The influence of peer relationships in the middle years on mental health

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Acknowledgements

Overview

This paper summarises the research evidence on the influence of positive peer relationships on the social and emotional development of young people in the middle years (8–14 years), as well as the factors that affect this association. It also outlines how practitioners working with young people might support positive peer relationships. Some resources on this are provided in Further reading and related resources at the end.

Key messages

- Young people's social relationships during the middle years (8–14) can affect their current and future health and wellbeing, learning and academic performance, and peer and family relationships.

- Interactions with peers can help to develop the social and cognitive skills needed to navigate relationships in later life.

- Positive peer relationships are associated with more positive mental health and/or fewer externalising behaviours (e.g. aggression, problem behaviours).

- Peer support in the middle years can be a protective factor against negative mental health outcomes.

- Practitioners working with young people can support their mental health by encouraging and supporting positive peer relationships.

- Strategies and programs aimed at promoting positive peer relationships could include conflict resolution, resilience, communication and self-regulation.

- Young people can be encouraged to participate in social interactions and activities that enhance their interpersonal social skills and behaviours.

Introduction

The middle years (ages 8–14 years) of childhood are an important period of development. During this time, young people experience rapid physical and mental development including extensive neurodevelopment (Centre for Adolescent Health, 2020). Their social experiences during the middle years can also have profound short- and long-term impacts on their health and wellbeing, learning and academic performance, and peer and family relationships (Bulimwengu & Cartmel, 2022; Gray et al., 2018; McGuire, 2016; Centre for Adolescent Health & Murdoch Children's Research Institute, 2018; Telzer et al., 2018). The transition from primary to secondary education, which commonly happens toward the end of these years, can also be a time of significant and often disruptive change (Beatson et al., 2023).

Peer relationships become increasingly important for young people's social and emotional development during the middle years (Australian Research Alliance for Children and Youth, 2011; Blum et al., 2022; Mitic et al., 2021). At this time, parent and family influences on young people begin to weaken, while peer influence, and young people's awareness of peer pressure, becomes more important (before tapering off from about age 14; Brown & Anistranski Jr, 2019). For example, data from the Longitudinal Study of Australian Children (LSAC) highlighted that 19.1% of children aged 10–11 years and 25.6% of children aged 12–13 years were concerned about not fitting in with their friends (Vassallo & Swami, 2018).

Although not a focus of this paper, negative peer relationships have a significant role in mental health outcomes. It is also common for parents and other adults to be concerned that peers will have a negative influence on young people (e.g. exposure to and encouragement of risky behaviours), and that that will also negatively affect the child's mental health and other outcomes (e.g. education, physical health; Albert et al., 2013; Kelly et al., 2012). Consequently, it is important to recognise the importance of young people's peer relationships in this period and

how helping young people to have positive relationships can have a positive or protective effect on their mental health and wellbeing.

Despite the importance of positive peer relationships in young people's lives, the relationship between positive relationships and young people's health and wellbeing has not received the same attention in the research as has peer victimisation or bullying (Arseneault, 2018; Moore et al., 2017; Stotsky et al., 2020). Greater awareness and attention to the development of positive peer relationships in the middle years may improve adolescent social and emotional functioning and school connectedness and engagement.

Methodology of this review

This resource is based on a rapid evidence review of the research evidence on peer relationships and mental health among young people aged 8–14 years. This review adopted a strengths-based approach and focused on peer relationships in general, with a particular focus on positive and supportive peer relationships. It did not explore bullying and peer victimisation.

The following research questions guided the review:

- What is the association between peer relationships in the middle years and mental health?
- What factors influence the relationship between positive peer relationships in the middle years and mental health?

Relevant studies from the research literature from the past 10 years (published from 2013 to 2023) were identified by searching the Australian Institute of Family Studies (AIFS) Catalogue+ database and Google Scholar. We also conducted stakeholder consultations with researchers and peak bodies to inform the design and scope of the review.

Further details on the methodology, including search strategy and data analysis, are provided in the Appendix.

What does the evidence tell us?

This section summarises what the research evidence says on what positive peer relationships are, the link between peer relationships in the middle years and mental health outcomes, and factors influencing positive peer relationships in the middle years. It also outlines the limitations of the research evidence on this topic.

