (n=3,770), Y09 (n=3,736), Y10 (n=2,716), Y11 (n=2,628), Y12 (n=1,630), Y13 (n=975).

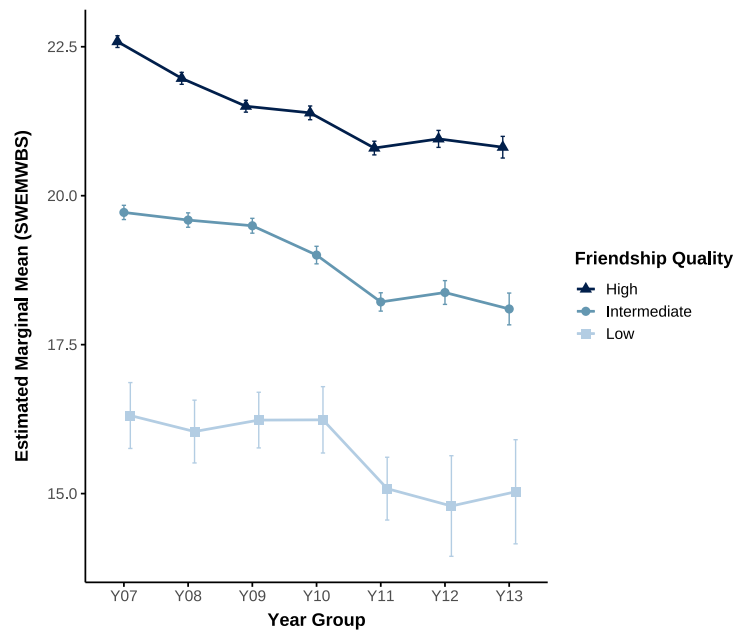


Figure 3B.5 Estimated marginal means of SWEMWBS scores by friendship quality and year group. Sample sizes: Y07 (n=3,764), Y08 (n=3,662), Y09 (n=3,642), Y10 (n=2,663), Y11 (n=2,603), Y12 (n=1,621), Y13 (n=975).

Ethnicity

RCADS-11

Across all ethnic groups, high friendship quality was associated with lower RCADS-11 scores, as shown in Figure 3B.6. The greatest differences in

scores between high- and low-quality friendships were observed in the White and Arab ethnic groups, with the White group having generally higher RCADS-11 scores.

SWEMWBS

Ethnicity moderated the relationship between friendship quality and SWEMWBS scores, as shown in Figure 3B.7, with some significant differences between groups, presented in Table 3B.7. The White ethnic group showed the largest significant difference between high and low friendship quality (6.37-points).

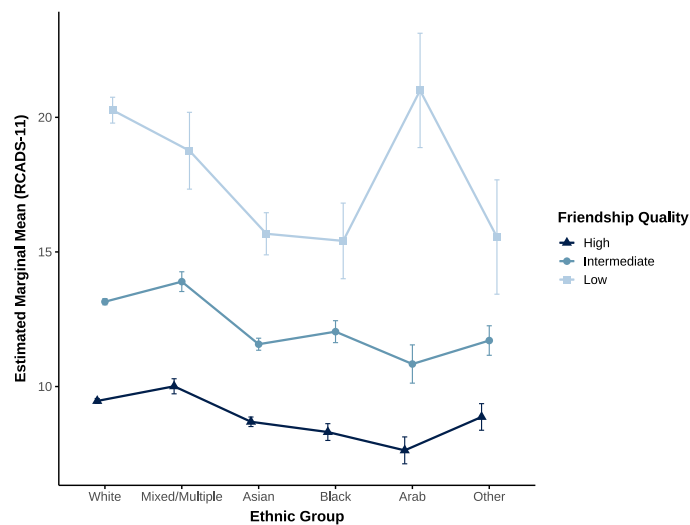


Figure 3B.6 Estimated marginal means of RCADS-11 scores by friendship quality and ethnic group. Sample sizes: White (n=12,730), Mixed/Multiple (n=1,306), Asian (n=3,382), Black (n=1,061), Arab (n=392), Other (n=483).

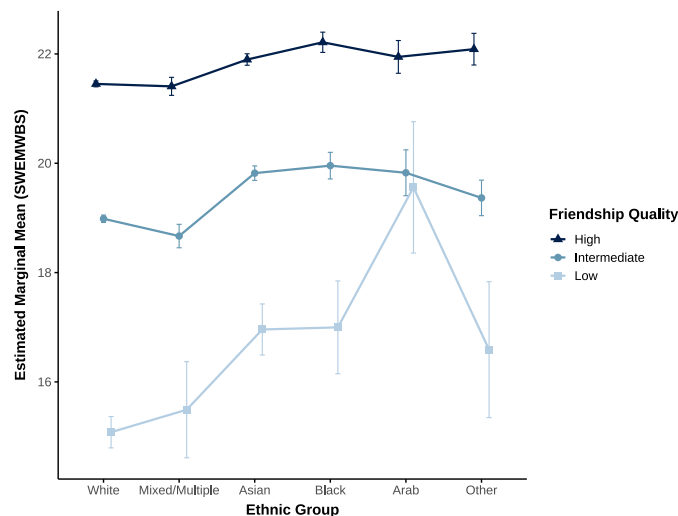


Figure 3B.7 Estimated marginal means of SWEMWBS scores by friendship quality and ethnic group. Sample sizes: White (n=12,450), Mixed/Multiple (n=1,295), Asian (n=3,303), Black (n=1,026), Arab (n=379), Other (n=477).

Amount of Close Online Friends

RCADS-11

The difference in RCADS-11 scores between high and low friendship quality was greatest for students who reported having either 'most' or 'none' of their close friends online (Figure 3B.8). The relationship between high friendship quality and RCADS-11 scores existed across the amount of close online friends (Table 3B.6).

SWEMWBS

The biggest difference in SWEMWBS scores between high and low friendship quality was observed in students whose close friendships were all online (Figure 3B.9). Pairwise differences were statistically significant in each category (Table 3B.7).

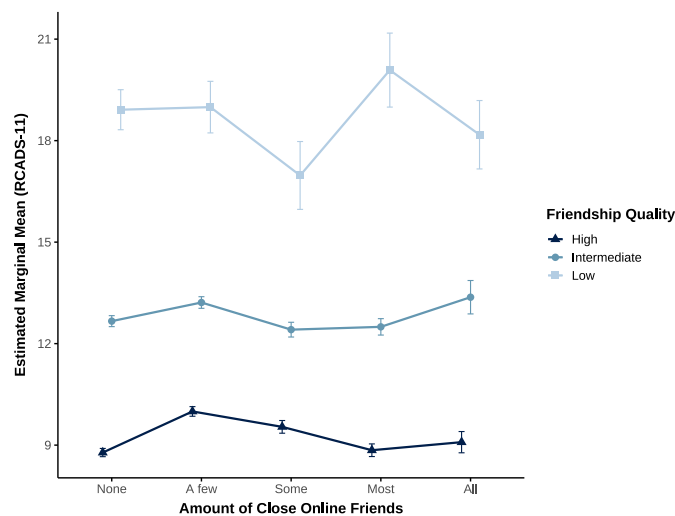


Figure 3B.8 Estimated marginal means of RCADS-11 scores by friendship quality and amount of close online friends. Sample sizes: None (n=6,864), A few (n=5,385), Some (n=3,197), Most (n=2,944), All (n=964).

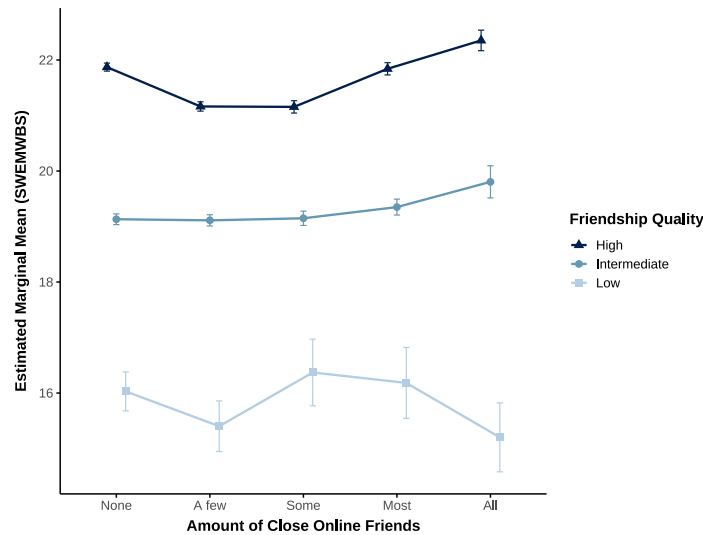


Figure 3B.9 Estimated marginal means of SWEMWBS scores by friendship quality and amount of close online friends. Sample sizes: None (n=6,673), A few (n=5,307), Some (n=3,120), Most (n=2,885), All (n=945).

Neurodivergent status

RCADS-11

Non-neurodivergent adolescents generally had lower RCADS-11 scores than neurodivergent adolescents, those who were unsure, and those who were non-disclosing (Figure 3B.10). The difference in scores between low- and high-quality friendships was similar across groups (Table 3B.6).

SWEMWBS

SWEMWBS scores followed the same trend as observed for RCADS-11 scores (Figure 3B.11). These differences were significant in every group (Table 3B.7). Notably, neurodivergent adolescents with low-quality friendships reported the lowest overall SWEMWBS scores.

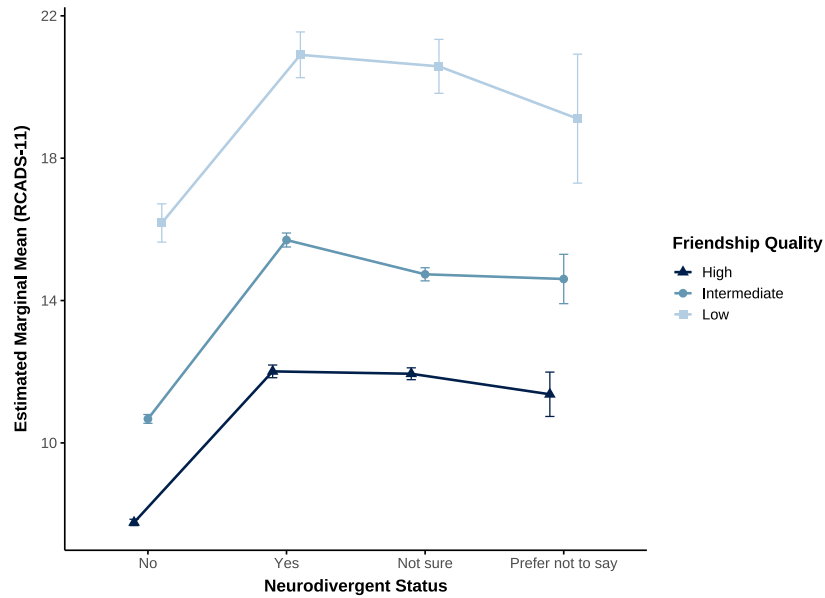


Figure 3B.10 Estimated marginal means of RCADS-11 scores by friendship quality and neurodivergent status. Sample sizes: No (n=11,562), Yes (n=3,529), Not sure (n=3,970), Prefer not to say (n=293).

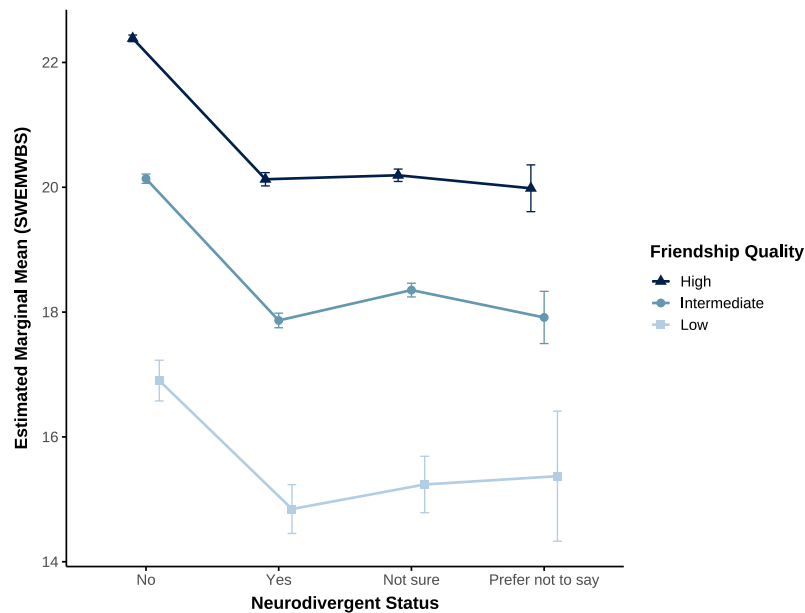


Figure 3B.11 Estimated marginal means of SWEMWBS scores by friendship quality and neurodivergent status. Sample sizes: No (n=11,285), Yes (n=3,463), Not sure (n=3,898), Prefer not to say (n=284).

Table 3B.6 Pairwise contrasts for estimated differences in RCADS-11 scores by friendship quality stratified by group.

Variable	Level	Contrast	Estimate (SE)	t-ratio	p-value
Gender	Girl	High – Intermediate	-3.65 (0.16)	-22.95	<.001***
		High - Low	-9.80 (0.53)	-18.62	<.001***

	Boy	Intermediate - Low	-6.14 (0.53)	-11.56	<.001***
		High - Intermediate	-3.22 (0.18)	-17.89	<.001***
		High - Low	-9.37 (0.60)	-15.68	<.001***
	GD	Intermediate - Low	-6.15 (0.61)	-10.17	<.001***
		High - Intermediate	-1.99 (0.82)	-2.44	<.05*
		High - Low	-4.70 (1.12)	-4.20	<.001***
	GND	Intermediate - Low	-2.70 (1.14)	-2.37	<.05*
		High - Intermediate	-3.09 (0.68)	-4.55	<.001***
		High - Low	-5.01 (1.48)	-3.40	0.001***
	Y07	Intermediate - Low	-1.93 (1.48)	-1.30	0.1929
		High - Intermediate	-4.10 (0.27)	-15.15	<.001***
		High - Low	-11.22 (0.97)	-11.56	<.001***
Year group	Y08	Intermediate - Low	-7.11 (0.98)	-7.28	<.001***
		High - Intermediate	-3.78 (0.28)	-13.74	<.001***
		High - Low	-10.00 (0.94)	-10.66	<.001***
	Y09	Intermediate - Low	-6.22 (0.95)	-6.58	<.001***
		High - Intermediate	-3.42 (0.28)	-12.31	<.001***
		High - Low	-10.31 (0.81)	-12.70	<.001***
	Y10	Intermediate - Low	-6.89 (0.82)	-8.39	<.001***
		High - Intermediate	-3.32 (0.33)	-10.19	<.001***
		High - Low	-10.21 (0.93)	-11.03	<.001***
	Y11	Intermediate - Low	-6.89 (0.94)	-7.33	<.001***
		High - Intermediate	-4.18 (0.34)	-12.41	<.001***
		High - Low	-8.90 (0.89)	-10.01	<.001***
	Y12	Intermediate - Low	-4.72 (0.91)	-5.20	<.001***
		High - Intermediate	-3.39 (0.43)	-7.85	<.001***
		High - Low	-7.63 (1.38)	-5.52	<.001***
	Y13	Intermediate - Low	-4.24 (1.41)	-3.02	<.01**
		High - Intermediate	-3.69 (0.57)	-6.53	<.001***
		High - Low	-5.62 (1.56)	-3.60	<.001***
Ethnicity	White	Intermediate - Low	-1.92 (1.60)	-1.20	0.2284
		High - Intermediate	-3.75 (0.15)	-24.87	<.001***
		High - Low	-11.28 (0.49)	-22.83	<.001***
		Intermediate - Low	-7.53 (0.50)	-15.08	<.001***

Amount of close online friends	Mixed/Multiple Ethnic Groups	High - Intermediate	-4.14 (0.48)	-8.63	<.001***	
		High - Low	-8.26 (1.46)	-5.66	<.001***	
		Intermediate - Low	-4.12 (1.48)	-2.79	<.01**	
	Asian/Asian British	High - Intermediate	-3.01 (0.30)	-10.22	<.001***	
		High - Low	-7.24 (0.81)	-8.95	<.001***	
		Intermediate - Low	-4.23 (0.82)	-5.15	<.001***	
	Black/Black British African/Caribbean	High - Intermediate	-3.80 (0.54)	-7.01	<.001***	
		High - Low	-8.40 (1.51)	-5.55	<.001***	
		Intermediate - Low	-4.60 (1.54)	-2.99	<.01**	
	Arab	High - Intermediate	-3.62 (0.90)	-4.00	<.001***	
		High - Low	-11.18 (1.90)	-5.89	<.001***	
		Intermediate - Low	-7.56 (1.97)	-3.84	<.001***	
	Other	High - Intermediate	-2.87 (0.77)	-3.75	<.001***	
		High - Low	-6.70 (2.12)	-3.16	0.0031	
		Intermediate - Low	-3.83 (2.13)	-1.80	0.0723	
	Amount of close online friends	All	High - Intermediate	-4.27 (0.6)	-7.10	<.001***
			High - Low	-9.82 (1.01)	-9.75	<.001***
			Intermediate - Low	-5.55 (1.08)	-5.15	<.001***
		Most	High - Intermediate	-3.67 (0.32)	-11.62	<.001***
			High - Low	-11.46 (1.14)	-10.02	<.001***
			Intermediate - Low	-7.80 (1.16)	-6.75	<.001***
Some		High - Intermediate	-2.94 (0.30)	-9.89	<.001***	
		High - Low	-6.85 (0.99)	-6.95	<.001***	
		Intermediate - Low	-3.91 (0.99)	-3.94	0.0001	
A few		High - Intermediate	-3.30 (0.23)	-14.37	<.001***	
		High - Low	-9.46 (0.81)	-11.72	<.001***	
		Intermediate - Low	-6.16 (0.81)	-7.57	<.001***	
None		High - Intermediate	-4.03 (0.21)	-19.18	<.001***	
		High - Low	-10.71 (0.61)	-17.44	<.001***	
		Intermediate - Low	-6.68 (0.62)	-10.71	<.001***	
Neurodivergent status	No	High - Intermediate	-3.04 (0.14)	-21.77	<.001***	
		High - Low	-8.33 (0.48)	-17.42	<.001***	
		Intermediate - Low	-5.28 (0.48)	-10.91	<.001***	

Yes	High - Intermediate	-3.59 (0.24)	-15.15	<.001***
	High - Low	-8.10 (0.57)	-14.32	<.001***
	Intermediate - Low	-4.50 (0.57)	-7.89	<.001***
Not sure	High - Intermediate	-2.87 (0.23)	-12.68	<.001***
	High - Low	-8.50 (0.71)	-11.97	<.001***
	Intermediate - Low	-5.62 (0.71)	-7.89	<.001***
Prefer not to say	High - Intermediate	-3.61 (0.81)	-4.45	<.001***
	High - Low	-7.67 (1.59)	-4.83	<.001***
	Intermediate - Low	-4.07 (1.61)	-2.53	0.0114

Table 3B.7 Pairwise contrasts for estimated differences in SWEMWBS scores by friendship quality stratified by group

Variable	Level	Contrast	Estimate (SE)	t-ratio	p-value
Gender	Girl	High - Intermediate	2.17 (0.09)	23.10	<.001***
		High - Low	4.89 (0.30)	16.20	<.001***
		Intermediate - Low	2.72 (0.31)	8.91	<.001***
	Boy	High - Intermediate	2.61 (0.11)	24.77	<.001***
		High - Low	6.63 (0.35)	18.87	<.001***
		Intermediate - Low	4.03 (0.36)	11.33	<.001***
	GD	High - Intermediate	0.94 (0.56)	1.70	0.1414
		High - Low	3.11 (1.19)	2.61	<.05*
		Intermediate - Low	2.17 (1.20)	1.81	0.1414
	GND	High - Intermediate	1.90 (0.40)	4.73	<.001***
		High - Low	4.78 (0.88)	5.42	<.001***
		Intermediate - Low	2.88 (0.89)	3.25	<.001***
Year group	Y07	High - Intermediate	2.87 (0.16)	18.50	<.001***
		High - Low	6.28 (0.56)	11.18	<.001***
		Intermediate - Low	3.41 (0.57)	6.03	<.001***
	Y08	High - Intermediate	2.38 (0.16)	15.13	<.001***
		High - Low	5.93 (0.54)	11.05	<.001***
		Intermediate - Low	3.55 (0.54)	6.57	<.001***
	Y09	High - Intermediate	2.01 (0.16)	12.59	<.001***
		High - Low	5.27 (0.48)	11.03	<.001***
		Intermediate - Low	3.26 (0.48)	6.75	<.001***

	Y10	High - Intermediate	2.39 (0.19)	12.75	<.001***
		High - Low	5.15 (0.57)	9.06	<.001***
		Intermediate - Low	2.77 (0.58)	4.80	<.001***
	Y11	High - Intermediate	2.58 (0.19)	13.45	<.001***
		High - Low	5.72 (0.54)	10.60	<.001***
		Intermediate - Low	3.13 (0.55)	5.71	<.001***
	Y12	High - Intermediate	2.58 (0.25)	10.52	<.001***
		High - Low	6.16 (0.86)	7.20	<.001***
		Intermediate - Low	3.58 (0.87)	4.13	<.001***
	Y13	High - Intermediate	2.71 (0.32)	8.40	<.001***
		High - Low	5.78 (0.89)	6.48	<.001***
		Intermediate - Low	3.07 (0.91)	3.36	0.0008
	Ethnicity	High - Intermediate	2.47 (0.09)	28.46	<.001***
		High - Low	6.37 (0.29)	21.84	<.001***
		Intermediate - Low	3.90 (0.29)	13.25	<.001***
		High - Intermediate	2.74 (0.27)	10.13	<.001***
		High - Low	5.92 (0.89)	6.62	<.001***
		Intermediate - Low	3.18 (0.90)	3.51	<.001***
		High - Intermediate	2.08 (0.17)	12.31	<.001***
		High - Low	4.94 (0.48)	10.31	<.001***
		Intermediate - Low	2.86 (0.49)	5.89	<.001***
		High - Intermediate	2.26 (0.31)	7.38	<.001***
		High - Low	5.22 (0.87)	6.00	<.001***
		Intermediate - Low	2.96 (0.88)	3.35	0.0008
		High - Intermediate	2.12 (0.52)	4.11	0.0001
		High - Low	2.39 (1.24)	1.93	0.1075
		Intermediate - Low	0.27 (1.27)	0.21	0.8335
		High - Intermediate	2.72 (0.44)	6.25	<.001***
		High - Low	5.50 (1.28)	4.31	<.001***
		Intermediate - Low	2.78 (1.28)	2.16	0.0307
Amount of close online friends	All	High - Intermediate	2.55 (0.34)	7.41	<.001***
		High - Low	7.15 (0.65)	11.02	<.001***
		Intermediate - Low	4.60 (0.69)	6.71	<.001***

Neurodivergent status	Most	High - Intermediate	2.49 (0.18)	13.77	<.001***
		High - Low	5.66 (0.65)	8.73	<.001***
		Intermediate - Low	3.17 (0.66)	4.84	<.001***
	Some	High - Intermediate	2.01 (0.17)	11.80	<.001***
		High - Low	4.79 (0.61)	7.83	<.001***
		Intermediate - Low	2.78 (0.61)	4.52	<.001***
	A few	High - Intermediate	2.05 (0.13)	15.63	<.001***
		High - Low	5.76 (0.46)	12.42	<.001***
		Intermediate - Low	3.71 (0.47)	7.94	<.001***
	None	High - Intermediate	2.74 (0.12)	22.76	<.001***
		High - Low	5.84 (0.36)	16.32	<.001***
		Intermediate - Low	3.10 (0.36)	8.53	<.001***
	No	High - Intermediate	2.25 (0.09)	24.63	<.001***
		High - Low	5.48 (0.33)	16.59	<.001***
		Intermediate - Low	3.23 (0.33)	9.67	<.001***
	Yes	High - Intermediate	2.26 (0.16)	14.29	<.001***
		High - Low	5.28 (0.41)	13.04	<.001***
		Intermediate - Low	3.02 (0.41)	7.40	<.001***
	Not sure	High - Intermediate	1.84 (0.15)	12.41	<.001***
		High - Low	4.95 (0.46)	10.70	<.001***
		Intermediate - Low	3.11 (0.47)	6.69	<.001***
	Prefer not to say	High - Intermediate	2.07 (0.56)	3.69	<.001***
		High - Low	4.61 (1.11)	4.17	<.001***
		Intermediate - Low	2.54 (1.12)	2.26	<.05*

Self-harm and friendship quality: Logistic regression

There was a significant effect of friendship quality on reporting past self-harm (see Table 3B.8). Adolescents with low-quality friendships had 5 times the odds of reporting past self-harm (AOR=4.99) compared to those with high-quality friendships. Boys had lower odds compared to girls, while GD adolescents had almost 4 times the odds (AOR=3.93). Reporting self-harm rose with each advancing year. Results for ethnicity were mixed. Having more close friends online (vs. none) was linked to higher odds of reporting past self-harm, with the highest odds for those who had all their close friends online. Neurodivergent adolescents had almost 4 times the odds.

Interaction effects between individual-level variables and covariates were significant in the models that included gender and neurodivergent status (see Table 3B.9). Boys with low friendship quality had nearly double the odds of self-harm. The increase in odds associated with low friendship quality was smaller among neurodivergent compared to non-neurodivergent adolescents. Predicted probabilities were plotted to visualise the interactions for gender and neurodivergent status in Figures 3B.12 and 3B.13, respectively.

Table 3B.8 Significant adjusted odds ratios for reported self-harm regressed on friendship quality and individual-level variables (main effects model)

Variable	AOR (95% CI Lower- Upper)
Friendship Quality (ref: 'High' n = 12,464)	
Intermediate (n=7316)	1.77 (1.63-1.92)
Low (n=524)	4.99 (3.95-6.30)
Gender (ref: 'Girl' n = 10,156)	
Boy (n=9365)	0.34 (0.31-0.37)
GD (n=267)	3.93 (2.86-5.48)
GND (n=516)	1.47 (1.18-1.82)
Year Group (ref: 'Y07' n = 4063)	
Y08 (n=3998)	1.29 (1.13-1.49)
Y09 (n=3916)	1.41 (1.23-1.62)
Y10 (n=2910)	1.59 (1.37-1.84)
Y11 (n=2804)	2.09 (1.81-2.41)
Y12 (n=1684)	2.16 (1.83-2.54)
Y13 (n=1104)	2.32 (1.91-2.80)
Ethnicity (ref: 'White' n = 11,036)	
Asian (n=2933)	0.73 (0.64-0.82)
Black (n=989)	0.75 (0.62-0.90)
Arab (n=357)	0.56 (0.39-0.77)
Online Friends (ref: 'None' n = 7149)	
All (n=1036)	1.56 (1.29-1.89)
Most (n=3122)	1.42 (1.25-1.61)
Some (n=3300)	1.45 (1.28-1.63)
A few (n=5441)	1.52 (1.37-1.68)
Neurodivergence (ref: 'No' n = 12,509)	
Yes (n=3804)	3.90 (3.52-4.32)
Not sure (n=3829)	2.75 (2.49-3.04)
Prefer not to say (n=286)	2.79 (2.02-3.82)

Table 3B.9 Significant interaction effects with friendship quality: gender and neurodivergent status

Variable	AOR	95% CI (Lower, Upper)
Gender x Friendship Quality (ref: Girl x High)		
Boy x Intermediate	1.27	(1.06, 1.52)
Boy x Low	1.89	(1.18, 3.03)
GND x Intermediate	0.63	(0.41, 0.97)

Neurodivergent Status x Friendship Quality (ref: No x High)		
Yes x Low	0.42	(0.25, 0.72)
Not sure x Intermediate	0.79	(0.64, 0.96)
Not sure x Low	0.55	(0.31, 0.99)

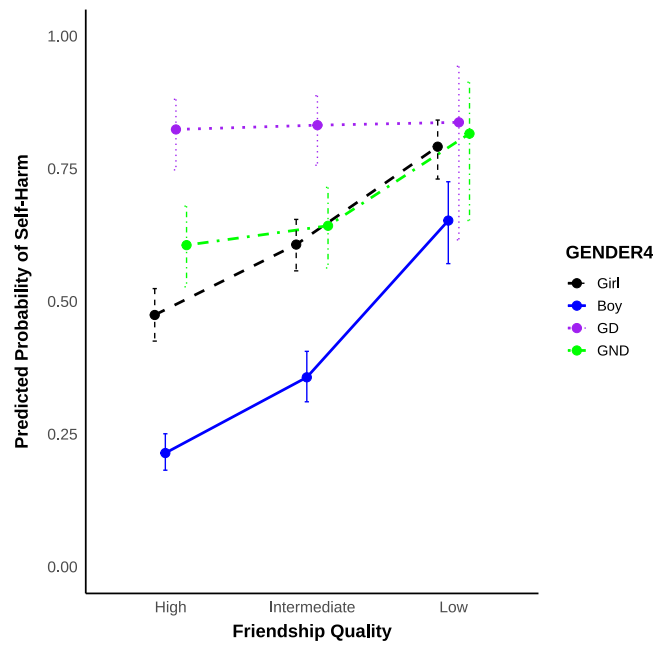


Figure 3B.12 Predicted probability of self-harm showing the interaction between friendship quality and gender, adjusted for covariates.

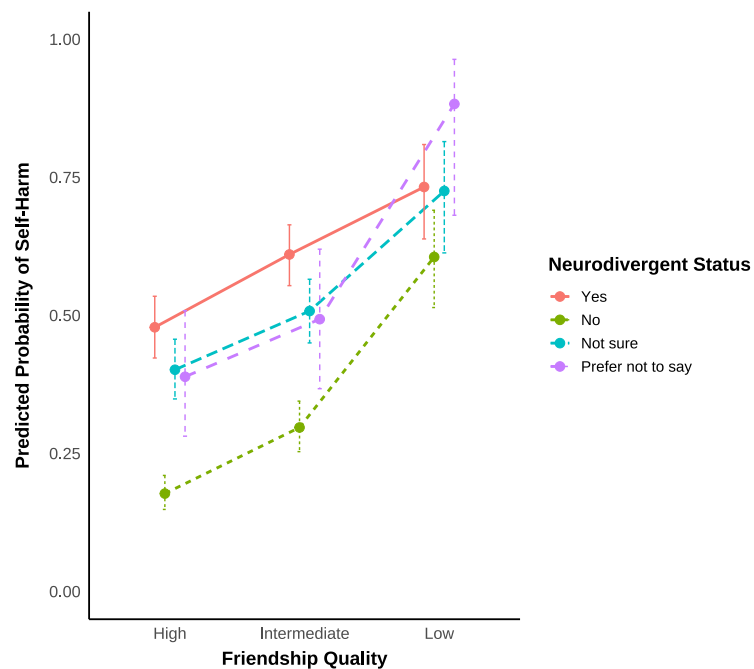


Figure 3B.13 Predicted probability of self-harm showing the interaction between friendship quality and neurodivergent status, adjusted for covariates.

Individual-level predictors of loneliness

Friendship quality was the strongest predictor of adolescent loneliness: students with intermediate and low-quality friendships reported loneliness scores 1.15 and 2.48 points higher, respectively, than those with high-quality friendships (see Table 3B.10). Boys were less lonely than girls, while GD and GND adolescents reported more loneliness. Loneliness increased with the school year, peaking in Year 13. Neurodivergent students and those unsure of their status reported higher loneliness than non-neurodivergent. Having more close online friends was also associated with higher levels of loneliness. Overall, the model explained 23% of the variance in loneliness scores.

Table 3B.10 Individual-level Predictors of Adolescent Loneliness: Linear Regression Model (N = 20,377)

Predictor	Estimate (SE)	t-value	p-value
Intercept	4.48 (0.04)	128.57	<.001 ***
Friendship Quality (ref: 'High' n = 12,280)			
Intermediate (n = 7,590)	1.15 (0.02)	47.97	<.001 ***
Low (n = 507)	2.48 (0.07)	33.45	<.001 ***
Gender (ref: 'Girl' n = 10,685)			
Boy (n = 8,800)	-0.79 (0.02)	-33.51	<.001 ***
GD (n = 296)	0.77 (0.10)	7.95	<.001 ***
GND (n = 596)	0.24 (0.07)	3.46	0.001 **
Year Group (ref: 'Y07' n = 4,144)			
Y08 (n = 3,949)	0.10 (0.04)	2.84	0.004 **
Y09 (n = 3,901)	0.18 (0.04)	5.09	<.001 ***
Y10 (n = 2,865)	0.15 (0.04)	3.86	<.001 ***
Y11 (n = 2,763)	0.36 (0.04)	9.02	<.001 ***
Y12 (n = 1,728)	0.43 (0.05)	9.24	<.001 ***
Y13 (n = 1,027)	0.51 (0.06)	8.96	<.001 ***
Ethnicity (ref: 'White' n = 13,355)			
Mixed/Multiple Ethnic Groups (n = 1,384)	0.10 (0.05)	2.28	0.023 *
Asian/Asian British (n = 3,553)	-0.04 (0.03)	-1.22	0.224
Black/Black British/African/Caribbean (n = 1,137)	0.04 (0.05)	0.78	0.437
Arab (n = 431)	-0.30 (0.08)	-3.71	<.001 ***
Other ethnic group (n = 517)	0.14 (0.07)	1.97	0.049 *

Neurodivergent status (ref: 'No' n = 12,115)				
Yes (n = 3,783)	0.70 (0.03)	22.31	<.001 ***	
Not sure (n = 4,165)	0.65 (0.03)	21.74	<.001 ***	
Prefer not to say (n = 314)	0.62 (0.09)	6.64	<.001 ***	
Amount of close online friends (ref: 'None' n = 7,165)				
All (n = 1,035)	-0.00 (0.05)	-0.09	0.930	
Most (n = 3,133)	0.07 (0.04)	2.14	0.033 *	
Some (n = 3,382)	0.09 (0.03)	2.71	0.007 **	
A few (n = 5,662)	0.17 (0.03)	5.97	<.001 ***	

Friendship Functions

Association with Mental Health and Well-being

Bivariate correlations, presented in Table 3B.11, indicated that all five friendship functions were significantly and negatively correlated with RCADS-11 scores. The strongest correlation was observed for the 'help' function ($r = -0.20$), with smaller but significant associations for the others.

Conversely, all five friendship function variables were also significantly and positively associated with well-being (SWEMWBS), as shown in Table 3B.12. The strongest association was again observed for the 'help' function ($r = 0.32$), with positive associations also evident the remaining ones.

Table 3B.11 Correlations between Friendship Functions and RCADS-11 Scores (df = 18,770)

Friendship Function	r	95% CI	t	p
Intimacy: People I can tell private things to	-0.13	[-0.15, -0.12]	-18.14	< .001
Reliable Alliance: Stay my friend if criticized	-0.13	[-0.15, -0.12]	-18.17	< .001
Emotional Support: Makes me feel better when I'm upset	-0.17	[-0.18, -0.15]	-23.02	< .001
Reliable Alliance: Stay my friend if not seen for months	-0.16	[-0.17, -0.14]	-22.01	< .001
Help: Helps me when I need it	-0.20	[-0.22, -0.19]	-28.56	< .001

Table 3B.12 Correlations between Friendship Functions and SWEMWBS Scores (df=17,367)

Friendship Function	r	95% CI	t	p
Intimacy: People I can tell private things to	0.24	[0.22, 0.25]	32.17	< .001
Reliable Alliance: Stay my friend if criticized	0.24	[0.23, 0.26]	33.30	< .001
Emotional Support: Makes me feel better when I'm upset	0.29	[0.27, 0.30]	39.49	< .001
Reliable Alliance: Stay my friend if not seen for months	0.27	[0.26, 0.29]	37.27	< .001

Friendship Function	r	95% CI	t	p
Help: Helps me when I need it	0.32	[0.31, 0.33]	44.28	< .001

Individual-level differences

The results of the ANOVA and mean ratings of each friendship function are shown in Tables B1 and B2 in the appendix, respectively. Significant differences were found across friendship functions within each subgroup. They are presented in Table 3B.13, along with their corresponding effect sizes, which range from very small to moderate ($d=0.09$ – 0.38). Figures 3B.14 to 3B.18 illustrate the proportional distribution of friendship function ratings within subgroups.

Gender

Girls reported the highest scores across all five friendship functions. The largest gender differences emerged for ‘emotional support’ and intimacy. GND students consistently reported the lowest levels of perceived friendship support across all functions.

Year group

‘Intimacy’ ratings were significantly higher among students in Years 8–13 compared to those in Year 7, with the greatest differences observed between Year 7 and the oldest year groups. For ‘emotional support’ and ‘help’, a slight curvilinear pattern emerged (see Figure 3B.15): scores were highest in Year 7, declined through mid-adolescence (Years 9–11), and rose again in Year 13.

Ethnicity

White students reported higher ‘intimacy’ and ‘reliable alliance’ scores than Asian, Black, and Other groups.

Amount of Close Online Friends

Students who reported that “all” of their close friends were online had the highest scores for intimacy, ‘emotional support’, and ‘reliable alliance’.

Neurodivergent Status

Non-neurodivergent students reported higher scores across all friendship functions. The non-disclosing group consistently reported the lowest scores.

Table 3B.13 Significant comparisons of means within groups across friendship functions fulfilled by close friends.

Group	Significant Comparison	p-value	Effect Size (d)
Intimacy: "are people I can tell private things to"			
Gender	Girl > Boy	< .0001	0.22
	Girl > GND	< .0001	0.34
	Boy > GND	0.034	0.12
	GD > GND	0.015	0.22
Year group	Y08 > Y07	.001	0.09
	Y09 > Y07	.001	0.09
	Y10 > Y07	< .001	0.15
	Y11 > Y07	< .001	0.18
	Y12 > Y07	< .001	0.23
	Y13 > Y07	< .001	0.27
	Y11 > Y08	.027	0.08
	Y12 > Y08	< .001	0.14
	Y13 > Y08	< .001	0.19
	Y12 > Y09	< .001	0.14
	Y13 > Y09	< .001	0.18
	Y13 > Y10	.004	0.14
Ethnicity	White > Asian/ Asian British	< .001	0.09
	White > Black/ Black	< .001	0.20
	British/ African/ Caribbean		
	White > Other ethnic group	0.0159	0.17
	Mixed/ Multiple > Black/ Black	0.0028	0.16
Amount of close online friends	British/ African/ Caribbean		
	All > Some	< .001	0.16
	All > A few	.004	0.13
	All > None	.026	0.11
Neurodivergent status	No > Yes	< .001	0.12
	No > Not sure	< .001	0.11
	Prefer not to say < Yes	.023	0.20
	Prefer not to say < No	< .001	0.32
	Prefer not to say < Not sure	.012	0.21
Reliable Alliance: "would stay my friend even if other people criticized me"			
Gender	Girl > Boy	< .0001	0.07
	Girl > GND	< .001	0.18
	Boy > GND	0.050	0.11
	White > Black/ Black	0.0078	0.12
Ethnicity	British/ African/ Caribbean		
	White > Arab	0.0318	0.16
	White > Other ethnic group	0.00033	0.22
	Mixed/ Multiple > Other ethnic group	0.0086	0.18
Amount of close online friends	Asian/ Asian British > Other ethnic group	0.0093	0.17
	All > Some	.035	0.10
	None > Some	< .001	0.09
	None > A few	.045	0.05
Neurodivergent status	No > Yes	< .001	0.16
	Not sure > Yes	.008	0.07

	Not sure < No	< .001	0.10
	Prefer not to say < No	< .001	0.28
	Prefer not to say < Not sure	.016	0.19
Emotional Support: "makes me feel better when I'm upset"			
Gender	Girl > Boy	< .0001	0.31
	Girl > GD	< .001	0.25
	Girl > GND	< .0001	0.35
Year group	Y08 > Y09	.002	0.09
	Y09 < Y07	< .001	0.14
	Y10 < Y07	< .001	0.17
	Y10 < Y08	< .001	0.12
	Y11 < Y07	< .001	0.14
	Y11 < Y08	.009	0.09
	Y13 > Y10	.009	0.12
Ethnicity	White > Other ethnic group	0.0059	0.17
	Mixed/Multiple > Other ethnic group	0.0320	0.16
	Asian/ Asian British > Other ethnic group	0.0018	0.19
Amount of close online friends	All > Some	< .001	0.19
	All > A few	.002	0.14
	Most > Some	.003	0.09
Neurodivergent status	None > Some	< .001	0.10
	No > Yes	< .001	0.18
	No > Not sure	< .001	0.13
	Prefer not to say < No	< .001	0.29
Reliable Alliance: "would want to stay my friend if we didn't see each other for a few months"			
Gender	Girl > Boy	< .0001	0.09
	Girl > GD	0.015	0.19
	Girl > GND	.0001	0.20
Ethnicity	White > Other ethnic group	0.0019	0.18
	Mixed/Multiple > Other ethnic group	0.0075	0.18
Amount of close online friends	All > Some	.045	0.10
	Most > Some	.026	0.08
Neurodivergent status	No > Yes	< .001	0.16
	No > Not sure	< .001	0.12
	Prefer not to say < No	< .001	0.27
Help: "helps me when I need it"			
Gender	Girl > Boy	< .0001	0.22
	Girl > GD	< .0001	0.29
	Girl > GND	< .0001	0.38
	Boy > GND	< .001	0.18
	Y08 > Y09	.002	0.09
Year group	Y09 < Y07	< .001	0.14
	Y10 < Y07	< .001	0.17
	Y10 < Y08	< .001	0.12
	Y11 < Y07	< .001	0.14
Ethnicity	White < Asian/ Asian British	0.0384	0.06
	Asian/ Asian British > Other ethnic group	0.0038	0.18
Amount of close online friends	All > Some	.030	0.11
	None > Some	< .001	0.09

Neurodivergent status	No > Yes	< .001	0.20
	No > Not sure	< .001	0.16
	Prefer not to say < No	< .001	0.29

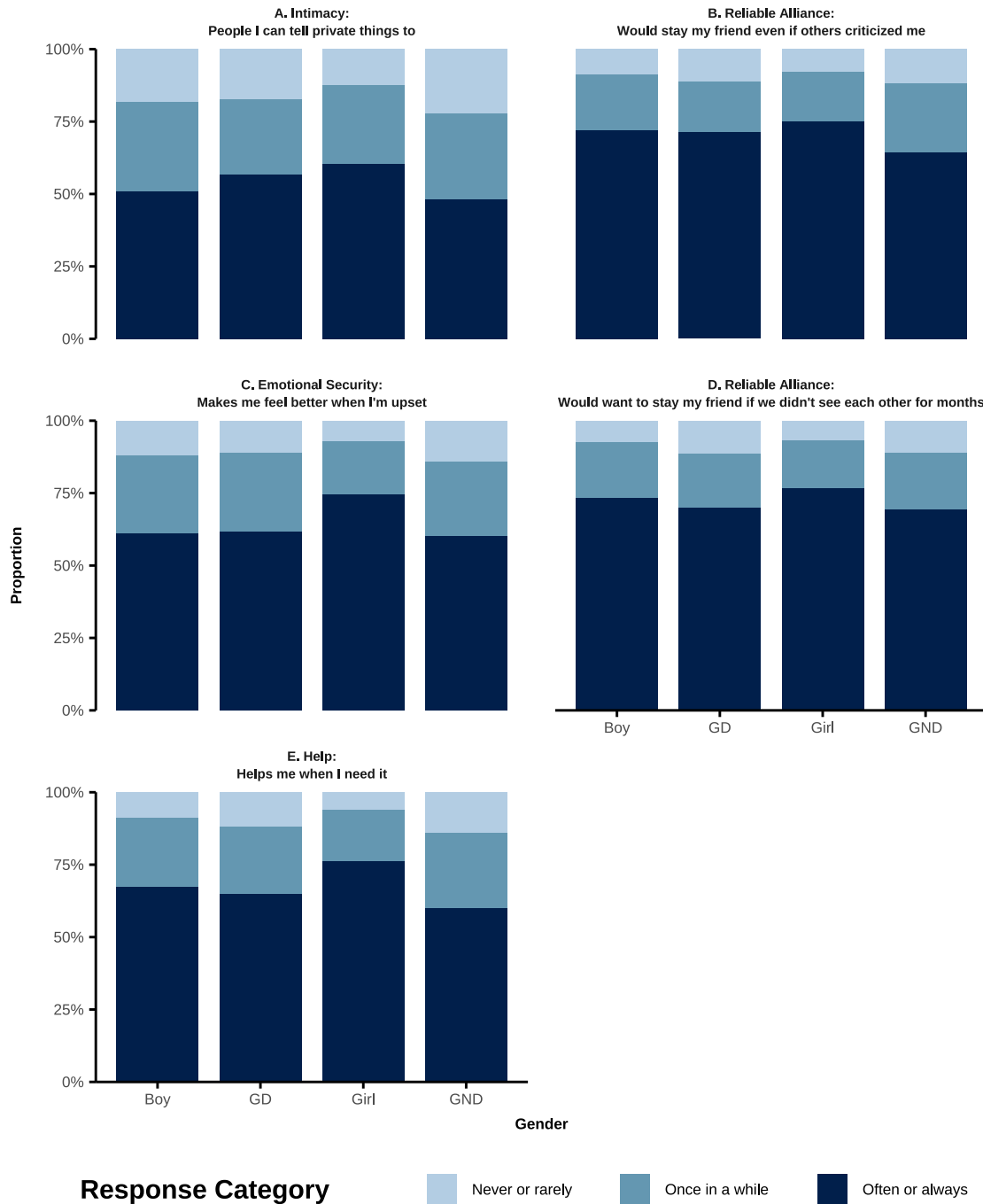


Figure 3B.14 Proportional distribution of friendship function ratings across gender groups.