What are positive peer relationships?

The term 'peer relationships' covers multiple types of affiliations from broad social groups and casual interactions to close one-on-one friendships (Narr et al., 2019).

Research suggests that when considering the effects of peer relationships on young people's wellbeing, the quality of friendships is more important than the number or presence of peers or friends (Bagwell, 2020; Graber et al., 2016).

Overall, there is a lack of consistency in how research studies define or measure peer relationships. Only a few studies define what they mean by 'positive' peer relationships or friendships. There is also a common lack of detail in the research as to what a supportive relationship looks like in practice. Here are some examples of the different ways that positive peer relationships are defined and measured in the research:

- Gasser-Haas and colleagues (2021) used the term 'friendship quality' and defined the positive dimension of friendship quality as being based on 'mutual understanding, solidarity, and recognition' (p 2). They measured 'friendship quality' using the Friendship Quality Questionnaire where children rated items along 4 positive components of friendship quality (help and guidance, intimate exchange, validation and caring, and conflict resolution) in relation to their best friend.
- Stotsky and colleagues (2019) referred to 'positive peer treatment'. This is defined as being the recipient of positive behaviours from peers. They assessed positive peer treatment using the peer nomination[1] method, which asks participants to write down the names of peers to whom they have directed positive peer treatment.

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1   Peer nomination is a sociometric method used to assess positive and negative links between peers in a group (e.g. classroom group) and involves asking participants to nominate peers according to popularity or social status, for example (Cillessen & Bukowski, 2018).

- Wood and colleagues (2015) explored positive peer experiences via concepts such as friendship intimacy, security and stability. The authors did not define these concepts but measured them using the Network of Relationship Inventory survey (which includes items related to children's relationship with their best friend) and the peer nomination method.

Most studies of peer relationships do not define or measure peer relationships as such – rather they interpret high scores on general friendship or relationship measures (in self-report surveys) as indicating higher levels of friendship quality or more positive peer relationships. Some of the more commonly used measures of friendship include level of support (Petersen et al., 2022), trust (Cavanaugh & Buehler, 2016), acceptance (Early et al., 2017) and ability to get along with peers in the general sense (e.g. prosocial behaviour, social competence; Esbjørn et al., 2015; Farrell et al., 2017).

Adolescent self-report of their peer relationship experience(s) was the most common form of measurement in the studies we reviewed, with fewer studies measuring teacher or parent perceptions of an adolescent's peer interactions or friendships (e.g. see Martin et al., 2017 and Toseeb et al., 2020).

Associations between peer relationships and mental health

Research evidence shows a strong association between young people's peer relationships and their mental health during the middle years. There is also some evidence suggesting a link between peer relationships in the middle years and their mental health outcomes in later adolescence (e.g. age 17–20; Delgado et al., 2019).

Overall, the evidence indicates that positive peer relationships in the middle years are associated with positive mental health outcomes. There is also some evidence to suggest that they can potentially moderate the impact of negative experiences, such as discrimination, on mental health (Delgado et al., 2019). Positive peer relationships can also be a protective factor to cope with challenges related to transitions between primary and secondary school (Jindal-Snape et al., 2020; Nelemans et al., 2018). In contrast, negative peer relationships are associated with poorer mental health outcomes.

However, the research is not yet clear on exactly what types of peer relationships (e.g. the nature of the peer support) affect different mental health and wellbeing outcomes and what their level of influence is (Brown & Anistranski Jr, 2019; Heary & Hennessy, 2020).

Some of the ways in which peers provide positive support during the middle years include peer intimacy, reciprocity and social support (including emotional, practical, information supports and empathy, caring and affection; Blum et al., 2022; Heary & Hennessy, 2020). These forms of peer support can provide a protective factor for wellbeing by (Heary & Hennessy, 2020):

- preventing or reducing stress
- enabling access to a broad support network
- enhancing self-esteem and identity
- providing a sense of belonging
- facilitating positive coping strategies.

Furthermore, research suggests that supportive friendships during adolescence can play a protective role against subsequent negative experiences such as intimate partner violence. A study using data from the Longitudinal Study of Australian Children found that supportive friendships during adolescence reduced the risk of later emotional abuse victimisation (in the context of intimate partner violence) by 36% (O'Donnell et al., 2023).

Much of the research on the impact of peer relationships has focused on the way they can contribute to, protect against or moderate negative mental health outcomes such as internalising symptoms (i.e. general anxiety, social anxiety and depression) and externalising symptoms (e.g. aggression, problem behaviours). The evidence on the relationship between positive peer relationships and internalising and externalising symptoms is summarised below.

Internalising symptoms and behaviours

The term 'internalising symptoms and behaviours' refers to internally directed processes such as anxiety, depression and emotional problems (American Psychological Association [APA], 2023).

Overall, studies that have followed participants over time have found that positive peer relationships were associated with more positive mental health, including internalising symptoms. For example, a study of primary school students in the Netherlands found that higher levels of friend support before the COVID-19 pandemic

were associated with fewer internalising problems during the pandemic (Bernasco et al., 2021). Another study on school transition found that high levels of support from friends buffered the impact of transition-related stressors for young people with higher anxiety symptoms (Nelemans et al., 2018).

Positive peer relationships may also protect against the impacts of negative experiences such as discrimination. A US study found that friendship intimacy mitigated the effects of peer ethnic discrimination among female students in year 7 – this included greater declines in depressive symptoms over time among females with high levels of intimacy compared to those who experienced low friendship intimacy (Delgado et al., 2019).

Evidence also suggests that there is a reciprocal relationship between peer relationships and child mental health (including in the middle years; de Lijster et al., 2019; Gasser-Haas et al., 2021). For example, a study based in Switzerland found that children with depressive symptoms in early childhood (aged 2–4) tended to later report less positive friendships at age 9–11 years (Gasser-Haas et al., 2021). This finding indicates that young people with pre-existing challenges (e.g. depressive symptoms) may find it more difficult to develop and maintain positive friendships than those without mental health challenges. More research is needed on how young people can build positive peer relationships even when they are experiencing mental health challenges.

Social anxiety

Social anxiety is a specific type of internalising symptom or disorder that is particularly relevant to peer relationships because it refers to a person's concerns about relationships and how one is perceived by others (Borowski et al., 2018). Symptoms of social anxiety may emerge as young people become more interested and invested in peer relationships (Borowski et al., 2018). Overall, the evidence suggests that the experience of social anxiety is associated with less positive peer relationships.

Two studies that examined the association between social anxiety and peer relationships, for example, found that higher levels of social anxiety appeared to be related to lower friendship quality (Borowski et al., 2018) and lower peer acceptance (Early et al., 2017). Another Australian study that followed youth over 3 years (from grade 6 to year 8) similarly found that higher levels of social anxiety were associated with reductions in positive peer connections later on (Rapee et al., 2022). This study also looked at whether positive peer connections could reduce social anxiety but did not find any evidence that this was so.

These findings suggest that young people with higher social anxiety may have difficulties maintaining positive friendships (Borowski et al., 2018). Conversely, there is also research to suggest that cumulative support (i.e. having multiple sources of support from peers, family and school) has been associated with decreased social anxiety and lower levels of loneliness (Cavanaugh & Buehler, 2016). In this study they also found that the association between cumulative support and reduced social anxiety was stronger for boys than girls.

Externalising behaviours

The term 'externalising symptoms and behaviours' refers to actions that are antisocial and may be harmful to the individual or others (Kauten & Barry, 2020). These actions include acting out, aggression, hostility and substance use (APA, 2023).

Much of the research on peer relationships and externalising behaviours has focused on the associations between negative peer influences, or poor peer relationships, and higher levels of externalising behaviours (e.g. Farrell et al., 2017; Monahan & Booth-LaForce, 2016). There is less evidence indicating that more positive peer relationships are linked to fewer externalising behaviours.

A small number of studies, however, have suggested that positive peer relationships can be associated with fewer externalising behaviours or a reduction in such behaviours. For example, a US study of grade 3–6 students found that adolescents who experienced an increase in positive best friend interactions from grades 3 to 6 were more likely to become more prosocial with their other peers (Monahan & Booth-LaForce, 2016). Another study of children in England found that better friendships were associated with fewer externalising problems during the middle years (Toseeb et al., 2020).