Note: Responses to each friendship function item (originally rated 0–8) were collapsed into three categories for ease of visual interpretability: "Never or rarely" (0–2), "Once in a while" (3–4), and "Often or always" (5–8). These figures are descriptive and illustrate the distributional shape of responses across gender groups.

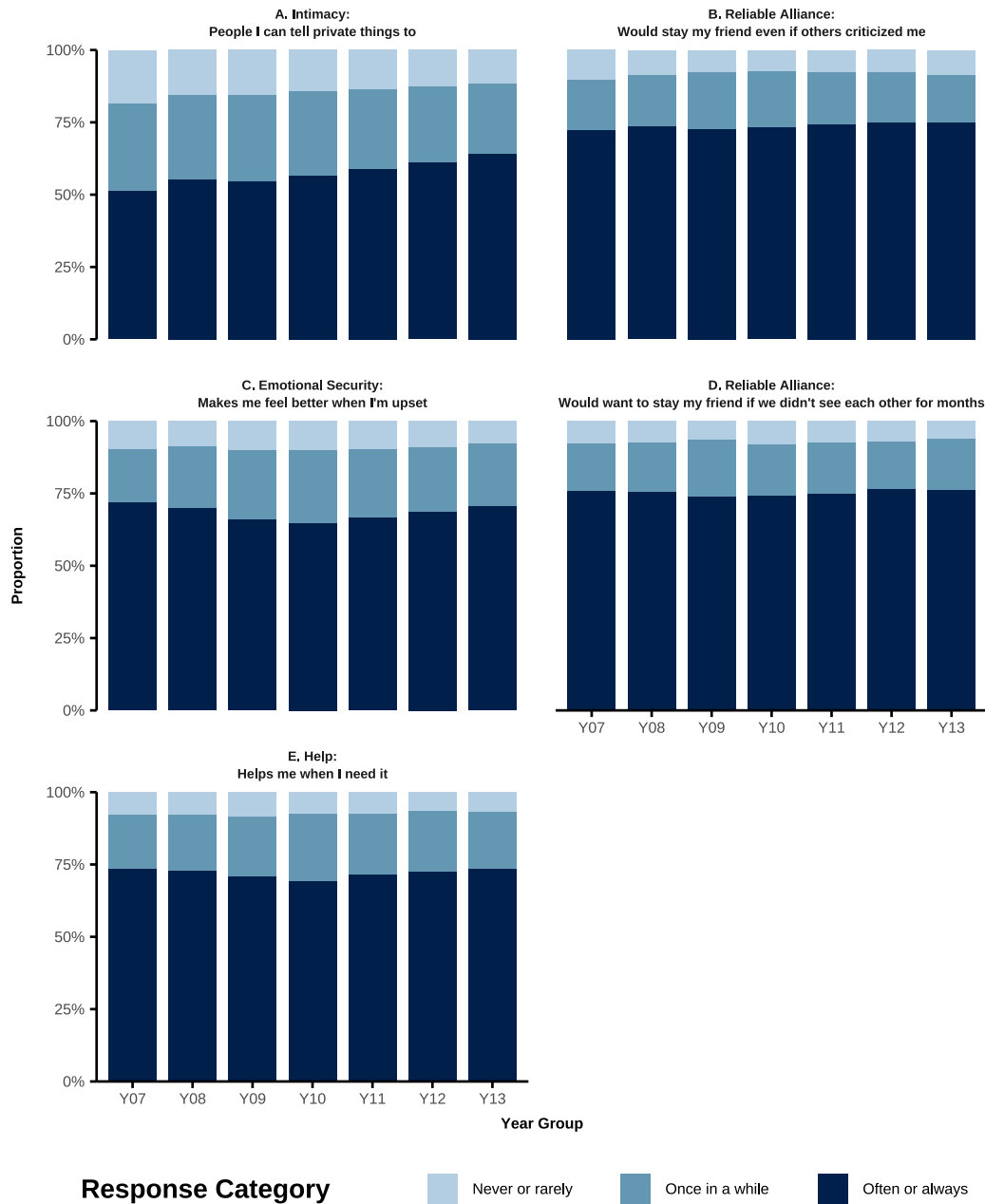


Figure 3B.15 Proportional distribution of friendship function ratings across year groups.

Note: Responses to each friendship function item (originally rated 0–8) were collapsed into three categories for ease of visual interpretability: "Never or rarely" (0–2), "Once in a while" (3–4), and "Often or always" (5–8). These figures are descriptive and illustrate the distributional shape of responses across gender groups.

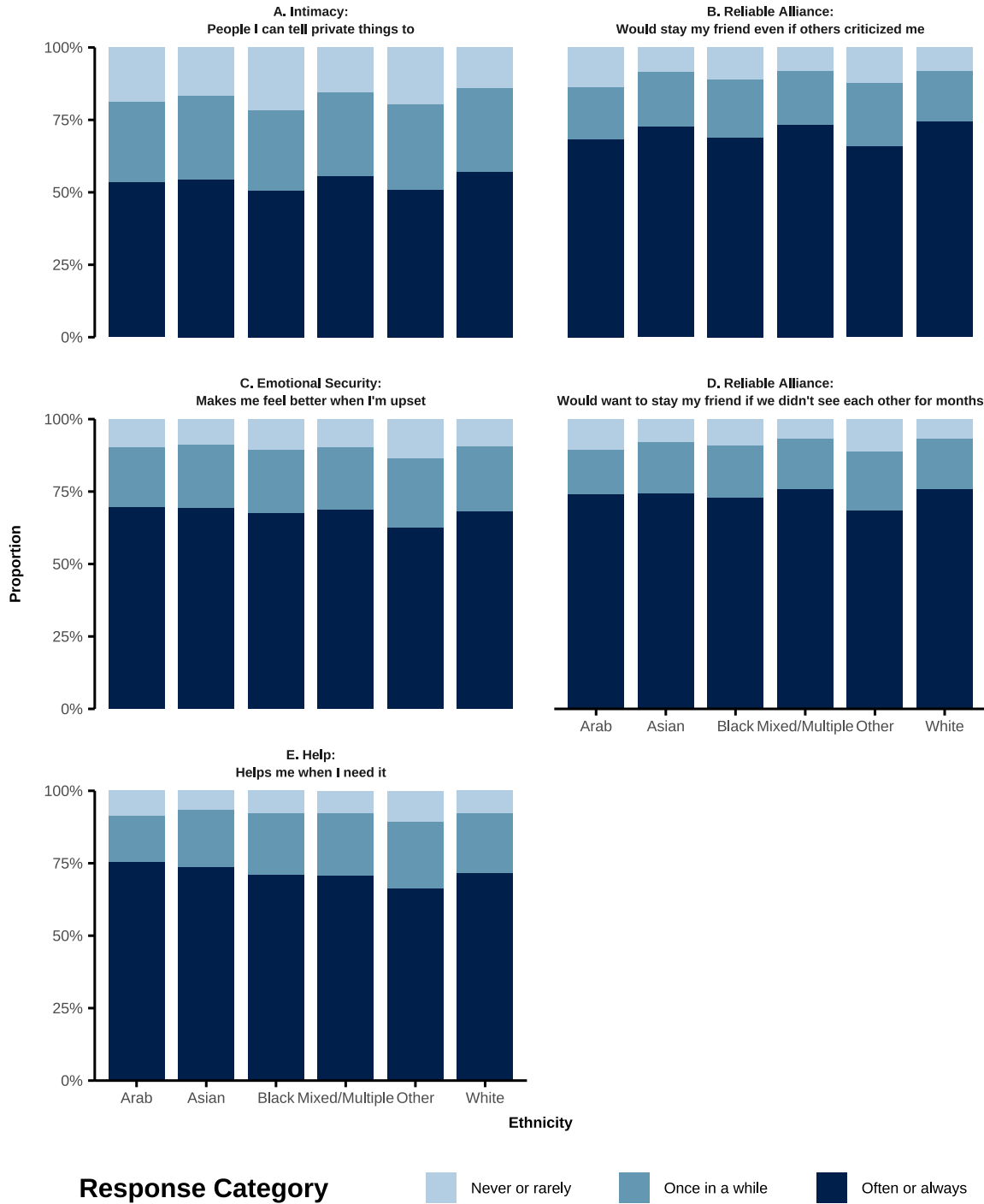
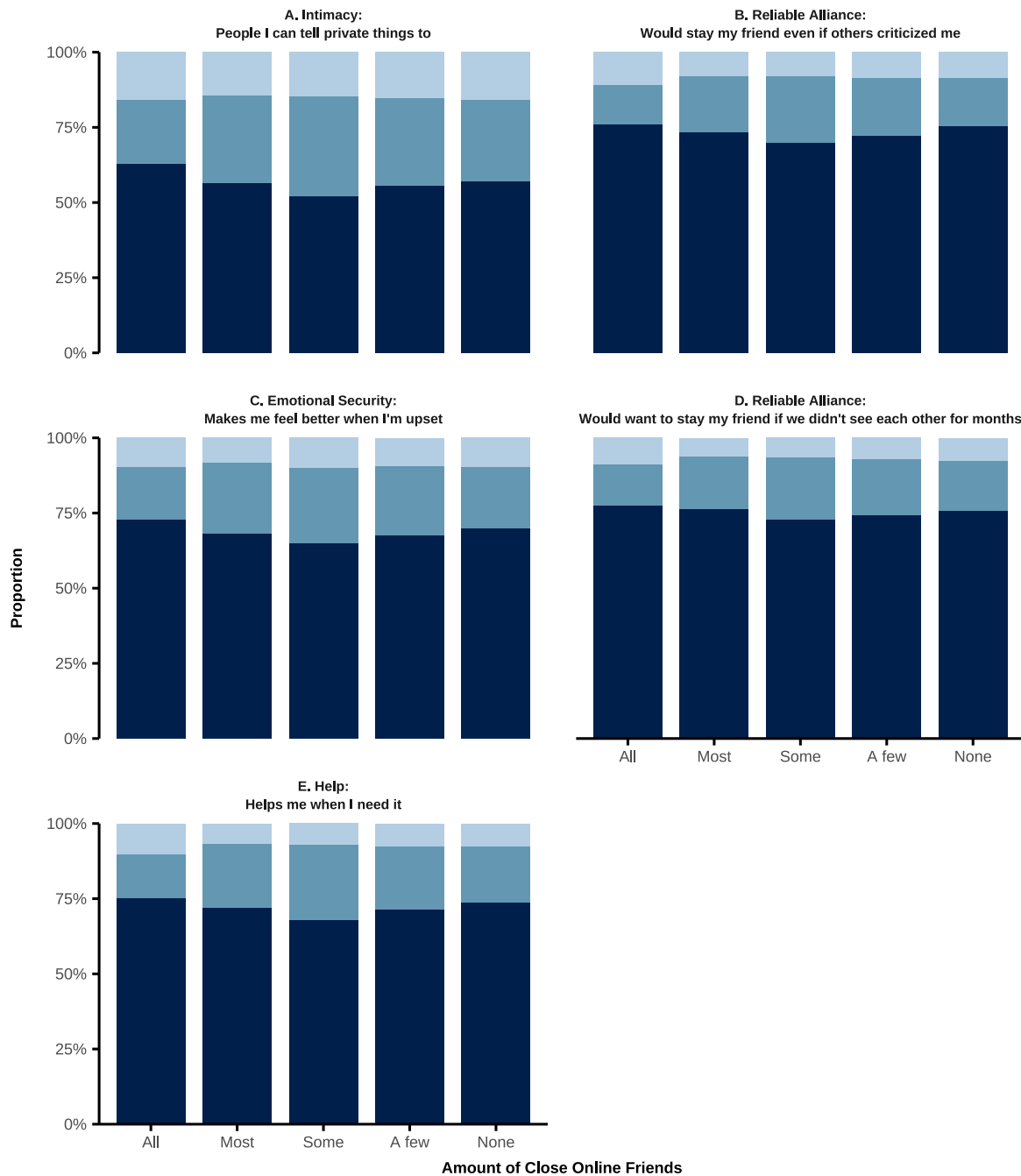


Figure 3B.16 Proportional distribution of friendship function ratings across ethnic groups.

Note: Responses to each friendship function item (originally rated 0–8) were collapsed into three categories for ease of visual interpretability: "Never or rarely" (0–2), "Once in a while" (3–4), and "Often or always" (5–8). These figures are descriptive and illustrate the distributional shape of responses across gender groups.



Response Category

Never or rarely Once in a while Often or always

Figure 3B.17 Proportional distribution of friendship function ratings across amount of close online friends.

Note: Responses to each friendship function item (originally rated 0–8) were collapsed into three categories for ease of visual interpretability: "Never or rarely" (0–2), "Once in a while" (3–4), and "Often or always" (5–8). These figures are descriptive and illustrate the distributional shape of responses across gender groups.

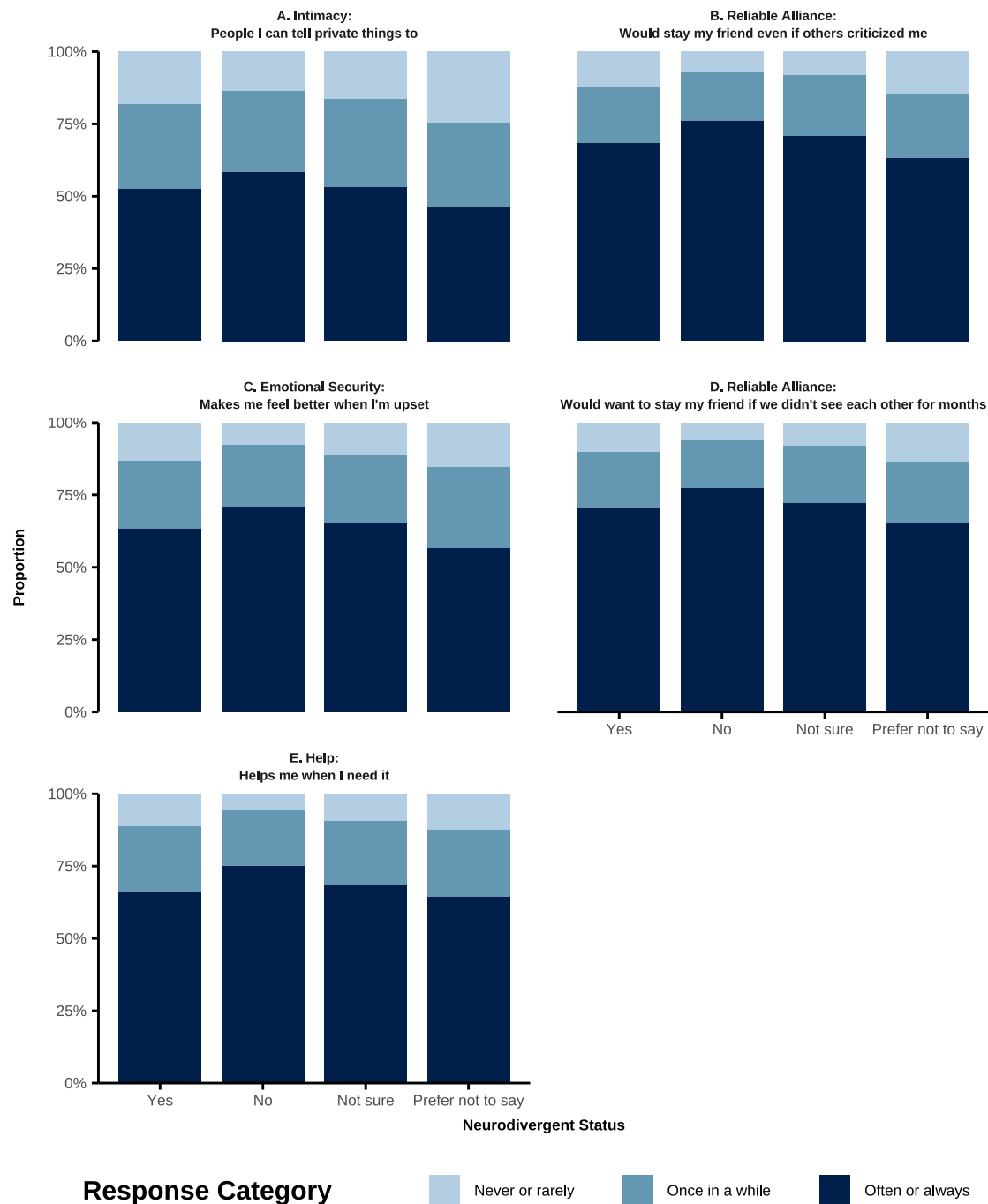


Figure 3B.18 Proportional distribution of friendship function neurodivergent status.

Note: Responses to each friendship function item (originally rated 0–8) were collapsed into three categories for ease of visual interpretability: "Never or rarely" (0–2), "Once in a while" (3–4), and "Often or always" (5–8). These figures are descriptive and illustrate the distributional shape of responses across gender groups.

Friendship Stability: Individual-level differences

Some individual-level variables significantly predicted friendship stability (Table 3B.14). Boys had higher odds than girls (OR = 1.79). In contrast, GD and GND adolescents had considerably lower odds (OR = 0.39 and 0.71). Black and Arab adolescents also reported higher odds compared to White students, while those identifying as “Other” had lower odds. Those who had all or most of their close friends online had higher odds. Neurodivergent individuals and those unsure or non-disclosing had lower odds.

Table 3B.14 Significant odds ratios for individual-level predictors of friendship stability

Predictor	AOR (95% CI Lower-Upper)
Gender	
Boy	1.79 (1.70-1.89)
GD	0.39 (0.32-0.48)
GND	0.71 (0.61-0.82)
Year Group	
Year 10	0.91 (0.84-0.99)
Year 12	0.84 (0.76-0.93)
Year 13	0.78 (0.69-0.89)
Ethnicity	
Black	1.35 (1.21-1.51)
Arab	1.22 (1.02-1.45)
Other	0.83 (0.71-0.98)
Amount of Close Online Friends	
All	1.34 (1.18-1.52)
Most	1.08 (1.00-1.17)
Neurodivergent Status	
Yes	0.51 (0.48-0.55)
Not sure	0.58 (0.55-0.62)
Prefer not to say	0.47 (0.38-0.58)

Note: Reference group for friendship quality = high; gender = girl; year group = Y07; ethnicity = white; amount of close online friends = none; neurodivergent status = no.

Support-seeking from friends

Out of all the adolescents who indicated having sought support for their mental health, 83.0% reported seeking support from in-person, and 21.7% sought support from online friends (Figure 3B.19). The percentage of individuals offered support from their friends upon reaching out was relatively the same regardless of in-person or online medium (Figure 3B.20). Likewise,

the helpfulness of the support received remained stable despite the medium (see Figure 3B.21).

In both models, I found that higher RCADS scores were significantly associated with lower odds of finding support from friends helpful. The adjusted odds ratios are reported in Table 3B.15.

Figures B1 and B2 in Appendix B show the proportions of adolescents who reported seeking online and in-person support from friends, based on whether they knew who provided mental health support at their school and how easy they thought it was to access. Those who knew who provided the mental health support sought nearly equal proportions of in-person and online support from friends, with online support slightly higher. Those who did not know sought more in-person support. Those who found support easy to access proportionally sought more online support, while those who found it difficult sought more in-person support.

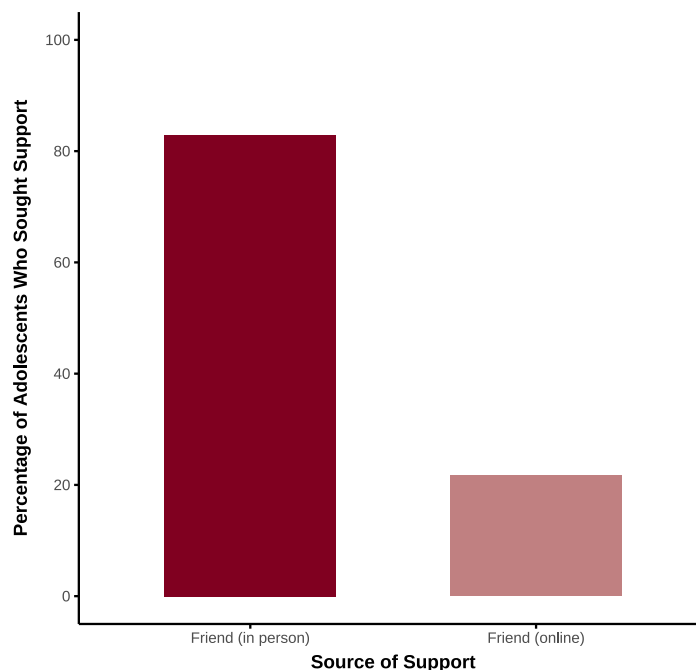


Figure 3B.19 Number and percentage of adolescents who reported seeking support from in-person friends (N = 3,671) and online friends (N = 961) in the past 12 months. Responses are not mutually exclusive. Percentages are out of all respondents who indicated they had sought support from any source (N = 4,426).

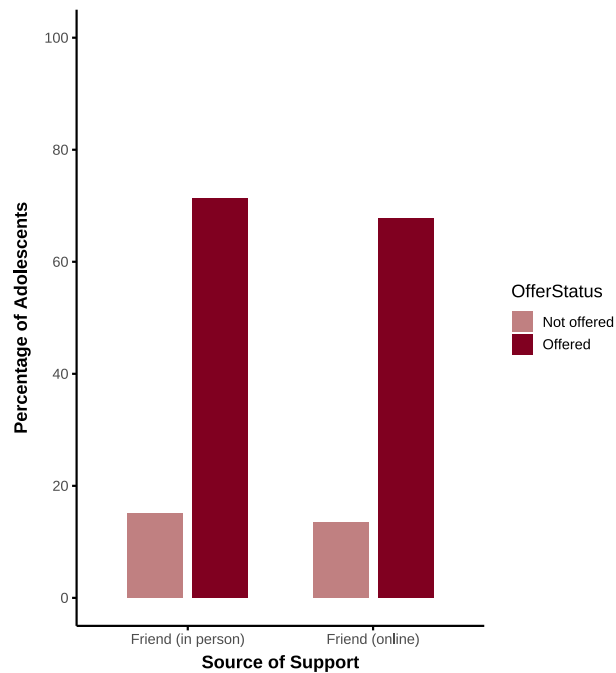


Figure 3B.20 Percentage of adolescents who were offered support (“currently” or “previously”) or were not offered support (including “not been offered/turned away” or “changed mind before getting the support”), among those who sought support from in-person friends (N = 3,167; 82.7% offered, 17.3% not offered) and online friends (N = 781; 83.5% offered, 16.5% not offered). Percentages are out of all respondents who sought support from each respective source and provided a valid answer to the “offered support” question.

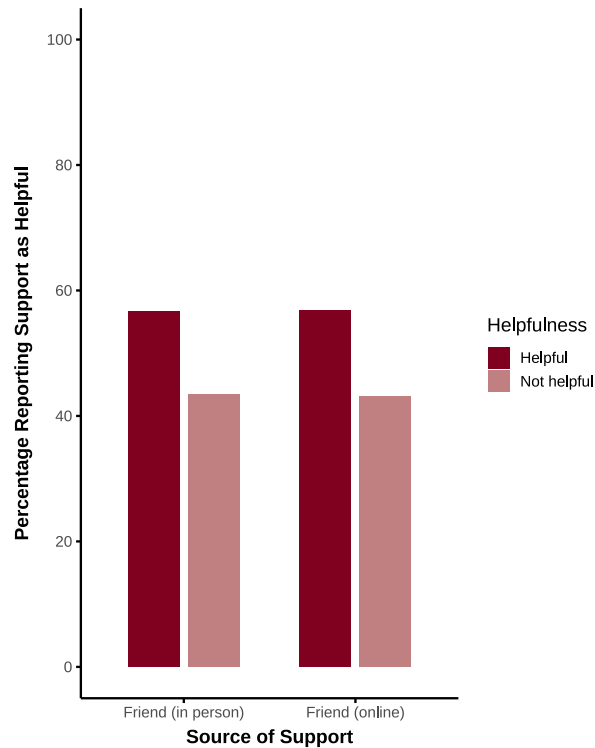


Figure 3B.21 Percentage of adolescents who rated the support they received from in-person friends (N = 3,351; 56.6% helpful, 43.4% not helpful) and online friends (N = 854; 56.9% helpful, 43.1% not helpful) as “helpful” or “not helpful”. Percentages are out of all respondents who sought support from each respective source and provided a valid answer to the helpfulness question.

Table 3B.15 Adjusted odds ratios and 95% confidence intervals from logistic regression predicting the likelihood of finding in-person and online friend support helpful (significant predictors only, $p < .05$)

Predictor	In-Person Friends	Online Friends
Friendship Quality		
Intermediate	AOR = 0.30 (0.18–0.49)	AOR = 0.50 (0.31–0.80)
Low	AOR = 0.22 (0.06–0.78)	AOR = 0.24 (0.06–0.86)
Year group		
Y11	AOR = 0.38 (0.16–0.91)	Not significant
Ethnicity		
Arab	AOR = 10.2 (1.60–2.04)	Not significant

Note: Reference group for friendship quality = high; year group = Y07; ethnicity = white.

Preference for online versus in-person support when distressed

Figure 3B.22 illustrates the distribution of adolescents’ importance ratings for preferring in-person support from friends when distressed. Adjusted odds ratios and 95% confidence intervals for significant predictors are presented in Table 3B.16. Higher symptoms of anxiety and depression were associated with greater odds of rating seeing a friend in person for support

when distressed as important. Lower odds of rating in-person support as important were observed among adolescents with intermediate and low friendship quality, boys, GD, and GND students. Students in Y09 and Y10 had the lowest odds of rating in-person support as important. Compared to White students, Black and Arab students had lower odds of rating in-person support as important. Then, those with any number of online friends (vs. none) had lower odds of rating in-person important. Finally, those who were unsure about being neurodivergent (vs. non-neurodivergent) had lower odds of rating in-person support as important.

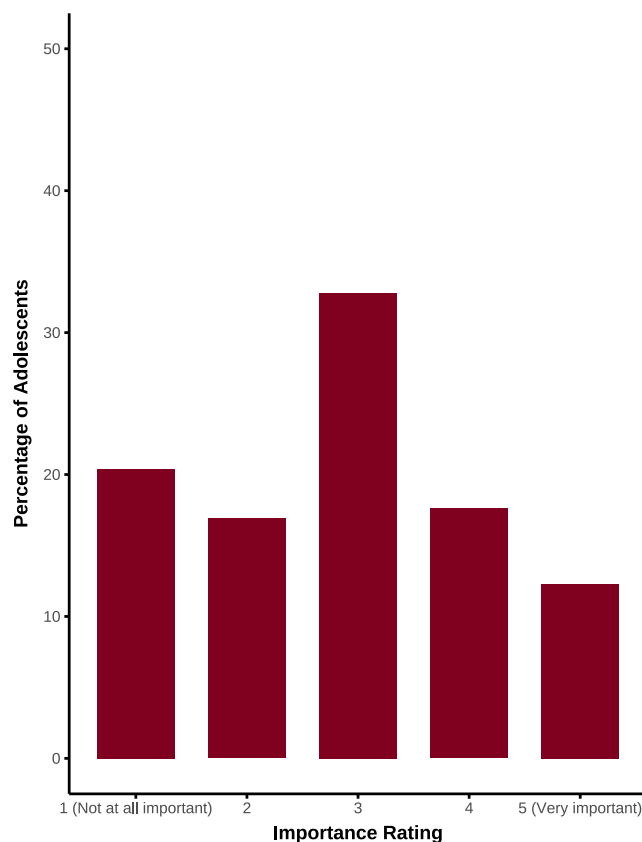


Figure 3B.22 Percentage of adolescents rating the importance of meeting their friend in person for support when distressed (N = 25,317): 1 (Not at all important): 20.4%, 2: 17.0%, 3: 32.8%, 4: 17.6%, 5 (Very important): 12.3%. Percentages are out of all respondents who provided a valid answer.

Table 3B.16 Adjusted odds ratios and 95% confidence intervals from logistic regression predicting the likelihood of rating in-person support from friends as important when experiencing distress (significant predictors only, $p < .05$)

Predictor	AOR (95% CI Lower-Upper)
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RCADS-11 Score	1.01 (1.00–1.01)
Friendship Quality	
Intermediate	0.79 (0.74–0.85)
Low	0.67 (0.53–0.84)
Gender	
Boy	0.71 (0.66–0.76)
GD	0.68 (0.51–0.89)
GND	0.81 (0.67–0.99)
Year Group	
Y08	0.77 (0.70–0.86)
Y09	0.69 (0.62–0.76)
Y10	0.71 (0.63–0.79)
Y11	0.87 (0.78–0.97)
Y12	0.82 (0.72–0.93)
Ethnicity	
Black	0.66 (0.56–0.77)
Arab	0.65 (0.50–0.84)
Amount of Close Online Friends	
All	0.66 (0.57–0.78)
Most	0.56 (0.50–0.62)
Some	0.62 (0.56–0.68)
A few	0.74 (0.69–0.81)
Neurodivergent Status	
Not sure	0.87 (0.80–0.95)

Note: Reference group for friendship quality = high; gender = girl; year group = Y07; ethnicity = white; amount of close online friends = none; neurodivergent status = no.

4.4 Discussion

Using a large study of adolescents, I documented complex and varied relationships among adolescent friendships, mental health, individual-level variables, and support-seeking preferences. Addressing the second research aim of this thesis, three results stand out. Individual-level factors and situational contexts moderated the relationship between friendship quality, mental health, and well-being. Girls, older adolescents, White adolescents, those with exclusively online close friends, and non-neurodivergent adolescents rated their close friends highest across all friendship functions. The function of ‘help’ had the highest correlations with mental health and well-being and some of the largest effect sizes in group mean comparisons. Boys had overall higher well-being (compared to other genders), and the largest declines in well-being occurred when their friendships were of low quality. Second, GD and neurodivergent adolescents consistently reported higher levels of difficulty across all domains. Finally, my findings highlighted differences in support-seeking behaviours. There was an overarching preference for in-

person support from friends; however, whether the support was offered or helpful remained relatively unchanged, regardless of the medium.

Friendship quality, mental health, and well-being

The relationship between friendship quality, mental health, and well-being aligns with the one observed in Chapter 3A. High-quality friendships were associated with fewer mental health difficulties (lower RCADS-11 scores), higher well-being, lower loneliness, and lower odds of reporting past self-harm. Adolescents who scored their close friends higher on friendship functions were also associated with better mental health and well-being. Specifically, adolescents reporting low-quality friendships had loneliness scores that were 2.5 points higher (on a score range of 3 to 9) than those with high-quality friendships, with intermediate friendship quality falling in between, consistent with broader results found in a recent systematic review (Alsaranni et al., 2022). This review reported that in 9 out of 10 studies, adolescents who had poor friendships also experienced higher loneliness. My results suggest adolescents with low-quality friendships may also face a higher risk of self-harm. Those who reported that their friendships were of low quality had five times the odds of reporting past self-harm. Lastly, I found that not only the overall quality but also the specific functions that friendships serve were important predictors of mental health. All were positively correlated with well-being and negatively correlated with symptoms of anxiety and depression. Among these, the “help” function (“helps me when I need it”) showed the strongest correlations. Conceptually, this makes sense because adolescent friendships characterised by a high degree of support among friends have previously been linked to better mental health (Petersen et al., 2023). A meta-analysis of 341 studies even reported an effect of social support on specifically contributing to lowering adolescent depression and reducing feelings of isolation (Rueger et al., 2016). It is possible that the friendship function of ‘help’, compared to the other ones included in the study, captured more of what social support within friendships encompasses. With that in mind, these results support the literature, which suggests that high-quality friendships that are supportive may potentially buffer adolescents from mental health difficulties and low well-being (Rueger et al., 2016; Zhang & Dong, 2022).

The findings from this chapter can also be contextualised within the social convoy model for adolescent friendships (see Chapter 1) (Kahn &

Antonucci, 1980). My results suggest that when this convoy is strong (for example, close friendships rated highly for the functions they fulfil), it can foster well-being and mental health. On the other hand, if an adolescent's convoy lacks supportive friends, they may encounter mental health difficulties and low well-being.

Moderation trends

Addressing the second research question, individual-level variables had a main effect on mental health and well-being, and moderated the relationship between those variables and friendship quality. GD, older, White ethnicity, and neurodivergent adolescents showed greater mental health difficulty, lower well-being, higher odds of self-harm, and increased loneliness. Poor mental health, lower well-being, and a rise in reports of past self-harm increased with year group. Compared to those who had no close online friends, having any amount of close online friends was associated with more mental health difficulties. Adolescents with all their friends online reported slightly better well-being, while those with a mixed number of close online friends experienced a decline.

The literature on online friendships during adolescence is both varied and developing (Escobar-Viera et al., 2018; Scott et al., 2022; Zhou & Cheng, 2022). However, one way to interpret these results is through the lens of a recent study, which suggested that online friendships maintained through social media may be especially beneficial for adolescents who are otherwise socially isolated, as they increase access to social support (Knowles & Danzi, 2025). It could be that adolescents who have all their friends online typically struggle to make and maintain in-person friendships. Additionally, from a friendship dynamics perspective, a study found that high well-being was associated with adolescents' online interactions characterised by frequent communication with their best friends or larger online friendship groups (Anthony et al., 2023). Therefore, it is conceivable that adolescents who had all their close friends online also interacted more frequently and maintained a stronger online friendship group than those with some friends online and others in-person.

An unexpected finding emerged where those non-disclosing of their neurodivergent status scored their close friends the lowest across all friendship functions, had lower friendship stability, and the lowest friendship quality.

Adolescents who reported having all their close friends online also rated them highest across all friendship functions, which shows the uniqueness of online-only friends. As year group increased, adolescents rated their close friendships as higher in intimacy, which aligns with seminal literature on the developmental trajectory of friendship closeness during adolescence that typically seems to increase with age (Berndt, 2004). However, the functions of emotional security and help showed a somewhat curvilinear pattern, increasing in younger year groups, decreasing in middle year groups, and increasing again in older year groups. One explanation for this finding is that it may be capturing friend-related stress from changing schools, which has been linked to poorer outcomes (Benner et al., 2024) or influenced by variables not accounted for in this study, such as academic stress.

Boys reported better mental health and well-being compared to all gender groups, but their mental health and well-being appeared to be more sensitive to friendship quality levels. In particular, boys with low-quality friendships reported lower well-being than other gender groups, but variation in depression and anxiety scores was less evident (as shown in Chapter 3A). Furthermore, boys with low friendship quality had nearly twice the odds of reporting past self-harm compared to girls with high friendship quality. Given that this trend has now been observed in two datasets, I argue that it may suggest a *hidden dependency*. Boys may depend more on the quality of their authentic social groups, and when these are poor, they might experience low well-being. It could be that for boys, their support networks may be constrained by gender norms which discourage them from formal help-seeking, and so they may depend more on their friends for support (McKenzie et al., 2018; Wester et al., 2007). This finding challenges the commonly accepted view that support exchange within boys' friendships is less important to them than for girls (Benenson, 1990; Ko et al., 2015; Perry & Pauletti, 2011; Rose & Rudolph, 2006), and sets an agenda for further research into how exactly boys' friendship quality can influence their well-being to better understand how to support them.

Boys generally reported higher friendship quality; however, girls consistently evaluated their close friends more positively across a range of friendship functions, such as 'emotional support' and intimacy. This creates an apparent paradox. Since higher friendship quality is linked to better mental health and well-being, girls (with their higher friendship function scores)

would be expected to report better mental health and well-being than boys. Yet, the opposite was observed. Girls had higher anxiety and depression scores, lower well-being, greater odds of reporting past self-harm, and more loneliness than boys. One explanation comes from challenges unique to adolescent girls. For example, girls undergo earlier pubertal onset (Copeland et al., 2010) and have increased exposure to social media (Booker et al., 2018), where they often encounter expectations around their appearance (Papageorgiou et al., 2022). Girls also navigate friendships differently, including frequent changes in friendship groups (Baerveldt et al., 2018; Beneson, 1990), which might contribute to lower well-being. However, it is also possible that differences in measurement account for the observed discrepancy. For example, the single item question which asked "how well do you get along with your friends", might be more relevant to what boys value in their friendships, while friendship functions, may emphasise qualities that girls tend to value more, such as emotional closeness and mutual support (Rudolph & Dodson, 2022; Buhrmester & Furman, 1987; Benenson & Benarroch, 1998). It is possible that current friendship measures do not effectively capture gender-specific friendship dynamics.

Year group trends were more pronounced in this chapter than in the previous one, likely due to a larger sample size. When it came to RCADS-11 scores, adolescents with low friendship quality followed an inverse 'U' pattern across year groups. Differences in RCADS-11 scores between high- and low-quality friendships were smallest in early adolescence (Y07–Y09), became most pronounced in mid-adolescence (Y10–Y11), and then narrowed somewhat in the final school years (Y12–Y13). This pattern suggests that mid-adolescence may be a particularly sensitive period during which friendship quality exerts its most substantial protective effect against mental health difficulties. Some mechanisms at play during the mid-secondary school years likely reflect the heightened importance of friends. For example, exam prep and exams, such as GCSEs, might induce stress, leading adolescents to increasingly rely on friends for emotional support, validation, and identity exploration (Brown & Larson, 2009; Collins & Steinberg, 2006). The narrowing difference during later years could be explained by a developmental shift in friendship dynamics, as in later secondary school years, friendships tend to stabilise into smaller and closer networks (Bagwell & Schmidt, 2011).

Some differences by ethnicity were observed, although the trends were inconsistent, possibly due to smaller sample sizes in certain groups. White adolescents and those of Mixed/Multiple ethnicities showed the greatest change in RCADS-11 and SWEMWBS scores when their friendship quality was low, suggesting that these adolescents rely more heavily on the quality of their friendships. One explanation is that adolescents from multiple ethnic backgrounds may find it more challenging to navigate their identity, which is especially important during adolescence. Research has shown that they tend to depend more on friendships with peers of the same identity (Sims & Joseph-Salisbury, 2019). Thus, lower friendship quality might suggest a lack of relatable friends who help them to affirm their identity. Among Arab adolescents, an interesting trend was observed, where groups with low friendship quality showed a large increase in RCADS-11 scores. The same trend was not observed for well-being. Rather, the opposite was observed. Arab adolescents had a much smaller drop in SWEMWBS scores with low friendship quality. One broader finding that this result supports is that mental health and well-being are distinct constructs, and the absence of one does not necessarily imply the absence of the other (Patalay & Fitzsimons, 2016). Cultural differences may also be at play, where the well-being of this group may be more influenced by factors other than friendship (Rahal et al., 2022).