Factors influencing positive peer relationships in the middle years and mental health

There are multiple individual, familial and environmental factors that appear to influence or interact with the development of positive peer relationships in the middle years and/or their relationship with mental health (Mitic et al., 2021).

There is research that suggests that the relationship between peer relationships and mental health can vary by gender, for example (Borowski et al., 2018; Cavanaugh & Buehler, 2016; Delgado et al., 2019; Farrell et al., 2017). Some studies have suggested that the link between cumulative support and reduced social anxiety may be stronger for males than females (Cavanagh & Buehler, 2016), while other research has found friendship intimacy can have a protective effect on depressive symptoms for females but not males (Delgado et al., 2019).

Emotional regulation may also influence or interact with positive peer relationships. A study of young people (aged 11–12 years) in England found that greater emotional regulation and lower levels of distress were associated with more positive peer connections (Demkowicz et al., 2023).

Positive parent–child relationships have also been found to be associated with higher levels of peer connectedness (Oldfield et al., 2016). In contrast, low self-esteem is associated with peer difficulties, poor friendships and depressive behaviours (Zhao et al., 2023).

Further research is needed to understand how the various individual factors (e.g. emotional regulation, pubertal development, self-esteem), familial factors (e.g. parent–child relationships) and environmental factors (e.g. school context) influence the association between peer relationships and mental health or how these factors interact with each other. This also includes understanding social and environmental circumstances in different cultures and societies and examining the potential impacts of geographic location (e.g. rural/remote vs urban/ metropolitan settings). This understanding could inform interventions and programs that promote positive peer relationships and positive mental health.

Limitations of the research evidence

There are several limitations to the existing research on the relationship between peer relationships in the middle years and child mental health.

First, the diversity of populations included in the existing research is limited. Most existing research is based on populations in the USA, which may have limited relevance to the Australian context. There were limited studies focused on the experiences of minority populations such as those from racial/ethnic minority groups, LGBTIQA+ young people or young people with neurodiversity – these groups may face their own particular challenges. Furthermore, much of the research has explored outcomes for children living in metropolitan or urban areas, with less known about the experiences of children in rural and remote settings.

Second, the research evidence strongly relies on young people's self-reports about their peer relationship quality. Although self-reports are important for exploring young people's experiences of social relationships, they are not necessarily a reliable assessment tool due to the potential for social desirability bias (i.e. respondents answer in a way they think will be seen favourably by others) and because young people may not see the multiple and sometimes subtle ways that their peers and friends influence their wellbeing and social interactions (Brown & Anistranski Jr, 2019).

Third, some studies were cross-sectional and only measured a snapshot in time. This type of study design is rarely able to capture the dynamic nature of peer relationships, how they change over time or how particular experiences may influence mental health.

Research in this area would also benefit from clearer and more consistent definitions of positive peer relationships and their different types (e.g. close friendships, peer connections) and the impact that different types of peer support have on mental health among young people (Bukowski et al., 2018; Heary & Hennessy, 2020). Finally, few studies on peer relationships and young people's mental health measured young people's social and environmental circumstances (e.g. school belonging, community connectedness), despite the importance of young people's social environments when trying to understand the nature of peer and friendship interactions (Mitic et al., 2021). This is an important area for future research.

Considerations for practice

Given the significant role that peer relationships play in the lives of young people (especially in their middle years), it is important that people working with young people and their families consider how they can help young people develop and maintain positive peer relationships. They can also support parents/carers to promote positive peer relationships among young people.

Some general considerations for practice are provided below (this list is not exhaustive). These are based on our review of the existing research evidence[2] and on consultations with Australian service providers and child and family practitioners about good practice:

- Practitioners and services should recognise the importance of positive and supportive peer relationships for young people in the middle years. When working with young people, asking about their peer relationships can provide insights into their mental health and/or any possible behavioural challenges they may be exhibiting.
- Children with early depressive symptoms can be supported and encouraged to participate in social interactions that support their interpersonal social skills and behaviours (Gasser-Haas et al., 2021). For example, involvement in extracurricular activities (e.g. team sports, music/theatre) may promote positive mental health (Oberle et al., 2019).
- Asking young people who are transitioning from primary to high school about their peer relationships and providing support to promote positive peer relationships can reduce transition stress and contribute to successful school transitions (Goldstein et al., 2015).
- Strategies and programs aimed at promoting positive peer relationships could include working with young people to help them:
  - build resilience and enhance self-regulation (e.g. emotional regulation)
  - develop conflict resolution skills
  - develop prosocial behaviours
  - understand boundaries
  - develop communication skills
  - develop skills in perspective-taking
  - draw on multiple sources of support (peer, family and school).
- Practitioners can help young people to identify and understand what a positive, safe and supportive peer relationship looks like. This may, for example, help them avoid or minimise negative peer interactions or influences that may have a negative effect on their mental health or that lead to engagement in risk-taking behaviours such as substance misuse (Albert et al., 2013; Siraj et al., 2021).

Conclusion

Young people's social worlds are complex and dynamic and the role of peer relationships in their lives is varied and multifaceted. However, there is evidence of a strong relationship between young people's peer relationships in their middle years and their mental health.

This resource has focused on how positive peer relationships during a child's middle years can have a positive or protective influence on their mental health and/or moderate some of the effects of negative peer and family experiences.

There is also evidence that young people with some forms of pre-existing mental health challenges can find it more difficult to form or maintain positive relationships with their peers. This can potentially have a further negative effect on their wellbeing or mean they are not able to enjoy the benefits of positive relationships and they may need support (e.g. having supports from multiple sources including family members, practitioners and school staff).

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2   Note, however, that this resource has focused on the evidence about how peer relationships influence the social and emotional development of young people in their middle years and the relationship between positive peer relationships and young people's mental health. It did not specifically look at the evidence on programs or interventions that aim to help young people have positive peer relationships.

Further research is needed to understand how different individual factors (such as self-esteem and emotional regulation) and environmental factors (e.g. classroom or school environment) influence peer relationships and mental health or how they interact with each other. Having a better understanding of the interaction of factors influencing peer relationships and mental health could potentially enable the development of better supports to promote positive peer relationships and positive mental health.

Nonetheless, practitioners and service providers working with families should be aware of how important young people's peer relationships are. Being curious about young people's relationships and seeking to understand their experiences of friendship and peer relations can help practitioners gain insight into a key influence on (and indicator of) young people's mental health.

Further reading and related resources

- What influences supportive peer relationships in the middle years? (2023), Joshi, A., & Truong, M., AIFS
- Prosocial behaviours and the positive impact on mental health (2023), LSAC Snapshot Series – Issue 9, Rowland, B., & Evans-Whipp, T., AIFS
- Adolescents' relationships with their peers (2018), LSAC, Gray, S., Romaniuk, H., & Daraganova, G., AIFS
- Student wellbeing, engagement and learning across the middle years (2018), Evans-Whipp, T., Mundy, L., Canterford, L., & Patton, G., Department of Education
- Are the kids alright? Young Australians in their middle years. Final report (2016), Redmond, G., Skattebol, J., Saunders, P., Lietz, P., Zizzo, G., O'Grady, E. et al., ACER
- Adolescent connectedness: cornerstone for health and wellbeing (2022), The BMJ
- The Raising Children Network has resources for practitioners and parents/carers in relation to pre-teens (9–11 years) and teens (12–18 year olds) on various topics including:
  - Pre-teen and teenage friendships
  - Peer pressure & peer influence: teens
  - Risky behaviour: teens
- ReachOut Parents has factsheets and practical tips and tools for parents/carers to support 12–18 year olds on topics including peer pressure, bullying, coping skills and effective communication.
- Emerging Minds has resources for practitioners and parents/carers on topics relating to the mental health and emotional wellbeing of Australian infants, children, adolescents and their families. including:
  - Exploring bullying in context: Children's relationships, friendships and social functioning
  - Primary health support for bulling in the middle years: Learnings from practitioners
  - Identifying and responding to bullying in the pre-teen years: The role of primary health care practitioners
  - Supporting parents of pre-teen children with mild-to-moderate anxiety
  - Depression, anxiety, and peer victimisation during the transition from childhood to adolescence

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Appendix: Methodology

How this review was conducted

This review was conducted using the Cochrane rapid review guidelines (Garritty et al., 2021) and *Rapid Reviews to Strengthen Health Policy and Systems: A Practical Guide* (Tricco et al., 2017), which were adapted to fit the project's scope and aims.