The moderation trends within the amount of close online friends were inconsistent across outcomes. For well-being, adolescents with high-quality friendships reported progressively higher SWEMWBS scores as the number of close online friends increased, peaking among those with exclusively online friends. This trend was less pronounced for intermediate- and low-quality friendships, and absent for RCADS-11 scores. Those with any amount of close online friends had increased odds of reporting past self-harm, with those who had exclusively online friends having the highest odds. Thus, high-quality online friendships may positively impact well-being, but be less effective in alleviating symptoms of mental health difficulty. This shows that different factors contribute to mental health difficulties, and the factors that protect well-being differ from those that prevent or reduce symptoms (Keyes, 2005). Unsurprisingly, results for the amount of close online friends were inconsistent, and research finds that online communication can produce both positive and negative well-being outcomes in adolescents (Lyyra et al., 2022),

as well as mixed feelings about online interactions (Scott et al., 2022; Mýlek et al., 2024).

Neurodivergent adolescents had more mental health difficulties, low well-being, more loneliness, and lower-quality friendships, including reduced friendship stability. Prior research shows that neurodivergent adolescents often face greater social challenges, including difficulties with friendships, which can limit their access to supportive and authentic social networks (Mendelson et al., 2016; Locke et al., 2010). However, high-quality friendships remained a protective factor against mental health difficulties and low well-being. This is an encouraging result, as higher loneliness in neurodivergent adolescents is associated with spending less time with friends (Sumiya & Senju, 2023). Then, though neurodivergent adolescents and those unsure of their neurodivergent status were at higher risk of reporting past self-harm, when it came to the interaction model, only neurodivergent adolescents with low friendship quality showed a significant difference compared to the reference group. This finding was initially surprising because neurodivergent adolescents appeared to have a decreased likelihood of reporting self-harm with low friendship quality. This result probably reflects either an analysis that lacked sufficient power (large error bars indicated greater variation) or may also indicate that neurodivergent adolescents already have a higher baseline risk, so the additional risk from low friendship quality might result in a smaller relative increase in odds compared to their non-neurodivergent peers (the reference group).

Online and in-person support seeking

Finally, to address the third research question, most adolescents (83%) preferred seeking support from in-person friends. Adolescents are reportedly increasingly engaging in social interactions online, which makes this finding somewhat surprising (Cockerham et al., 2021; Conte et al., 2025; Espinoza & Hernandez, 2022). One study found that adolescents view online and in-person friends as equally fulfilling, but for intimate matters like support-seeking, they prefer in-person interactions (Mittmann et al., 2022). This could explain what is observed here: support-seeking for distress is a type of interaction that adolescents prefer to have in person.

Exploratory descriptive analyses showed (Figures B1 and B2 in Appendix B) that among adolescents who knew how to access mental health

support services at school and those who found these services easy to access, a larger proportion reported seeking more online support from their friends than in-person support. Conversely, those who did not know how to access support at school or found it difficult, turned to in-person friends for support, proportionally more than online friends. This preliminary finding shows that adolescents are not simply turning to online friends because of a lack of knowledge about formal mental health services, which some studies have speculated about in the past (Emmelkamp et al., 2024; Nesmith, 2018). Instead, adolescents are *choosing* online support from friends because it might offer some unique advantages.

Adolescents with better mental health had higher odds of rating in-person support as important, and higher anxiety and depression symptoms were also associated with lower helpfulness of friend support received (as in Chapter 3A). Adolescents may provide support that is well-intentioned but inadvertently unhelpful due to a lack of mental health literacy (Griffiths et al., 2011; Gulliver et al., 2010). Friends may also not be the best kind of informal support that is best suited for adolescents with depression. A review on support received for depression across age groups found that for children and adolescents, support offered by their parents was perceived as most effective (Gariépy et al., 2016).

Adolescents with intermediate or low friendship quality were also less likely to find friend support helpful, which makes sense given the abovementioned association of the friendship function of ‘help’ with mental health and well-being. The relationship itself (e.g. degree of closeness) has been cited as a determinant in the perceived helpfulness of support received for depression from friends and family, which can help explain why this association is observed (Griffiths et al., 2011).

Some groups of adolescents were less inclined to rate in-person support as important (boys, GD and GND adolescents, older students (especially Y09 and Y10), Black and Arab students, those with more close online friends, and adolescents unsure about their neurodivergent status. One reason boys might not have rated in-person support as important as girls could be attributed to differences in where and how they interact with their friends. For example, research shows online gaming is a significant contributor to boys’ social circles (Gisbert-Pérez et al., 2024; Wiederhold, 2021). Therefore, if adolescent boys have a larger circle of online friends, it may reduce the value placed on in-

person support. Moreover, anxious adolescent boys have been found to have a preference to disclose distress online first, and then in person (Towner et al., 2022). The group differences observed in the present study could have occurred downstream of broader variations in friendships among adolescent populations. For example, the differences across year groups support the idea that friendship is dynamic and changes over time (Augustsson et al., 2025). Lastly, I found little difference in how helpful adolescents found support when they sought it from friends online compared to in-person. This suggests that though adolescents prefer seeking in-person support, the medium itself may not be a key determinant of its perceived helpfulness and that other factors may be at play, which future research should investigate.

4.4.1 Strengths and Limitations

Building on the strengths from the first part of this chapter, the main strength of this chapter was its use of additional individual-level variables, exploration of online and in-person differences, and deeper measurement of friendship.

However, it is essential to acknowledge several limitations. First, similar to the previous chapter, the cross-sectional design of this survey means that causal relationships cannot be established. The associations I observed could potentially be reversed; for example, mental health difficulties might lead to lower friendship quality rather than the other way around, as is consistent with research on cognitive biases and distortions observed in individuals with depression (Platt et al., 2017; Wang et al., 2023). These can sometimes shape not only individuals' self-evaluations, but also the way they perceive their interpersonal relationships (Lau et al., 2014; Orchard & Reynolds, 2018).

Additionally, not all confounding variables may have been accounted for in the analysis. For instance, a high rate of school absences might affect the strength of friendships. Moreover, mean imputation was only applied to RCADS-11 scores, and only complete cases were used for other variables. The missing data could have led to smaller sample sizes in some groups. For the neurodivergence question, adolescents were not asked whether they had received a clinical diagnosis or to specify which neurodivergent condition they might identify with. As a result, the survey may have included adolescents without an official diagnosis.

While I presented results that suggested some benefits of online support from friends, I also lacked detailed information about reasoning and attitudes towards seeking support from friends (either online or in person), and it was unclear what adolescents specifically sought support for, making it difficult to draw firm conclusions on that aspect.

Finally, all measures were self-reported, which may have been influenced by recall bias. For example, one study found that adolescents who had greater negative recall of past events had greater depressive symptoms (Bone et al., 2021). Another possible bias is mood-congruent memory, where adolescents' recall of certain items might have been influenced by their current mood (Faul & LaBar, 2023).

Nonetheless, given the large and diverse sample of secondary students, the inclusion of multiple friendship measures, and the consideration of both online and in-person friendships, provides a strong basis for these findings. The fact that some of the observed associations align with previous research is also reassuring (e.g. Alsarrani et al., 2022; Diaconu-Gherasim et al., 2023).

4.4.2 Implications

Aside from the ones presented in the previous chapter, two key implications stand out. First, it is critical to include adolescents who choose not to disclose their identity (gender or neurodivergent) in research rather than treating this data as missing. Allowing a deliberate “prefer not to disclose” and also potentially ‘do not know’ options in adolescent surveys can yield valuable insights. We need to better understand why adolescents might select this option and if similar patterns occur with other, more sensitive survey questions (Soneson et al., 2025).

Second, friendship-focused interventions tailored to individual-level differences might offer one avenue for improving adolescent mental health and well-being, given the varied results here. Boys may benefit most from initiatives that explicitly strengthen friendship quality, a factor often overlooked despite its substantial impact on their mental health. Although schools represent ideal settings for these interventions, existing practices frequently lack sensitivity to gender-specific needs. For girls, interventions directly targeting mental health appear promising, as their mental health and well-being may be particularly responsive to intervention during early adolescence (Patalay & Fitzsimons, 2018). Gender-diverse and neurodivergent

adolescents facing lower-quality friendships and heightened mental health difficulties might benefit from targeted support that addresses both psychological well-being and peer relationships (Day & Brömdal, 2024).

4.5 Conclusion

I expanded my analysis beyond the outcomes of the previous part of this chapter to include measures of self-harm and loneliness. I showed that certain groups, including boys with low-quality friendships, GD adolescents, adolescents in Years 8 to 11, and neurodivergent adolescents, appeared particularly vulnerable to poor outcomes.

Though online friendships can offer some protective effects for well-being, they may exacerbate certain difficulties, including self-harm risk. Thus, it is important to consider both their benefits and limitations. There is a growing availability and research focus on digital mental health tools, such as apps and online platforms (Torous et al., 2020; Hollis et al., 2017; Davidson & Schimmele, 2020; Sweeney et al., 2016; Hugh-Jones et al., 2022). However, in light of evidence in this study showing that adolescents have a preference for seeking support from their in-person friends, it might be important to revisit that literature.

Given the survey's cross-sectional nature and secondary-school adolescent population, the next step should include investigating friendship trends over time and determining if they exist in older adolescents. Therefore, the next chapter will continue this investigation further.

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Chapter 4

Friendships of first-year university students and their association with mental health and well-being

Chapter overview

Background. Entering postsecondary education marks a key milestone in the journey to adulthood for many young people. The earlier chapters focused on early to mid-adolescence, mainly on secondary school students; however, adolescence spans from ages 10 to 24. Consequently, this chapter examined friendship trends among later adolescents.

Objectives. This chapter drew on data from the U-Flourish Student Survey conducted at the University of Oxford. The objective was to build on the evidence obtained in the previous chapter, focusing on older adolescents during a transitional life stage. The analysis also explored additional variables specific to university students, including domestic and international student status and their respective effects. Additionally, this chapter employed mixed-methods analyses. Qualitative free-text responses supplemented adolescents' online versus in-person support-seeking preferences from friends.

Findings and Implications. Friendship quality was linked with mental health; some groups entered university at elevated risk and may navigate more fragile social trajectories. Most students maintained or improved their friendships over the academic year, with a minority experiencing declines. Qualitative data showed a strong preference for in-person support. Beyond the availability of in-person support, contextual factors (e.g., distance, privacy, comfort) influenced the choice of medium, and phone/video calls emerged as accepted modes.

5.1 Introduction

In England, at least 19% of young people aged 16 to 24 experience mental health difficulties (Thorley, 2017). These difficulties can arise partly due to the transitional nature of university, which presents unique stressors such as new academic pressures, financial concerns, leaving home (for most in the UK), and changes in social networks. Studies conducted within university campuses consistently show low well-being and greater mental health difficulties among students. Research on first-year students at health science campuses, for example, reported low well-being, with nearly half experiencing daily feelings of unhappiness and hopelessness (Erol et al., 2022). Another study reported increased mental health difficulties among university students in Australia, reporting that they experience higher levels of anxiety and depression (Hussain et al., 2013). A more recent Canadian study found similar results, where many first-year students entered university with pre-existing mental health difficulties (King et al., 2021), and by the end of the academic year, 14% of university students at that campus reported suicidal thoughts (which was an increase from the start of the year) (Duffy et al., 2020).

University students who report experiencing high levels of anxiety, depression, and stress during their first academic year are then more likely to continue facing these difficulties throughout their remaining university years, and sometimes extending even beyond the university years (Chu et al., 2022; Emmerton et al., 2024; Moore et al., 2020). Combined with the academic stressors university education can bring, social group changes can potentially create greater mental health difficulties for older adolescents, such as greater risk of depression (Barbayannis et al., 2022; Córdova Olivera et al., 2023), and also contribute to low well-being, making university students at risk of negative experiences such as feelings of academic burnout (Liu et al., 2023).

Collectively, this evidence demonstrates a need for support systems for older adolescents at the university level, and research should determine what these systems might look like.

5.1.1 The Current Study

Friendships can serve as sources of support for university students, particularly for those who leave their hometowns to pursue higher education. This study aimed to build upon investigations in Chapters 3A and 3B within a

sample of older adolescents to explore the mental health challenges faced by university students and how these challenges relate to their friendships. To capture both friendship quality and the unique social challenges adolescents encounter during the transition to university, this chapter measured friendship quality by examining how it changes.

5.1.2 Research Questions

This chapter aimed to:

1. Investigate the relationship between friendships and mental health, and friendships and well-being among older adolescents, particularly focusing on the quality and functions of friendships and how these might change towards the end of the academic (university) year, when compared to the beginning.
2. Examine how individual differences moderate the relationship between friendships, mental health, and well-being.
3. Investigate older adolescents' preferences for online versus in-person support-seeking from friends and how these preferences relate to their mental health, how they change throughout the academic year, and whether they were moderated by demographic variables using both quantitative and qualitative methods.

This study was largely exploratory; however, given the results from the previous chapters, I hypothesised that the association between friendship quality and mental health, as well as friendship quality and well-being, would persist among older adolescents. Given the longitudinal nature of this survey, I expected a greater proportion of adolescents to report higher quality friendships by the end of the academic year.

5.2 Methods

Data: U-Flourish Survey

The U-Flourish survey is a biannual study, with recruitment procedures detailed in its protocol (Marshall et al., 2024; Goodday et al., 2019). Although this survey was conducted at five universities in England and one in Canada, this chapter was confined to data collected from students attending the University of Oxford during the 2022-2024 academic years. Three weeks into Michaelmas term (the autumn term, in October 2022 and 2023), all first-year undergraduate and graduate students were sent an email link inviting them to

complete the baseline U-Flourish Well-being and Academic Success Survey, which asked about family, personal, environmental risk, and protective factors. The follow-up survey was emailed to students three weeks before the start of their final examinations at the end of the academic year (March 2023 and 2024). The survey included brief validated symptom screening scales for common mental disorders. A second follow-up survey was sent in the subsequent Michaelmas term (October 2023 and 2024) to capture any students who may have missed the first email. However, only the first follow-up survey was used for my analyses. All procedures were approved by the Central University Research Ethics Committees at the University of Oxford (R60998).

Participants

First-year university students, both undergraduate and postgraduate, who completed at least one baseline survey, were included in the analyses. Since this thesis focused on adolescence, only students aged 24 or younger were part of the analysis.

5.2.1 Measures

Demographic and individual-level variables

Gender was self-identified categorically, with the option to enter a custom gender identity. Four levels of gender were used: female, male, GD and GND. Age was self-reported in years using a drop-down list. Only those students aged 24 or under were included in the analysis (Sawyer et al., 2018). Ethnicity was indicated from a standard list, and participants were asked to check all categories that applied. Responses were divided into five ethnic groups: 'White', 'Black', 'Asian (Chinese)', 'Asian (Other)', and 'Mixed or Other'.

Domestic or international student status was determined by asking students to self-identify their status within the university. Neurodivergent status was determined by asking students if they had ever been diagnosed with a mental health disorder or a learning difficulty, followed by a checkbox list to select their applicable diagnoses. Adolescents who selected that they had been diagnosed with ADHD and/or a neurodevelopmental disorder, such as autism, were included in the analysis, as this most closely matched the criteria from the previous chapter.

Outcome Variables**Mental Health**

Anxiety symptoms were measured using the Generalised Anxiety Disorder 7-item Scale (GAD-7) (Spitzer, Kroenke, Williams, & Lowe, 2006). Participants rated responses (i.e., 0 = “Not at all” to 3 = “Nearly every day”) to seven total questions. The GAD-7 shows high internal consistency ($>.90$) in large representative samples of older adolescents (Tiirikainen et al., 2019; White & Karr, 2023). Students met the clinical anxiety cut-off if they had total scores of 10 or more (Lowe et al., 2008). The total score was used for the analyses.

Reported past incidents of non-suicidal self-harm were identified by responses to the single-item question: “Have you ever harmed yourself without the intent of ending your life?” from the Columbia Suicide Severity Rating Scale (C-SSRS).

Well-being

Well-being was measured using the Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS), which was consistent with the OxWell 2023 survey. The total score was used for the analyses.

Friendship dynamic questions

Consistent with the OxWell 2023 survey, friendship functions were measured using the same five selected items from the MFQ-FF (see Chapter 3B for detailed items).

Friendship quality was measured using the following question: “Compared to before you started university, do you feel the quality of your friendships is:”. Five options were provided to participants, which ranged from “Much worse” to “Much better”. For analysis purposes and to remain consistent with analyses conducted in the previous chapter using OxWell 2021 and 2023, these options were collapsed into three categories of friendship quality: “Better”, “Same”, and “Worse”. The same question was asked in the follow-up survey.

The amount of close online friends was measured using the same question from the OxWell 2023 survey.

Support-seeking preferences from a friend

The same question from the OxWell 2023 survey was used to measure the preference for online and in-person support seeking from a friend. An additional free-text box was provided to participants following this question to collect qualitative data: “Please add any other comments you may have about the above question”.

5.2.2 Analytical Approach

Table 4.1 Statistical models

Model type	Equation
Multiple Linear Regression (2 models)	$\frac{GAD-7}{SWEMWBS} = \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{gender}) + \beta_3(\text{student type}) + \beta_4(\text{student status}) + \beta_5(\text{ethnicity}) + \beta_6(\text{amount of close online friends}) + \beta_7(\text{neurodivergent status}) + \epsilon$
Estimated Marginal Means (12 models)	$\frac{GAD-7}{SWEMWBS} = \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{gender}) + \beta_3(\text{friendship quality} \times \text{gender}) + \epsilon$ $\frac{GAD-7}{SWEMWBS} = \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{student type}) + \beta_3(\text{friendship quality} \times \text{student type}) + \epsilon$ $\frac{GAD-7}{SWEMWBS} = \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{student status}) + \beta_3(\text{friendship quality} \times \text{student status}) + \epsilon$ $\frac{GAD-7}{SWEMWBS} = \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{ethnicity}) + \beta_3(\text{friendship quality} \times \text{ethnicity}) + \epsilon$ $\frac{GAD-7}{SWEMWBS} = \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{amount of close online friends}) + \beta_3(\text{friendship quality} \times \text{amount of close online friends}) + \epsilon$ $\frac{GAD-7}{SWEMWBS} = \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{neurodivergent status}) + \beta_3(\text{friendship quality} \times \text{neurodivergent status}) + \epsilon$
Logistic Regression (self-harm)	$\log\left(\frac{P(Y=1)}{P(Y=0)}\right) = \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{gender}) + \beta_3(\text{student type}) + \beta_4(\text{student status}) + \beta_5(\text{ethnicity}) + \beta_6(\text{amount of close online friends}) + \beta_7(\text{neurodivergence})$
Logistic Regression (importance of in-person support)	$\log\left(\frac{P(Y=1)}{P(Y=0)}\right) = \beta_0 + \beta_1(\text{friendship quality}) + \beta_2(\text{gender}) + \beta_3(\text{student status})$

Quantitative

The analytic plan was pre-registered (<http://osf.io/mt5ej>) before data access. R version 4.2.2 was used for data analysis. I used logistic regression, multiple linear regression with estimated marginal means and contrast analyses, ANOVAs with post hoc tests, and descriptive statistics to analyse my data. Standardised coefficients (β) are provided in Appendix C for the two multiple linear regression models. To assess whether the effects of friendship quality differed between anxiety and well-being, I estimated the two models together using seemingly unrelated regressions (SUR; Zellner, 1962) and applied Wald tests of coefficient equality across equations. This approach directly tests whether coefficients for the same predictor differ significantly across outcomes that might be correlated.

A logistic regression examined whether friendship quality, gender, student type, student status, neurodivergence, number of close online friends, and ethnicity predicted suicidal self-harm (C-SSRS). All predictors were entered simultaneously, and adjusted odds ratios (AORs) with 95% confidence intervals (CIs) were reported.

As in the previous chapter, ANOVAs were conducted for each friendship function across relevant covariates. Homogeneity of variance was assessed using Bartlett's test. When variances were homogeneous, post hoc comparisons were conducted using Tukey's HSD test. When the assumption of homogeneity was violated, Games–Howell post hoc tests were used, which do not assume equal variances or equal sample sizes. As this chapter had a smaller sample, effect sizes for all pairwise comparisons were calculated using Hedges' g , which corrects for small-sample bias. The accepted values of 0.2, 0.5, and 0.8 were interpreted as small, medium, and large effects, respectively (Alexander, 2016).

Logistic regression examined whether the importance of in-person support varied by individual-level factors. AIC was used to determine which factors did not improve model fit, and they were dropped from the final model. To examine whether participants' ratings of the importance of seeking support from an in-person friend when distressed changed from the baseline to the follow-up survey, I employed two accepted approaches. First, I tested if the overall distribution of responses differed between time points using the Stuart-Maxwell test (Dunnigan, 2013; Fan et al., 2022; Ke et al., 2015). Then, to test whether the responses shifted towards higher or lower levels of importance, I

used a Wilcoxon signed-rank test (two-tailed) (Martínez et al., 2015; Rosner et al., 2006; Ke et al., 2015).

Preliminary data checks revealed that the follow-up survey lacked sufficient participants for robust statistical analyses involving individual-level variables, as sample sizes per group were fewer than 20, which risked identifiability, especially for minoritised groups. Therefore, descriptive analyses explored how friendship quality changed during the first academic year and across individual-level variables. Additionally, paired samples t-tests were conducted to explore the change in GAD-7 scores from baseline and follow-up, both for the overall sample and within demographic subgroups; effect sizes were calculated as Cohen's *d*.

As in previous chapters, missing data were handled using complete-case analysis, so all cases with missing or non-response data on any variable included in the final model were excluded from the analysis. Cross-sectional analyses were conducted using baseline data only. Students who answered the baseline survey and at least one follow-up survey were included in the longitudinal analyses.

Qualitative

Inductive thematic analysis was used to analyse the free-text responses provided in response to the question about support-seeking preferences (Braun & Clarke, 2008; Proudfoot, 2023). The responses from the baseline and follow-up surveys were coded together. After reading and familiarising myself with the responses, I created an initial set of codes. The codes were then reviewed, and similar ones were collapsed. Finally, I categorised codes by similarity, and broader themes were developed. All coding was performed in NVivo v15.

5.3 Results

Sample

The demographics table below shows the distribution of participants at baseline (Table 4.2). 2,073 students aged 24 years or under completed the baseline survey. Of these, 675 also participated in the follow-up, representing an attrition rate of 67.4%. Within the follow-up sample, 420 students provided valid responses to the question about friendship quality and were included in the descriptive analyses. In the baseline survey, the majority of respondents identified as female (compared to 50.9% female across the university in that

census year), and over one-third were 18 years old. A majority of the students identified as White ethnicity (compared to 59.3% of all students at the university in the same census year). Of the survey respondents, the majority were undergraduates, and a smaller proportion were international students (compared to 47.9% undergraduates and 41.7% international students in the same census year). A small proportion of the students reported having a neurodivergent diagnosis.

Figure 4.1 reveals the proportional distribution of friendship quality across individual-level variables upon entering university.

Table 4.2 Demographics of respondents at baseline survey

	n	(%) ¹
Age		
18	789	(37.6)
19	297	(14.2)
20	91	(4.3)
21	141	(7.0)
22	296	(14.3)
23	253	(12.1)
24	206	(9.9)
Gender		
Female	1236	(59.7)
GD	66	(3.2)
GND	43	(2.1)
Male	725	(35.1)
Ethnicity		
Asian (Chinese)	308	(16.5)
Asian (Other)	219	(11.7)
Black	46	(2.5)
Other	157	(8.4)
White	1234	(66.1)
Type of student		
Undergraduate	1254	(60.4)
Graduate	823	(39.7)
Student status		
Domestic	1209	(58.1)
International	873	(41.9)
Neurodivergent status		
Yes	150	(7.9)

No 1737 (92.1)

1. Percentage based on non-missing responses

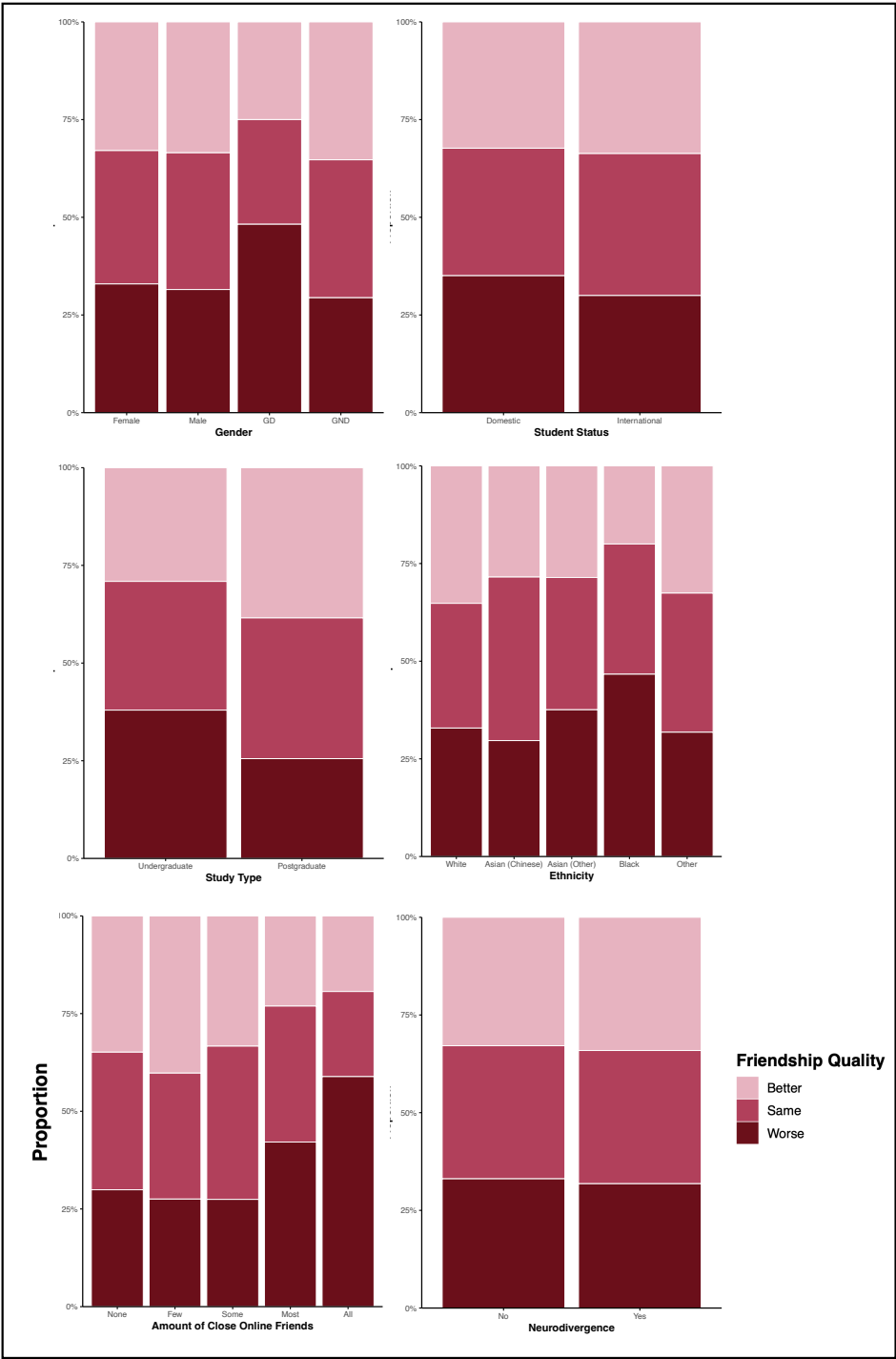


Figure 4.1. Proportional distribution of friendship quality levels by individual-level variables at baseline.

Friendship Quality, Individual-Level Variables, Mental health and Well-Being

GAD-7

The results for the multiple linear regression using GAD-7 are presented in Table 4.3. The overall model was significant, $F(16, 1544) = 10.91$, $p < .0001$, with an adjusted R^2 of 0.09, indicating that approximately 9% of the variance in GAD-7 scores was explained by the predictors. GAD-7 scores ranged from 0 to 21.

Students reporting worse friendship quality had higher GAD-7 scores. Male students reported significantly lower GAD-7 scores. Students diagnosed as neurodivergent reported higher GAD-7 scores.

Table 4.3 Multiple linear regression output with GAD-7

Variable	Estimate (SE)	t value	p-value
Friendship quality (ref: Better, n = 516)			
The same (n = 527)	0.11 (0.31)	0.37	0.714
Worse (n = 518)	1.53 (0.32)	-4.85	<.001***
Gender (ref: Female, n = 931)			
GD (n = 54)	0.68 (0.70)	0.98	0.33
GND (n = 24)	0.58 (1.02)	0.57	0.57
Male (n = 552)	-1.84 (0.27)	-6.93	<.001***
Student type (ref: Undergraduate, n = 920)			
Postgraduate (n = 641)	0.39 (0.29)	1.34	0.18
Student status (ref: Domestic, n = 895)			
International (n = 666)	-0.28 (0.31)	-0.90	0.37
Ethnicity (ref: White, n = 989)			
Asian (Chinese) (n = 240)	-0.75 (0.40)	-1.91	0.057
Asian (Other) (n = 178)	-0.52 (0.41)	-1.26	0.21
Black (n = 28)	1.34 (0.94)	1.42	0.16
Other (n = 126)	-0.20 (0.47)	-0.42	0.67
Amount of close online friends (ref: None, n = (533)			
Few (n = 389)	-0.10 (0.33)	-0.30	0.77
Some (n = 277)	0.53 (0.37)	1.44	0.15
Most (n = 249)	-0.23 (0.39)	-0.58	0.56
All (n = 113)	0.50 (0.53)	0.94	0.34
Neurodivergent status (ref: No, n = 1432)			
Yes (n = 129)	3.42 (0.46)	7.45	<.001***

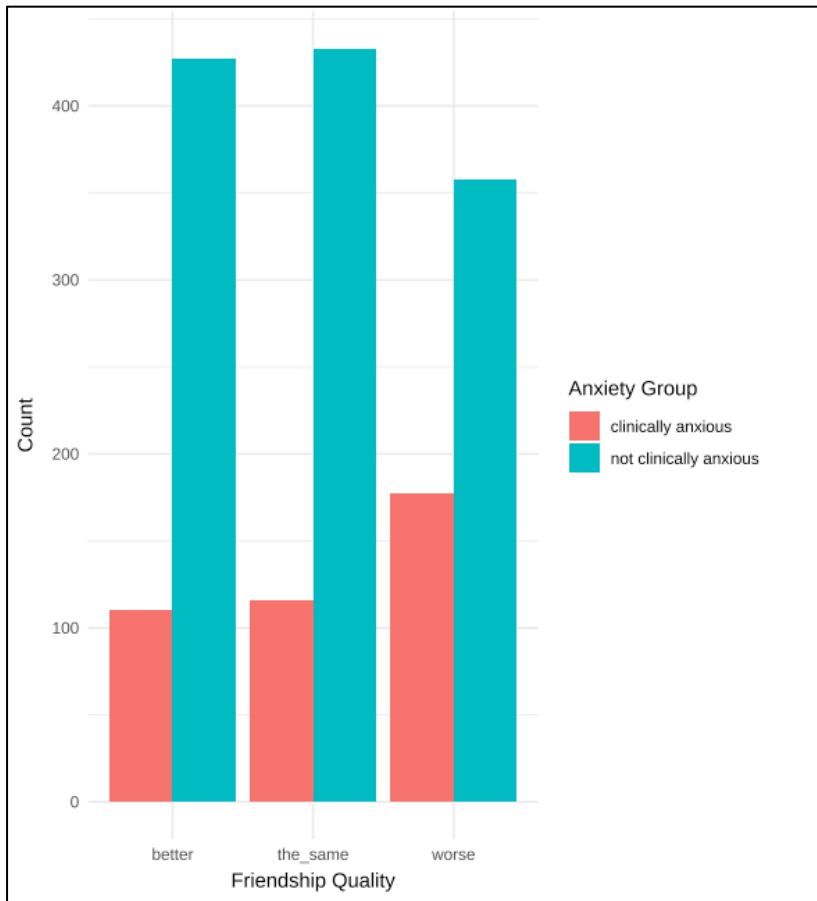


Figure 4.2 Friendship quality differences across clinically anxious and not clinically anxious scoring students

SWEMWBS

A multiple linear regression was conducted (Table 4.4) to examine predictors of well-being on the SWEMWBS. The model was significant, $F(16, 1545) = 11.61$, $p < .0001$, with an adjusted R^2 of 0.098. SWEMWBS scores ranged from 7 to 35.

Students with low-quality friendships and neurodivergent students reported lower well-being. Male students and international students reported higher well-being. Among ethnic groups, only Asian (Other) students reported lower well-being compared to White students. All close friends online were associated with lower well-being compared to having none.

Table 4.4 Multiple linear regression output with SWEMWBS

Variable	Estimate (SE)	t value	p-value
Intercept	20.24 (0.24)	83.96	<.001***
Friendship quality (ref: Better, n = 516)			
The same (n = 529)	-0.49 (0.23)	-2.12	<.05*

Worse (n = 517)	-2.25 (0.24)	-9.39	<.001***
Gender (ref: Female, n = 933)			
GD (n = 54)	-0.62 (0.53)	-1.18	0.239
GND (n = 24)	-1.09 (0.77)	-1.41	0.160
Male (n = 551)	0.90 (0.20)	4.46	<.001***
Study level (ref: Undergraduate, n = 921)			
Postgraduate (n = 641)	-0.36 (0.22)	-1.63	0.103
Student status (ref: Domestic, n = 895)			
International (n = 667)	0.58 (0.24)	2.42	<.05*
Ethnicity (ref: White, n = 991)			
Asian (Chinese) (n = 240)	0.19 (0.30)	0.64	0.520
Asian (Other) (n = 179)	-0.68 (0.31)	-2.19	<.05*
Black (n = 28)	-1.34 (0.72)	-1.88	0.060
Other (n = 124)	-0.31 (0.36)	-0.86	0.391
Online friends (ref: None, n = 532)			
Few (n = 391)	0.08 (0.25)	0.31	0.756
Some (n = 277)	-0.42 (0.28)	-1.50	0.134
Most (n = 249)	0.17 (0.29)	0.59	0.557
All (n = 113)	-0.91 (0.40)	-2.29	<.05*
Neurodivergent status (ref: No, n = 1433)			
Yes (n = 129)	-1.17 (0.35)	-3.36	<.001***

Cross-Model Comparison

Table 4.5 presents regression coefficients for friendship quality predicting GAD-7 and SWEMWBS scores, with cross-model comparisons. Those reporting worse friendship quality had significantly higher anxiety and lower well-being. The Wald test showed the difference in effect sizes across outcomes was -3.78, which was significant. Friendship quality had a stronger impact on well-being than anxiety.

Table 4.5 Friendship quality effects on GAD-7 and SWEMWBS, with cross-model tests

Friendship Quality (ref = better)	β (SE) GAD-7	β (SE) SWEMWBS	ΔB (SWEMWBS-GAD-7)	Cross-model Wald test (F, p)
The same vs. better	+0.11 (0.31)	-0.49 (0.23) *	-0.60	F(1, 3089) = 0.13, p = .719
Worse vs. better	+1.53 (0.32) ***	-2.25 (0.24) ***	-3.78	F(1, 3089) = 4.79, p = .029*

Self-Harm

The logistic regression output in Table 4.6 revealed GD and neurodivergent students had elevated odds, while males and international students showed reduced odds of reporting self-harm. Differences also emerged by amount of close online friends, with those reporting “some” close

online friends at higher risk. Asian (Other) students had reduced odds, and students identifying with “Other” ethnicities had increased odds of reporting self-harm compared to White students.

Table 4.6 Logistic regression odds ratios for reported past self-harm

Variable	AOR (95% CI)
Friendship Quality (ref: Better, n=512)	
Same (n=529)	0.90 (0.67–1.19)
Worse (n=518)	1.06 (0.79–1.41)
Gender (ref: Female, n=933)	
Male (n=550)	0.58 (0.45–0.75)***
GD (n=52)	6.29 (3.28–12.9)***
GND (n=24)	1.44 (0.60–3.39)
Student Type (ref: Undergraduate, n=919)	
Postgraduate (n=640)	0.93 (0.71–1.22)
Student Status (ref: Domestic, n=892)	
International (n=667)	0.74 (0.55–0.98)*
Ethnicity (ref: White, n=986)	
Asian (Chinese, n=241)	0.84 (0.57–1.23)
Asian (Other, n=179)	0.59 (0.38–0.89)*
Black (n=28)	0.80 (0.31–1.86)
Other (n=125)	1.67 (1.11–2.49)*
Amount of close online friends (ref: None, n=532)	
Few (n=388)	1.03 (0.75–1.40)
Some (n=278)	1.44 (1.03–2.00)*
Most (n=248)	1.12 (0.78–1.61)
All (n=113)	1.21 (0.75–1.95)
Neurodivergence (ref: No, n=1431)	
Yes (n=128)	3.69 (2.49–5.49)***

Moderating effects of individual-level variables

Gender

GAD-7

Gender influenced the relationship between friendship quality and anxiety scores. The EMMs are plotted in Figure 4.3. The only statistically significant difference for male students was for the contrast between better and worse friendship quality; however, it was not as large in magnitude as the one experienced by females (Table 4.7)

SWEMWBS

Figure 4.4 shows the EMMs of SWEMWBS scores at each level of friendship quality for gender. Worse friendship quality was associated with

lower well-being scores in males and females, with the largest difference observed in females, as reported in Table 4.8.

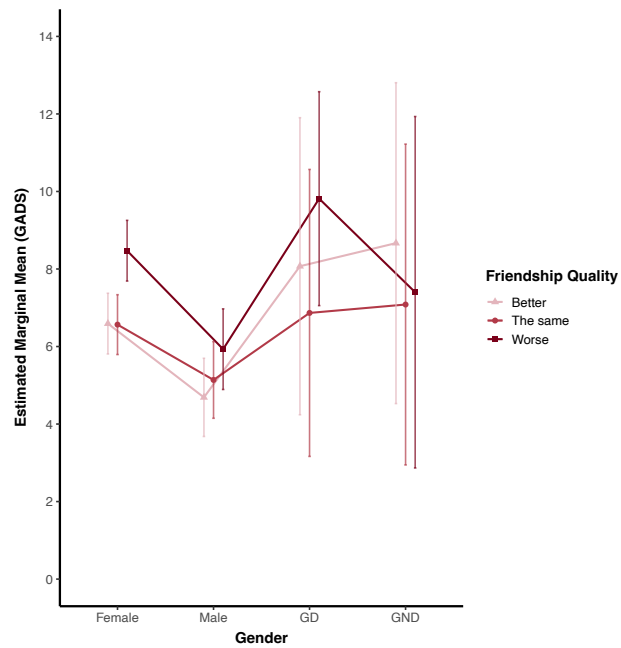


Figure 4.3 Estimated marginal means of gender moderating the relationship between friendship quality and GAD-7.

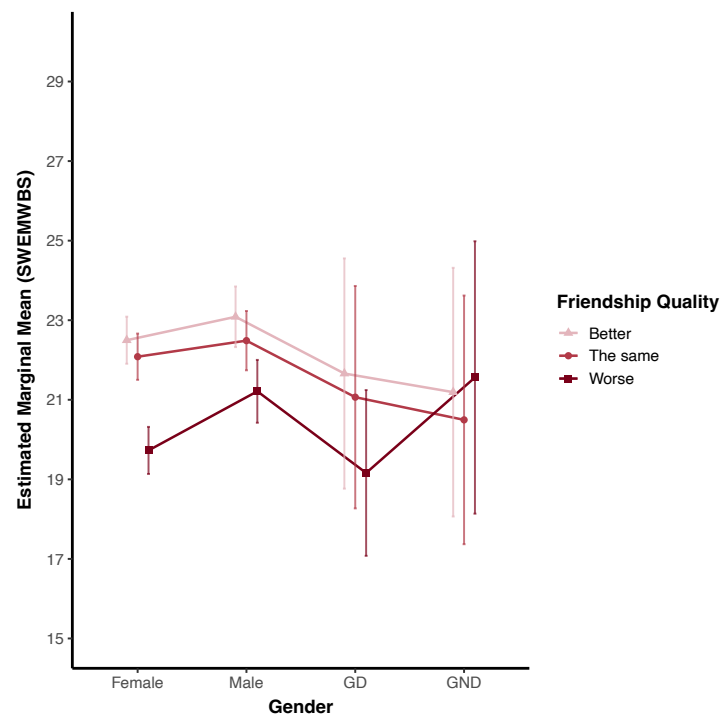


Figure 4.4. Estimated marginal means of gender moderating the relationship between friendship quality and SWEMWBS.

Student Status

GAD-7

Domestic students with worsened friendship quality reported higher scores than those whose friendship quality stayed the same or improved (Figure 4.5). International students also exhibited this pattern. However, they experienced a smaller change in scores than domestic students, as indicated by the contrasts in Table 4.7.

SWEMWBS

Domestic and international students showed the same pattern for SWEMWBS scores: worse friendship quality predicted lower well-being than both “the same” and better friendships (see Figure 4.6). The differences were slightly larger for domestic students than for international students, as shown in Table 4.8.

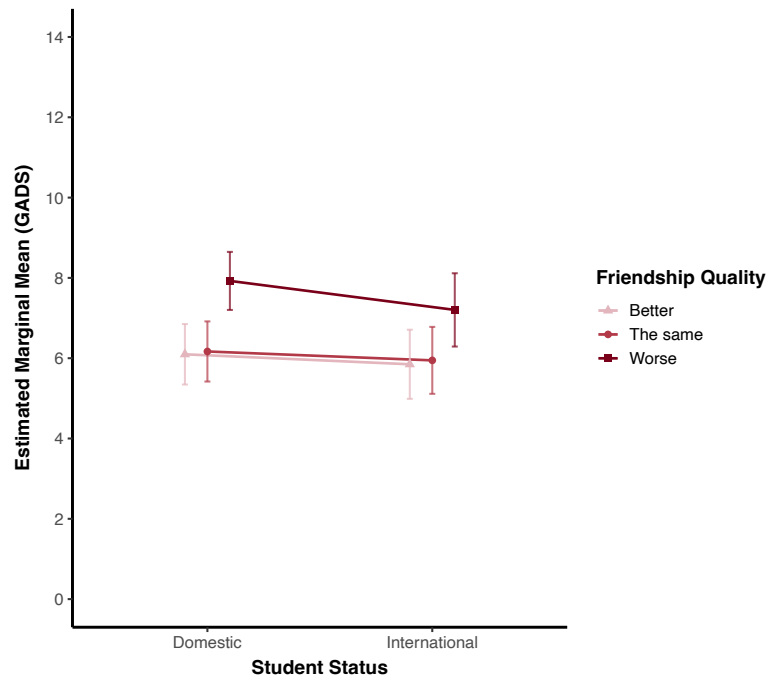


Figure 4.5. Estimated marginal means of student status moderating the relationship between friendship quality and GAD-7.