Search strategy and search terms

The research question, search strategy and inclusion criteria focused on studies that included the following 3 concepts: middle years, peer relationships and mental health. These were identified during consultation with stakeholders and topic scoping as the key population and areas of need. A targeted search of relevant organisation websites (e.g. Parenting Research Centre, Centre for Adolescent Health) was also conducted to understand the scope and nature of the problem.

Systematic searches of the peer-reviewed literature (published January 2013–January 2023) to identify relevant evidence were conducted in February 2023 using the Australian Institute of Family Studies' Catalogue Plus portal.

Data screening and extraction

Search results were uploaded to Covidence (app.covidence.org), an online research review tool that was used to manage the rapid review process.

To reduce the risk of bias, independent double screening was completed for 10% of search results (title and abstract and full text). Researchers used the study selection criteria (Table 1) and a decision-making hierarchy to independently screen studies. Discrepancies were resolved by discussion between the 2 reviewers.

Data from included studies (Table 2) were extracted to Covidence. Extracted data comprised the characteristics of each study, including population characteristics, intervention characteristics, factors/outcomes, key findings and limitations.

Table 1: Study selection criteria

Inclusion criteria	Exclusion criteria
Studies were included in the review if:	Studies were excluded from the review if:
- participants were aged between 8 and 14 years or defined by the study as middle years/middle childhood/early adolescence, etc. - it included and measured peer relationships (e.g. friendships, peer support, peer acceptance) in the middle years - it included and measured mental health outcomes (e.g. internalising symptoms and behaviours, externalising symptoms and behaviours) - it included factors supporting positive peer relationships - participants were from an OECD[3] country - published in peer-reviewed journals between January 2013 and January 2023.	- mean age of participants was >15 years - the focus of the paper was on negative peer relationships (e.g. bullying, peer victimisation) - the focus was on romantic relationships or sexual activity among participants - peer relationships factor was not the exposure or outcome variable - mental health outcome was measured when participants are >18 years old - it reported findings from interventions or programs.

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3   OECD refers to Organisation for Economic Co-operation and Development. OECD countries have similar legal and economic structures.

Data analysis

Extracted data from included studies were exported and analysed in Microsoft Excel to identify key themes and patterns among study characteristics, measures and findings. A narrative synthesis was conducted; data were categorised according to 3 main concepts of interest: peer relationships factors, mental health outcomes and other factors (e.g. internal processes such as self-esteem, pubertal development, parenting/family factors, etc.). A descriptive comparison between studies reporting on the same concept/outcome was performed, with similar and divergent findings synthesised. Risk of bias assessment and quality appraisal of studies was not conducted. Therefore, the quality of the studies included in the review was not assessed and considered in the synthesis of findings.

Table 2: Study characteristics of included studies (*n* = 33)

First author, year	Country	Study population characteristics	Mental health outcome(s) measured	Peer relationship category measured^	Key finding(s)
Cross-sectional studies					
Bernasco, 2021	Netherlands	*n* = 245 mean age 11.60 50% female	Internalising problems, internalising symptoms	Best friend support, time spent with friends	Adolescents who reported more friend support pre-COVID-19 also reported significantly less internalising problems during the COVID-19 restrictions.
Borowski, 2018	USA	*n* = 202 mean age 12.66 52% female	Social anxiety	Best friend relationship	Higher social anxiety is related to lower friendship quality and poorer emotional competencies.
Closson, 2016	Canada	*n* = 426 mean age 12.52 53% female	Direct aggression, indirect aggression	Prosocial behaviour	Popular and dominant adolescents reported more variability in their aggression across targets as compared to low-status peers.
Early, 2017	USA	*n* = 270 mean age 13.07 53.2% female	Social anxiety disorder, non-social anxiety disorder, anxiety symptoms	Peer acceptance	Social anxiety and anxiety symptoms were negatively correlated with social acceptance.
Farrell, 2017	USA	*n* = 1,787 mean age 11.7 53% female	Physical aggression, problems behaviours, delinquent behaviours	Prosocial behaviour	Peer influences explained a large proportion of variance in adolescents' problem and prosocial behaviours. The overall pattern was for friends' delinquent behaviour to have the strongest relationships with delinquent behaviour and substance use, and for peer pressure for fighting to have the strongest relationships with the measures of aggression.
Valente, 2022	Spain	*n* = 2,876 age range 10–12 50% female	Psychological distress (internalising)	Peer relationships	Perceptions of social support are positively correlated with greater feelings of safety.
Longitudinal studies					
Stotksy, 2019	USA	*n* = 270 mean age 11.84 52% male	Depression	Prosocial behaviour, peer preference	Reciprocal associations between positive peer treatment and prosocial behaviour present; Wave 1 positive peer treatment predicted increases in Wave 2 prosocial behaviour and vice versa.
Bowker, 2014	USA	*n* = 264 mean age 12.08 53% male	Depression	Peer relationships	Being the recipient of prosocial behaviour from many peers strengthened the stability of anxious-withdrawal over time, for boys.