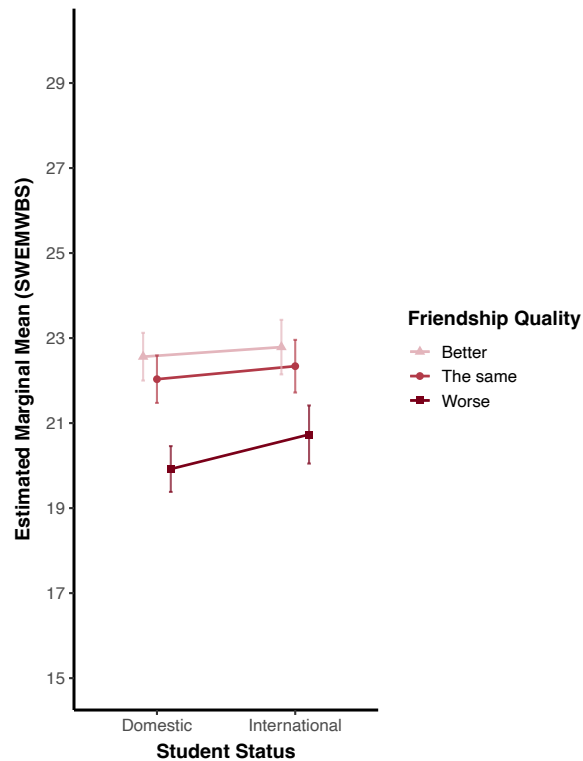


Figure 4.6 Estimated marginal means of student status moderating the relationship between friendship quality and SWEMWBS.

Student Type

GAD-7

For both undergraduates and postgraduates, worse friendship quality was associated with increased anxiety when compared to those whose friendship quality remained the same or improved (see Figure 4.7). However, undergraduate students had a larger change in scores compared to postgraduates (Table 4.7).

SWEMWBS

Undergraduates and postgraduates both reported lower well-being with worse friendship quality, and their scores only differed slightly, as illustrated in Figure 4.8. The contrasts were slightly larger for undergraduates (Table 4.8).

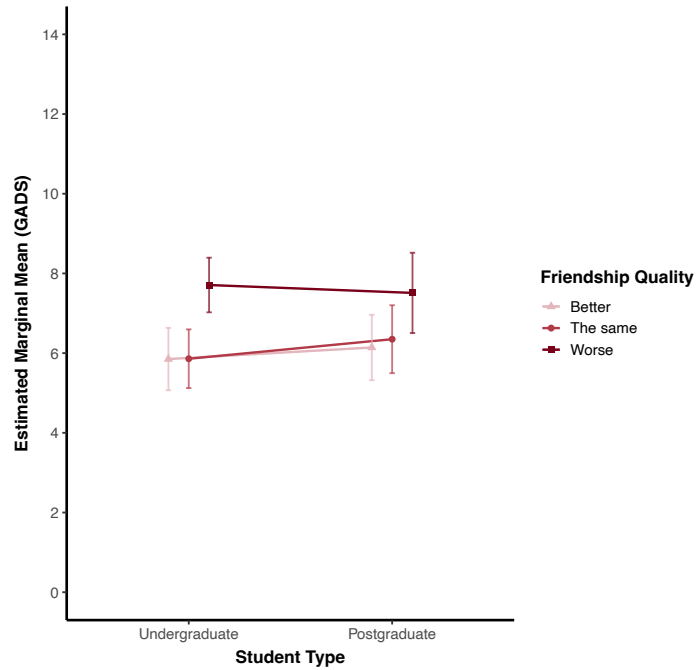


Figure 4.7. Estimated marginal means of student type moderating the relationship between friendship quality and GAD-7.

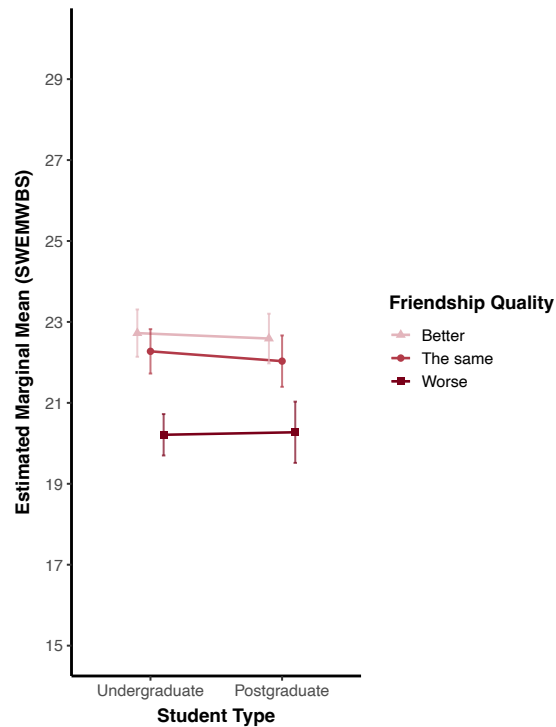


Figure 4.8. Estimated marginal means of student type moderating the relationship between friendship quality and SWEMWBS.

Ethnicity

GAD-7

For White students, worse friendship quality was associated with higher GAD-7 scores than both “the same” and better friendships (Figure 4.9). The contrasts are presented in Table 4.7.

SWEMWBS Scores:

Among White students, worse friendship quality was associated with lower SWEMWBS scores compared to both “the same” and better friendships (Figure 4.10). Significant contrasts also appeared for the Asian (Chinese), Asian (Other), and Other groups, but only when comparing worse to better (Table 4.8).

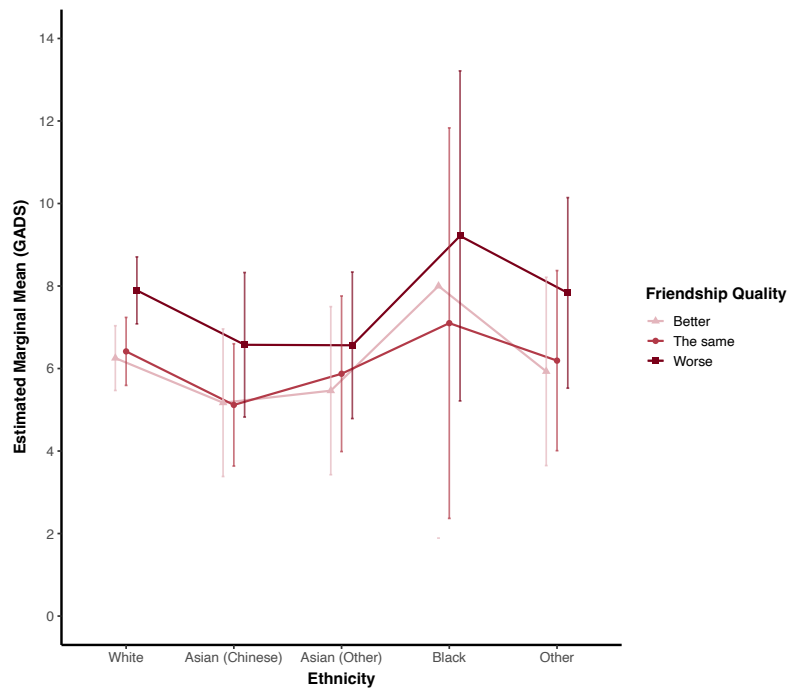


Figure 4.9. Estimated marginal means of ethnic group moderating the relationship between friendship quality and GAD-7.

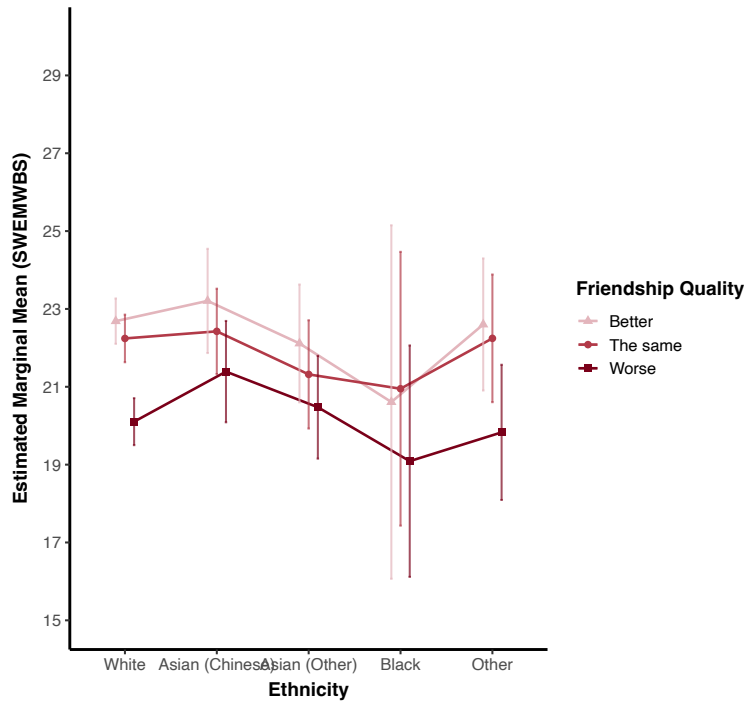


Figure 4.10. Estimated marginal means of ethnic group moderating the relationship between friendship quality and SWEMWBS.

Amount of Close Online Friends

GAD-7

Students with some close online friends had the largest EMMs when friendship quality was low (see Figure 4.11). The largest contrast was observed among those who had most of their close friends online (see Table 4.7).

SWEMWBS

Those with most close online friends had the highest SWEMWBS scores when friendship quality was 'better' (Figure 4.12). Significant contrasts were observed for those with none, few, some, or most close online friends and are presented in Table 4.8.

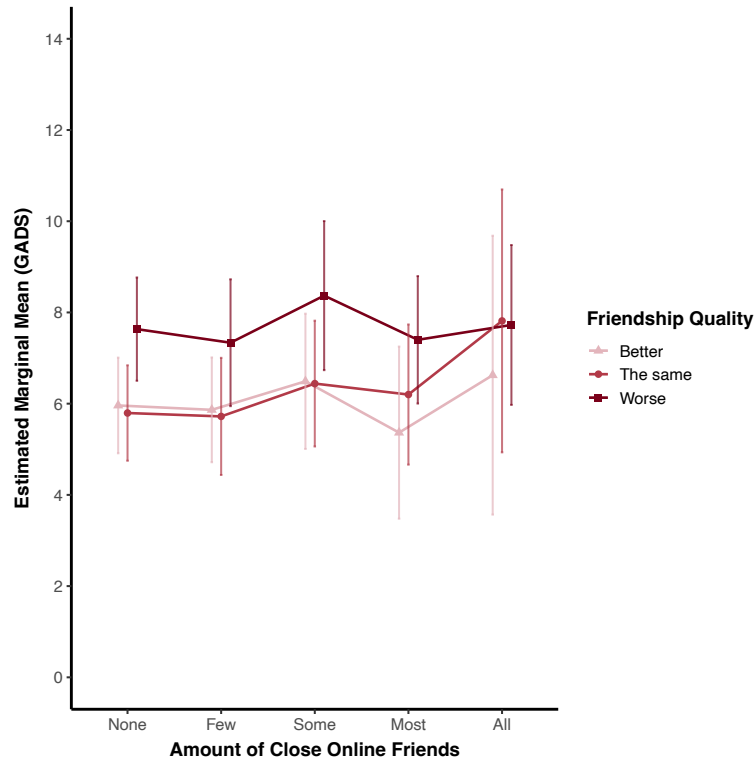


Figure 4.11 Estimated marginal means of amount of close online friends moderating the relationship between friendship quality and GAD-7.

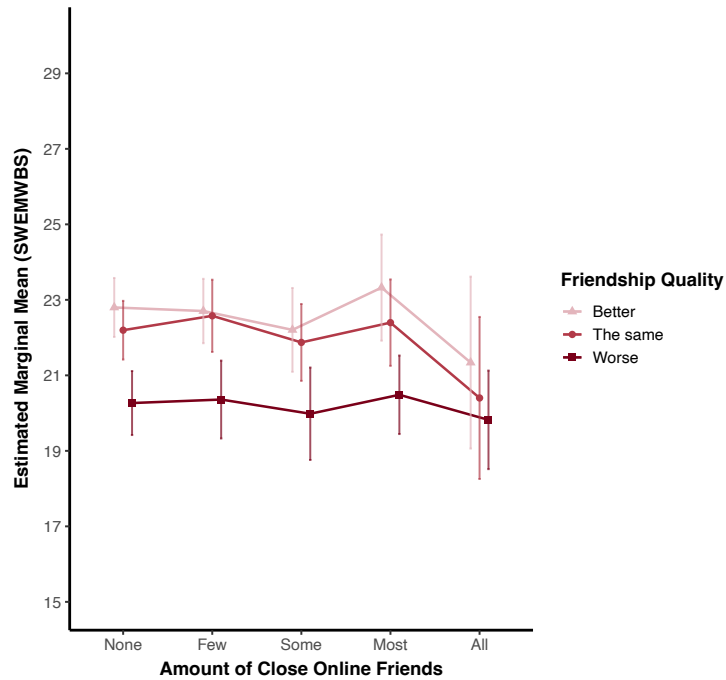


Figure 4.12 Estimated marginal means of amount of close online friends moderating the relationship between friendship quality and SWEMWBS.

Neurodivergent Status

GAD-7

Non-neurodivergent students with ‘worse’ friendship quality had GAD-7 EMMs that were similar to those of neurodivergent adolescents with ‘better’ friendships (see Figure 4.13). The contrasts are presented in Table 4.7.

SWEMWBS

Among non-neurodivergent students, worse friendship quality was linked to significantly lower well-being (Figure 4.14). The effect was even larger for neurodivergent students, with those reporting worse friendships scoring over 3 points lower than those with better friendships (see Table 4.8).

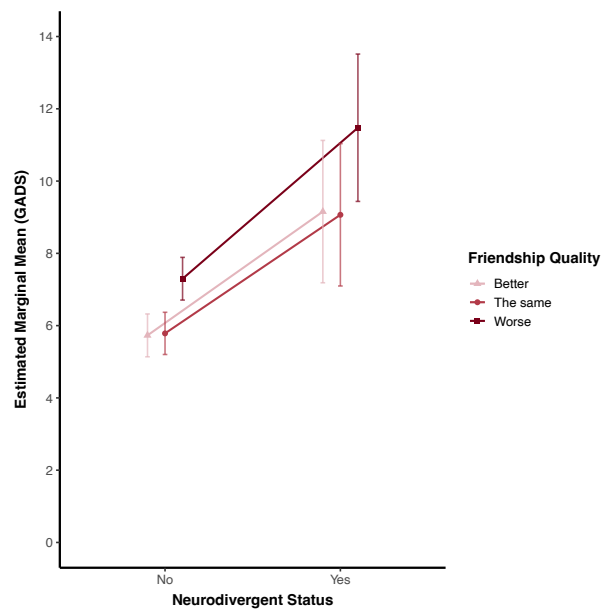


Figure 4.13. Estimated marginal means of neurodivergent status moderating the relationship between friendship quality and GAD-7.

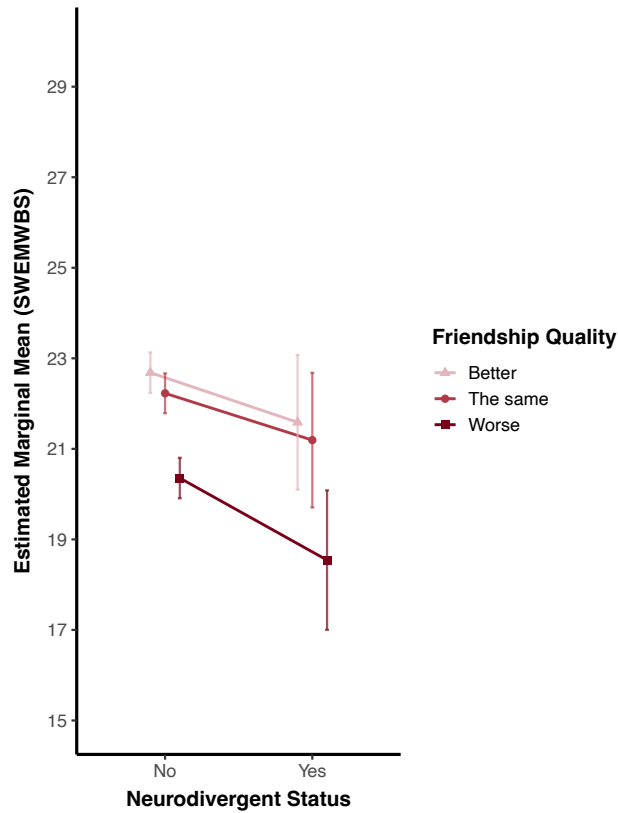


Figure 4.14. Estimated marginal means of neurodivergent status moderating the relationship between friendship quality and SWEMWBS.

Table 4.7 Significant Pairwise Contrasts for Estimated Differences in GAD-7 Scores by Friendship Quality Stratified by Group

Variable	Level	Contrast	Estimate (SE)	t-ratio	p-value
Gender	Female	Worse – The same	1.91 (0.38)	4.97	<.001***
		Worse – Better	1.88 (0.39)	4.87	<.001***
	Male	Worse – Better	1.24 (0.51)	2.46	<.05*
		Worse – The same	1.85 (0.38)	4.86	<.001***
Student type	Undergraduate	Worse – Better	1.86 (0.39)	4.72	<.001***
		Worse – The same	1.16 (0.50)	2.33	<.05*
	Postgraduate	Worse – Better	1.37 (0.49)	2.78	<.05*
		Worse – The same	1.76 (0.39)	4.46	<.001***
Student status	Domestic	Worse – The same			

Neurodivergent status	International	Worse – Better	1.83 (0.40)	4.63	<.001***
		Worse – The same	1.26 (0.47)	2.69	<.05*
		Worse – Better	1.35 (0.48)	2.85	<.05*
	No	Worse – The same	1.51 (0.32)	4.81	<.001***
		Worse – Better	1.57 (0.32)	4.95	<.001***
		Worse – The same	1.84 (0.52)	3.51	<.001***
Amount of close online friends	None	Worse – Better	1.67 (0.53)	3.19	<.01**
		Worse – The same	1.62 (0.64)	2.51	<.05*
		Worse – Better	1.47 (0.61)	2.40	<.05*
	Few	Worse – The same	1.93 (0.73)	2.65	<.05*
		Worse – Better	1.88 (0.75)	2.50	<.05*
		Worse – The same	2.03 (0.80)	2.55	<.05*
Ethnicity	Some	Worse – Better	1.48 (0.39)	3.76	<.001***
		Worse – The same	1.64 (0.38)	4.27	<.001***
	Most	Worse – Better			
		Worse – Better			
	White	Worse – The same			
		Worse – Better			

Table 4.8 Significant Pairwise Contrasts for Estimated Differences in SWEMWBS Scores by Friendship Quality Stratified by Group

Variable	Level	Contrast	Estimate (SE)	t-ratio	p-value
Gender	Female	Worse – The same	-2.36 (0.29)	-8.15	<.001***
		Worse – Better	-2.77 (0.29)	-9.50	<.001***
	Male	Worse – The same	-1.27 (0.38)	-3.37	<.01**
		Worse – Better	-1.87 (0.38)	-4.90	<.001***
Student type	Undergraduate	Worse – The same	-2.06 (0.28)	-7.26	<.001***
		Worse – Better	-2.51 (0.29)	-8.54	<.001***
		Worse – The same	-1.76 (0.37)	-4.70	<.001***
	Postgraduate	Worse – Better	-2.32 (0.37)	-6.28	<.001***
		Worse – Better			
		Worse – Better			

Student status	Domestic	Worse –	-2.11	-7.20	<.001***
		The same	(0.29)		
		Worse –	-2.64	-8.97	<.001***
	International	Better	(0.30)		
		Worse –	-1.61	-4.60	<.001***
		The same	(0.35)		
Neurodivergent status	No	Worse –	-2.06	-5.79	<.001***
		Better	(0.36)		
		Worse –	-1.87	-7.89	<.001***
	Yes	The same	(0.24)		
		Worse –	-2.33	-9.72	<.001***
		Better	(0.24)		
Amount of close online friends	None	Worse –	-2.65	-3.27	<.01**
		The same	(0.81)		
		Worse –	-3.04	-3.75	<.001***
	Few	Better	(0.81)		
		Worse –	-1.93	-4.93	<.001***
		The same	(0.39)		
	Some	Worse –	-2.53	-6.46	<.001***
		Better	(0.39)		
		Worse –	-2.22	-4.63	<.001***
	Most	The same	(0.48)		
		Worse –	-2.35	-5.15	<.001***
		Better	(0.46)		
Ethnicity	White	Worse –	-1.89	-3.49	<.001***
		The same	(0.54)		
		Worse –	-2.22	-3.95	<.001***
	Asian (Chinese)	Better	(0.56)		
		Worse –	-1.91	-3.63	<.001***
		The same	(0.53)		
	Asian (Other)	Worse –	-2.84	-4.77	<.0001
		Better	(0.60)		
		Worse –	-2.14	-7.32	<.0001
	Other	The same	(0.29)		
		Worse –	-2.58	-9.06	<.0001
		Better	(0.29)		

Friendship Functions

The significant comparisons for each friendship function by individual-level variable are reported in Table 4.9.

Gender

Female students reported higher scores across four friendship functions compared to male students. The effect size was largest for the friendship function of emotional support ($g = 0.24$).

Student Status

Significant differences across student status emerged only in the friendship function of 'help', where international students scored their close friends higher than domestic students.

Student Type

Postgraduates rated their close friends higher than undergraduates on the friendship function of 'reliable alliance' (criticise) and 'help', both with relatively small effect sizes.

Neurodivergent

No significant differences were found.

Amount of close online friends

Students who reported that most of their close friends were online consistently reported higher friendship function ratings than those with fewer close online friends, with the largest effect sizes seen for the 'reliable alliance' functions ($g = 22-26$).

Ethnicity

Differences across were only found for 'intimacy' and 'reliable alliance' (criticise) and between White students and Asian (Chinese) students, where White students rated their close friends higher on both functions. The largest effect size was observed for the function of 'intimacy' ($g = 0.34$).

Table 4.9. Significant comparisons within groups across friendship functions fulfilled by close friends.

Group	Significant Comparison	p-value	Effect Size (g)
Intimacy: "are people I can tell private things to"			
Gender	Female > Male	< .001	0.23
Amount of close online friends	Most > None	.044	0.18
Ethnicity	White > Asian (Chinese)	< .001	0.34
Reliable Alliance: "would stay my friend if others criticized me"			
Student type	Postgraduate > Undergraduate	.001	0.16
Amount of close online friends	Most > Few	.008	0.24
	Most > None	.006	0.22

Ethnicity	Most > Some	.045	0.22
	White > Asian (Chinese)	.017	0.27
Emotional Support: "makes me feel better when I'm upset"			
Gender	Female > Male	< .001	0.24
Amount of close online friends	Most > Few	.036	0.21
Reliable Alliance: "would want to stay my friend if we didn't see each other for months"			
Gender	Female > Male	.003	0.19
Amount of close online friends	Most > Few	.001	0.26
	Most > None	< .001	0.24
Help: "helps me when I need it"			
Gender	Female > Male	.012	0.16
Student status	International > Domestic	.011	0.13
Student type	Postgraduate > Undergraduate	.018	0.12
Amount of close online friends	Most > Few	.045	0.20
	Most > None	.045	0.17

In-Person vs. Online Support-Seeking

Logistic regression analysis revealed that international students had significantly lower odds of rating in-person support as important compared to domestic students. The AORs are reported in Table 4.10. Gender was not a significant predictor. Additional predictors were tested but not retained, as including them increased the model's AIC.

Table 4.10 Adjusted Odds Ratios for finding in-person support important when distressed

Predictor	B (SE)	AOR	95% CI	p
Intercept	0.33 (.08)	1.39	1.19, 1.62	<.001***
International vs. Domestic	-0.21 (.10)	0.81	0.67, 0.99	.035*
Male vs Female	0.15 (.10)	1.16	0.95, 1.42	.146
GD vs Female	-0.38 (.27)	0.69	0.40, 1.18	.167
GND vs Female	-0.38 (.35)	0.69	0.35, 1.36	.284

Change in Importance of In-Person Support

A higher proportion of participants at follow-up considered seeking support from a friend in person when distressed to be "very important" (50%) compared to baseline (28%) (Figure 4.15). A Stuart–Maxwell test confirmed that the distribution of responses changed significantly over time ($\chi^2(5) = 186.9$, $p <$

.001). A Wilcoxon signed-rank test supported this, indicating an upward shift in importance ratings from baseline to follow-up ($V = 25,958$, $p < .001$).

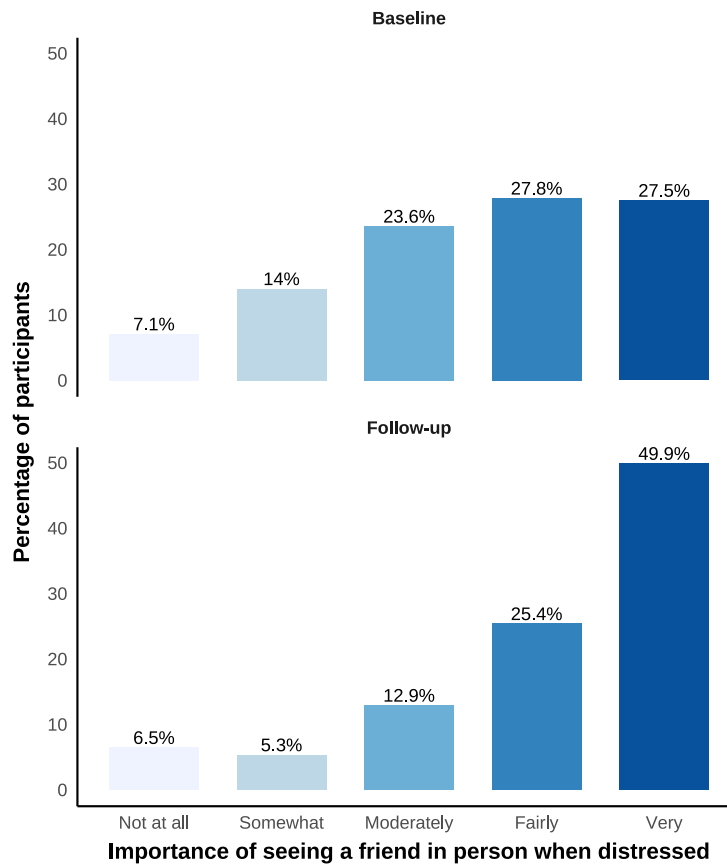


Figure 4.15. Percentage of participants ($N = 675$) rating the importance of seeing a friend in person when distressed at baseline (beginning of first year) and follow-up (end of first year).

Qualitative Analysis: Support-Seeking Themes

A total of 152 valid responses were received, with 114 from the baseline survey and 38 from the follow-up survey. Initially, 56 codes were developed, which were then consolidated to include similar codes within sub-themes. Using these responses, five overarching themes were developed. The themes and sub-themes are presented in Table 4.11, along with quotes that exemplify each theme. Using the qualitative accounts of adolescents who sought support from friends, I created a conceptual figure (Figure 4.16) to show how support-seeking occurred. The figure focuses on the key decision about whether in-person support was possible, with different pathways (in-person or online) influenced by factors such as accessibility needs, relationship quality, type of

problem, and personal characteristics (e.g., social anxiety). Each pathway involved distinct advantages and barriers, as participants described in their narrative accounts.

Students showed an overall preference for seeking in-person support from their friends. The most common barrier, mentioned 41 times, was geographical distance from their friends, which limited access to in-person support. However, some adolescents expressed that, although in-person support is the first consideration, a range of contextual factors might also shape how and where they seek support (see Figure 4.16). Lastly, phone calls emerged as a middle ground, often preferred over text or online communication, and even compared to face-to-face interaction.

Many adolescents expressed that the medium of support was not the only thing that mattered. Some also considered the relationship between whom they were going to seek support from and the quality of the friendship with those individuals. For example, one adolescent said, “...if I have my best friend online or a good friend in person, I would choose my best friend online. If I had the choice between two friends of similar closeness, I would choose in person every time”. This showed how adolescents tactfully switched between media when seeking support from their friends.

Table 4.11. Themes, sub-themes, and exemplifying quotations from thematic analysis

Themes	Description	Sub-themes	Quotes
Theme 1: Preference for in-person or face-to-face support	Many adolescents expressed a preference for in-person support seeking from their friends, however barriers to in-person support seeking were also expressed.	Richness of verbal and non-verbal communication (e.g. facial expressions, hugs) and ability for better support	<i>"being able to physically talk to someone is always so much better than texting just because I can articulate how I'm feeling better when I talk rather than type"</i>
			<i>"I think being able to give someone a hug and seeing them in-person provides unique comfort and connection"</i>
			<i>"A call is good, but I find physical touch - such as hugging - the most comforting"</i>
			<i>"When we are close, we don't have to talk about what makes us sad, we can do anything else and it just goes away."</i>
Theme 1: Preference for in-person or face-to-face support	Many adolescents expressed a preference for in-person support seeking from their friends, however barriers to in-person support seeking were also expressed.	Face-to-face support preference, even if over the phone	<i>"A call helps a lot. Meeting in person is still a lot better. Tone and facial expressions make an interaction."</i>
			<i>"have met up with other friends having stressful experiences many times, and almost always talked about it in person. I prefer to help people in person, although I don't think it's necessary"</i>
			<i>"face-to-face is more important than in person"</i>
			<i>"Even video chatting works. Just being able to see them"</i>
Theme 1: Preference for in-person or face-to-face support	Many adolescents expressed a preference for in-person support seeking from their friends, however barriers to in-person support seeking were also expressed.	Face-to-face support preference, even if over the phone	<i>"It is better to have face-to-face conversations, but by the time we have arranged to meet in-person I have already suppressed my negative emotions under the guise that I am overreacting and don't want to ruin our time together in person."</i>

			<i>"International students don't have a choice"</i>
			<i>"I would meet my friends often in real life when I was distressed when I was at home but now that I have moved out, I have to call them rather than see them face to face."</i>
Barriers to in-person			<i>"It can be difficult to find the time or money to see close friends face to face"</i>
			<i>"there can be a pressure to mask so you don't bring the mood down."</i>
			<i>"In-person contact is extremely important to me and I suffer from not being close to the people I love."</i>
			<i>"when I really need them I would also make do with online just the same"</i>
			<i>"Obviously sometimes distance means meeting in person is not an option, so online communication can help"</i>
			<i>"if I just wanted to talk through the stress, online works just as well"</i>
Theme 2: Role of online support	Those who expressed a preference for online support also discussed the role it plays, when they might choose it, and its barriers	Online as a substitute or the only option	<i>"Online is always a better alternative to not at all."</i>
			<i>"This is a preference, but when I really need them I would also make do with online just the same"</i>
			<i>"The friend that I used to go to for support was an online friend so meeting in person was never an option and it never bothered me that it wasn't."</i>
			<i>"Online voice chat, e.g. Discord has been an important way to keep in touch with friends from my old school now we are all at university."</i>

Unique advantages to online support	<i>"sometimes opening up is easier over a call when I can't see how much I upset them"</i> <i>"i don't really like being distressed in front of people face-to-face... talking over the phone is easier"</i> <i>"it can sometimes be easier to speak online"</i> <i>"I find it more helpful when we voice call or text rather than meet in person"</i> <i>"Sometimes it's easier to be vulnerable during online communication than in-person, but there can also be difficulties in being understood."</i> <i>"sometimes texting is easier to say difficult things without others seeing me"</i> <i>"The beauty of virtual connection is that at the point you feel lowest you are able to reach out and share this with a friend who can help you navigate these challenging thoughts/feelings."</i> <i>"Sometimes difficult situations are easier when not face to face, its not easy to have other people see my emotions so sometimes texting is easier to say difficult things without others seeing me."</i>
Phone calls preferred over text	<i>"I really like talking to a close friend on the phone as well"</i> <i>"voice is better than text - you can still feel like they're right there with you"</i> <i>"online is totally fine, video calls are best actually, as long as i can talk to them. it's great but not the best even to be able to message them or voice message, even if they dont respond immediately or after a couple days just to know that i can share my emotions and talk to them"</i>
Barriers to online support	<i>"Feel I cannot be as genuine online"</i>

Theme 3: Contextual factors and relational factors	Factors unrelated to the characteristics of being online or in-person	Personal comfort, need, or habit	<i>"I tend to downplay things if I text"</i>
			<i>"there are things i struggle to express over the phone, which makes me bottle them up"</i>
			<i>"Some of my friends are very far away, and I have to meet with them online. Scheduling is sometimes difficult."</i>
			<i>"On the phone, we have to talk about the thing and only that, and I don't know if that's better or worse. I feel like it's worse."</i>
	Relation-specific		<i>"Because of my hearing disability, it is generally easier for me to talk to people in person rather than online."</i>
			<i>"When I am most distressed, it would be better for me to see my friends face-to-face and in-person, except I'm usually extremely socially anxious about doing that so I never get that far."</i>
			<i>"phone calls make me anxious"</i>
			<i>"i dont really like social media"</i>
	Relation-specific		<i>"It depends on the friend, some friends it is enough to call/video-call them because you're already so close"</i>
			<i>"My girlfriend is my best friend"</i>
			<i>"Face to face also sometimes depends on the person."</i>
			<i>"It depends on the friend, sometimes you just need to see someone in person even if it's not the person you'd feel most comfortable with talking to online"</i>
	Relation-specific		<i>"...if I have my best friend online or a good friend in person, I would choose my best friend online. If I had the choice between two friends of</i>

Theme 4: Medium is less important	Some adolescents expressed the importance of the friend or the situation irrespective of the medium through which they sought support	Importance of friend or friendship quality	<i>similar closeness, I would choose in person every time."</i>
			<i>"Meeting in person is important for me, but if it is not possible I meet online, because what I value more in friends is that they have compassion and that I can trust them."</i>
			<i>"face-to-face or in-person meetings don't play much difference for me. It's rather the quality of the conversation and time spent together"</i>
			<i>"my closest friends are Very comforting online as well"</i>
Theme 5: Non-use and adverse contexts	This theme captured responses from some adolescents who had no close friends, lost their friends, or did not reach out for support from their friends	Dependent on situation or context	<i>"correct person is more important than f2f"</i>
			<i>"It depends on the situation"</i>
			<i>"I prefer the in-person connection, but also appreciate virtual platform for allowing me to maintain connections with people from my SES and who shared other lived experiences with me prior to coming to Oxford. It also helps me navigate different stages and identities of my experiences."</i>
			<i>"I don't really go to my friends when I am distressed because I feel like I am a burden to them."</i>
Theme 5: Non-use and adverse contexts	This theme captured responses from some adolescents who had no close friends, lost their friends, or did not reach out for support from their friends	N/A	<i>"since i don't know people Very well, it's difficult to talk to them about my struggles as i may unintentionally bring up something they are not comfortable talking about"</i>
			<i>"I've just moved here and I feel like I haven't had the time to make any close bonds yet!"</i>
			<i>"This question (and others) have been a little weird for me to answer, since I don't really have any close friends in the sense they mean; that is, I don't have any friends who I use for emotional regulation."</i>

"I don't have friends to speak to when I'm distressed"

"I feel lonely in uni"

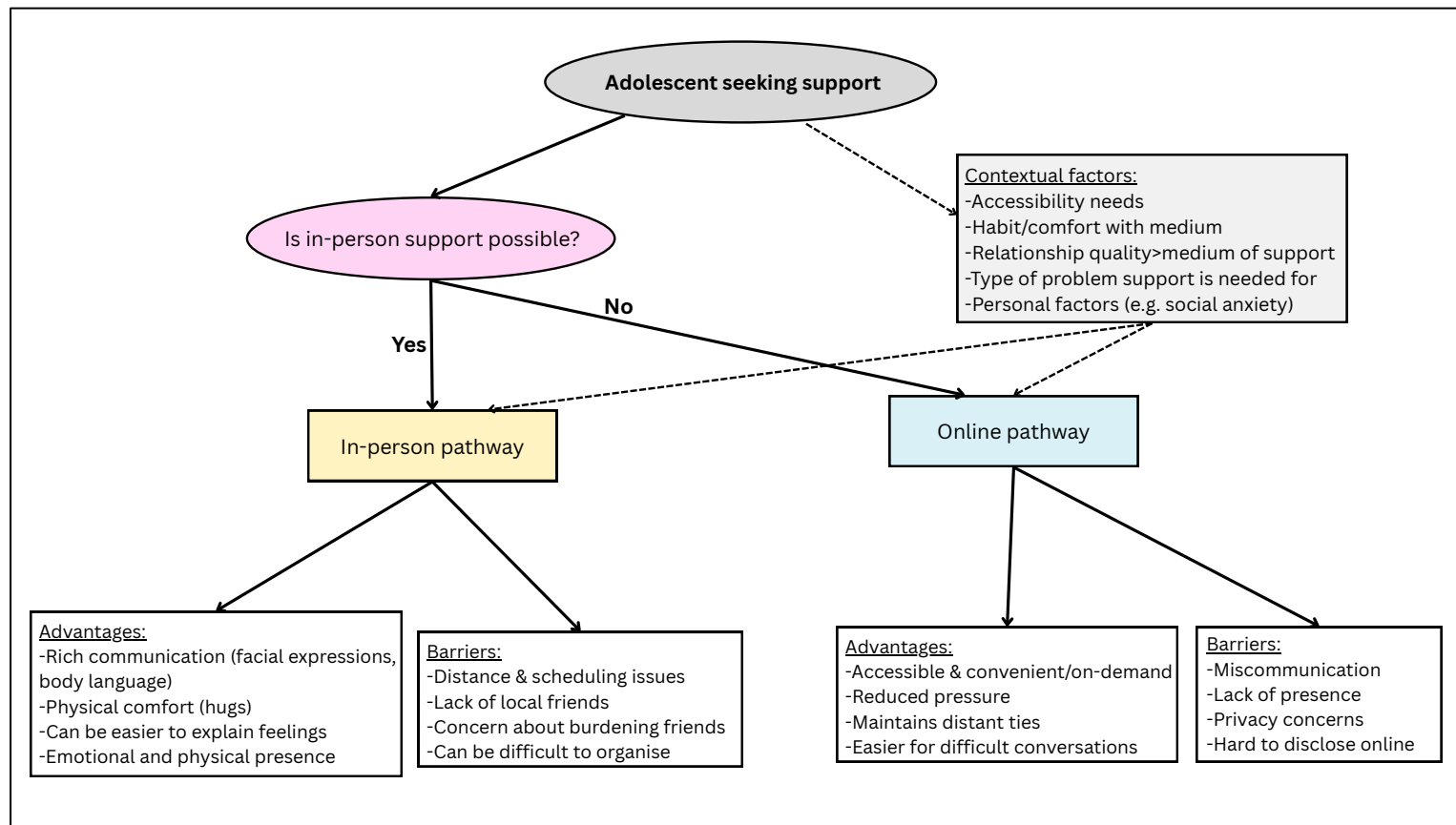


Figure 4.16. Pathways for adolescents seeking support from their friends.

Note: This figure depicts how adolescents decide between in-person and online support (solid lines). Although the decision often depends on whether in-person support is possible, contextual factors (e.g., accessibility, comfort with a medium, relationship quality, or personal characteristics) may also influence the pathway (dashed lines).

Descriptive Changes Over The Academic Year

Friendship Quality

Patterns of change in friendship quality across the first academic year (from baseline to follow-up) are shown in Figure 4.17. A larger proportion of students reported that their friendships had improved after the academic year.

Figure 4.18 illustrates how friendship quality ratings changed over the academic year for students who began the year with worse, the same, or better friendships (i.e. where individuals ‘moved’ in their friendship quality perception). Students who began the year with a friendship quality that had worsened showed improvement, with approximately 38% of them reporting better friendship quality at follow-up. However, almost the same proportion (37%) continued to report that their friendships had worsened. Students with stronger friendships at baseline largely maintained them.

Individual-level variables saw some changes in friendship quality at follow-up; however, the pattern of improving friendship quality largely remained the same. Due to some cells being <20, not all groups were represented. Interestingly, those with most/all friends online started with mainly worse friendships, but this proportion drastically reduced by the end of the academic year. Figures can be found in Appendix C (Figures C1 to C4).

Mental Health and Well-being

Table 4.12 shows the significant changes in GAD-7 scores from the baseline survey to follow-up, determined by paired t-tests. Anxiety symptoms increased across the entire sample and within most subgroups.

Significant changes in SWEMWBS scores are shown in Table 4.13. Well-being declined from the start of the academic year to the end, both overall and also within most individual-level variables.

Effect sizes were generally small across groups, but larger within certain subgroups, including gender diverse and neurodivergent students.

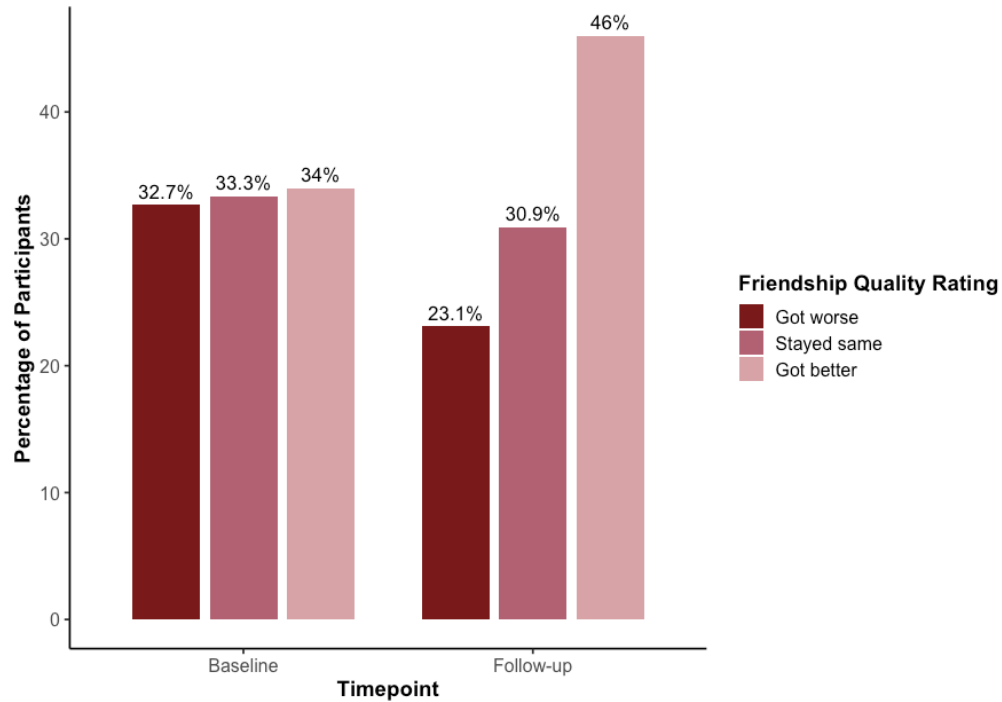


Figure 4.17. Differences in ratings of friendship quality across participants who completed both baseline and follow-up surveys

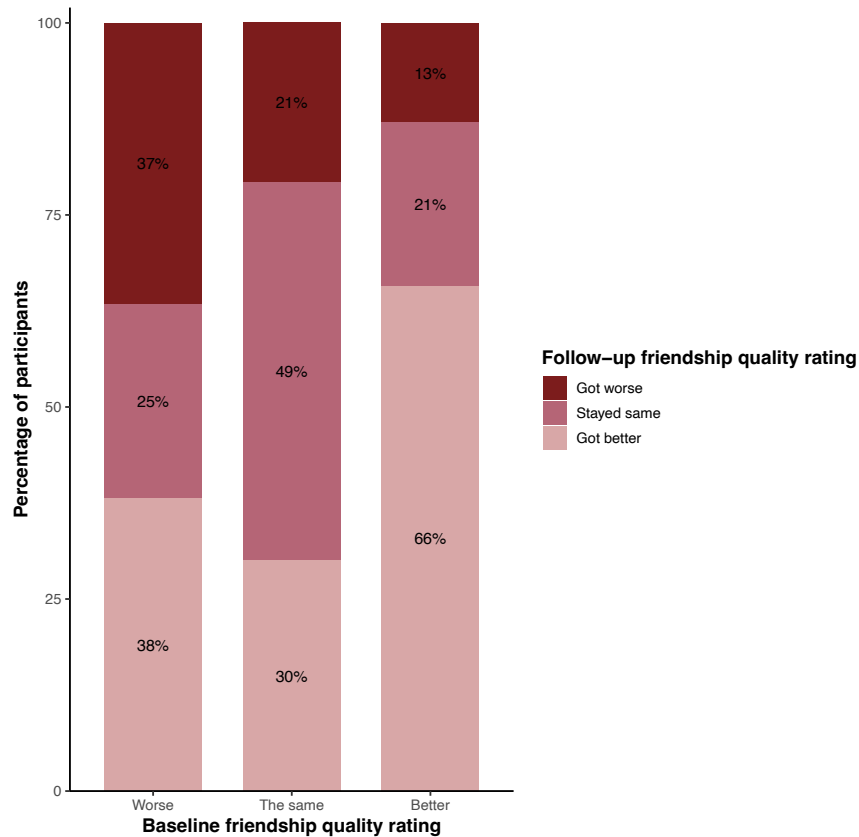


Figure 4.18. Stacked bar plot showing how those who endorsed each level of friendship quality at the start of the academic year changed by the end of the academic year

Table 4.12. Significant results from paired t-tests of GAD-7 scores from baseline to follow-up, total score and by individual-level variables

Individual-level variable	N	Baseline M (SD)	Follow-up M (SD)	Mean change	t(df)	p	Cohen's dz
Overall	593	6.58 (5.34)	7.80 (5.51)	+1.22	6.37 (592)	<.001	0.26
Gender							
Female	377	7.10 (5.33)	8.36 (5.45)	+1.26	5.04 (376)	<.001	0.26
Male	184	5.42 (5.19)	6.41 (5.34)	+0.98	3.03 (183)	.003	0.22
Gender diverse	21	6.86 (4.38)	9.57 (4.44)	+2.71	3.45 (20)	.003	0.75
Student status							
Domestic	366	6.93 (5.28)	8.34 (5.45)	+1.41	5.70 (365)	<.001	0.30
International	227	6.01 (5.44)	6.93 (5.59)	+0.92	3.04 (226)	.003	0.20
Student type							
Undergraduate	354	6.53 (5.19)	8.05 (5.41)	+1.52	6.36 (353)	<.001	0.34
Postgraduate	239	6.64 (5.54)	7.42 (5.62)	+0.78	2.47 (238)	.014	0.16
Ethnicity							
White	394	6.98 (5.23)	8.14 (5.41)	+1.16	5.09 (393)	<.001	0.26
Asian (Other)	50	5.88 (5.19)	7.44 (5.39)	+1.56	2.39 (49)	.021	0.34
Amount of close online friends							
None	195	6.49 (5.44)	7.66 (5.59)	+1.17	3.34 (194)	.001	0.24
Few	127	5.86 (4.72)	7.26 (4.91)	+1.40	3.83 (126)	<.001	0.34
Most	91	6.46 (5.18)	7.69 (5.44)	+1.23	2.46 (90)	.016	0.26
All	45	8.13 (5.28)	9.56 (5.11)	+1.42	2.47 (44)	.018	0.37
Neurodivergent status							
Neurotypical	528	6.27 (5.14)	7.50 (5.36)	+1.23	6.02 (527)	<.001	0.26
Neurodivergent	51	9.59 (6.24)	11.1 (6.11)	+1.47	2.21 (50)	.031	0.31

Table 4.13. Significant results from paired t-tests of SWEMWBS scores from baseline to follow-up, total score and by individual-level variables

Individual-level variable	N	Baseline M (SD)	Follow-up M (SD)	Mean change	t(df)	p	Cohen's dz
Overall	607	21.7 (3.88)	21.0 (4.19)	-0.76	-4.97 (606)	<.001	-0.20
Gender							
Female	387	21.5 (3.86)	20.8 (4.28)	-0.68	-3.61 (386)	<.001	-0.18
Male	187	22.3 (3.92)	21.7 (4.07)	-0.69	-2.58 (186)	.011	-0.19
Gender diverse	21	20.5 (2.53)	18.8 (2.55)	-1.70	-2.30 (20)	.033	-0.50
Student status							
Domestic	374	21.6 (3.89)	20.7 (4.11)	-0.97	-4.90 (373)	<.001	-0.25
Student type							
Undergraduate	362	21.7 (3.86)	20.9 (4.28)	-0.84	-4.16 (361)	<.001	-0.22
Postgraduate	245	21.7 (3.91)	21.1 (4.04)	-0.63	-2.74 (244)	.007	-0.18
Ethnicity							
White	403	21.8 (3.92)	21.0 (4.19)	-0.83	-4.45 (402)	<.001	-0.22
Asian (Other)	54	21.1 (3.64)	20.2 (3.64)	-0.92	-2.40 (53)	.020	-0.33
Amount of close online friends							
None	200	22.0 (4.34)	21.1 (4.71)	-0.88	-3.09 (199)	.002	-0.22
Few	129	21.9 (3.43)	21.0 (3.31)	-0.84	-2.95 (128)	.004	-0.26
Some	114	21.7 (3.76)	21.0 (3.94)	-0.76	-2.45 (113)	.016	-0.23
Neurodivergent status							
Neurotypical	540	21.8 (3.92)	21.1 (4.13)	-0.63	-3.97 (539)	<.001	-0.17
Neurodivergent	52	20.7 (3.47)	18.8 (3.97)	-1.94	-3.53 (51)	<.001	-0.49

5.4 DISCUSSION

This large sample of first-year undergraduate and graduate older adolescents at the University of Oxford revealed that the association observed in secondary school students between friendship quality and mental health also occurred in older adolescents. Individual-level variables continued to moderate the relationship. Here, the most influential moderators were gender, neurodivergence, and the amount of close online friends, whereas a wider range of individual-level differences emerged among secondary-school students in Chapter 3B.

Qualitative analyses revealed an overarching preference for in-person support. However, online support offered unique advantages. For both in-person and online support, barriers were identified, and contextual factors (e.g., personal preference, disability) also influenced where support was sought. Support sought over a phone or video call emerged as an acceptable middle ground between online and in-person support.

Finally, I found that, reassuringly, a greater proportion of students reported better friendship quality at the end of the year, compared to the beginning. I also found that across the sample, both mental health and well-being decreased from the beginning to the end of the academic year.

Friendship quality, mental health, and well-being

While low-quality friendships contributed to both elevated anxiety symptoms and reduced well-being, the decline in well-being was the more consistent and pronounced outcome. Additionally, incoming university students in this sample showed patterns which were similar to those of secondary school students from the OxWell survey, where the quality of friendships significantly predicted both anxiety and well-being. This relationship may be bidirectional, as discussed in Chapters 3A and 3B.

The Wald-test results from the cross-model comparison further emphasise the central role of friendships in maintaining positive well-being (Cohen & Wills, 1985), more so than in reducing mental health difficulties. They also highlight differences between measures of mental health and well-being and how these can have different predictors (Patalay & Fitzsimons, 2016). This finding may suggest that, in the context of university transition, positive friendships contribute more significantly to sustaining well-being, which Chapters 3A and 3B also hinted at with the varying results across measures. Still, the stressors that cause anxiety (academic pressure, uncertainty, and

adjustment) might be less easily alleviated by support from friends alone (Campbell et al., 2022), as also suggested by some research on peer-support interventions (Pointon-Haas et al., 2024).

Friendship quality was linked to anxiety and overall well-being, but not self-harm. This was unexpected, given the high rates of self-harm among adolescents and its established connections to peer relationships. For example, research shows that relational stressors such as social exclusion, low peer acceptance, and social contagion within friendships can increase the risk of self-harm (Heilbron & Prinstein, 2010; Prinstein et al., 2010; Ke et al., 2025; Fortune et al., 2008; Brown & Plener, 2017). One explanation for why I did not find a link between friendship quality and self-harm could be related to how friendship quality was measured. It might be that while the overall quality of friendships might not have a direct self-harm association, specific friendship dynamics, such as having a friend who self-harms or the support that friends provide to adolescents engaging in self-harm, can influence whether friends are risky or protective sources for it (Bilello et al., 2025; Jarvi et al., 2013; Mars et al., 2014; Victor et al., 2019). Furthermore, the very large odds ratios for GD and neurodivergent students suggest that identity-related and neurodevelopmental vulnerabilities may overshadow the influence of friendship quality when self-harm is an outcome, which aligns with models of self-harm in the literature that emphasise a range of risk factors (Nock, 2010; Plener et al., 2015; Toste et al., 2020).

The moderating effect of individual-level variables

GD students had over six times the odds of reporting past self-harm, highlighting a level of risk that remained even after considering friendship quality and other factors. Among neurodivergent students, I observed a phenomenon of heightened relational sensitivity. So, although they reported similar levels of friendship quality as non-neurodivergent students, the impact of poor friendships was far greater, with significantly higher anxiety, lower well-being, and nearly four times the odds of self-harm. Thus, for neurodivergent students, the consequences of poor-quality friendships might be more profound, as they tend to depend on smaller, closely connected networks, often with higher levels of homophily, leaving them with fewer alternative supports when away from close friendships (Mazurek & Kanne, 2010; Sharman & Seedorf, 2025).

Those with most or all of their close friends online were more likely to report that their friendships worsened after starting university. Further analysis revealed sharper declines in well-being among these groups, especially when these friendships were strained. Drawing from qualitative findings, one explanation could be that this dependence on online friends may result from being geographically distant from in-person friends or not yet having in-person relationships at university, even if desired.

On the other hand, males and international students generally reported more positive friendship experiences and a lower likelihood of self-harm.

Friendship Functions

Three key patterns emerged when examining specific friendship functions. First, I found gender differences to be consistent with the OxWell Student Survey findings. Female students rated their close friends higher on functions of intimacy, emotional support, and reliability, supporting longstanding evidence that girls and women place a greater emphasis on closeness in friendships (Rose & Rudolph, 2006; Bukowski et al., 1994).

Second, I found that student status mattered. International students rated their close friends as more helpful. This was slightly surprising, as evidence shows that international students can experience more social isolation at university due to challenges posed by geographical distance (Zheng et al., 2023). However, my results suggest that at least at the start of university, many perceive their friendships as supportive. Based on qualitative data from this study, these close friends may often be online, allowing international students to sustain important ties across distance. One possible explanation for these results is a selection effect, where adolescents who can relocate for their education may already have stronger social networks to draw upon. It is also possible that, in the present day, maintaining online friendships is easier due to more opportunities for connectivity through apps like WhatsApp or social media, and this might even be easier if friendships are strong. At the same time, this does not preclude the possibility of later vulnerability during the second or third year of university, when academic stress also becomes a factor. As one longitudinal Australian study found, the social relationships of international students tend to decline over time (Hurem et al., 2021). Opposite to what we might expect, however, descriptive longitudinal findings showed that among students who answered both the baseline and follow-up surveys, by follow-up, both domestic and international students had a proportionally larger number

of friendships that had improved. One explanation could be simply due to the university itself. The University of Oxford has a collegiate system which can change how friendships are formed and maintained.

Then, Postgraduates also scored higher on helpfulness and reliable alliance, which may reflect more mature or stable friendship networks compared to undergraduates, who are often still in the process of forming peer groups.

Support seeking from friends

Adolescents valued in-person support more towards the end of the university year compared to the beginning. One common theme across the data was that adolescents placed great value on a sense of presence when seeking support from friends. Presence can be defined as a subjective feeling of being with another person, whether online or in person, and perceiving that person as both emotionally and socially available during the interaction (Biocca et al., 2003; Lee, 2004; Slater & Wilbur, 1997). Adolescents showed an overarching preference for in-person support. The physical presence afforded through in-person support, such as touch, shared activities, and nonverbal communication, was often mentioned by adolescents. Some emphasised, *“being able to physically talk to someone is always so much better than texting just because I can articulate how I’m feeling better when I talk rather than type”*. They also highlighted non-verbal comfort: *“I think being able to give someone a hug and seeing them in person provides unique comfort and connection.”* Then, when in-person support was not possible, phone calls and video calls emerged as an accepted middle ground between in-person and online support. This could be because this support continued to offer a form of face-to-face interaction. Therefore, adolescents might still have felt a sense of presence when reaching out for support, such as tone of voice, immediacy, and some visual cues, despite these being conveyed at a distance. Students expressed, *“voice is better than text, you can still feel like they’re right there with you,”* and *“face-to-face is more important than in person”*. One student added, *“Even video chatting works just being able to see them.”*

By contrast, text-based communication was often described as not enough, with adolescents expressing concern that *“things might get lost in context”* or that they tended to *“downplay things if I text.”*

Some adolescents, however, preferred to confide in friends online because it felt less intense. For these students, choosing when to seek support

online allowed them to adjust how present they wanted to be when seeking help (i.e. some adolescents wanted a sense of anonymity or distance). The lack of presence online actually created a sense of safety by managing their friends' reactions or their own discomfort. As one explained, *"sometimes opening up is easier over a call when I can't see how much I upset them,"* while another reflected, *"I don't really like being distressed in front of people face-to-face."* For a few, the absence of presence was framed as an advantage in itself, as one student said, *"Online adds to anonymity if online means texting."*

International students had lower odds than domestic students of rating in-person support as important, likely due to the barriers posed by geographical distance and the relocation process. The qualitative data contextualised this: *"International students don't have a choice,"* one student observed, while another shared, *"I would meet my friends often in real life when I was at home, but now that I have moved out, I have to call them rather than see them face-to-face."* For these students, hybrid modes such as phone and video calls were valued because they could reproduce some sense of presence.

Given the importance of presence in seeking support and the limitations of online text-based communication, two factors might explain why adolescents valued in-person support more towards the end of the year. First, since a common barrier to in-person support is geographical distance, adolescents might have made more friends by the end of the academic year and therefore valued in-person support from them. Second, there might have been an increased need for support by the end of the academic year. As we know from past research, compared to the beginning of university, a greater proportion of students experience mental health difficulties by the end of the academic year (Duffy et al., 2020). Thus, in-person support (which adolescents largely preferred) became more important.

Differences in friendship, mental health, and well-being across the first year of university

The transition to university can be an exciting yet stressful time for adolescents, and given what we know about friends as a source of informal support, adolescents may turn to them more during this period. Therefore, it was reassuring that the majority of friendships showed improvement at follow-up. However, adolescents who reported having worse friendships at baseline stood out as an at-risk group, as almost two-thirds of them reported that their

friends had either remained the same or worsened since starting at university. Having a perception of improving friendships at baseline was protective, as a larger proportion of individuals reported better friendship quality by the end of the academic year. They also had the smallest proportion of friendships that had worsened by the end of the year. Friendship quality is dynamic. Although adolescents at baseline had nearly an equal proportion of better, same, and worse friendships, many perceived their friendships as having improved by the end of the academic year. This is a positive point because it indicates that early friendship challenges are not inevitable, and university support may play an important role in enhancing friendships.

Compared to baseline results, domestic students, female students, and undergraduate students showed a greater proportion of friendships that had gotten better (see Appendix C). Students with most or all of their close friends online reported a much greater proportion of friendships that had worsened at the beginning of the academic year. However, they followed the same general trend observed, whereby at the end of the academic year, they had a larger proportion of high-quality friendships. This could be attributed to university being a place that fosters in-person social connections.

From the beginning to the end of the academic year, anxiety symptoms increased and well-being decreased across the whole sample. Unfortunately, the groups that were descriptively more at risk for worsening friendship quality were the same ones that experienced large increases in anxiety symptoms and the most considerable reduction in well-being. GD and neurodivergent students stood out.

Overall, my findings indicate that certain groups are entering university with a vulnerability which could lower mental health and well-being outcomes worse throughout the first year. One such group includes those who perceive their friendship quality as poor. Although sample sizes prevented robust statistical analyses using the follow-up survey, this study is among the first to describe changes in friendship quality across these groups at the University of Oxford.

5.4.1 Strengths and Limitations

One strength of this study was that the survey employed a longitudinal approach, which allowed for the observation of changes in both friendship

quality and support seeking across two time points. Further, the fact that this study included both undergraduate and postgraduate first-year students was a strength, as research on adolescents entering university largely has focused on undergraduates (Montagni et al., 2020; Sheldon et al., 2021).

Another strength was the inclusion of free-text responses alongside ratings of the importance of in-person friend support. This approach facilitated an understanding of the potential pathways that lead to adolescents' support-seeking.

Several limitations of the study were also identified. First, when identifying groups of students who may benefit from prevention and early intervention, focusing on symptoms could be a suitable approach. It is essential to note, however, that threshold scores used in symptom screening tools are designed to strike a balance between sensitivity and specificity, and they are not equivalent to a clinical diagnosis (Sheldrick et al., 2015). A positive screening result suggests the need for further evaluation rather than confirming or excluding illness. The same applies to students in this study who were identified as having a past diagnosis of neurodivergence (e.g., ADHD or autism). All data were based on self-reports and have not been validated through direct assessments or official medical history.

This study does not imply causation. The associational nature of the analyses means that the relationships observed may be bidirectional.

A further limitation is the small sample sizes in some subgroups, particularly among neurodivergent students, which resulted in wide error bars in the moderation models. For longitudinal analyses, this meant that some levels within variables had to be collapsed together to remain non-identifiable when cell counts were fewer than 20. They also may have contributed to limiting the results found across friendship functions. Although patterns suggested that poor friendship quality had a stronger impact on their mental health, the possible imprecision of these estimates means that such findings should be regarded as preliminary. Larger, more representative samples are needed to better capture differences across underrepresented groups.

Another limitation is the high attrition rate, which necessitated the omission of follow-up survey analyses. Smaller sample sizes also precluded additional descriptive analyses of certain groups, which are already underrepresented in research, such as GD and neurodivergent adolescents (Ghorbanian et al., 2022; Michail, 2024; Perowne et al., 2024). Future studies

should carefully consider the manner of invitation and timing of follow-up invitations to maximise participation and reduce systematic attrition.

Along the same lines, undergraduate students were overrepresented in my sample (60.4% recruited, compared to 47.9% of the total census year). However, this may probably be explained by the age restriction, which only included individuals up to 24 years old. Older students who were likely postgraduates were not represented in the sample.

Compared with national UK higher education data, the current sample has a higher proportion of female and White students. In 2023–24, about 56% of full-time first-degree entrants were female, and 61% were White. Meanwhile, the baseline survey sample had nearly 60% female respondents and 66% White respondents, indicating a slight demographic skew away from national patterns (Office for Students, 2025). This limits the generalisability of the findings to the broader UK higher education student population.

As the baseline survey was administered at the start of students' first term, this may have shaped responses and questions about friendships may not capture fully formed or stable networks.

Then, the results regarding online friendships might be downstream of the students who choose to fill out this online survey. It's possible that these students are already spending time online, therefore have more online friends.

It is also important to acknowledge that the sample was derived entirely from students at the University of Oxford. Oxford is unique in its collegiate system, which is well-suited to fostering social networks and friendships and may provide students with an additional advantage. Thus, this could help explain why a large proportion of participants reported improved or consistently high-quality friendships at follow-up. It is possible that through support and friendship-building efforts offered by colleges, adolescents are better positioned to form high-quality friendships. However, this pattern might not translate to other higher-education institutions.

I did not ask about adolescents who had no friends, which some students mentioned in the qualitative data. Consequently, the survey may have overlooked a group of students who were unable to answer the friendship quality questions.

These findings should be approached cautiously, as adolescents might not have fully disclosed information about their self-harm, gender identity, and neurodivergent status due to the sensitive nature of these topics. Privacy and

confidentiality concerns, especially since some participants are new students and the survey was distributed via university email, could have contributed to lower response rates and limited representation (Soneson et al., 2025).

Finally, the questions we ask in our study assume dyadic relationships between friends. However, when discussing online networks of friends, many of these interactions often occur within larger groups (Liang et al., 2024).

5.4.2 Implications

Despite these limitations, the findings from this study have three key implications. This study demonstrates that friendship quality may play an important role in psychological adjustment during the transition to university. Given the results across both undergraduates and postgraduates, I speculate that both types of students may benefit from high-quality friendships, while poorer-quality friendships might amplify some risk of poor psychological adjustment. Yet, as highlighted in my systematic review in Chapter 2, only one intervention to date has explicitly targeted university friendship networks, and this was designed solely for undergraduates (Boda et al., 2020). The absence of interventions tailored to postgraduate students is concerning, given the current findings proposing that friendship quality is just as important for them. Friendship-focused programs across both undergraduate and postgraduate students may be beneficial, as this will ensure that all first-year students are equally supported in forming and maintaining high-quality friendships. It is possible that some naturalistic studies might exist but remain unevaluated in terms of their efficacy, or they may have indirectly explored university students' friendships. These might have therefore been potentially overlooked.

The second implication concerns targeted support and identification of at-risk groups. While friendship quality was important for all students, some groups were disproportionately vulnerable when their friendships were of lower quality. Neurodivergent students and GD students entered university already at heightened risk and had greater declines in mental health when their friendships were poorer. Thus, intervention design should take into account unique barriers experienced by these groups.

Lastly, my qualitative findings offer insights into online and in-person support-seeking and help-giving preferences. They show that any interventions or programmes which involve authentic social groups must

account not only for who provides support, but also for the media through which the interactions take place, a consideration especially relevant for international students who often rely more heavily on digital connections, especially in their first, transitional year at university.

5.5 Conclusion

In this chapter, I continued to address my second research aim by replicating the relationships between friendship quality and mental health and well-being in older adolescents. I found that friendship quality might be more important for improving well-being than for reducing mental health difficulties. I identified differences between groups of adolescents that had not been previously examined in the chapters using OxWell data, such as student status (international vs. domestic) and student type (undergraduate vs. postgraduate). Adolescents' support-seeking preferences were influenced not only by the availability of in-person support, which they predominantly prefer, but also by contextual and individual factors. One aspect that remains unclear is why adolescents hold these preferences and how they might conceptualise helpful and unhelpful support. Understanding this remains important for providing effective recommendations for interventions and support programmes that may utilise an adolescent's authentic social group. Therefore, the next chapter will build upon the investigation of adolescents' support-seeking and help-giving preferences towards their friends by exploring their lived experiences.

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Chapter 5

“We’re not talking about how we can actually get help”: A qualitative study of adolescents’ support-seeking and help-giving preferences, both from lived experience and in hypothetical situations

Chapter overview

Background. The previous chapters established the relationship between friendship quality and mental health, both in secondary school adolescents and older university students. However, the predominantly quantitative nature of these chapters limited our understanding of how adolescents perceive their friends as support-givers and how adolescents perceive their own help-giving abilities. Earlier chapters suggested that schools could play an important role in helping adolescents form friendships and seek support from their friends, but the specifics of this role were still unclear.

Objectives. In this chapter, I address the third aim of this thesis and explore how adolescents seek and provide support among friends. I also describe their perceptions of the school's role and deduce what kind of approaches might be beneficial. Reflexive thematic analysis was used to identify themes from the data.

Findings and Implications.

Four themes emerged from the data analysis: 1) friendship quality and support quality as distinct yet interrelated, 2) adolescents as strategic support seekers and help givers, 3) the role of schools in shaping adolescent support-seeking and help-giving preferences, and 4) diversity and preparedness in friend support. The implications for schools include an increase in mental health literacy efforts, informed by the specific needs of students.

6.1 Introduction

The previous two chapters presented predominantly quantitative analyses of large datasets of secondary school-age and university-age adolescents.

One important finding from Chapters 3 and 4 was that GD and neurodivergent adolescents might be especially vulnerable when it comes to both their mental health and friendships. GD adolescents may encounter some unique challenges that can influence their friendships (Andrews et al., 2018). These may include minority stress (Hunter et al., 2021) or gender worry as shown in Chapter 3B, difficulties with identity development (Bonfatto & Crasnow, 2018), and struggles with school belonging (McGowan, 2020; Ullman, 2022). Similar findings are present in the literature for neurodivergent adolescents, who experience a disproportionate number of upsetting experiences compared to non-neurodivergent adolescents (Pavlopoulou et al 2025).

Schools offer a unique opportunity for interventions that may benefit adolescents, as they provide an environment where adolescents spend most of their time, form and maintain friendships, and develop relationships with adults (Krammer et al., 2023; Fazel & Soneson, 2023). Recent research has highlighted the positive collective influence of support from teachers, peers, and face-to-face interactions with friends in helping to reduce loneliness in adolescents. (Zheng et al., 2024). This suggests a strong case for focusing on the role of schools.

Considering the multifaceted nature of friendship and mental health, this qualitative chapter presents adolescents' own perspectives to emphasise potential challenges and opportunities schools face in supporting both, and to consider any nuances that may be overlooked by quantitative data. The mechanisms of support-seeking among modern-day secondary-school students remain unclear. It is also unclear why support is sometimes unhelpful, and what their preferences are when receiving support from and providing support to their friends. One gap in the literature, highlighted in the first chapter of this thesis, is that although adolescents most often reach out to their friends for support, fewer than half reported finding that support helpful (Geulayov et al., 2022). This chapter fills this gap and captures a comprehensive picture of support-seeking and help-giving, rooted not only in adolescents'

lived experiences but also in scenario-based approaches and diverse friendships, to help address the third aim of this thesis.

6.1.1 The Current Study

In Chapter 2, one study with fictional scenarios of hypothetical friends was well-received by adolescents and showed improved help-giving skills after intervention (Hart et al., 2022). A key theme was using interactivity and role-play, which was effective for teaching mental health support. The present study used a qualitative approach to explore adolescents' experiences and preferences, including help-giving to friends in challenging situations, such as for gender-diverse and neurodivergent adolescents.

6.1.2 Research Questions

Conducting semi-structured interviews combined with hypothetical friend vignettes allowed me to address the following research aims:

1. Investigate why participants turn to friends as one of their key points of support, how they seek that support, and what makes it either helpful or unhelpful.
2. Identify and understand differences between participants' preferences and attitudes towards supporting their friends.
3. Describe adolescent perceptions on the role of teachers and schools in supporting adolescents' mental health and friendships.

6.2 Methods

Sample and recruitment

Participants were either recruited through their schools, where the study was advertised to eligible students by teachers via a flyer, or through a lab member who shared the flyer for the study with their local school network.

The inclusion criteria for participants were: a) adolescents aged 16 to 18, and b) those living and attending school in England. I conducted all interviews, which took place online through Microsoft Teams, from February to June 2025. The sample size of 10–20 students was determined through drawing on expertise from research, which finds that average data saturation is reached within 10-12 interviews (Lu et al., 2024), and also similar studies of adolescents which have used participants within this range (Bilello et al., 2025; Jamalimoghadam et al., 2019; Lewis-Smith et al., 2021). This sample size also

ensured that it remained feasible, given the study's timeline. Efforts were made to ensure the sample was diverse. All participants received an Amazon voucher as compensation. Ethics approval was granted by the Central University Research Ethics Committee at the University of Oxford (R94162/RE001).

6.2.1 Study Materials

Demographic questionnaire

Participants interested in the study could scan the QR code on the flyer, which invited them to complete an initial survey. The survey was hosted on the University of Oxford's JISC platform to allow adolescents to register their interest and collect basic demographic information. This information was later used to ensure the sample was diverse.

Then, the participant information sheet was shared with all interested participants via email, along with potential dates and time slots for interviews, should they wish to schedule one. If, after reading the participant information sheet, participants wished to schedule an interview, they were instructed to reply to the email with either one of the listed time slots or propose an alternative time that suited their availability. Participants were informed that they could decline at any time. I sent a follow-up email to those who did not respond initially, aiming to reach anyone who might still be interested in participating. Non-response to the follow-up was regarded as a refusal to take part, and no further emails were sent. Participants who scheduled an interview completed a consent form prior to the interview, which was sent to them digitally (typically via E-sign, except for one, which was emailed due to technological difficulties). Any further clarifications were addressed through email.

Semi-structured interviews

The semi-structured interview included questions aligned with the study's research aims. Prior to the interview, participants were informed that they were free to end the interview at any time if they felt uncomfortable and were asked not to share any identifiable information about themselves or their friends. The interview consisted of two parts: one before and one after the presentation of vignettes. The first part covered: a) support-seeking from friends, b) mental health support at school and through teachers, and c) gender-specific and neurodivergent-specific experiences of friendship. The second

part, following prompts in the vignettes, addressed: a) questions about seeking professional help, b) challenges in supporting a friend, c) mental health training (experience and interest), and d) additional comments. The semi-structured interview script and questions are included in Appendix D. I conducted all interviews myself; they were all virtual on Microsoft Teams. Each interview was approximately 30 minutes long, recorded using Microsoft Teams, and verbatim transcribed. First, the transcriptions were completed through AI software in Microsoft Teams, and then I reviewed them a second time for corrections. Transcripts were de-identified, and each participant was assigned a unique participant number, ranging from P01 to P14.

Vignettes of hypothetical friends

Prior to the second part of the interviews, a check-in was conducted to ensure adolescents were comfortable continuing. Part 2 consisted of three vignettes of hypothetical friends (presented in Figure 5.1) with diverse identities, each facing a different adolescent challenge. One ‘friend’ was cisgender (their gender aligns with their birth-assigned sex) and non-neurodivergent, one was gender-diverse and non-neurodivergent, and one was cisgender and neurodivergent. OpenAI’s Chat-GPT (Model 4) was used to create AI photos of the hypothetical friends. The vignettes were organised into a Microsoft PowerPoint slideshow, and I shared each vignette, in turn, using Microsoft Teams’ screen-sharing platform. For each, the participant was asked to reflect on two things: a) how their hypothetical friend might be feeling and b) how they might provide help to their struggling friend.

Meet Ethan!



Ethan has been feeling very isolated and lonely since starting at a new high school. He finds it difficult to make new friends and feels like he doesn't fit in with any group. Ethan spends most of his time alone and is beginning to feel depressed. During lunch, he shares his feelings of loneliness and exclusion with you.

Meet Taylor!



Taylor identifies as transgender and has been experiencing bullying from a group of students who refuse to accept their gender identity and make derogatory comments. You notice that some students at school call Taylor by their deadname, which leaves Taylor visibly distressed. You also notice that Taylor chooses to skip many classes. One afternoon, Taylor tells you about how the bullying is affecting their mental health and school performance.

Meet Riya!



Riya is your friend with ADHD. She feels constantly misunderstood by teachers and classmates. You notice she often gets in trouble for fidgeting or speaking out of turn. She tells you that this makes her feel like she can't do anything right. Riya has started to doubt her self-worth and feels discouraged. One day, Riya is feeling really sad and talks to you about how misunderstood and unsupported she feels at school.

Figure 5.1. Vignettes of hypothetical friends shown to adolescents.

6.2.3 Data Analysis

I transcribed all fourteen interviews verbatim and analysed them using reflective thematic analysis, following Braun and Clarke's (2019) guidelines and using NVivo v15.2.1. Guided by the six phases of thematic analysis (Braun et al., 2022), I began with familiarisation through multiple readings of the transcripts and reflexive note-taking. I then generated initial semantic codes, staying close to what participants had actually said; long pauses and hesitations were noted, particularly in responses to the hypothetical friend vignettes. Codes were clustered and collapsed into broader categories, from which I developed and iteratively reviewed themes to ensure coherence across the dataset. Sub-themes were created where appropriate. The final thematic structure was shaped through ongoing reflexive engagement, which included keeping analytical memos and revisiting transcripts to consider how my own assumptions, experiences, and perspectives might be influencing coding decisions.

All participant data was de-identified, and participants were provided with a participant number by which they are referred to in this chapter. Further, to minimise deductive disclosure for very small subgroups, such as neurodivergent individuals, I omitted cross-linkable participant numbers in subsection 3.4.2 and attributed quotes to ND-A, B, and C. These labels are not linkable to the numeric participant IDs used throughout the chapter.

6.3 Results

Participants

Participants were recruited from secondary schools in London and Oxfordshire. A total of fourteen adolescents (11 identifying as girls/women and 3 as boys/men) participated in 30-minute semi-structured interviews. Participants were aged 16–18 years ($M = 16.7$). Most participants self-identified as White ($n = 11$), with three identifying as Mixed/Multiple. Three participants reported being neurodivergent.

Thematic overview

Figure 5.2 presents a thematic overview of the findings. Four overarching themes were developed. Theme 1 was that adolescents

distinguished between friendship quality (which facilitates disclosure to friends) and support quality (which determines whether received support is helpful), viewing them as related but distinct. Theme 2 related to this, as they strategically directed support-seeking and help-giving across friends, family, and online/offline settings, while recognising their own boundaries in support provision. Theme 3 showed adolescents' perception of schools as formal yet limited safety nets. Lastly, theme 4 considered the diverse needs of adolescents and how they perceived gaps in mental health literacy and preparedness to support a friend, which they wanted schools to address. Below, I present the sub-themes identified within the four main themes and provide quotes to support the interpretation of the results, with additional quotations included in Appendix D.

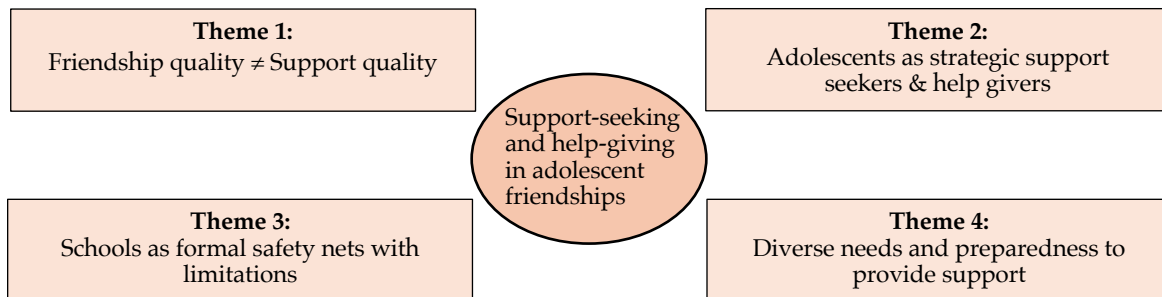


Figure 5.2. Thematic overview of the findings

6.3.1 Theme 1: Friendship quality and support quality are interrelated but distinct

This theme explored how friendship and support quality are related but distinct. While closeness influenced adolescents' support-seeking, it didn't always align with their perception of support quality. Friendship quality mattered more for seeking support, but support quality determined if adolescents found it helpful.

Friendship quality as the foundation: closeness, trust, and shared experience enable support seeking

Across all the interviews, adolescents discussed the importance of their friendship quality within their authentic social group. They particularly did this in relation to what defines a best friend, with closeness, trust, and reliability emerging as three important qualities. When they were distressed, this friendship quality was most prominent, as they consistently reported relying

on their closest and most trusted friends for support: *"I think how comfortable we are with each other, so we can be very honest and we can have that sort of not like not like a weird intimacy, but we can have that sort of closeness which is very like comforting."* (P14)

The key aspects of friendship quality that adolescents valued were shared experience, values, and relatability. Additionally, friends were not only accessible informal supporters, but they were unique because adolescents perceived a *shared sense of developmental timing* with them, offering something that adults could not. This meant that, since friends were around the same age, adolescents seeking support perceived that they were more likely to be experiencing similar struggles as them at the same time, which made them unique from adults as support providers.

"I maybe feel slightly less okay with talking to my parents about, I don't know, like body image issues or something like that. So I'd feel more comfortable talking to my friends because they'd be around the same age and be experiencing the same things."
(P11)

Friendship closeness was also further distinguished in the context of online friends. While many adolescents had in-person friends that they spoke to online, some had online-only friends. One account highlighted how both online and in-person friends could be high in friendship quality and closeness: *"In terms of like closeness, I, I mean, yeah, I have the close in person and then the close online and then I've kind of got more casual real friends, casual online friends who I probably wouldn't talk to just because like why would I?"* (P02)

However, though closeness shaped who adolescents turned to, it did not always guarantee that the support they received was helpful.

Key qualities of helpful support

Support was valued when characterised by validation, active listening, perspective-taking, practical insight, and a genuine sense of care, rather than feeling like an obligation. A recurring theme was the importance of time and presence. Adolescents appreciated when friends were physically there, unrushed, and willing to sit with them through the distress.

"Sat with me for half an hour... just nice to talk it through with someone feeling the same stresses." (P10)

"I think if it were just coming from someone who didn't really care about me...it would have been much less helpful...it wouldn't have been the same if she didn't actually care." (P07)

Many adolescents mentioned empathy as a factor of helpful support. Adolescents who sought support from other sources learned that, with friends, it was a combination of being present and empathy that contributed to making the support valuable, comforting, and positively influenced well-being. Helpful support was experienced not as a single act or a single piece of advice, but as an ongoing pattern of being there, listening, and caring.

"I have learned from past experiences that that's the best thing to do. I find [my friends] most comforting in the situation. I find that the support from my friends really boosts my mood. They're always...there and they can empathise best." (P01)

Some claimed active listening to be one of the most important elements of support, surpassing the actual helpfulness of their friend: *"Like almost more than the support that they give, the ability to listen to it and like actually have someone to talk through it with, even if they're just like, you know, like circling the question like coming back to with the same thing." (P10)* This adolescent went on to explain that they would sometimes turn to less close friends precisely because they were better listeners: *"There are friends, which I'm not as close with that I would talk to more readily because I know they will listen better than someone who I'm really close to..."*.

When listening was combined with advice or guidance resulting from a shared experience, it was perceived as especially helpful: *"Just to feel like they're actually listening and...they give you some advice on how you can fix the situation, or like if they've been in the situation before, what they did to fix it." (P13)*

Friends were also valued when they could help reframe situations or provide new insights, offering a different sense of perspective to adolescents.

"My friends are really good at looking on the bright side... opening up my eyes to things I couldn't see." (P04)

Unsurprisingly, a lack of active listening, engagement, or presence was likely to result in unhelpful support: *“Just like, nodding. And you know, just not really saying anything or yeah or just kind of feeling that they’re not really paying attention or they don’t really understand what you mean.”* (P13)

Therefore, the helpfulness of support was determined not by the closeness of friends but by the quality of the support interactions. However, even well-intentioned friends or those high in friendship quality offered support that was seen as unhelpful. The limitations of support provision are further explored in the next subtheme.

The limits of support provision

Despite valuing friend support, adolescents were aware of its limitations and that it was not always helpful. Unhelpful support usually reflected one of two things: a) relational breaches within friendships or b) a mismatch between knowledge and need.

Relational breaches were when adolescents described that trust was broken or when friends overstepped boundaries: *“I told a friend something...and they had then told someone else, and I had specifically asked them not to”* (P03).

Many adolescents reported that a contributor to unhelpful support was a lack of shared experience, which in turn led to a lack of understanding and support that was perceived as unhelpful.

“Certain people have really not got it because they don’t share the same struggles and I think they find it really hard to kind of think about what it would be like for someone who also struggled with that.” (P01)

Gaps in mental health literacy also reduced the ability to offer meaningful advice and made information misleading: *“I particularly struggled with an eating disorder, and I think a lot of the information out there is very difficult...it’s all about body image. But I think it’s the lack of education, the lack of knowledge around a topic that means people give help...they don’t think it’s unhelpful, but in reality it really doesn’t sit right with you”* (P01).

This lack of knowledge was a common theme for reasoning behind unhelpful support as one adolescent said, *“I’ve had struggles with like body image and [friends’] support has been a bit like dismissive of it”*. They explained that sometimes the support friends provide can be unhelpful for some because it might be coming from a lack of knowledge, as *“they don’t always know ways [for] how to deal with it, or how to help with it”*. (P10)

Relational breaches also occurred when adolescents overstepped boundaries of the support-seeker and a lack of knowledge also sometimes meant a lack of emotional intelligence, which was a quality mentioned by many adolescents as important for helpful support.

“I don’t think he was as emotionally intelligent and he like stuck his nose in it he got so involved...the kind of support where ...you ask some for help but then they take that as a like an invitation to basically be a part of it” (P07).

Lastly, unhelpful support also occurred when the support-providers were also going through similar issues. This likely prevented them from helping the support-seeker engage in perspective-shifting or other markers of helpful support as mentioned in the previous theme.