First author, year	Country	Study population characteristics	Mental health outcome(s) measured	Peer relationship category measured^	Key finding(s)
Cao, 2020	USA	n = 823 to 1,364 mean age and gender not reported	Internalising problems, externalising problems	Peer relationships	Early interactions with peers, either positive or negative, were shown to predict child behavioural and social adaptation in early adolescence.
Cappella, 2017	USA	n = 553 mean age 9.06 50% male	Internalising behaviours, externalising behaviours	Peer relationships	Externalising behaviour predicted a greater increase in same-race friendships over time, particularly for European American students.
Cavanaugh, 2016	USA	n = 416 mean age 11.86 (Wave 1) 51% female	Social anxiety	Peer relationships	Adolescents who perceived higher support across multiple contexts (family, peers and school) experienced improved socio-emotional functioning. Peer support was uniquely associated with decreased social anxiety across early adolescence.
de Lijster, 2019	Netherlands	n = 7,499 age 10 49.5% male	Anxiety and depression symptoms (internalising)	Best friend relationship	Developmental patterns of anxiety and depression symptoms in early childhood are related to negative psychosocial and school outcomes in middle childhood.
Delgado, 2019	USA	n = 246 mean age 12.55 51% female	Depression	Best friend relationship	Higher levels of discrimination and conflict in early adolescence were associated with higher initial levels of depressive symptoms and risky behaviours in early adolescence and stability through late adolescence.
Demkowicz, 2023	UK	n = 15,846 age range 11–12 52.7% female	Emotional distress (internalising)	Peer relationships	Connection to peers is positively associated with family connection but also positively predicts slightly greater distress in the later stages of early adolescence (from ages 12–13 to 13–14 years).
Dirghangi, 2015	Canada	n = 364 age range 12–13 53% female	Anxiety symptoms, depression symptoms	Best friend relationship	High co-rumination is associated with heightened internalising problems and positive relationships with friends exacerbate the risk for internalising problems arising from co-rumination.
Esbjorn, 2015	USA	n = 34 age range 10–12 55.9% male	Anxiety symptoms, anxiety disorders	Best friend relationship, prosocial behaviour	Quality of contact with best friend in middle childhood significantly predicted anxiety symptoms in adolescence.
Franken, 2016	Netherlands	n = 1,144 mean age 12.7 50% male	Externalising behaviours	Best friend	Early adolescents with higher pubertal development were as likely as their peers to select friends based on similarity in externalising behaviour and especially likely to remain friends with peers who had a similar level of externalising behaviour.