“Friends with their own body issues can’t give me the best support.” (P11)

Figure 5.3 presents a 2x2 framework that conceptualises how friendship quality and support quality, although distinct concepts, can overlap and make support seem helpful or unhelpful.

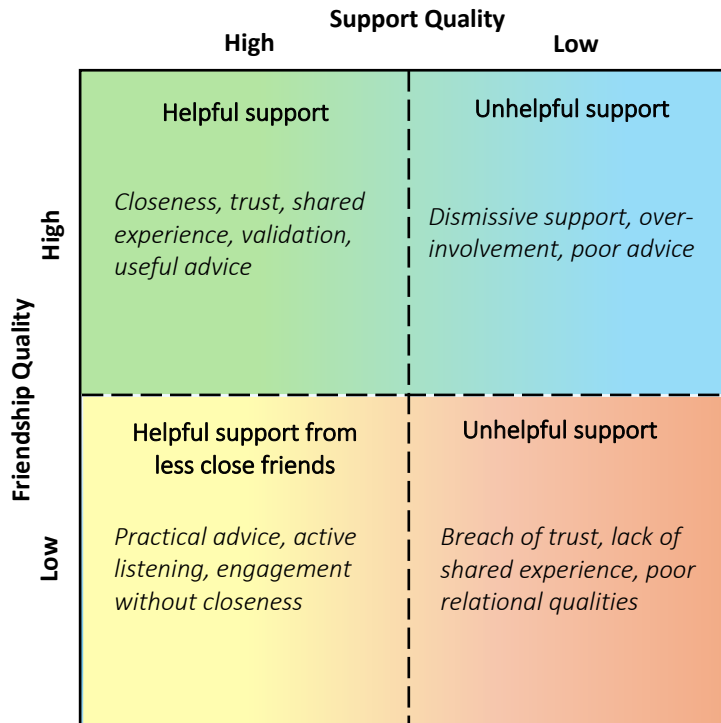


Figure 5.3. Friendship quality and support quality as distinct but interrelated domains in shaping adolescents' experiences of friend support.

Note: The quadrants highlight key patterns, but in practice, the boundaries between categories were often blurred, with the same friend sometimes providing both helpful and unhelpful support depending on context (illustrated by the gradient shading and the dashed lines).

6.3.2 Theme 2: Adolescents as strategic support-seekers and help-givers

Adolescents described being highly strategic both in how they sought support and in how they provided help. This was evident across both their lived experiences and their responses to hypothetical vignette scenarios, and extended to their online interactions and support-seeking behaviours.

Matching the support sought and the support-giver to the problem

First, adolescents intentionally aligned their friends' perceived strengths with the kind of support they needed: *"I think it's probably more about the specific friend than the problem, and I think for some issues you'd go to a different friend than you would in different situations."* (P03)

Friends with perceived academic competence were sought to help with school stress: *"If academic, I go to someone in that class... for mental health, someone who's struggled too."* (P07)

Sometimes, more distant friends were sought for neutrality during conflicts involving close friends. *"Someone [who is] a bit more distant, [but] still a good friend, probably a bit easier to go for some close things...like if you had a problem with a really close friend, you sort of wouldn't want to talk to your other really close friend, you want to find a neutral party."* (P06)

Almost all adolescents preferred seeking support in person from their friends. However, some adolescents belonged to different friendship groups and selected which group to turn to depending on context. One adolescent valued having an online authentic social group in addition to an in-person one, as they offered advantages such as anonymity, reduced pressure, and access to diverse perspectives: *"With the online friends, there's that kind of anonymity and the lack of kind of pressure of having to see that person. So my online friends, I have quite a tight circle of a few that I've known for five or six years, and it's really good... we all kind of help each other a lot. One of my friends...many, many years ago overdosed on drugs and we were all there to kind of support him...he's got our back like we had his...So it's good to have two options."* (P02)

Close friendships were central, but they were not always the most appropriate source of support. Instead, adolescents described calibrating their support-seeking across their wider networks, weighing the seriousness of the issue, how ready they felt to disclose their distress, and the perceived qualities of different supporters. Parents, particularly mothers, were positioned as the first line of support for some adolescents, especially for more serious difficulties.

"My first instinct is always to go to my mom. I have a very close relationship with her, and I feel comfortable going to her for anything. So the only situation where I'd immediately go to a friend, like in school, would be if she weren't able to provide me with that help. Normally, I'll keep serious things with her...and then kind of more trivial problems...I'll talk to my friends about it." (P02)

Similarly, siblings also played an important support-giver role for family-related difficulties: *"If it's like a family issue...I would maybe go to like my sister or like a sibling instead of going to a friend."* (P03)

Adolescents also reflected on times when they hesitated to disclose anything at all. Internal, unrelatable, or highly personal struggles were often judged as less suitable to share with friends, even when friendships were close. Not all friends were equally approachable. Certain friends were perceived as being better for support due to their own experiences or being older in age: *“I think some specific friends are more sympathetic or easier to talk to than other people, and maybe even if they’ve had similar problems in the past, then they can relate to it more.”* (P03)

This subtheme highlights how adolescents not only differentiate between friends but also evaluate when support-seeking is suitable, when to involve family members, and how to leverage the strengths of the supporter.

Boundaries and balance in giving help

Many adolescents described themselves as willing help-givers both through their lived experiences and in offering help to hypothetical friends. However, they also demonstrated responsibility in setting boundaries when necessary. One key finding was that adolescents recognised the limits of their expertise. They explained that when problems seemed too serious or beyond what friends could reasonably provide, they would redirect friends to adults or professionals: *“If I knew that it was something, you know greater than what they already have in place could handle, and what support friends could give them, I would definitely encourage them in that circumstance to speak to someone higher up, such as a trusted adult or a teacher or a counsellor.”* (P01)

This was also observed in hypothetical vignette scenarios, where adolescents drew clear boundaries around what support they could and could not provide. Many described redirecting friends to parents or teachers: *“I’d tell her to probably speak with her parents to see if they can find a way to make it easier for her in school and maybe talk to her teachers.”* (P08)

I observed that adolescents had strong identification skills, as they could detect when their friends were distressed. Yet, they were cautious and sometimes conflicted about how to act on these observations: *“I know someone who, like, will go very quiet for like weeks at a time, and it’s like, obviously something’s*

going on here, and you don't want to, like, press too hard if they're not going to, if they don't want to share it. But at the same time, you want to make sure that they're OK." (P09)

Adolescents recognised that friendship support is complex, requiring continuous time and effort both online and offline. They explained that, although they want to be supportive, it can be burdensome for them. They acknowledged that ongoing support sometimes carries risks for their own well-being and may require stepping back, even if it strains the friendship. Boundaries also shaped how adolescents balanced disclosure. Some adolescents deliberately chose not to share their own struggles with friends if they felt it would unfairly add to their burdens, instead turning to parents for advice: *"It's just...like everyone benefits more if I keep it with [my mom] because she's able to provide better advice, and it doesn't put a burden on my friends when they probably have their own problems going on."* (P02)

Finally, adolescents valued friends who could recognise when an issue was beyond their ability to help and redirect them toward other sources of support: *"I've found my friends to be really helpful with it. And when they don't, they're usually good at suggesting somewhere else I could go or something else I could do that would be helpful."* (P10)

In this theme, I found adolescents were not passive recipients of support but were deliberate and strategic. They tailored their support-seeking and help-giving according to the context, fit, and the need to preserve boundaries in their relationships.

6.3.3 Theme 3: The role of schools in adolescent support-seeking and help-giving

Adolescents noted that teachers were often willing to provide support, but had limitations. There was a mix of views on the support provided at school, with some people valuing PSHE lessons that focused on mental health and mental health awareness days and assemblies. However, most felt that the information schools provided was not enough. None of the participants reported regularly turning to teachers for support, either for themselves or a friend; instead, they viewed schools as a secondary, formal safety net.

The role of teachers as formal safety nets

Adolescents described the role of teachers in their support network, but seldom as a source of everyday help. Instead, they viewed them as appropriate for escalation when friend-support reached its limits, particularly in cases that were more serious, related to school belonging, or beyond what adolescents felt they could handle on their own.

Some students said they would proactively inform an adult themselves when a friend's situation deteriorated. For example, one adolescent expressed turning to a teacher when friend support alone might not have been enough for their hypothetical neurodivergent friend: *"...If I noticed that...things are just getting worse, not better, I'd probably go to like an adult myself and tell them...there's like only like so much support that I can give them myself."* (P05)

This escalation was clear in responses to the gender-diverse friend vignette. Nearly all participants thought Taylor, bullied for their identity, should involve a teacher, showing adolescents see identity-based safety and school belonging as too big for friends to handle alone.

"I think the school would be really good at...enforcing what's okay and what's not and what's not okay...surrounding gender identity. So I think it would be really important for Taylor...to go to...the head of year, for example...to enforce it a bit more, like actually within the school cohort." (P11)

At the same time, adolescents emphasised the limits of teachers' roles. Staff were described as well-meaning but limited by time, grades, and formal duties, making them less approachable for relational or emotional concerns.

"I think sometimes [support from a teacher] feels a little bit ...impersonal...I don't know how they would improve, but I feel like sometimes it feels a little bit more like they're sort of saying..."the support is here", but it feels like you wouldn't really want to talk to some of the teachers." (P06)

Overall, this subtheme suggests that these adolescents (aged 16 to 18) viewed teachers as essential yet secondary figures. While crucial for

maintaining the school environment, enforcing rules, and addressing serious matters, they were not the primary providers of emotional support.

Student-informed systems in place at school

Adolescents recognised that their schools had established support systems in place: *“I go to a really diverse school. So they’re like lots of my lots of my friends do have, like, mental health issues. And the [school has] loads of different support systems in place. And our year’s massive as well...I feel that they’re quite experienced in the mental health, like topic area.”* (P11)

However, they often felt these didn't quite match the realities of student life. Many found the real challenge wasn't the lack of systems, but rather the absence of helpful advice, as teachers often underestimated adolescents' daily roles in supporting their friends.

“I don’t think they give students as much credit as they’re due for how they can understand their friends’ emotions.” (P06)

Adolescents instead called for student-centred improvements, emphasising stress and mental health as key areas where schools should seek students' direct input. They also suggested a practical approach involving student participation, such as conducting surveys to identify knowledge gaps and co-creating educational talks tailored to those needs. One explicitly said: *“Maybe questionnaires or surveys about particular things [students] feel like they’re not educated in. And then from there working with the students on sort of giving them educational talks...getting a bit more specific or detailed instructions in a certain topic instead of just a vague overarching kind of guideline.”* (P06)

Other suggestions focused on adapting existing structures, such as using school assemblies in more targeted ways.

“...My school’s very assembly-focused...I would say like body image and like eating is kind of like a really big issue at my school, so I would say just having different topics and like telling students how they can help their friends through...like I don’t know like an issue with eating or like an issue with mental health or an issue with like severe anxiety, and I think that would be really, really helpful” (P07)

Adolescents valued existing supports, yet argued that making them student-informed and context-specific could improve how well the provision meets their needs.

Limitations of school support

There were limitations in how staff and formal systems responded to mental health. A majority reported not having sought support from teachers for their mental health. The main reasons included a lack of trust and confidence in the teachers' abilities to help. Some explicitly said they did not view teachers as helpful.

"I see people jokingly talk about [mental health], kind of like 'oh, I'm like lowkey depressed', ...but if you're serious, I don't know that many people would talk to teachers...they're not always that helpful...or that they don't really care so that there's not really any point talking to them." (P08)

This contributed to a sense of boundary-setting regarding the roles of teachers. Adolescents differentiated between concerns that felt appropriate for teachers (academic stress or workload) versus those that were not.

"I mean, my friends, we're all very, very comfortable talking about, like, our mental health with each other... I think teachers are more the target if you need help like academically or if you're struggling with your workload...But I think if it's more like just feeling down or another, bigger problem, people just keep it within students." (P02)

Even when adolescents wanted to seek school-based help, structural barriers limited access. School counsellors, for example, were difficult to reach due to waiting lists and administrative obstacles.

"We have a school counsellor thing, but through experience of friends, I know it can be really difficult to actually end up talking to them because you have to like book in...there's always a waiting list. And then there's a queue. It's like...I have a friend who waited for a month or two to even get to speak to them." (P10)

At the same time, positive experiences were possible when teachers were approachable, importantly showing that the limitations described were systemic rather than a result of individual teachers' unwillingness to provide support.

“Even the last week I spoke to my English teacher because I was just feeling the stress of it and...she really helped with that. And I think...the more approachable teachers can be really helpful with that sort of thing.” (P10)

Beyond access, students also criticised the superficial and infrequent nature of mental health provision within schools. Mental health education was often described as sporadic, vague, or limited to PSHE lessons. The importance of increased mental health literacy was demonstrated by one adolescent involved in the Wellness team, particularly in advocating for changes to improve how mental health is addressed in schools: *“...the only real mental health thing that we talk about is like feeling stressed and like a little bit of depression but we actually don’t talk about like MDD and...severe anxiety and OCD...a lot of people have like OCD traits and just we don’t talk about it at all...we say oh “go for a walk” all the time and it’s we’re not talking about how we can actually get help...and that’s why I’m on the Wellness team...I think they are trying, though...” (P07)*

Throughout the interviews, schools contributed to supporting adolescents. However, their role was confined to a formal safety net, and while adolescents recognised and valued the importance of mental health literacy, they felt it had limitations.

6.3.4 Theme 4: Diversity and preparedness across friend support

Adolescents saw themselves as willing supporters, but recognised that differences in gender norms, neurodivergence, and uneven mental health literacy shaped who could give or receive effective support. Ultimately, adolescents proposed that schools should equip them to bridge these gaps.

Gendered norms shaped support dynamics

Observational and experiential accounts from both boys and girls indicated gender-based differences in how support was sought from friends. Across participants of both genders, I noticed a recurring theme where adolescents of both genders described that boys engaged less frequently in discussions about mental health with their friends. Some adolescents noted that such discussions were more accepted and commonplace among girls than among boys.

"If you're feeling anxious or something, you might more easily say to your friends, like "oh, I'm really anxious right now", if you were a girl than a boy, because it's more like not normal, but like more talked about" (P08)

Gendered friendship cultures influenced the ways adolescents sought and offered support. One participant compared moving from a mostly male friendship group to a mostly female one and how male-related stigma can make support-seeking challenging or dismissed: *"I went from like a mostly male group to a mostly female friendship group...With the male side, it can be quite difficult...like, these ideas about men...being like, you know, like, "oh, I can't express my emotions"...that's not necessarily a thing, but it's a lot more difficult to bring up...and I don't even quite know why. ...Often, it will just be passed off with a joke...and with my female friends...I can have a conversation about it, and without being dismissed or joked about, I guess."* (P10)

Accounts from some boys and girls revealed a theme where some boys restricted their support-seeking to dyads or one-to-one relationships. In some accounts, boys described themselves (and were also described by girls) as more likely to seek mental health support from girls than from other boys.

"The way I would seek support with [my male friend group] would be one-on-one...and with these new [female friends], I feel like I could talk to almost anyone about it or even as a group and have support" (P10)

Some girls also described observed differences in support-seeking behaviours between boys and girls when asked about gender-based patterns of support-seeking. For example, one girl said, *"I've got [a brother] and we'll chat about stuff... I don't know if he talks to his mates about that stuff...There are some boys who I know are closer and I've seen them sort of having the occasional one-on-one chat... I have a friend who will talk to other female friends that he's really close with, and maybe not to his male friends."* (P14)

Emotional maturity and readiness in boys also affected adolescents' selection of confidants for support, as some adolescents clearly acknowledged that certain male friends were not always prepared to handle deeper topics, noting a difference between male and female friendship groups.

"It's completely different in like male friend groups to female friend groups about what is like talked about...If I'm with a group of friends who are boys, then we literally 90% of the time we'll only talk about like what's literally happening in front of us." (P09)

Towards the end of the study, one adolescent expressed a lack of real-life, actionable change to help shape the stigma around boys' mental health, despite campaigns or wider representations in the media.

"Like the divide between genders, going back to that thing, it's like really pronounced like...most conversations with boys [are] like completely surface level... There is some stuff kind of starting to come around, but...just to me, nothing's changed recently about, like, male expectations... like the obviously like the Netflix show like ["Adolescence"], "Boys Get Sad Too" movement...And it is talked about, but...just to me, in real life, it hasn't changed yet." (P09)

Neurodivergent adolescents: communicating needs and finding friends who "get it"

For neurodivergent adolescents, support-seeking was influenced more by difficulties in communicating their needs and the importance of shared identity within a friendship. One participant explained that their neurodivergent identity did not prevent them from wanting to seek support from their friends, but made it challenging to communicate what they wanted: *"I think [being neurodivergent] makes me...I would find it harder to like...express what I mean sometimes, or like express how I feel about something sometimes...or even express that I want to talk about something." (ND-A)*

Adolescents noted that their friends who were neurodivergent and non-neurodivergent played different roles when it came to support provision. While neurodivergent friends were sought for support with academic struggles and perceived shared struggles, they were not necessarily sought for mental health or well-being support.

"...One of my friends...also has ADHD and also struggles with the same things I do...I don't think it usually... affects... getting support from other people about like mental health but when it's to do with stress and anxiety in relation to school then... probably I would go to a neurodivergent person." (ND-B)

This sense of shared identity contributed to an increased perceived support-seeking among neurodivergent adolescents: *“...people who are neurodivergent would maybe talk more about their struggles to their friends maybe just because...obviously we have a few more”* (ND-B)

Additionally, adolescents were not only more likely to seek support from a neurodivergent friend, but also aware of homophily in their authentic social group, as they recognised that many of their friends also shared a neurodivergent identity.

“I think also a lot of the people I’m around are also neurodivergent. I don’t know if that’s sort of a coincidence or just what’s happened because our sort of brains are quite similar” (ND-C)

The benefits of these neurodivergent friendships included providing reassurance that similar difficulties existed for them. This seemed to increase feelings of validation by emphasising the importance of their emotions, while also helping to reduce feelings of isolation.

“I think it probably is more beneficial [to have neurodivergent friends]... I think that just helps me realise...it sort of wasn’t just a universal experience, but there were people who understood what I was trying to...convey.” (ND-C)

One adolescent recognised the academic supports their specific school had, but discussed the importance of friends in the context of when institutional supports, such as SENCO, fall short and limit the formal support available to neurodivergent students.

“For [exams] they do have some like accommodation but...it’s more a problem with SENCOs I don’t know about whether this is just at my school but...I wouldn’t be surprised if it was like across the [country’s] SENCOs...I mean my school has had a number of different ones all of them have been quite disorganised they haven’t really...had meetings with us...” (ND-B)

Adolescents expressed a need for tailored mental health training and education

Lastly, adolescents reflected on the limits of current school-based education around mental health. While they acknowledged efforts such as PSHE lessons or assemblies, they described them as often detached from the

actual struggles they encountered in their authentic social groups. Adolescents consistently emphasised the need for practical, specific training that addressed particular mental health difficulties: *"I think maybe like a session, every sort of half term, about a specific condition that people in our year groups struggle...like a talk about what depression can look like in teenagers, how to help deal with depression. What we get educated on is quite vague and it's always like 'how to improve your mental health,' but not really specific to the issue."* (P04)

Adolescents reported that both their own and their friends' knowledge of how to provide support originated from developmental maturity and trial and error. One point highlighted was the need for specific mental health literacy, especially in understanding how to practically apply it to directly support friends, without depending on schools and teachers. *"...Maybe they could tell us how, as a friend, you could help...how I would offer support to my friend instead of just asking a teacher to talk to them, how I could like make them feel better just myself."* (P08)

Some adolescents mentioned that they turned to alternative sources, such as television and online forums, to try to fill this knowledge gap.

"My friend has like really bad health anxiety...every time her leg hurt, she thought she had like cancer. I had no idea how to help her, and so like I looked it up on Reddit and like I looked it up online" (P07)

Generally, adolescents agreed that schools should incorporate learning how to support a friend who might be struggling and that this could be included in existing school supports, such as PSHE lessons or assemblies.

"...The answer that [the school] always [gives us] is just 'oh, tell a teacher'. But sometimes that's not ideal... I've seen like first-hand people struggling with trying to support a friend, so I think that having like a year group assembly or like targeted PSHE session about how to support people when they need mental help...would really be beneficial. A session or two on helping out friends would be pretty good."
(P04)

However, adolescents also recognised the limitations of this approach. One shared was that while learning to help a friend might be beneficial for

some students, "...it might be a little overwhelming for other people, 'cause they might feel that they have to help people" (P12).

Lastly, most solutions provided by adolescents framed mental health literacy as a responsibility of the school. One adolescent explicitly linked gaps in preparedness to both gender and neurodivergence.

"I think just maybe a greater support...for men and for teenage boys 'cause...they need it like a lot... the most important thing, probably like having support or like...knowing how to help, or schools promoting how to help your friend who is struggling...maybe greater support for neurodivergent people 'cause it can be quite difficult sometimes." (P07)

This theme shows how adolescents perceive differences in support from friends based on gender and neurodivergent status. It also highlights their consistent advice on providing more specific mental health literacy and how they can offer helpful support.

6.4 Discussion

Using semi-structured interviews and hypothetical friend vignettes, this two-part study examined adolescents' support-seeking and help-giving preferences through the lens of friendship quality, the role of schools, and preferences for further training and education. Participants reflected on what motivates them to seek or avoid support from friends, what qualities make some friends more effective at helping, and their preferences for the medium of communication. They also examined the traits that define close friendships, how mental health is discussed in schools, and their willingness to approach teachers or staff. Additionally, I examined how gender identity and neurodivergent status affect support-seeking and help-giving behaviours. Through hypothetical scenarios, adolescents described how they would identify a friend in need, understand their difficulty, and offer help accordingly. They also discussed their comfort level with encouraging support from an adult and shared their views on mental health literacy training.

Summary of Findings

Four main themes emerged. First, adolescents viewed friends as key sources of support; although the quality of friendship and the quality of support were separate but related concepts. Friendship quality seemed to determine whether adolescents *sought* support, whereas support quality seemed to define whether that support was *helpful*. However, these two were interrelated, where sometimes a friend lower in closeness but higher in the quality of support they provided was perceived as helpful. This finding is important and offers a new understanding of how friendship quality and support quality exist within adolescents' friendships, as these aspects have not been separated into distinct areas (Langheit & Poulin, 2024; Shin & Gyeong, 2022). Adolescents discussed certain skills that contributed to support quality, which their friends possessed or lacked, and how these influenced the helpfulness of support, such as emotional intelligence and literacy / knowledge. This finding provides some support for those interventions that have, in the past, included socio-emotional skills in adolescent mental health interventions (Pedrini et al., 2022; Espelage et al., 2015; Kehoe et al., 2014). For example, one school-based intervention involving socio-emotional skills has been proposed as a promising way to help reduce internalising and externalising symptoms (Colomeischi et al., 2022). This may be an important domain to consider when thinking about interventions for adolescent mental health and support seeking, as the results showed that when adolescents perceived their friends as high in emotional literacy or intelligence, they sought support from them and found it helpful. Adolescents discussed how shared experiences often influenced where and with whom they sought support, and a lack of shared experiences often made the support unhelpful. This finding aligns with a similar one in the literature, which assessed students' academic help-seeking and found that adolescents were more likely to nominate better-performing helpers who shared the same attributes as themselves (Zander et al., 2019).

Second, adolescents were strategic in seeking support from friends, choosing the *right* friend at times, but also confided in family members, such as a parent or sibling, instead of friends. They highlighted that various friends and authentic social groups played different roles in their lives; for example, online friends offered anonymity, while friendship groups composed of older adolescents provided a diverse perspective. This finding was consistent with a recent qualitative analysis, which investigated adolescents seeking support from their friends during self-harm, where adolescents emphasised the varying

roles taken on by their friends (Bilello et al., 2025). This theme portrays adolescents as active agents in their support-seeking and provision. It suggests that if adolescents report receiving unhelpful support despite a strategic support-seeking approach, providing skills or knowledge to adolescents may be key to helping them support their friends. However, this also raises ethical issues about when friend support might become burdensome.

Then, the third theme centred on the role of schools, which were seen as valuable but secondary to friends with limitations. Schools and teachers were important as formal safety nets for addressing concerns, especially when issues arose around school belonging or when friend support was insufficient. For example, almost all adolescents recommended that the GD and neurodivergent hypothetical friend should seek teacher or school support, or that they would seek it on their hypothetical friend's behalf. This was an important finding because, despite limitations, adolescents believed that teachers had a valuable role to play in escalation, which contradicts some literature that overlooks the importance of teachers outside of academic support (Ibrahim & El Zaatari, 2020). On the other hand, sometimes teachers can be a key source, as one systematic review found a small number of studies that examined interventions where teachers act as gatekeepers to identify and support at-risk students in suicide prevention (Mo et al., 2018). Given that multiple studies have found school climate to play a central role in students' mental health and well-being outcomes (Patalay et al., 2020; Izaguirre et al., 2023; Jefferson et al., 2023; Rudolf & Lee, 2023; Singla et al., 2021), this finding urges schools to consider their role as formal safety nets and determine the best way to utilise it to support students, especially the more marginalised students. However, limitations that made adolescents reluctant to seek support for themselves or a friend from a teacher included a lack of trust, confidentiality, and approachability, a lack of relatability, and structural barriers like limited awareness of mental health counsellors at school and long waiting lists. One potential suggestion for schools, based on this research, is to prioritise building positive relationships between teachers and students (e.g., fostering trust and approachability among teachers). A recent study found that when these relationships are negative, students tend to be less engaged in school (Kang et al., 2023). Some adolescents also expressed a need for student-informed support systems to be in place at their school, such as mental health literacy lessons informed by a student survey to identify specific needs. Referred to as

'participatory action research' in existing literature, this approach showed that involving students' perspectives helped the school gain a deeper understanding of their well-being, and student-led discussions about positive education also yielded promising outcomes (Halliday et al., 2019).

The final theme addressed the role of diversity and preparedness in shaping support-seeking and help-giving preferences of adolescents. Many adolescents observed differences across gender, particularly for boys. Most commonly, multiple adolescents reported that in their own and observed experiences of seeking support, boys preferred to seek support from friends in dyads, while girls within groups. Girls were also more open to having discussions about mental distress, and adolescents equated boys' unwillingness to disclose to gender norms and stigma around boys' mental health and help-seeking. In Chapters 3 and 4, gender was found to moderate the relationship between friendship quality and mental health and well-being, which helps explain one potential mechanism behind this difference. However, boys' seeking support from dyads is also a somewhat unexpected finding, as one study has shown that within young children's friendship groups, girls were observed to engage in play with dyads, while boys were observed to engage with larger groups (Powell et al., 2016). It is possible that the finding may be more relevant for primary-school children or in the context of play alone.

Although this study included only a small number of neurodivergent adolescents ($n = 3$), they shared overlapping insights into how their identity influences their friendship differences. One common theme was that neurodivergent adolescents valued homophily, where friends shared their identity. Common reasoning behind this was the value of shared struggles, validation, and greater understanding. This finding was reassuring because it was also found in a qualitative study with neurodivergent adults who said that their friendships were largely composed of other neurodivergent adults for reasons similar to the ones mentioned by adolescents here (Wolpe et al., 2025).

Neurodivergent adolescents potentially found it harder to communicate their needs, despite wanting to seek support. This suggests that there may be an unmet need here in terms of the support provided to neurodivergent adolescents at school. While SENCOs exist as tools to overcome some of the unique challenges faced by neurodivergent adolescents, one adolescent reported that they were insufficient at meeting their needs. This

resonates with literature documenting the challenges faced by neurodivergent adolescents, both academically and psychologically, leading to inequalities (Cherewick, 2024; Gillespie-Lynch et al., 2017; Moody et al., 2022). Neurodivergent adolescents may prefer receiving support from a single source, like SENCOs. This presents an opportunity for schools to provide targeted support to these students. Strategies should focus on school-wide approaches that improve support not just academically but also for their overall well-being. An initial step could be gathering student feedback on existing programs to help tailor improvements.

Finally, adolescents highlighted the need for more comprehensive and condition-specific mental health literacy to better support friends, suggesting that existing school efforts (such as PSHE lessons or assemblies) could be modified. Recommendations included dedicated PSHE lessons or assemblies focused on specific (e.g., those most prevalent in their particular school and/or year group) mental health conditions and how to find support for themselves and support friends who might be struggling. Adolescents often saw themselves as the 'first responders' to their friends, and these findings strongly suggest that they want tools for action and education on how they can not only provide support, but also try to make it so that it's helpful. Developmentally, adolescents are at a stage in their life where relationships with friends are central (Berndt, 1999; Blakemore, 2008; Hartup, 1992), and often adolescents and their friends experience similar distress (Hiatt et al., 2015), but they perceive the mental health literacy available to them as insufficient in recognising their real-life struggles.

6.4.1 Reflexivity and the Researcher's Position

Reflexive thematic analysis requires researchers to reflect on how their knowledge, beliefs, and experiences may influence qualitative coding (Braun et al., 2022). I conducted this study as a doctoral student in psychiatry at the University of Oxford. As my thesis focuses on adolescent friendships, mental health, and support-seeking from friends, this background inevitably shaped both my interest in the topic and the interpretive lens I brought to the analysis. On the one hand, this focus gave me a degree of expertise and sensitivity to how adolescents talked about friendship and support. On the other hand, it may also have primed me to pay closer attention to certain aspects of the data,

particularly when adolescents might have emphasised the importance of friends.

Being an external adult researcher may have influenced responses, as could the University of Oxford affiliation, affecting perceptions of me. For example, adolescents' perception of authority or expectations may have influenced their willingness to be open. The use of hypothetical friend vignettes possibly eased discussion on sensitive topics like gender and neurodivergence, reducing discomfort and encouraging reflection. This method may have prompted some participants to respond in abstract or normative terms rather than based on personal experience. Nonetheless, the vignettes provided a scaffold for exploring friendship support and participants' views beyond direct questions.

Being a student shaped both the research process and the interpretation of findings. Sharing student status with participants helped build rapport through common academic pressures and peer relationships, fostering a conversational atmosphere where participants felt understood. On the other hand, being a student with a background in psychiatry may have influenced how participants framed their responses, leading them to assume particular areas of knowledge or expectations.

In line with reflective thematic analysis, I recognise themes were actively constructed through my engagement with transcripts (Braun et al., 2022; Braun & Clarke, 2019). I kept reflexive memos and revisited transcripts to examine how my assumptions and knowledge influenced coding and theme development. To address this, I refined themes and added sub-themes to better capture the student voice.

6.4.2 Strengths and Limitations

The main strength of this study was that it evaluated adolescents' experiences through two ways: lived experiences and hypothetical situations.

The study had certain limitations. The sample was primarily composed of girls, with half coming from an all-girls school. It is also possible that the schools included might value mental health literacy programs or courses, as many students mentioned that their schools prioritise mental health. Therefore, it's uncertain how the results might translate to adolescents attending schools without dedicated mental health education.

Similarly, one limitation arises from missing information; data on school-level characteristics, including school type and socio-economic background, were not collected from all students. Consequently, this restricts how widely the findings can be interpreted across different educational settings and limits the ability to determine whether the results might differ among various school environments.

A further limitation concerns how adolescents may have responded to my questions. It is possible that adolescents aimed to give a 'correct' answer and thus responded in a socially desirable way. Although efforts were made to mitigate this by informing adolescents that there are no right or wrong answers, especially regarding the hypothetical vignettes, it remains impossible to determine whether social desirability bias influenced their responses.

Next, I only interviewed adolescents aged 16 to 18. This might have reflected a bias which might make the results harder to generalise across all adolescents. While many adolescents in my study mentioned academic stress as a variable, they were also in an academic stage where they were preparing for exams such as their A-levels and applying to university. Thus, the results should be interpreted with this in mind.

Finally, although efforts were made to recruit a diverse sample, the adolescents in my study showed limited diversity. For example, I was unable to recruit any gender-diverse adolescents, so their perspective is absent. While including a gender-diverse hypothetical friend could help understand how adolescents might support a gender-diverse friend, this limits my ability to draw precise conclusions about the specific needs of gender-diverse adolescents.

6.4.3 Implications

Despite the limitations, the findings of this study have two important implications for mental health literacy and intervention strategies. First, adolescents described schools as playing an important role in serving as a safety net, especially when issues concern school climate or belonging, such as bullying. However, friends remained the central source of support. Thus, schools should not be tasked with replacing the supportive role of friends, but rather with equipping them with the necessary skills. Schools should consider how the programs and resources they provide to adolescents for mental health literacy and support can be informed by students, and condition-focused.

Adolescents, both as supporters and those seeking help, actively decide whom to approach for support and how to provide it. They also recognise the importance of setting boundaries, whether for themselves or for friends, and know when to establish them. Adolescents expressed a clear and explicit need for schools to equip them with specific knowledge about mental health and support provision. These results align with recent qualitative data from adolescents, who also express the same need (Goodwin et al., 2023). Schools can learn from this information and use a range of approaches, such as focus groups, whole school surveys, or student representatives, to understand how best to support their students and establish a whole-school approach, given the importance of diverse perspectives highlighted by adolescents in this study (Hoare et al., 2017). Though there has been a critique that schools might contribute to the possibility of overmedicalisation of mental health difficulties (Foulkes & Stringaris, 2023; Merten et al., 2017), data for this is limited. Schools should also address barriers to accessing formal support, such as confidentiality concerns, waiting lists, and the need for a supportive school environment, which has been linked to better student mental health (Jessiman et al., 2022).

The second implication relates to friendship interventions, which could help inform students about boundaries in seeking and offering support, as well as skills that can enhance the quality of support, such as active listening. Support received by friends is not always perceived as helpful (Geulayov et al., 2022), and this is especially true for vulnerable populations, such as neurodivergent adolescents (Skripkauskaite et al., 2025). In fact, recent findings on support-seeking by neurodivergent adolescents who self-harmed concluded that more research is needed to understand why many of these adolescents found mental health support unhelpful (Skripkauskaite et al., 2025). This study is unique because it explains *why* support received from friends is not always helpful. Therefore, when considering friendship interventions, these could potentially be integrated into current school structures by adopting a whole-school approach. For instance, adolescents already attend PSHE lessons or assemblies to receive information. Friendships are crucial for many adolescents, and helping them understand how to differentiate between high- and low-quality friendships, as well as high- and low-quality support, might be particularly important as they learn to seek support.

Additionally, none of the interventions reviewed in Chapter 2 were explicitly designed for neurodivergent adolescents, and only two were specifically tailored for adolescent boys. The findings, combined with those from Chapters 3 and 4, suggest that these groups may have been overlooked in previous studies, particularly in leveraging friendships for mental health and well-being. They may also have additional support needs, such as guidance on articulating their needs more effectively. Approaches within the school that consider this group might be especially useful.

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Chapter 6

Discussion & Conclusion

“I spend more time with them than my family...Like when I’m at school, I’m spending like 5 hours a day with my friends or then after school I’ll go do something with my friends”. This reflection from an adolescent in my study captures a broader developmental theme: friendships emerge as a key relationship during adolescence (Bukowski et al., 1998; Kiesner et al., 2004). However, the literature gives less attention to it compared to other interpersonal relationships (Blieszner et al., 2019). A large volume of research and literature has reflected on the rising global concern of mental health difficulties and poor well-being during adolescence (Moitra et al., 2023; Wu et al., 2023), a unique and extended period of lifespan development (Sawyer et al., 2018). Rapid neurodevelopmental changes can make adolescents particularly susceptible to certain risks, but they can also present a key opportunity for positive development.

In Chapter 1, I highlighted statistics showing concerning rates of adolescent mental health difficulties. For example, over 15% of their global burden of disease comes from mental health difficulties (WHO, 2024). Many researchers are addressing this concern through a policy lens (Clemens et al., 2022), a public health lens (Fazel & Soneson, 2023), and a developmental lens (Choudhury et al., 2023). Research on interpersonal relationships, including those with family and friends, has consistently demonstrated a relationship between social outcomes, social development, and mental health: friendships high in support and positive relationships with family can lead to better outcomes for adolescents (Nguyen et al., 2024; Wu & Xia, 2024). I positioned this thesis in the argument of friends’ central role in the lives and social development of adolescents, as reflected in the literature (Alsaranni et al., 2022; Blakemore, 2018; Baumeister & Leary, 1995). Through my analyses, I can confirm that, even for modern adolescents influenced by generational shifts in social connections, such as online and offline relationships, friends remain a preferred source of informal support for distress. At the same time, they may present an underutilised opportunity to improve adolescent mental health and well-being by leveraging their role as everyday sources of support. In this final chapter, I summarise my findings, discuss the strengths and limitations of my

approach, and offer implications and future directions for the modern adolescent.

7.1. Summary of Findings

Three aims guided the research in this thesis. Below, I present a summary of how these were addressed and my findings.



1. Map the Landscape

- Identify and evaluate existing interventions
- Highlight gaps

Chapter 2

I defined the *authentic social group* as a key component of adolescents' peer group affiliation, consisting of voluntary, reciprocal relationships that may vary in quality. These groups include classmates, peers, or anyone with whom adolescents form genuine bonds based on shared interests or values, either in person or online. Using a scoping and systematic review approach, I found that interventions involving adolescents' authentic social groups were largely unexplored.

Existing interventions varied in their delivery method (online, in-person, or a combination), the individuals delivering them (teachers or external professionals), and the concerns they targeted (e.g., some were male-specific, while others were disorder-specific). A key effective component in the interventions was role-playing or using interactive learning, such as vignettes of hypothetical friends (Hart et al., 2022) or practising support-provision to virtual peers (Coleman et al., 2019). I also identified several gaps. First, there was a limited focus on the quality of friendship or specific friendship features among the interventions. Interventions did not differentiate between in-person and online friendships or the mechanisms behind how friends seek support from one another. Finally, studies did not provide measured evidence of the intervention's effectiveness for adolescents who might have been on the receiving end of support provided by a 'trained' adolescent (e.g., Caelear et al., 2021; Craig Rushing et al., 2021; Berridge et al., 2011).



2. Understand the Relationships

- Investigate how friendship dynamics relate to mental health and well-being
- Understand the role of moderating variables
- Identify particular groups that might be more vulnerable

Chapter 3A, 3B, 4

I addressed the second aim through three studies and two large datasets, encompassing both secondary school (Chapters 3A and 3B) and first-year university students (Chapter 4). I replicated findings from existing research and found that higher friendship quality was associated with better mental health and improved well-being (Alsarrani et al., 2022; Bakalim & Taşdelen Karçkay, 2016; Diaconu-Gherasim et al., 2023). Additionally, this relationship varied by gender and year group. Boys exhibited better mental health and well-being, and despite being less likely to seek support from friends, a larger proportion found the accessed support helpful (compared to other genders). GD (and GND) adolescents experienced greater mental health difficulties and lower well-being, and had the fewest high-quality friendships. Yet, a greater proportion sought support from friends when distressed. Though they were, then, the least likely to perceive that support as helpful. Mental health difficulties and lower well-being were more prevalent in older year groups (Y12, Y13), while the association between low friendship quality and poorer mental health and well-being appeared to be more pronounced in younger year groups (Y08, Y09, Y10).

In Chapter 3B, using items from the McGill Friendship Questionnaire-Friend's Function (MFQ-FF), it was found that girls rated their close friends higher across all friendship functions (help, intimacy, emotional security, and reliable alliance). GD adolescents rated their friends the lowest. High-quality friendships appeared especially vital for boys; when they had low friendship quality, there was a much greater decline in their well-being and an increased likelihood of reporting past self-harm. Generally, the function of intimacy in close friendships increased step-wise across year groups; however, some friendship functions showed a slight curvilinear pattern where they were rated lower in mid-secondary school years (e.g., emotional security, help). Neurodivergent adolescents rated their friends lower across all friendship

functions, indicating that they perceived their friendships as less intimate, reliable, emotionally secure, and helpful than those of non-neurodivergent adolescents. However, those who did not disclose their neurodivergent status rated their friendship quality the lowest. Some significant differences emerged by ethnic group, but these varied considerably; nonetheless, adolescents identifying as 'White' tended to report worse mental health and lower well-being on average, and experienced further declines when friendship quality was low. Low friendship quality was linked to a substantial decline in mental health among Arab adolescents in secondary school, although their well-being experienced only slight reductions. Adolescents with all their close friends online showed a small increase in well-being, but when their friendship quality was low, they experienced the steepest decline.

Chapter 4 focused on University students. Firstly, friendships showed an improving trend towards the end of the academic year. While at the beginning of the year, adolescents had nearly an equal proportion of friendships that had worsened, stayed the same, or improved since starting university, by the end of the year, 46% of students reported that their friendships had improved. This was an encouraging finding, as it indicated that despite many adolescents experiencing friendships that had deteriorated or remained the same, they were able to overcome this and form better friendships. However, one group of adolescents remained at risk: those whose friendships had worsened upon starting university. While about a third of these adolescents saw improvements in their friendships at follow-up, many continued to experience worsening friendships by the end of the year. One concerning trend was that anxiety increased, and well-being decreased by the end of the academic year. GD and neurodivergent adolescents, who had relatively lower scores to begin with, experienced larger declines in well-being and greater mental health difficulties. Domestic students with poor-quality friendships reported lower well-being compared to international students. While undergraduate and postgraduate students showed differences in their mental health and well-being, friendship quality seemed to matter somewhat equally for both groups. Finally, an overarching preference for in-person support seeking from friends was observed. At the same time, online support offered unique advantages, such as the ability to discuss more sensitive topics. For many, the medium of support was seen as secondary in importance to the quality of the friendship from which support was sought. Finally, the

association between friendship quality and well-being was stronger than the association between friendship quality and mental health.



3. Assess Needs & Discuss Implications

- Understand support-seeking and help-giving preferences within friendships
- Recommend effective strategies for schools based on evidence

Chapter 5, 6

In Chapter 5, four themes emerged. Theme 1 identified friendship quality and support quality as related yet distinct constructs. High-quality friendships can steer adolescents towards a source of support, as adolescents agreed that *“being closer with someone, [can make support-seeking] a lot easier”* (P14). The quality of the support received determined its helpfulness. Interestingly, adolescents sometimes valued the act of listening over the content of the support offered: *“almost more than the support that they give, the ability to listen...and actually have someone to talk through it with, even if they’re just...circling the question”* (P10). Theme 2 positioned adolescents as strategic support-seekers and help-givers. Adolescents matched their support needs to the abilities of their friends. They also recognised their own limits in providing support and when to set boundaries. Theme 3 found that adolescents perceived schools as formal safety nets with limitations. Schools and teachers were perceived as being better suited to addressing issues related to school belonging or school climate, such as bullying. However, a lack of trust in and confidentiality were limitations of teachers. Theme 4 focused on adolescents’ diverse needs and their preparedness to provide support. Differences existed between groups of adolescents, like how friendship support and provision varied between boys and girls, and that neurodivergent friendships were often characterised by homophily. Finally, mental health literacy provided at school was perceived as inadequate by interviewed adolescents. Instead, they expressed a desire for more specific knowledge, focusing on particular mental illnesses and how they might support their friends initially without involving teachers unless necessary.

7.1.1 Friendships for the Modern Adolescent

Friendships have been longstanding components of human societies (Blieszner et al., 2019; Hojjat & Moyer, 2017; Procidano & Heller, 1983). However, many aspects of friendships evolve and change over time, and one key goal of this thesis was to unpick friendships for the modern adolescent, considering their dynamic nature, as discussed in Chapter 1, and to understand what role friendships serve for the modern adolescent. One way I approached this was through the use of the MFQ-FF, which provided insight into which qualities modern adolescents value most in their friendships. By consulting a YPAG to select the items, we gained an understanding of how friendships may be evolving, as the chosen items represented some, but not all, functions covered in the MFQ-FF. The 'help' function showed the strongest associations with both mental health and well-being, and had some of the largest effect sizes when comparing group means, suggesting that adolescents particularly valued friends who would “help [them] when [they] need it”. Further evidence came from qualitative interviews, where adolescents explicitly described their best friends as individuals they could turn to in times of need.

The results also explained adolescents' preferences for seeking support and offering help, as well as the roles of online and in-person friendships and communication. For example, many adolescents preferred seeking support in person with their friends, recognising the limitations of texting. However, some adolescents highlighted the unique benefits of text-based communication, including the anonymity it offers.

Online friendships benefit adolescents by providing a unique social space for support and belonging when face-to-face interactions are not possible. As some adolescents' accounts in Chapter 5 and quantitative analyses show, those with exclusively online friends had higher well-being than those with none or some online. While online friendships lack physical support offered by in-person friends, they are valuable for adolescents separated geographically or with diverse needs who prefer to seek support online.

7.2 Strengths and Limitations

This thesis has several strengths. First, I utilised multiple large datasets. Both waves of the OxWell Student Survey were cross-sectional, measuring data at a single time point. The advantage of this was the larger sample size we

recruited and the ability to include multiple measures of friendship, mental health, and well-being. The U-Flourish Student Survey was longitudinal and measured adolescents at two time points: once at the beginning of the academic year and again at the end. This allowed us to see trends over time, which was especially important for friendships, as they are dynamic and evolve.

I also employed both quantitative and qualitative methods, incorporating the voices and lived experiences of young people. Each chapter of this thesis was informed by the preceding one, which enabled a thorough understanding of the questions being asked and how they might inform potential interventions and whole-school approaches to address these issues. For example, in Chapter 5, I chose 16 to 18-year-olds for interviews because Chapters 3A and 3B showed a step-wise increase in mental health challenges and a decline in well-being with each advancing year group. Friendships (as measured by the MFQ-FF) also rose in intimacy with each year. Hypothetical friend scenarios were employed because, as discussed in Chapter 2, role-playing or vignettes were particularly effective components of some identified interventions.

Then, my studies made an effort to focus on adolescents with marginalised identities that are sometimes underrepresented in the literature. Specifically, my secondary data analyses included both gender-diverse and neurodivergent adolescents, and my qualitative study involved a small sample of neurodivergent adolescents. Along these same lines, my secondary data analyses considered trends among those who preferred not to disclose their gender or neurodivergent identity, which may account for adolescents who might otherwise be excluded due to challenges in collecting sensitive data (Soneson et al., 2025).

Finally, this thesis tailored the measurement of friendship quality by involving adolescents in selecting specific items from the MFQ-FF which best represented their close friendships. Although the MFQ-FF is a lengthy questionnaire, making it difficult to incorporate into other surveys, and it has not been updated since 1999 (Mendelson & Aboud, 1999), this process provided an important first step towards adapting friendship quality measures to be relevant and feasible for larger surveys.

There were several limitations of this thesis that should be taken into account when interpreting the results. First, one general limitation spanning throughout this thesis is that causal interpretations cannot be made due to the

nature of the data. The OxWell Student Survey was cross-sectional, whereas the U-Flourish Survey included data collected at two time points. While the latter might offer some insight into directionality and the temporal relationship, it still did not enable causal interpretations. Thus, while friendship quality was associated with mental health and well-being, the relationships could have been bidirectional.

Another limitation was the inconsistency in measurement across datasets. The OxWell 2021 and OxWell 2023 surveys from Chapters 3A and 3B, respectively, employed two different versions of the RCADS (25-item and 11-item) and WEMWBS (14-item and 7-item). In contrast, the U-Flourish survey in Chapter 4 used GAD-7 instead of RCADS. These inconsistencies may have impacted the comparability of the findings. A similar inconsistency was observed in the measurement of ethnicity across OxWell and U-Flourish (e.g., due to a small number of Arab students, the U-Flourish survey collapsed them into the 'Other' group). However, as I worked with large datasets within research groups that were already using the data, I had limited flexibility to make changes. My secondary-school data and university-level data originated from two datasets from different labs that had been working on these surveys prior to my DPhil, which is why I was unable to alter the data included. In the future, consideration should be given to measurement consistency.

Then, while attempts were made to ensure analyses included many potentially confounding variables, no study can include every factor that could relate to the multifaceted variables of friendship and mental health. Omitted variable bias, therefore, is one limitation, as one such variable not considered in this thesis is bullying (in-person or online). Bullying can have a plethora of negative impacts on the mental health and well-being of adolescents. Several studies attest to this, with minority groups being disproportionately affected (Armitage, 2021; Birkett et al., 2009; Sapouna et al., 2023). One study specifically demonstrated that it can contribute to a negative self-image (Myklestad & Straiton, 2021). This is important to consider, given the self-report nature of the surveys used in this thesis; adolescents who experienced bullying might have responded differently to other questions if they held a negative self-image. While one hypothetical friend vignette in the qualitative study presented bullying as a struggle, it was not further explored in the quantitative analyses. This might be important to consider, given the results around minoritised groups in my study, who also maintained lower friendship quality and poorer

mental health outcomes. Other variables that may influence friendships and warrant further investigation include family dynamics (Buijs et al., 2023), socioeconomic status (Raabe et al., 2024), and personality differences (Harris & Vazire, 2016; Wrzus et al., 2017).

Although adjustments were applied to post hoc comparisons to control for Type I error, the number of statistical tests conducted across outcomes increases the possibility of false-positive findings. As such, results with smaller effect sizes or marginal statistical significance should be interpreted with caution.

A gap identified in this thesis was the lack of specific measurement tools for assessing friendship quality among modern adolescents. While one recent study adapted the MFQ-FF for use with Hungarian adolescents (Kasik et al., 2024), no further psychometric evaluations or studies involving adolescents have been conducted. Therefore, although this thesis piloted an adolescent-informed item selection, a limitation was that the items could not be combined into a single score due to an absence of psychometric evaluation. Interestingly, the items chosen by adolescents did not all align with all six functions that comprise the MFQ-FF (stimulating companionship, help, intimacy, reliable alliance, self-validation, and emotional security) (Mendelson & Aboud, 1999). Adolescents identified one item from ‘help’, one from ‘intimacy’, one from ‘emotional security’, and two from ‘reliable alliance’.

A key limitation was the lack of direct assessment of self-disclosure, a common feature of adolescent friendships that involves sharing personal information to build closeness (Costello et al., 2024). The literature consistently demonstrates that self-disclosure increases friendship intimacy (Derlega et al., 2008; Vijayakumar & Pfeifer, 2020), which could provide an alternative explanation for the observed gap between support-seeking and the perceived helpfulness of received support. Adolescents might have disclosed/sought help from their friends as a way to increase closeness, rather than solely aiming to gain effective support. This may be especially relevant for adolescents from diverse gender backgrounds, who, despite having fewer high-quality friends, sought support from friends more frequently. In such cases, disclosure could have been used as a strategy to enhance the quality of their friendships, rather than as a direct attempt to obtain helpful support.

Furthermore, this thesis did not explicitly consider the COVID-19 pandemic as a factor influencing friendships, mental health, or overall well-

being. Chapter 3A used data collected in 2021, which was shortly after the peak of the COVID-19 pandemic, but during a time when the pandemic was still ongoing. While the data collected for Chapters 3B, 4, and 5 were from 2023 onwards, a change in friendship dynamics has been observed downstream of the pandemic, specifically an increase in online social connectivity (Choi et al., 2025; Kulcar et al., 2022; Maloy et al., 2022; Tibbetts et al., 2021). My qualitative results on online support-seeking preferences in Chapter 4 and 5 captured some of this, *"During the Covid, I usually talk to my best friend online. And I got used to share my feelings via phone call. So it's not that important to talk to people in person"*, however, I did not consider the pandemic as a factor in this thesis. The literature also reports changes in mental health and well-being among UK adolescents during the pandemic. Waite et al. (2021), for example, found that adolescents experienced fewer mental health difficulties, such as a decrease in emotional symptoms. While well-being research has shown that one-third of children and adolescents reported improved well-being during the lockdown (Soneson et al., 2023). This may limit the generalisability of some findings, as we lack pre-pandemic data for comparison. However, it could also prompt further research to explore whether the nature of modern friendships has undergone any lasting changes after the pandemic.

While this thesis highlights certain minoritised groups, the datasets and adolescent participants in this research were recruited from England, which may limit the generalisability of the findings. The sample included a substantial proportion of students drawn from relatively advantaged educational backgrounds. In particular, the university sample in Chapter 4 was recruited from a highly selective institution, and participants in the qualitative study included some adolescents from private schools. These features may limit the generalisability of the findings, as patterns of friendship, support-seeking, and access to support might differ in lower-income contexts. Additionally, the study did not explore differences across low-income areas, where adolescents may be especially at risk. In such settings, utilising informal support sources can be particularly advantageous, especially for those lacking access to formal support. A goal of future research should then be to examine whether the trends identified in these studies exist in more socioeconomically diverse contexts.

Then, though quantitative analyses revealed that adolescents with all of their close friends online experienced reduced declines in well-being and fewer

mental health difficulties, the qualitative interviews did not include any adolescents who had online-only friends. Thus, while I proposed some reasons as to why this group might have had this experience, for example, online-only friends reflecting not a lack of friends, but rather a preference for friends on a different medium (Shabahang et al., 2022), I was not able to fully understand this group and their support-seeking and help-giving preferences. An important next step would be to understand how adolescents with online-only friends seek support and provide help to one another.

Another limitation is that I did not apply a research lens to map the current approaches to and needs relating to support-seeking and help-giving among university students, as well as the kind of support they might require. Due to time constraints, I was unable to conduct another study to interview university-level students, despite my findings suggesting that some of these students enter university with perceptions of poor-quality friendships and well-being, which then deteriorate by the end of the academic year. However, the free-text qualitative data offers some insight into how university-level students seek support when distressed, which is a crucial first step. Recognising this limitation will ensure that, as I continue to work with the U-Flourish survey in my postdoctoral work, I can build on these findings and further evaluate the mental health literacy and support needs of university-level adolescents.

Finally, because both the OxWell and U-Flourish surveys rely on self-reporting, it is challenging to assess the accuracy of the responses, particularly for questions where a diagnosis might be most relevant, such as the neurodivergent question. While the U-Flourish survey did ask students if they had been previously diagnosed, the self-report format remains a limiting factor.

7.3 Implications for Schools

As discussed earlier, social support is one well-researched way to buffer against poor psychological outcomes (Field & Schuldborg, 2011; Olstad et al., 2001). Less is known specifically about how the support of adolescent friends can be leveraged effectively. In Chapter 1, I covered Fazel and Soneson's (2023) interactional schema of youth mental health that highlighted schools' central role. Given their centrality and accessibility in adolescents' lives (Fazel et al., 2014; Fazel & Soneson, 2023), they are an ideal setting for interventions.

However, the interventions reviewed in Chapter 2 were varied, and complex interactions were observed between friendship quality, mental health, well-being, and individual variables. Therefore, friendship interventions might actually resemble whole-school, curriculum-based approaches, supplemented by evidence-based guidelines tailored to specific groups and contexts.

The findings elucidate group differences in adolescent friendships, their link to mental health, and support-seeking behaviours. Chapter 2 revealed varied intervention outcomes: some studies found friendships didn't last (Boda et al., 2020), others saw increased help-seeking intentions at 3- and 6-months (McGillivray et al., 2021), and one saw increased support-provision at 2 months (Yamaguchi et al., 2020). Qualitative accounts highlight adolescents' ongoing support-seeking and provision for friends, whether for exam stress or more significant issues. They are also constantly spending time with their friends and have shifting friendship dynamics, such as changing friendship groups. Adolescent friendships are universal and enduring, playing a key role in support provision. This is why a single-session friendship intervention might not be the best-suited approach; instead, intentional strategies and approaches for friendship-building and support-seeking should be embedded within the larger school curriculum.

Curriculum-based strategies have demonstrated promise in the literature. For example, in Canadian schools, researchers implemented a mental health curriculum, delivered by students' usual teachers, and found sustained improvements in students' mental health literacy over time and acceptance by both students and teachers (McLuckie et al., 2014; Kutcher et al., 2015). Another good example is bullying-prevention programs, which have evolved from individual interventions to a whole-education approach. UNESCO researchers have recommended whole-education strategies within the broader education system to tackle universally experienced issues, such as bullying, including tactics implemented across the entire school, like fostering inclusive school climates, collaborating with teachers, and involving student participation (O'Higgins Norman et al., 2022). This systemic method of integrating anti-bullying strategies in schools might also be effective for friendships because, like bullying, they can also be influenced by the entire school ecosystem.

Embedding friendship-building into the school curriculum, teacher training, and school policies may involve recognising friendships as part of

schools' duty of care, similar to how bullying is addressed (Reyes-Rodríguez et al., 2021). One way strategies could be implemented is through making intentional space for adolescent friendships in schools. This could exist at the teacher level, such as changes in assigned seating in class, which has recently been shown to be effective in increasing friendship formation among primary school children (Faur & Laursen, 2022).

Guiding adolescents how to seek support *from* their friends and *for* their friends can also involve mental health literacy. Mental health literacy was often part of the interventions I reviewed in Chapter 2, and a need for greater mental health literacy was emphasised by adolescents in Chapter 5. Since adolescents specifically want mental health literacy on common problems they face and their peers encounter, it is crucial that the design of these approaches, or even the addition of extra content to existing PSHE lessons or assemblies, incorporates the student voice. One interviewed adolescent suggested that this could be achieved through tools like school-wide student surveys to identify relevant topics. This approach could be especially important, as schools can provide vital knowledge to students that directly relates to the issues they face.

Generally, for disseminating education on serious mental health difficulties, both the review and the qualitative study suggest that external professionals might be preferable to teachers. This approach has been well received by adolescents involved in the existing interventions discussed in Chapter 2. It also addresses adolescents' concerns about trust and confidentiality with teachers when discussing more sensitive topics. Therefore, this is one way that schools can overcome barriers to adolescents seeking adult support for serious issues. Adolescents may be more willing to accept information and ask questions when delivered by someone external to the school. For example, this could involve bringing in a mental health professional when discussing sensitive topics during PSHE lessons or at school assemblies.

7.3.1 Targeted Approaches for Boys

Across the studies in this thesis, two main themes regarding boys' friendships emerged: first, boys demonstrate a heightened sensitivity to the quality of their friendships, and second, gender norms influence boys' support-seeking and help-giving behaviours. Chapter 3B demonstrated that boys' dependency on friendships was evident in a considerable drop in well-being when friendship quality was low, while Chapter 5 revealed that boys often

disclosed their stress in dyads, leaving them vulnerable when those relationships were poor. Adolescents also highlighted that, despite passive efforts by schools and media representation, stigma around male disclosure persists. For example, one adolescent stated that *“among boys, there’s a lot of stigma...if [they] say, ‘I’m like depressed or something’, [they] might be seen as...a liar”* (P13). While some male-specific initiatives (discussed in Chapter 2) showed potential in improving and supporting boys’ mental health (Calear et al., 2021; Liddle et al., 2021), a clear gap remained in efforts focused explicitly on friendship-building. Naturally, the findings emphasise two key aspects that could be included within the school to intentionally support boys’ friendships and support-seeking. First, friendship-building skills, potentially including how to initiate, maintain, and communicate with friends for support-seeking and provision, could be incorporated into existing mental health curricula. Second, based on qualitative findings, male-specific stigma was a common barrier highlighted in support-seeking. Therefore, key ways to tackle this could be prioritising efforts to reduce this stigma, such as taking opportunities to discuss it within classrooms and assemblies and integrating it within the school climate.

7.3.2 Considering Diversity: Neurodivergent and Gender-Diverse Adolescents

Neurodivergent adolescents were particularly susceptible to poor mental health and well-being. Research indicates comorbidity between neurodivergence and mental health difficulties, and some of these challenges may stem from social pressures or academic difficulties and reflect unmet needs. For instance, in Chapter 5, one neurodivergent adolescent expressed feeling unsupported by SENCO structures at school. Approaches within the school could address both peer/friend and teacher education on how to best support neurodivergent adolescents, while helping them strengthen their communication skills to facilitate help-seeking.

Similarly, gender-diverse adolescents consistently reported experiencing poorer quality friendships, greater mental health difficulties, and lower well-being. Although gender-diverse adolescents were not included in my qualitative interviews due to low recruitment, the quantitative results suggest possible ways forward for a group that may be at increased risk. When presented with the hypothetical vignette of the gender-diverse friend experiencing bullying, adolescents were almost all in agreement that such

school climate issues warrant teacher involvement. Therefore, schools might consider ways to reduce barriers to seeking help from teachers, such as clearly indicating how that support can be sought, as some adolescents reported not knowing how to seek that support.

7.3.3 Strategies at the University Level

My results show that both undergraduate and postgraduate university students experience similar associations between friendship and mental health difficulties. Qualitative accounts from Chapter 4 revealed that in-person support-seeking was preferred, but barriers such as lack of friends or geographical distance sometimes prevented it. Existing interventions, such as the one evaluated in Chapter 2, target only undergraduates (Boda et al., 2020). However, postgraduate and international students may also benefit from support, especially since those entering university with less support (low-quality friendships) or greater mental health difficulties and lower well-being tend to decline over the academic year. Therefore, approaches which target friendship-building and offer ways to seek support might be especially important for these groups. These approaches might also be best suited if implemented throughout the academic year, as the pre-existing intervention by Boda et al. (2020), which was implemented at the beginning of the year, found that friendship groups had dissolved at the 12-month follow-up.

Furthermore, the results from Chapter 4 present one clear recommendation for universities. That is, they may benefit from understanding what groups of adolescents are entering at risk (and remaining at risk by the end of the academic year). Surveys such as U-Flourish could represent an important partnership between university administration and researchers. This might help them adapt their pre-existing induction and orientation approaches for adolescents who could benefit from them.

7.3.4 Important Considerations

Two significant considerations must be taken into account when implementing school-based strategies to support adolescent friendships. Firstly, it is crucial to acknowledge that although friend support is valuable, it does not substitute for professional clinical support in cases of more serious issues. Therefore, schools should ensure that adolescents are educated on when

and how to escalate situations, both for their own safety and for that of their friends.

And second, an essential consideration for any school-based programme for adolescents is to evaluate the potential risks and reduce harms (Guzman-Holst et al., 2025; Foulkes & Stringaris, 2023). Some evidence indicates that these risks include, but are not limited to, the overmedicalisation of specific mental health issues (Spicer et al., 2022), social contagion phenomena (Bastiampillai et al., 2013), the provision of unsafe advice by friends (Beshara, 2013), or an increased burden on friends (Hollingsworth, 2014), which bring ethical concerns. Almost all the adolescents in my qualitative study could remember a time when supporting a close friend made them feel burdened. Although they shared ways they overcame this burden, accounts were generally varied. Schools can therefore offer support to these adolescents by clearly outlining how they can support their friends while setting healthy boundaries for themselves. This highlights the importance of involving students in the design, as they should be consulted on what they want to learn to ensure that relevant topics are covered.

7.4 Implications for Researchers

Aside from implications for friendship-based approaches, this thesis has further implications for future research. One implication of this study is for low- and middle-income countries (LMICs), where adolescent mental health issues are common and resources are scarce (Pozuelo et al., 2022; Moitra et al., 2022). Global mental health research has emphasised the urgent need for scalable, sustainable, and community-based solutions (Davidson et al., 2015). The school environment might face more challenges in low-resource settings, not only in implementing interventions but also in maintaining academic standards (Fazel et al., 2014). However, schools inherently offer an important opportunity to build and sustain social networks, and one implication is how these networks and support systems can be maintained or reinforced by schools. A future focus could be on understanding how scalable changes can be made to the school curricula in LMICs to support adolescent friendships and improve mental health awareness. In this way, leveraging friends as natural support networks might extend the reach of mental health promotion and support in areas where formal services might be limited. Given the lack of

friendship interventions identified in Chapter 2 for LMICs, it might be an especially important area to focus on next.

A key finding across the chapters was the distinction between mental health and well-being. Previous researchers have emphasised that mental health and well-being are separate constructs (Patalay & Fitzsimons, 2016), and this thesis adds to that understanding, particularly in the context of adolescent friendships. While higher friendship quality was linked to fewer mental health difficulties and greater well-being, the effects were more pronounced for well-being. Similarly, different variables varied in their ability to moderate the relationship between friendship quality with mental health and well-being. For instance, boys, as shown in Chapter 3B, experienced a much larger decline in well-being when their friendship quality was low. This indicates that, for some adolescents, the quality of friendship may play a more vital role in boosting well-being than in protecting against mental health difficulties. The association between friendship and well-being supports positive psychology frameworks in existing literature (Anderson & Fowers, 2020; Noble & McGrath, 2015). Conversely, mental health difficulties such as anxiety and depression might be influenced by additional variables, including individual and contextual risk factors (Patalay & Fitzsimons, 2016; Keller, 2020; Schultze-Lutter et al., 2016). Given the link between friendship quality and well-being, future research should explore the dynamics and features of friendships that contribute to making them 'high quality'. Since adolescent well-being can encompass multiple domains (Ross et al., 2020), researchers need to examine how friendships impact different facets of well-being.

In Chapter 1, I defined the concept of an authentic social group. Based on the qualitative data I gathered in Chapters 4 and 5, I concluded that the concept of an authentic social group is appropriate when examining adolescent friendships, especially in the context of support-seeking when distressed. For some adolescents, their authentic social group included their romantic partner ("*My girlfriend is my best friend*"), while for others, it included their sibling ("*I would consider my sister [my close friend]*"). This is an important distinction because, traditionally, the literature has focused on differentiating family as a support source from friends, often overlooking the overlap when family or romantic partners are considered friends. Consequently, there is a lack of research on how authentic social groups function as a support source when they include both family and friends. Targeting only one aspect or the other

may miss how adolescents actually organise and utilise support, since the literature has not explored how support-seeking for mental distress operates when an adolescent's authentic social group encompasses family, friends, and romantic partners. Therefore, I suggest that future research should move beyond the family-or-friend dichotomy. Support should be conceptualised through adolescents' authentic social groups, which might simultaneously encompass friends, family, and romantic partners.

Another future direction involves re-examining the scales used to assess friendship quality, especially the MFQ-FF. Measures of friendship quality are limited in research. An important next step is to use the evidence from the studies in this thesis to evaluate and recommend scales for future use that best reflect the authentic social groups of modern adolescents. I have already begun working towards this goal, and the next step involves conducting psychometric evaluations of the five items selected by the YPAG for the MFQ-FF.

Chapter 3B showed significant differences among those adolescents who preferred not to disclose (i.e. gender identity or neurodivergent status). Therefore, one implication is for future research to consider ways to investigate these groups that are largely excluded from research or treated as 'missing' (e.g. Evje et al., 2024; Spaducci et al., 2024). For example, a consistent pattern in Chapter 3B was that adolescents who did not disclose their neurodivergent identity tended to rate their close friends lowest on friendship functions. Similarly, the GND group did not behave in the same way as the GD group. For the gender variable, these nuances were missed in Chapter 3A, where the survey did not provide an option for students to differentiate between gender-diverse and gender non-disclosing.

Ultimately, the methodological approaches employed in this thesis were predominantly cross-sectional. Although the longitudinal study suggested a temporal trend regarding friendship quality and its association with mental health and well-being, subsequent research should aim to investigate potential causal mechanisms. Conducting a longitudinal study that monitors adolescents over multiple years could effectively capture the dynamic nature of friendships. Multi-year longitudinal datasets, such as the Adolescent Brain Cognitive Development (ABCD) study (Saragosa-Harris et al., 2022), may provide valuable avenues for future researchers to examine the existence of causal relationships between friendship quality, mental health, and well-being.

7.5 Conclusion

By using both quantitative and qualitative methods across a wide age range of adolescents, I found that although high-quality friendships were consistently linked to better mental health and well-being, there was variability in this relationship. Gender diverse and neurodivergent adolescents emerged as a group that struggled most with their friendships, mental health, and well-being. School-based approaches could utilise these group differences to design targeted strategies for groups that may struggle with their friendships and mental health, and those that may benefit most from additional support, such as boys, gender diverse, and neurodivergent adolescents. They should consider the role of online friends and how online support seeking can offer benefits.

A large study of secondary school students found that friends were most commonly sought for support following self-harm (Geulayov et al., 2022). Yet, fewer than half of adolescents in that sample found that support helpful. This finding, which was published during the early stages of my doctoral research, was pivotal in shaping the rationale behind my ongoing inquiry to understand both why support is not always helpful and why, despite support sometimes being unhelpful, adolescents still seek out their friends. For some adolescents, shared experiences or identity, particularly among neurodivergent adolescents, shaped whether support was perceived as helpful. For some, their friends' ability to provide meaningful support was limited by a lack of knowledge on the support-seeker's specific problem, especially if it was mental health-related (e.g. eating disorder, health anxiety). This is consistent with the literature, which shows mental health literacy influences help-giving to hypothetical friends (Hart et al., 2022).

When considering approaches to support or augment adolescent friendships within schools, a whole-school approach is likely to be more beneficial than a standalone intervention. Given the universal nature of friendships, strategies to support their formation, maintenance, and supportiveness should instead be integrated into the broader school curriculum and climate. Friends already support each other, and they learn how to do so through trial and error, natural development, and perhaps online or through exposure to mainstream media. This results in variability in the support provided by adolescents to their friends, largely dependent on experience and influenced by social norms, especially among boys.

Incorporating friendships into existing school systems can, therefore, aim to level the playing field by teaching essential skills to address these disparities in support-seeking and help-giving. These may include increasing adolescents' mental health literacy, teaching them ways to support a friend, ask for help, recognise their own boundaries, and escalate concerns to an adult. These can be embedded within a school setting and integrated into familiar routines, such as assemblies and PSHE lessons, which can increase their acceptance and reduce some barriers (e.g. time constraints and perceived acceptability) for school implementation (Moore et al., 2022). As some adolescents enter university with low-quality friendships, mental health difficulties, and low well-being, these approaches should also be considered for them, extending them to include both undergraduates and postgraduates.

The world's longest ongoing study, spanning more than 80 years, has consistently found that high-quality, close relationships are one of the key contributors to a life marked by high well-being (Brill, 2014; Waldinger & Glueck, 2017). This thesis corroborates this core finding and adds nuance to this relationship for adolescent friends. Considering their relevance across the lifespan, equipping adolescents with the knowledge to recognise when a friend is struggling, understand their distress, and know how they can best offer support can increase their positive influence. This presents an early step towards leveraging one of the most underutilised and scalable sources of support for adolescent mental health and wellbeing: friendship.

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Appendix A

Sample search criteria

Web of Science

(minor* OR boy* OR girl* OR school* OR pupil* OR adolescen* OR juvenil* OR youth* OR teen* OR pubescen* OR prepub* OR pre-pub* OR preadolescen* OR pre-adolescenc* OR "young adult*" OR "young people" OR "young person" OR "young man" OR "young men" OR "young woman" OR "young women" OR student*) (Topic) and (friend* OR peer* OR "authentic social group*") (Topic) and (depress* OR anxiety OR anxious OR "mental health" OR suicid* OR "eating disorder*" OR bulimi* OR anorexi* OR anhedonia OR wellbeing* OR well-being) (Topic) and (intervention* OR ipt OR "interpersonal psychotherapy" OR "study" OR "trial") (Topic) and 2022 or 2021 or 2020 or 2019 or 2018 or 2017 or 2016 or 2015 or 2014 or 2013 or 2012 or 2011 or 2010 or 2009 or 2008 or 2007 or 2006 or 2005 or 2004 or 2003 or 2002 or 2001 or 2000 (Publication Years)

ERIC

TX ((minor* OR boy* OR girl* OR school* OR pupil* OR adolescen* OR juvenil* OR youth* OR teen* OR pubescen* OR prepub* OR pre-pub* OR preadolescen* OR pre-adolescenc* OR "young adult*" OR "young people" OR "young person" OR "young man" OR "young men" OR "young woman" OR "young women" OR student*)) AND TX ((friend* OR peer* OR "authentic social group*")) AND TX ((depress* OR anxiety OR anxious OR "mental health" OR suicid* OR "eating disorder*" OR bulimi* OR anorexi* OR anhedonia OR wellbeing* OR well-being)) AND TX ((intervention* OR ipt OR "interpersonal psychotherapy" OR study OR trial))

Limiters - Date Published: 20000101-20211231 Expanders - Apply equivalent subjects

Search modes - Boolean/Phrase

Appendix B

Table B1. ANOVA results for individual-level variables across friendship functions as measured by five select items from the MFQ-FF

Demographic Variable	Degrees of Freedom (Df)	Sum of Squares (Sum Sq)	Mean Square (Mean Sq)	F value	P-value
1. Intimacy: “are people I can tell private things to”					
Ethnic Group	5	363	72.69	12.76	<.0001***
Residuals	19023	108384	5.70	-	-
Gender	3	1495	498.2	88.37	<.0001***
Residuals	19025	107253	5.6	-	-
Year Group	6	600	99.97	17.58	<.0001***
Residuals	19022	108148	5.69	-	-
Neurodivergent	3	668	222.80	38.03	<.0001***
Residuals	24497	143507	5.86	-	-
Importance of in-person support	2	4317	2158.4	379.6	<.0001***
Residuals	24201	137591	5.7	-	-
2. Reliable Alliance: “would stay my friend even if other people criticized me”					
Ethnic group	5	238	47.65	10.24	<.0001***
Residuals	19023	88523	4.65	-	-
Gender	3	346	115.22	24.79	<.0001***
Residuals	19025	88415	4.65	-	-
Year Group	6	16	2.686	0.576	0.75
Residuals	19022	88745	4.665	-	-
Neurodivergent	3	879	293.10	60.27	<.0001***
Residuals	24497	119138	4.86	-	-
Importance of in-person support	2	1505	752.6	156.5	<.0001***
Residuals	24201	116356	4.8	-	-
3. Emotional Support: “makes me feel better when I’m upset”					
Ethnic group	5	100	19.999	4.126	0.0009***
Residuals	19023	92195	4.847	-	-
Gender	3	2492	830.7	176	<.0001
Residuals	19025	89803	4.7	-	-
Year Group	6	357	59.45	12.3	<.0001***
Residuals	19022	91939	4.83	-	-
Neurodivergent	3	958	319.2	63.95	<.0001***
Residuals	24497	122275	5.0	-	-
Importance of in-person support	2	5011	2505.5	520.5	<.0001***

Residuals	24201	116494	4.8	-	-
4. Reliable Alliance: “would want to stay my friend if we didn’t see each other for a few months”					
Ethnic group	5	141	28.119	6.475	<.0001***
Residuals	19023	82609	4.343	-	-
Gender	3	522	173.87	40.23	<.0001***
Residuals	19025	82228	4.32	-	-
Year Group	6	56	9.341	2.149	0.045*
Residuals	19022	82693	4.347	-	-
Neurodivergent	3	679	226.22	50.61	<.0001***
Residuals	24497	109507	4.47	-	-
Importance of in-person support	2	1580	790.0	178.9	<.0001***
Residuals	24201	106853	4.4	-	-
5. Help: “helps me when I need it”					
Ethnic group	5	88	17.672	3.995	0.0013**
Residuals	19023	84157	4.424	-	-
Gender	3	1556	518.8	119.4	<.0001***
Residuals	19025	82689	4.3	-	-
Year Group	6	157	26.194	5.925	<.0001***
Residuals	19022	84088	4.421	-	-
Neurodivergent	3	1146	382.1	83.47	<.0001***
Residuals	24497	112124	4.6	-	-
Importance of in-person support	2	4227	2113.5	477.2	<.0001***
Residuals	24201	107174	4.4	-	-

Table B2. Mean friendship function ratings by individual-level variables with significant comparisons

Demographic Variable	Level	Mean Scores	Significant Comparisons	P-value
1. Intimacy: “are people I can tell private things to”				
Ethnic Group	White (aggregated)	5.372	White vs. Asian/Asian British	0.000
	Mixed/Multiple Ethnic Groups (aggregated)	5.280	White vs. Black/Black British/African/Caribbean	0.000
	Asian/Asian British (aggregated)	5.156	White vs. Other	0.009
	Black/Black British/African/Caribbean (aggregated)	4.902	Mixed/Multiple Ethnic Groups vs. Black/Black British/African/Caribbean	0.004
	Arab	5.105		
	Other ethnic group	4.960		
Gender	Girl	5.544	Girl vs. Boy	<0.0001
	Boy	5.032	Girl vs. Gender diverse	<0.0001
	Gender diverse	4.723	Girl vs. Gender non-disclosing	<0.0001
	Gender non-disclosing	4.712	Boy vs. Gender non-disclosing	0.026
Year Group	Y07	5.023	Y07 vs. Y08	0.002
	Y08	5.243	Y07 vs. Y09	0.002
	Y09	5.241	Y07 vs. Y10	<0.001
	Y10	5.361	Y07 vs. Y11	<0.001
	Y11	5.418	Y07 vs. Y12	<0.001
	Y12	5.561	Y07 vs. Y13	<0.001
	Y13	5.668	Y08 vs. Y12	0.000
			Y08 vs. Y13	<0.001
			Y09 vs. Y12	<0.001
			Y09 vs. Y13	<0.001
			Y10 vs. Y13	0.007
Neurodivergent	Yes	5.06	No vs. Yes	<0.0001
	No	5.36	Prefer not to say vs. Yes	0.0006
	Not sure	5.11	Not sure vs. No	<0.0001
	Prefer not to say	4.51	Prefer not to say vs. No	<0.0001
			Prefer not to say vs. Not sure	<0.0001
Importance of in-person support	Not Important	4.71	Not Important vs. Indifferent	<0.0001
	Indifferent	5.45	Not Important vs. Important	<0.0001
	Important	5.69	Indifferent vs. Important	<0.0001
2. Reliable Alliance: “would stay my friend even if other people criticized me”				
Ethnic Group	White (aggregated)	6.274	White vs. Black/Black British/African/Caribbean	0.007
	Mixed/Multiple Ethnic Groups (aggregated)	6.214	White vs. Arab	0.035
	Asian/Asian British (aggregated)	6.181	White vs. Other	<0.001

	Black/Black British/African/Caribbean (aggregated)	6.010	Mixed/Multiple Ethnic Groups vs. Other	0.004
	Arab	5.884	Asian/Asian British vs. Other	0.004
	Other ethnic group	5.745		
Gender	Girl	6.310	Girl vs. Boy	<0.0001
	Boy	6.158	Girl vs. Gender diverse	<0.0001
	Gender diverse	5.570	Girl vs. Gender non-disclosing	0.00022
	Gender non-disclosing	5.888	Boy vs. Gender diverse	0.00012
			Boy vs. Gender non-disclosing	0.04189
Year group	No significant comparisons			
Neurodivergent	Yes	5.89	No vs. Yes	<0.0001
	No	6.29	Not sure vs. Yes	0.00067
	Not sure	6.07	Prefer not to say vs. Yes	0.00434
	Prefer not to say	5.42	Not sure vs. No	<0.0001
			Prefer not to say vs. No	<0.0001
			Prefer not to say vs. Not sure	<0.0001
Importance of in-person support	Not Important	5.87	Not Important vs. Indifferent	<0.0001
	Indifferent	6.22	Not Important vs. Important	<0.0001
	Important	6.47	Indifferent vs. Important	<0.0001

3. Emotional Support: “makes me feel better when I’m upset”

Ethnic Group	White (aggregated)	5.994	White vs. Other	0.003
	Mixed/Multiple Ethnic Groups (aggregated)	5.964	Mixed/Multiple Ethnic Groups vs. Other	0.023
	Asian/Asian British (aggregated)	6.042	Asian/Asian British vs. Other	0.001
	Black/Black British/African/Caribbean (aggregated)	5.952	Black/Black British/African/Caribbean vs. Other	0.045
	Arab	5.941		
	Other ethnic group	5.562		
Gender	Girl	6.321	Girl vs. Boy	<0.0001
	Boy	5.638	Girl vs. Gender diverse	<0.0001
	Gender diverse	5.155	Girl vs. Gender non-disclosing	<0.0001
	Gender non-disclosing	5.534	Boy vs. Gender diverse	0.0023
Year Group	Y07	6.189	Y07 vs. Y09	<0.0001
	Y08	6.070	Y07 vs. Y10	<0.0001
	Y09	5.876	Y07 vs. Y11	<0.0001
	Y10	5.811	Y08 vs. Y09	0.0026
	Y11	5.864	Y08 vs. Y10	<0.0001
	Y12	5.998	Y08 vs. Y11	0.0048
	Y13	6.080	Y10 vs. Y13	0.0153
Neurodivergent	Yes	5.68	No vs. Yes	<0.0001
	No	6.09	Not sure vs. Yes	0.0222
	Not sure	5.81	Prefer not to say vs. Yes	0.0035
	Prefer not to say	5.21	Not sure vs. No	<0.0001
			Prefer not to say vs. No	<0.0001
			Prefer not to say vs. Not sure	<0.0001
Importance of in-person support	Not Important	5.36	Not Important vs. Indifferent	<0.0001
	Indifferent	6.17	Not Important vs. Important	<0.0001
	Important	6.41	Indifferent vs. Important	<0.0001

4. Reliable Alliance: "would want to stay my friend if we didn't see each other for a few months"

Ethnic Group	White (aggregated)	6.383	White vs. Asian/ Asian British	0.04408
	Mixed/ Multiple Ethnic Groups (aggregated)	6.377	White vs. Other ethnic group	0.00074
	Asian/ Asian British (aggregated)	6.264	Mixed/ Multiple Ethnic Groups vs. Other	0.00385
	Black/ Black			
	British/ African/ Caribbean (aggregated)	6.268	Asian/ Asian British vs. Other	0.04075
	Arab	6.237		
Gender	Other ethnic group	5.914		
	Girl	6.453	Girl vs. Boy	<0.0001
	Boy	6.266	Girl vs. Gender diverse	<0.0001
	Gender diverse	5.505	Girl vs. Gender non-disclosing	<0.0001
	Gender non-disclosing	6.004	Boy vs. Gender diverse	<0.0001
Year Group			Gender diverse vs. Gender non-disclosing	0.017
	No significant comparisons			
Neurodivergent	Yes	6.08	No vs. Yes	<0.0001
	No	6.43	Prefer not to say vs. Yes	0.0200
	Not sure	6.18	Not sure vs. No	<0.0001
	Prefer not to say	5.70	Prefer not to say vs. No	<0.0001
			Prefer not to say vs. Not sure	0.0012
Importance of in-person support	Not Important	5.98	Not Important vs. Indifferent	<0.0001
	Indifferent	6.42	Not Important vs. Important	<0.0001
	Important	6.57	Indifferent vs. Important	<0.0001

5. Help: "helps me when I need it"

Ethnic Group	White (aggregated)	6.383		
	Mixed/ Multiple Ethnic Groups (aggregated)	6.377		
	Asian/ Asian British (aggregated)	6.264		
	Black/ Black			
	British/ African/ Caribbean (aggregated)	6.268		
	Arab	6.237		
Gender	Other ethnic group	5.914		
	Girl	6.409	Girl vs. Boy	<0.0001
	Boy	5.967	Girl vs. Gender diverse	<0.0001
	Gender diverse	5.143	Girl vs. Gender non-disclosing	<0.0001
	Gender non-disclosing	5.534	Boy vs. Gender diverse	<0.0001
Year Group			Boy vs. Gender non-disclosing	0.00029
	Y07	6.295926	Y07 vs Y09	0.00010
	Y08	6.212800	Y07 vs Y10	0.00092
	Y09	6.072614	Y07 vs Y11	0.00165
	Y10	6.081663		
	Y11	6.084073		

	Y12	6.23842 3		
	Y13	6.25860 3		
Neurodivergent	Yes	5.82	No vs. Yes	<0.0001
	No	6.30	Not sure vs. Yes	0.0182
	Not sure	5.96	Not sure vs. No	<0.0001
	Prefer not to say	5.57	Prefer not to say vs. No	<0.0001
			Prefer not to say vs. Not sure	0.0119
Importance of in-person support	Not Important	5.60	Not Important vs. Indifferent	<0.0001
	Indifferent	6.32	Not Important vs. Important	<0.0001
	Important	6.57	Indifferent vs. Important	<0.0001

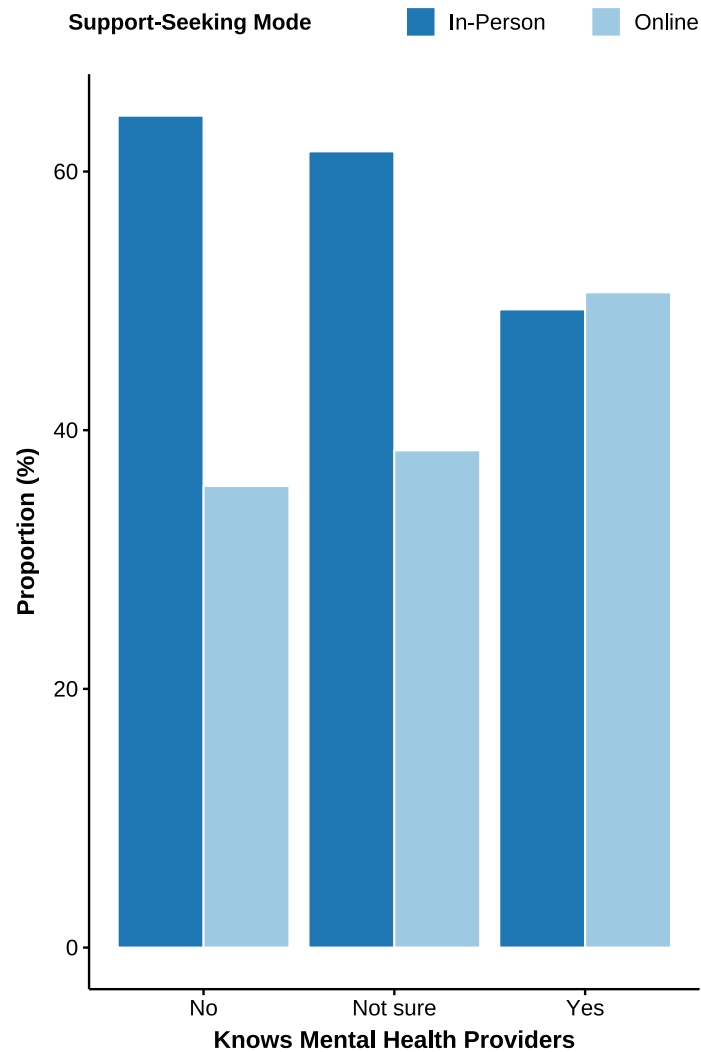


Figure B1. Proportion of online vs. in-person support seeking from friends, and “Do you know who provides mental health support in your school/college (where to go when you are worried and want to talk to an adult)?”