First author, year	Country	Study population characteristics	Mental health outcome(s) measured	Peer relationship category measured^	Key finding(s)
Gasser-Haas, 2021	Switzerland	*n* = 293 mean age 9.69 (at Wave 3) 47.9% female	Conduct (behavioural) problems, emotional problems	Best friend relationship	Depressive symptoms in early childhood were associated with a lower positive dimension of friendship quality in preadolescence. Early anxious symptoms were related to a higher positive dimension of friendship quality 6 years later.
Guhn, 2016	Canada	*n* = 7,837 mean age 9.7 (Wave 2) 49% female	Emotional wellbeing	Peer relationships	Teacher-rated social competence in kindergarten most strongly predicted 4th graders' self-report of their connectedness to peers.
Herres, 2014	USA	*n* = 132 age 13 53% female	Depressive symptoms, negative affect	Peer relationships	Negative peer events uniquely accounted for the maintenance of depressive symptoms over the 2-year period.
Martin, 2017	USA	*n* = 293 mean age 13 50% female	Internalising symptoms	Best friend relationship, peer relationships (other)	Friendship attachment is associated with decreased internalising symptoms over time. Friendship affiliation is associated with greater social competence over time.
Monahan, 2016	USA	*n* = 1,055 mean age 9.15 52% female	Aggression	Best friend relationship, prosocial behaviour	More positive and fewer negative best friendship interactions were linked with becoming more prosocial with peers, whereas less positive best friendship interactions were linked to becoming aggressive or withdrawn.
Murray, 2021	Switzerland	*n* = 1,572 age 11 47% female	Internalising problems, aggression	Peer relationships	Peer relationships were not significant mediators of internalising-externalising developmental cascades in isolation, or in combination with teacher relationships.
Nelemans, 2018	USA	*n* = 631 mean age 7.96 47% male	Anxious symptoms	Peer relationships	Findings suggest that the middle school transition has the potential to alter developmental trajectories of anxiety for some youth, for better or for worse.
Oberle, 2019	Canada	*n* = 3,045 mean age 9.21 50% female	Anxiety and depressive symptoms (mental health)	Peer relationships	Shifting from non-participation to activities that involved team sports was associated with better mental health; this was influenced by levels of peer belonging.
Peterson, 2022	UK	*n* = 2,402 age range 8–9 48% female	Conduct problems, emotional symptoms	Peer relationships	Peer support was linked to specific transitions that indicated deteriorating mental health over time. Low peer support was associated with having a suboptimal mental health status.

First author, year	Country	Study population characteristics	Mental health outcome(s) measured	Peer relationship category measured^	Key finding(s)
Rapee, 2022	Australia	n = 528 mean age 11.2 (Wave 1) 51% males	Social anxiety disorder, social anxiety symptoms	Peer relationships	Higher levels of social anxiety were associated with subsequent reductions in positive peer connections in parent and interviewer models.
Shin, 2021	South Korea	n = 677 mean age 12.46 48% male	Direct (overt) aggression; Indirect (relational) aggression	Peer relationships, prosocial behaviour	Social goals and relational support from teachers and peers made additive contributions to adolescents' social behaviour.
Spilt, 2015	Netherlands	n = 497 mean age 13 57% male	Aggression, depression	Best friendship relationship	Results suggest it is more important for adolescents to hold positive perceptions of close relationships than to agree with partners on the quality of relationships.
Toseeb, 2020	UK	n = 6,531 age range 7–9 gender NR	Internalising problems; externalising problems	Peer relationships (other), prosocial behaviour	Better friendships and higher levels of prosociality in childhood were both associated with fewer internalising problems in middle childhood.
van Rijsewijk, 2016	Netherlands	n = 854 mean age 13.1 59% male	Depressive symptoms	Peer relationships	Giving and receiving help were influenced partly by participants' tendencies to form relations with others regardless of peers' characteristics, and by a preference for (not) forming helping relations with (dis)similar others.
Wood, 2015	Canada	n = 430 mean age 10.87 48% female	Anxiety symptoms	Best friendship relationship	Friendship security, but not friendship intimacy, impacts levels of anxiety during pre-adolescence.
Zhao, 2022	UK	n = 11,921 age range (Wave 2) 9.5–10.5 gender NR	Depressive symptoms	Peer relationships	Peer difficulties influence the development of depressive symptoms. Unexpectedly, poor friendships predicted fewer depressive symptoms.

Notes: USA = United States of America; NR = not reported. Some studies included multiple measures of mental health outcomes and/or peer relationships
^Peer relationship categories developed by authors of this paper. Peer relationships include peer support, peer connection/connectedness, peer belonging, peer group affiliation. Best friendship relationship includes friendship quality (of best friendship), best friend support and friendship intimacy (with best friend). Peer relationships (other) refers to a teacher's or parent's reports of a child's peer relationships.