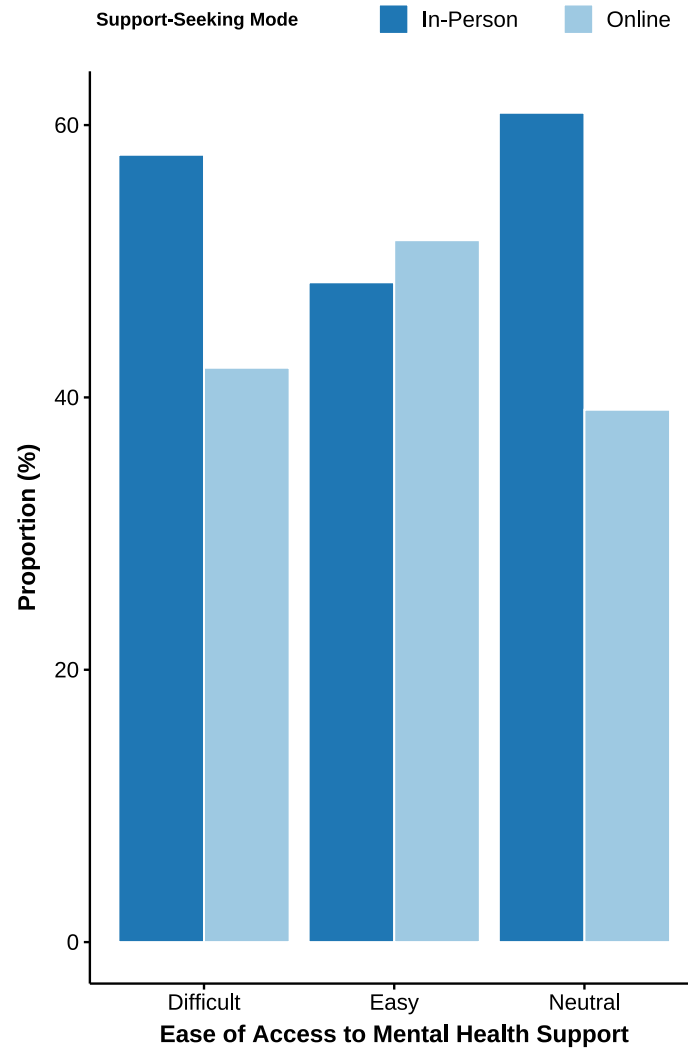


Figure B2. Proportion of online vs. in-person support seeking from friends, and “Is it easy to access mental health support at school/college?”

Appendix C

Appendix Table C1. Standardised coefficients (β) for GAD-7

Variable	β (SE)	95% CI	t(1544)	p
Friendship quality (ref: Better)				
The same vs better	0.02 (0.06)	[-0.09, 0.14]	0.37	.713
Worse vs better	0.30 (0.06)	[0.18, 0.42]	4.85	< .001 ***
Gender (ref: Female)				
GD	0.13 (0.13)	[-0.13, 0.40]	0.98	.326
GND	0.11 (0.20)	[-0.28, 0.50]	0.57	.571
Male	-0.36 (0.05)	[-0.46, -0.26]	-6.93	< .001 ***
Student type (ref: Undergraduate)				
Postgraduate	0.08 (0.06)	[-0.04, 0.19]	1.34	.181
Student status (ref: Domestic)				
International	-0.05 (0.06)	[-0.17, 0.06]	-0.90	.368
Ethnicity (ref: White)				
Asian (Chinese)	-0.15 (0.08)	[-0.30, 0.00]	-1.91	.057
Asian (Other)	-0.10 (0.08)	[-0.26, 0.06]	-1.26	.207
Black	0.26 (0.18)	[-0.10, 0.62]	1.42	.155
Other	-0.04 (0.09)	[-0.22, 0.14]	-0.42	.673
Amount of close online friends (ref: None)				
Few	-0.02 (0.06)	[-0.14, 0.11]	-0.30	.767
Some	0.10 (0.07)	[-0.04, 0.24]	1.44	.151
Most	-0.04 (0.08)	[-0.19, 0.10]	-0.58	.562
All	0.10 (0.10)	[-0.10, 0.30]	0.94	.345
Neurodivergent status (ref: No)				
Yes	0.66 (0.09)	[0.49, 0.84]	7.45	< .001 ***

Appendix Table C2. Standardised coefficients (β) for SWEMWBS

Variable	β (SE)	95% CI	t(1545)	p
Friendship quality (ref: Better)				
The same vs better	-0.13 (0.06)	[-0.24, -0.01]	-2.12	.034 *
Worse vs better	-0.57 (0.06)	[-0.69, -0.45]	-9.39	< .001 ***
Gender (ref: Female)				
GD	-0.16 (0.13)	[-0.42, 0.11]	-1.18	.239
GND	-0.28 (0.20)	[-0.66, 0.11]	-1.41	.160
Male	0.23 (0.05)	[0.13, 0.33]	4.46	< .001 ***
Study level (ref: Undergraduate)				
Postgraduate	-0.09 (0.06)	[-0.20, 0.02]	-1.63	.103
Student status (ref: Domestic)				
International	0.15 (0.06)	[0.03, 0.27]	2.42	.016 *
Ethnicity (ref: White)				
Asian (Chinese)	0.05 (0.08)	[-0.10, 0.20]	0.64	.520
Asian (Other)	-0.17 (0.08)	[-0.33, -0.02]	-2.19	.029 *
Black	-0.34 (0.18)	[-0.70, 0.02]	-1.88	.060
Other	-0.08 (0.09)	[-0.26, 0.10]	-0.86	.391
Amount of close online friends (ref: None)				
Few	0.02 (0.06)	[-0.11, 0.14]	0.31	.756
Some	-0.11 (0.07)	[-0.25, 0.03]	-1.50	.134
Most	0.04 (0.08)	[-0.10, 0.19]	0.59	.557
All	-0.23 (0.10)	[-0.43, -0.03]	-2.29	.022 *
Neurodivergent status (ref: No)				
Yes	-0.30 (0.09)	[-0.47, -0.12]	-3.36	< .001 ***

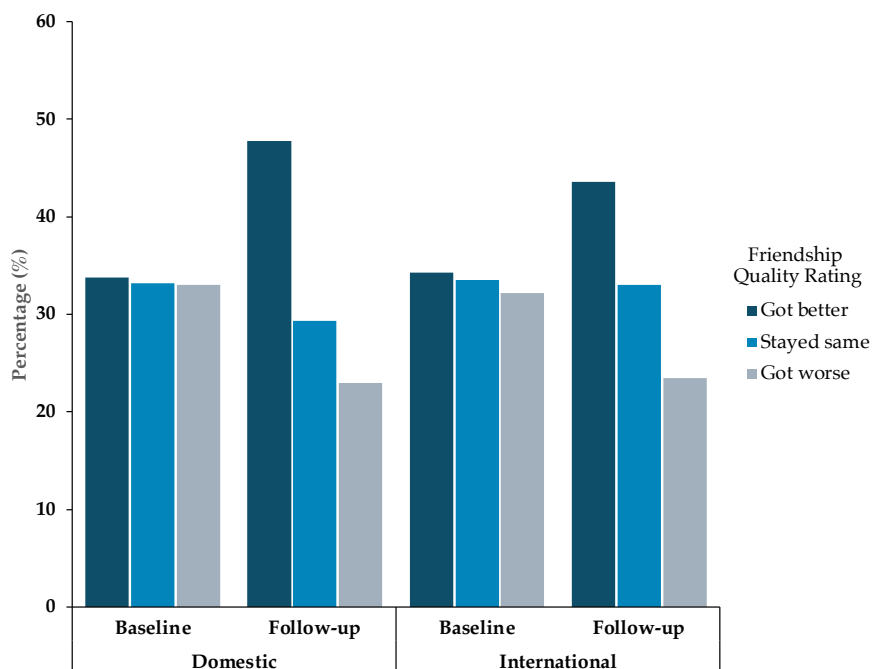


Figure C1 Changes in friendship quality from baseline to follow-up by student status

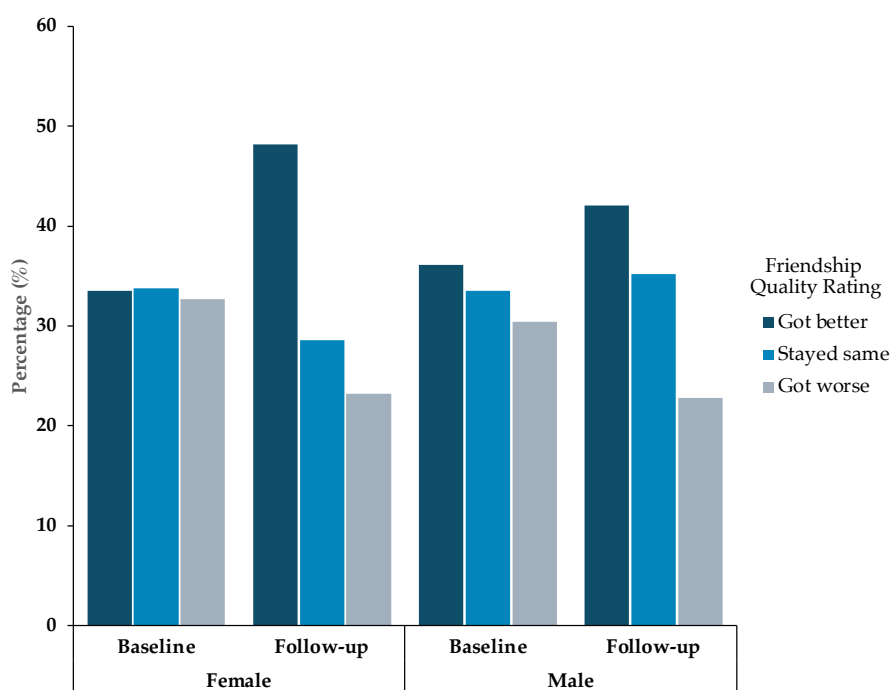


Figure C2 Changes in friendship quality from baseline to follow-up by gender

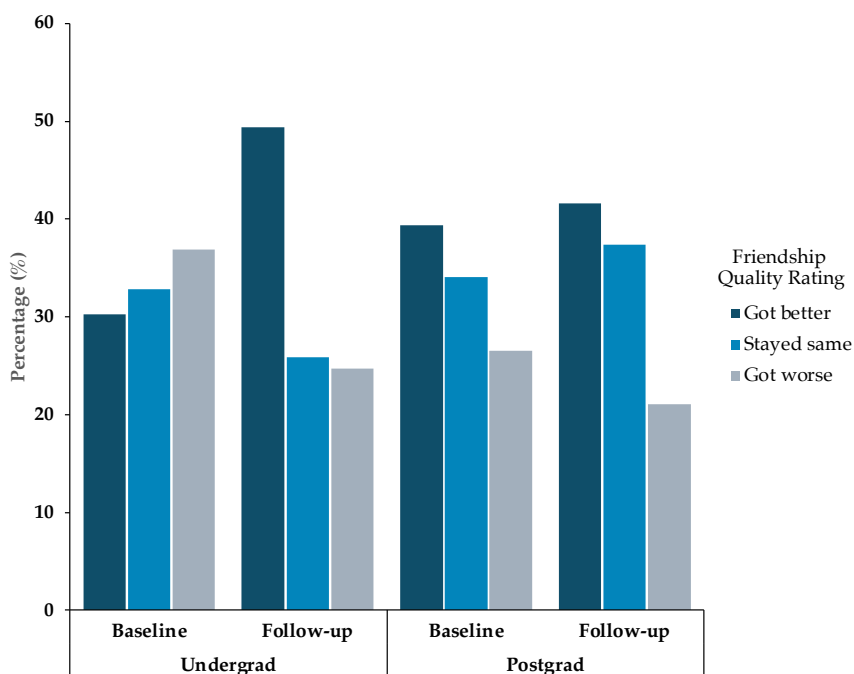


Figure C3 Changes in friendship quality from baseline to follow-up by student level

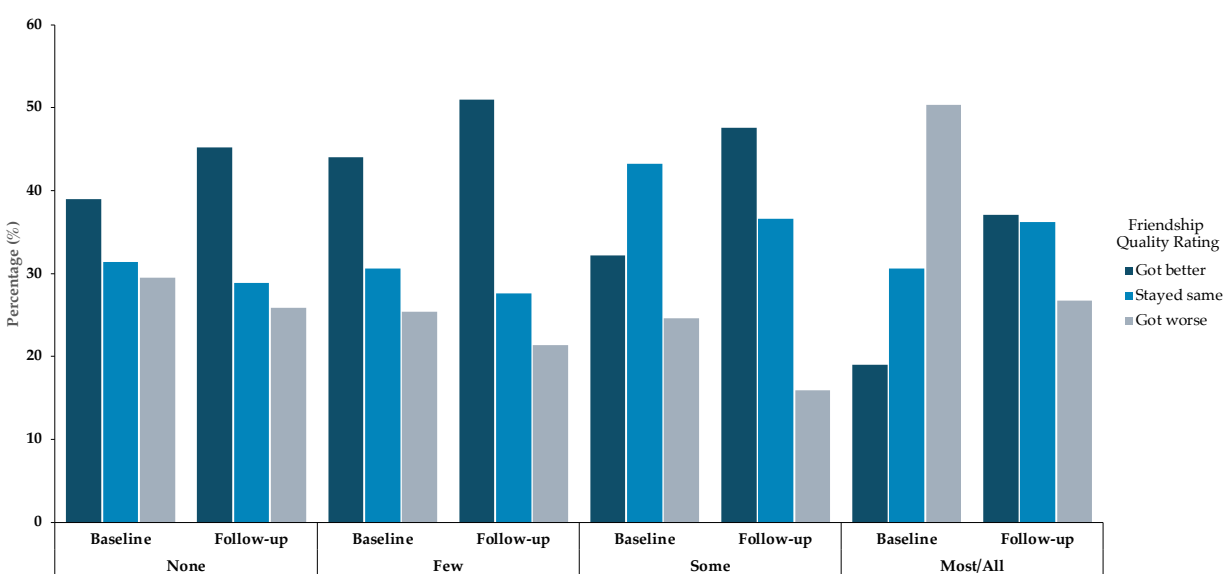


Figure C4 Changes in friendship quality from baseline to follow-up by amount of close online friends.

Note. Percentages reflect within-group proportions at each time point. “Most” and “All” were combined due to small subgroup sizes ($n < 20$).

Appendix D

Ethics Approval

MEDICAL SCIENCES INTERDIVISIONAL RESEARCH ETHICS COMMITTEE
 Research Services, Boundary Brook House, Churchill Drive, Headington, Oxford, OX3 7GB
 Tel: +44(0)1865 616575
ethics@medsci.ox.ac.uk



CONFIDENTIAL

Tanya Manchanda
 Dept of Psychiatry
 Oxford University
 Warneford Hospital,
 Oxford, OX3 7JX

7 August 2024

Dear Tanya

Research Ethics Approval - CUREC 2

Ethics Approval Reference: R94162/RE001

Study title: Investigating support-seeking and help-giving preferences for mental health within adolescent friendships.

The above application has been considered on behalf of the Medical Sciences Interdivisional Research Ethics Committee (MS IDREC) in accordance with the University's procedures for ethical approval of all research involving human participants.

I am pleased to inform you that, on the basis of the information provided to the IDREC, the proposed research has been judged as meeting appropriate ethical standards, and approval has been granted from **30th July 2024** until **29th January 2026**.

Insurance-provided indemnity arrangements are in place for the duration of the approval stated above. It is your responsibility to ensure that you request an extension to the end date for indemnity to remain in place should you continue the research beyond the dates covered.

You will be required to submit an annual progress report on each anniversary of study approval, until the study is completed, and your study may be selected for review during an annual audit.

Amendments

Should there be any subsequent changes to the study, you should submit details to the MS IDREC for consideration and approval. Details of changes must be listed on an [amendment form](#).

Yours Sincerely

DocuSigned by:

Yolande Monger

55238B5B6383436...

Mrs Yolande Monger

Research Ethics Administrator

for

Dr Helen Barnby-Porritt

Research Ethics Manager

Participant information sheet

The Friendship Study

PARTICIPANT INFORMATION SHEET

Central University Research Ethics Committee Approval Reference: **R94162/RE001**

Introductory paragraph

The Friendship Study is a new project about friendships, mental health, and wellbeing led by the University of Oxford in the Department of Psychiatry. We would like to invite you to take part in a short interview with a researcher to help us learn about issues like supporting friends in need, asking for help from friends, and what kinds of support offered from friends can be most helpful.

Why is this research being conducted?

The main purpose of this study is to help us learn about how young people give and provide support to and from their friends during difficult times, while keeping mental health and wellbeing in mind. Right now, we know that young people often turn to their friends during difficult times. However, we also know that sometimes young people who ask their friends for help, don't always find the support helpful. We also know that friendships and their quality vary between young people based on their gender identity, neurodivergence, and mental health.

In order to understand how support-seeking and help-giving work in friendships, we want to hear directly from young people like you. In the first part of this study, we want to hear about your friendships and friendship experiences. In the second part of this study, we will discuss how you might support a hypothetical friend going through a stressful time. Through this study, you will help us understand the role of a friend in being a key source of support for young people. We also hope to learn how schools can be set up to protect and support the mental health, wellbeing and friendships of students.

Why have I been invited to take part?

All students in Year 12 and 13 at your school who are at least 16 years old and who showed interest in The Friendship Study are being invited to participate. You can register your interest in the study using the secure survey sent to you. Though we ask for your demographic information, we will **not** store or use the information in any way if you do not consent to taking part in the study. In total, we're hoping to get at least 10 (and up to 20) students. We know friendships can be different for females, males, or gender diverse young people, so if we get

more interest than this, we will aim to select a diverse range of participants to understand as many viewpoints as possible.

Do I have to take part?

No. It's up to you to decide whether to take part in the study. If you do decide to take part, you are still free to withdraw at any time during the interview without giving a reason.

If you take part in the study and then later decide you do not want us to use any data from you in publications/presentations, please contact us within two weeks of your interview and we will ensure that your data is deleted (Tanya Manchanda; tanya.manchanda@psych.ox.ac.uk).

What will happen to me if I take part in the research?

First, we will ask you to complete a secure and confidential expression of interest form. If you're interested in taking part in the study, you can ask your teacher to give you the link to the online form. This form will ask for your demographic information (which will be optional for you to fill out) and for your email so we may contact you with more information. Filling out this form does not automatically enrol you in the study, but it does tell us that you might be interested in signing up. The information you provide will **not** be shared with anyone outside of the research team.

If you do participate in the study, we will ask you to take part in a short interview about your friendship experiences. We expect that the interview will take between 15 to 30 minutes, and no longer than 30 minutes. Depending on the preferences of you and your school, the interview may be in person or online through Microsoft Teams. The interview will be conducted by Tanya Manchanda, who is a PhD student at the University of Oxford in the Department of Psychiatry. In the first part of the interview, Tanya will ask you to talk about your friendships and friendship experiences. In the second part of the interview, you will be presented with short scenarios about young people who could be your hypothetical friends, going through a stressful time. If you choose to participate, you will need to consent to being audio recorded, so that we have an accurate record of things we talked about. This will be turned into a transcript (written record of what was said) for later analysis. Topics could include:

- Have you reached out to a friend for support in the past?
- What might help a young person turn to their friend for support and what types of support might they want most from a friend?
- Have you ever provided support to a friend that was struggling with their mental health or wellbeing?

What are the possible disadvantages and risks in taking part?

We do not expect there to be any disadvantages or risks from taking part. Example questions that may come up during the interview are given above. We will encourage all participants *not* to share any sensitive information about themselves, or identifiable information about their real-life friend. You don't have to answer any questions you don't feel like answering and if you become upset or concerned during the interview, you can leave the room or online meeting at any time. If this happens, we would encourage you to reach out to a trusted adult at home, at school, or elsewhere.

Are there any benefits in taking part?

There won't be any direct benefits to you in taking part in the study. However, participation from you and your peers can help us learn about the way young people can seek support from and provide support to their friends. Understanding more about the challenges to providing support to friends and how to ensure the support is helpful to young people from diverse backgrounds is important. We would be better able to train teachers to ensure they are available to offer additional help when needed and help improve the well-being of young people.

Expenses and payments

You will receive a £10 voucher for Amazon to thank you for your time.

What information will be collected and why is the collection of this information relevant for achieving the research objectives?

We will collect the following data:

- **Demographic information**
 - **Why?** Friendships differ across individuals. If lots of students are interested in participating, we want to ensure that we interview a diverse range of students to get as many viewpoints as possible.
 - **Where?** This information will be stored in digitized form on secure servers at the University of Oxford.
 - **For how long?** If you express your interest, but do not participate in the study, this information will be destroyed once all interviews are completed.
 - **Who will have access?** The Friendship Study researchers are the only individuals who will have access to this.
- **Consent forms**

- **Why?** We collect and keep these in order to record your consent to take part in the research.
- **Where?** These will be stored in digitised form on secure servers at the University of Oxford.
- **For how long?** These will be stored indefinitely so that we can always demonstrate participants' consent to take part in the research.
- **Who will have access?** System administrators at the University of Oxford and The Friendship Study team will have access to these. Consent forms may also be accessed by University of Oxford approved teams, such as the information compliance teams or auditing firms, only in case of audit or investigation. Consent forms will otherwise not be shared outside of the study.
- **Contact details**
 - **Why?** We collect these so that we can (1) organise the interview and (2) send you the voucher at the end of the study.
 - **Where?** These will be stored on a secure server at the University of Oxford.
 - **For how long?** These will be destroyed as soon as we process the voucher.
 - **Who will have access?** The Friendship Study researchers and administrative team will have access to these details.
- **Audio recordings**
 - **Why?** With your consent, we will audio-record the interview so we have an exact record of what was said. We'll use these to create transcripts (written records of what was said).
 - **Where?** These will be stored in a secure server at the University of Oxford before they are securely transferred to a University of Oxford-approved transcription service.
 - **For how long?** The recordings will be destroyed as soon as the transcripts are completed.
 - **Who will have access?** The Friendship Study team and the University of Oxford-approved transcription service will have access to these.
- **Anonymised transcripts (i.e., without identifiable details about participants)**
 - **Why?** These are how we store the main data from the study. We analyse them in order to answer our research questions.
 - **Where?** These will be stored on the secure servers at the University of Oxford.
 - **For how long?** These will be kept (in anonymised form) indefinitely so that we can continue to learn from them for years to come.
 - **Who will have access?** The Friendship Study team will have access to these transcripts. Other researcher teams may access them upon approval by a

committee (including members of The Friendship Study team, young people, and others).

Will the research be published? Could I be identified from any publications or other research outputs?

The findings from the research will be written up in academic publications, conference presentations, and summaries for students, schools, and the general public. If you have given your consent for us to quote you, we may include direct quotations in the publication. However, your identity will **not** be revealed in any articles, presentations, or other published materials.

Data Protection

The University of Oxford is the data controller with respect to your personal data, and as such will determine how your personal data is used in the research. The University will process your personal data for the purpose of the research outlined above. Research is a task that is performed in the public interest. Further information about your rights with respect to your personal data is available from the University's Information Compliance web site at <https://compliance.admin.ox.ac.uk/individual-rights>.

Who is funding the research?

NIHR Applied Research Collaboration Oxford and Thames Valley at Oxford Health NHS Foundation Trust

Who has reviewed this research?

This research has received ethics approval from a subcommittee of the University of Oxford Central University Research Ethics Committee. (Ethics reference: R94162/RE001).

Who do I contact if I have a concern about the research or I wish to complain?

If you have a concern about any aspect of this research, please contact the lead of The Friendship Study team at the University of Oxford (tanya.manchanda@psych.ox.ac.uk) or Professor Mina Fazel (mina.fazel@psych.ox.ac.uk), and we will do our best to answer your query. We will acknowledge your concern within 10 working days and give you an indication of how it will be dealt with. If you remain unhappy or wish to make a formal complaint, please contact the University of Oxford Research Governance, Ethics & Assurance (RGEA) team at rgea.complaints@admin.ox.ac.uk or on 01865 616480.

Further Information and Contact Details

If you would like to discuss the research with someone beforehand (or if you have questions afterwards), please contact:

Tanya Manchanda tanya.manchanda@psych.ox.ac.uk	Department of Psychiatry Warneford Lane Oxford OX3 7JX
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Registration of interest questionnaire

The Friendship Study: Secure questionnaire to register interest

Central University Research Ethics Committee Approval Reference: R94162/RE001

Only the questions with an asterisk (*) are mandatory. The information you provide in this form will NOT be shared with anyone outside the research team.

1. Are you interested in learning more about The Friendship Study? (note: this does not automatically sign you up for the study. If you select “yes”, you will be provided with details on how to sign up.*
 - a. Yes
 - b. No (survey exits)
2. How old are you?*
3. What best describes your gender identity? (optional)
4. Do you consider yourself to be dyslexic/ dyspraxic, and /or autistic, and /or have ADHD (i.e. neurodivergent)? (optional)
5. What is your ethnic group?

Choose one option that best describes your ethnic group or background

White

1. English/Welsh/Scottish/Northern Irish/British
2. Irish
3. Gypsy or Irish Traveller
4. Any other White background, please describe

Mixed/ Multiple ethnic groups

5. White and Black Caribbean
6. White and Black African
7. White and Asian
8. Any other Mixed/ Multiple ethnic background, please describe

Asian/ Asian British

9. Indian

10. Pakistani
11. Bangladeshi
12. Chinese
13. Any other Asian background, please describe

Black/ African/ Caribbean/ Black British

14. African
15. Caribbean
16. Any other Black/ African/ Caribbean background, please describe

Other ethnic group

17. Arab
18. Any other ethnic group, please describe

6. Please provide an email address so that we may contact you to schedule an interview.*
 - a. Email address

Semi-structured interview script

The Friendship Study: Semi-structured interview materials

INTRODUCTION

Script:

“Thank you for taking part in this study today! I’m really interested in exploring friendships and mental health—especially how friends support each other when someone feels **sad, angry, or upset**. It’s completely normal—and a really good thing—for friends to reach out when they’re struggling, and that’s something I’d love to chat about with you today. I am particularly interested in helping schools understand how best to help students like yourself which is why I am trying to speak to as many students as possible to learn about the different ways help can be given.

This interview will have two parts. First, I’ll ask you some general questions about friendships. In the second part, I’ll share some examples of hypothetical friends, and you can help me think through potential ways to understand and better help them in their situations.

Before we begin, I want to mention something important. If you share something specific about a friend that seems really worrying—like if they’re in danger or at serious risk—I may need to pass that information along to your school to make sure they’re safe. So, if you want to talk about sensitive topics, it’s best to keep things hypothetical and not provide me with identifiable information, like saying “someone in this situation” instead of giving names or details. But of course, you’re welcome to share your thoughts and experiences with me, and I’m here to listen.

Also, if at any point during the study you feel uncomfortable, distressed, or just want to stop, that’s totally okay—just let me know. I want this to be a comfortable and open conversation for you.

And just to remind you, our conversation will remain anonymous and you will not be identifiable. Do you have any questions for me before we begin?”

PART 1

Outline of Questions:

I want you to think about your friends...

- 1. When you’re feeling sad, angry, or upset, what makes you decide to turn to a friend for support?**

Prompts:

- Are there times when you choose **not** to talk to a friend? Why?
- Are there any problems that you think friends, in particular, are especially good at helping with?

2. Can you think of a time when a friend's support felt really helpful?

Prompts:

- What made the support work well?
- Have you ever received support that was unhelpful (what kind of support might be unhelpful)?

3. What is it about some friends that make them better at offering support?

Prompts:

- How do you decide which friend to go to for support?
 - In your experience, do friends usually know what to say or do?
- 4. When you want support from a friend, do you prefer talking in person, over text, online, or another way? Why?**

Prompts:

- Do you usually have these conversations online/over text with friends from school?
- Do you ever seek support from online-only friends (people you've never met in person)?

5. In your opinion, what makes someone a close friend or a best friend?

Prompt:

- What kind of qualities do you value most in a best friend?

Now I want you to reflect on your school and teachers...

6. How is mental health talked about at your school?

Prompt:

- Can you think of any examples, like classroom discussions, school events, or teacher-led conversations?
 - Do students openly talk about mental health with each other? How about with teachers or staff?
 - If it's not talked about much, why do you think that is?
- 7. How do you feel about talking to a teacher or school counselor about mental health concerns—either for yourself or a friend?**

Prompt:

- What would make you more or less likely to reach out?
 - If you wouldn't go to a teacher, who would you go to instead?
- 8. If your school could improve the way it supports students' mental health, what would you want teachers and staff to know or do differently?**

Prompts:

- Are there specific topics (e.g., anxiety, depression, stress, friendships, online friends) you wish teachers understood better?
- Imagine your school did a really good job supporting students—what would that look like?
- Would it be about teachers, school counselors, policies, student-led initiatives, or something else?
- What's one change that would make the biggest difference for you or your friends?

Impact of Gender Identity on Support:

Do you think your gender identity (being a girl) affects the kind of support you seek from friends or how you support them?

Prompts (if needed):

- Have you noticed any differences in how you and your friends (of different genders) seek or give support?
- Do you feel like certain emotions or struggles are easier (or harder) to talk about because of gender?

Impact of Neurodivergent Status on Support: (conditional upon neurodivergent recruitment)

1. Do you feel that being neurodivergent influences the type of support you seek from friends or how you provide support to them? Can you explain how?
 - a. Have you noticed any differences in the support needs or preferences between you and your friends who may not be neurodivergent?

PART 2:

Script:

“Now I will present some stories to you about some students who are about the same age as you. I want you to think of them as your hypothetical friends and reflect on how you might react if they approached you. Remember, there is no right or wrong answer here. Just reflect on how you might react, and what you might say to them if they were a friend who approached you.”

do a check-in to ensure they’re okay to continue

Scenario cards will be presented on a PowerPoint slideshow. After each scenario card, a series of follow-up questions about the hypothetical friend will be asked.

Follow-up questions:

Upon presentation of the vignette:

How do you think your friend is feeling in this situation?

How would you offer help or solutions to your friend?

Asking about professional help:

How can you tell when a friend is going through something really serious? If you felt their situation was serious, how would you encourage them to talk to a teacher, school counselor, or another trusted adult?

Do you know **how** you can direct your friend to a teacher, school counselor, or another trusted adult at school?

Challenges with providing help:

What would you do if supporting your friend started to feel overwhelming or emotionally draining?

Question about previous training:

Have you ever learned about mental health or ways to support a friend in need—whether in school, online, or elsewhere?"

If yes:

Did you find it helpful? If so, what parts stood out to you?

Is there anything you think could have made it better?

If no:

Do you think something like that would be useful? Why or why not?

Finishing up

Thanks and is there anything else you'd like to share that you think might be relevant to what we discussed today?

Do you have any questions for me?

I really appreciate your time! I'll be reaching out via email in the next couple of weeks to share a gift voucher for Amazon as a thank-you. Thank you!

Table D1 Supplemental Quotes

Theme	Sub-theme	Quote
Theme 1: Friendship quality and support quality as distinct, but interrelated	Friendship quality as the foundation: closeness, trust, and shared experience enable support seeking	<i>"I think like my closest friends...like, I know that they will support me and that's like kind of like how I decide [who to go to]." (P05)</i> <i>"I think like with friends, especially since they're like my age. It's like they can kind of understand me better than maybe like a parent or like a teacher or someone older than me because they can, like, relate to a lot of the stuff that I might be upset about." (P05)</i> <i>"There's...that comfort, there's that understanding. I can sort of rant about how I'm feeling or, like, get quite emotional. But know, I'm in a safe space." (P14)</i> <i>"They are my closest friends because I know that they will support me, and that's kind of like how I decide [to ask for support]...I will always go to her because she is my best friend...I know that she understands me, and she's been there for me in the past. So I know that she always will be." (P05)</i> <i>"I would say mainly it goes back to the shared values. I think a lot of it is, you know, you build up that trust and that rapport over a long time and you kind of get to know each other to a level where anything you feel you can tell them, you would tell them." (P01)</i> <i>"I spend more time with them than my family...Like when I'm at school, I'm spending like 5 hours a day with my friends or then after school I'll go do something with my friends...seems like they're the support network that's been with me for the longest time."(P10)</i>

	Key qualities of the support determine its helpfulness	<i>"We just sat and chatted, shared stories... closeness makes it comforting." (P14)</i> <i>"Sometimes you just want someone to listen... not always give advice." (P08)</i> <i>"Taking someone away from the situation helps... friends have more time than adults." (P01)</i> <i>"They don't dismiss it... they say it's OK to be upset... they take time out even if busy." (P05)</i> <i>"Friends will see things I don't... tell me to do something...it works out well 'cause they saw the thing that I didn't see." (P12)</i>
	The limits of support provision	<i>"People try and trivialise things that are happening. Try and like, give quick answers... if you haven't been through something, I know I'd find it very difficult not to just kind of go, "Oh, well just do this." But that's not really helpful." (P09)</i> <i>"Friends say 'hope you're OK' but don't spend time with you... just acknowledging, not engaging." (P05)</i> <i>"...being just a constant source of like, only positive support for like, any of their decisions...not really ever being constructive." (P06)</i>
Theme 2: Adolescents as strategic support-seekers and help-givers	Matching the support sought and the support-giver to the problem	<i>"I can like gauge a reaction and like tell whether it's like the right person to talk to about these things so yeah I feel like I much prefer doing it face to face." (P07)</i> <i>"And I think sometimes if I'm frustrated enough that it feels like something that's more of an internal struggle, I might be a bit hesitant to speak to some of my friends." (P01)</i>

		<i>"I have other friends outside of school that aren't like my age that are older than me. So I tend to talk to them a lot about stuff...because like they [have] more experience...I guess 'cause they're older." (P12)</i>
	Boundaries and balance in giving help	<i>"I'd tell him that he should if he like continues feeling this he should maybe talk to someone like a counsellor and he can like talk to me in the future if it carries on" (P08)</i> <i>"I think I would help him talk to his parents about how he's feeling." (P11)</i> <i>"You always want to be there for them, but then...they're only talking to you, they're only trusting you. So [you have to be with them] 24/7 like whether they're messaging you, phoning you, like always wanting to spend time with you and...you kind of get cut off from everyone else and like it will start like having an impact on you because like their thoughts... like you're constantly, like, hit with this negative information and it can become like quite overwhelming and sometimes it's better...even if it means that you like have to get them other support and like maybe lose that friendship like that might be better in terms for you and for them." (P05)</i>
Theme 3: The role of schools in adolescent support-seeking and help-giving	The role of teachers as formal safety nets	<i>"If they're being bullied I would say they should talk to a teacher because that's something that they can...help with...'cause with bullying I feel like it's quite hard to help with as just...a teenager 'cause that's something the school probably needs to deal with." (P08)</i> <i>"But if I noticed that, like, like, things are just getting worse, not better, I'd probably go to like an adult myself and tell them. Because I think like in the long run, it's like if it's a serious issue, like it's better for them to like, have full support, even if they don't necessarily want it because like at the end of the day, like, we are</i>

		<i>quite young and there's like only like so much support that I can give them myself." (P05)</i>
	Student-informed systems in place at school	<i>"It's in PSHE. It's kind of like once in a while we'll have a session that's linked to mental health or something like that, but that's kind of it, like it's just kind of like if you have an issue, you can go talk to someone, but we don't necessarily have like big assemblies on [mental health] or anything." (P08)</i> <i>"I don't know if it's a bit unfair to say they could be a bit more attentive...But I guess generally they know that we're like stressed and things. But I think...they could be more attentive, to be honest." (P13)</i> <i>"I think it's always a little bit vague and also a little bit unrealistic. You know, I don't think anyone the second they hear their friend is struggling [is] like, 'I'm immediately gonna go tell the headmistress'...A lot of time their advice is just like, 'oh, you know, be kind' and well, everyone knows that" (P06)</i> <i>"I think having a better support system for maybe stress and also 'cause I know a lot of my stress has contributed to other things in life." (P07)</i> <i>"...My school's very assembly focused...so I would say doing different year groups' assembly personalised for the issues at the time, so...I would say like body image and like eating is kind of like a really big issue at my school, so I would say just having different topics and like telling students how they can help their friends through...like I don't know like an issue with eating or like an issue with mental health or an issue with like severe anxiety, and I think that would be really, really helpful, so just assemblies...but that's just the way my school is run, I don't know if it would help another school." (P07)</i>
	Limitations of school support	<i>"I'd...feel a bit reluctant because I know I have had friends...who've struggled with mental health and they've</i>

		been...referred to teachers and counsellors and they've just always...had a negative idea of it...If you have bad mental health and you've been referred to a teacher, they usually have a teacher as a mentor. And the mentors that they pick are usually not the nicest teachers...if I was to tell a teacher about a friend who was struggling mentally, I'd be a bit apprehensive because I wouldn't want to put them into a position that they can't get out of easily and that I've like burdened them with...an overbearing and kind of direct teacher to...have to deal with." (P04)
Theme 4: Diversity and preparedness across friend support	Gendered norms shaped support dynamics	"I think there's a difference in emotional maturity...And I think that's a big part of it, like...Almost like [boys] not even having thought about it before" (P10) "I've got [a brother] and we'll chat about stuff...and I know he can chat with me... I don't know if he talks to his mates about that stuff. I don't know about closeness but there are some boys who I know are closer and I've seen them sort of having the occasional one-on-one chat, even if it's just sort of like late at night at like a party...On like a school day, they can just sort of go aside and chat...There's no huge stigma in my school about men about that, but...women [are more] open about it than men...I don't see... huge amounts of men talking to men about their problems and...I have a friend who will talk to other female friends that he's really close with, and maybe not to his male friends." (P14) "I think for me, I find it a lot easier to...talk to my friends about, like mental health than I would if I were a boy." (P11) "[With my] male friends, they still prefer like via text, I think maybe because of the stigma around kind of male emotions, they just don't feel comfortable expressing themselves emotionally in person, but they feel easier doing it over text maybe" (P02)
	Neurodivergent adolescents: communicating needs and finding friends who 'get it'	"I think also a lot of the people I'm around are also neurodivergent. I don't know if that's sort of a coincidence or just what's happened because our sort of brains are quite similar... I

		<i>think they can probably recognise like, you know, how do you sort of cope with this sort of particular struggle? Like, I don't know, sort of like being like, overwhelmed..." (ND-C)</i> <i>"I think it probably is more beneficial [to have neurodivergent friends] because I think it sort of takes away that denominator of like "is this sort of a common occurrence for everyone", or "is this like because of my neurodivergence-y?" Before I was diagnosed, when I was sort of feeling quite distressed or you know, not understanding why certain things were sort of a struggle for me, and I talked to...people who weren't neurodivergent and they'd sort of be like, "oh, you know, you sort of just got to go through that." But my neurodivergent friends were like, "...Yes, I completely agree. It's impossible". I think that just helps me realise that maybe it was actually more serious...it was more important than I thought. And it sort of wasn't just a universal experience, but there were people who understood what I was trying to...convey." (ND-C)</i> <i>"...One of my friends...also has ADHD and also struggles with the same things I do...I would definitely in terms of academic things go to other people...who are neurodivergent but I would say it doesn't really affect how I like ask for like well-being and you know other things... maybe 'cause ADHD and anxiety obviously quite like comorbid so... I don't think it usually... affects... getting support from other people about like mental health but when it's to do with stress and anxiety... in relation to school then... probably I would go to a neurodivergent person." (ND-B)</i>
	Adolescents expressed a need for tailored mental health training and education	<i>"...Maybe they could tell us how, as a friend, you could help instead, because sometimes you don't always want to go directly to the school...Kind of how I would offer support to my friend instead of just asking a teacher to talk to them, how I could like make them feel better just myself...because it's quite awkward sometimes for them to go to a teacher." (P08)</i>

		<i>"I learned a lot about [supporting a friend] from TV shows... They have good advice." (P02)</i> <i>"I think people have learnt what's useful to say, and what's supportive, [through] kind of trial and error" (P06).</i> <i>"...The answer that [the school] always [gives us] is just "oh, tell a teacher". But sometimes that's not ideal... I've seen like first-hand people struggling with trying to support a friend, so I think that having like a year group assembly or like targeted PSHE session about how to support people when they need mental help...would really be beneficial and...people might be like, "oh, but none of my friends are struggling, so I don't need to listen". But it would just be really helpful advice for later life for people...to improve their empathy...A session or two on helping out friends would be pretty good." (P04)</i>
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