**Turning to friends in preference to parents for support in early adolescence: does this contribute to the gender difference in depressive symptoms?**

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**Abstract**

Introduction

Based on established evidence for gender differences in friendship patterns, and on vulnerability associated with early reliance on friends, we hypothesised that in 13 year olds, preferentially turning to friends over parents for emotional support contributes to the gender difference in depressive symptoms.

Method

Using a cross-sectional design, 671 adolescents (mean age 13.11 years [SD = .52], 53.7% girls) in a UK birth cohort (Wirral Child Health & Development Study; WCHADS) reported on turning to their parents and to their friends when distressed (Network of Relationships Inventory; NRI) and their depressive symptoms (Short Mood & Feelings Questionnaire, SMFQ). Preferential turning to friends was assessed as turning to friends minus turning to parents for support. Analyses used path analysis using the gsem command in Stata.

Results

Girls had higher depressive symptoms than boys (p < .001). Consistent with hypotheses, girls had higher scores than boys for preferential turning to friends (p < .001). Preferential turning to friends was associated with higher depressive symptoms (p < .001) and this mediated the gender difference in depressive symptoms (p < .001). The association between preferential turning to friends and depressive symptoms was stronger in girls than in boys (p = .004).

Conclusions

In young adolescents, preferential turning to friends over parents when distressed, and the association between preferential turning and depressive symptoms, are markedly higher in girls than in boys. This reflects either a gender difference in social vulnerability to depression, or a greater impact of depression on reliance on friends instead of parents in girls. While clarifying the directions of influence requires prospective study, these findings provide the first evidence that the assessment of young adolescent depression should attend to the degree of reliance on friends as well as on parents.

**Introduction**

Depressive disorders in adults account for more disability adjusted life years (DALY) globally than any other psychiatric disorder (one DALY represents the loss of the equivalent of one year of full health; Whiteford et al.).1 Onset of depression is typically in adolescence, with a marked increase over the period 11 to 14 years which is much greater in girls than in boys (Cole et al.; Kwong et al.; Patalay et al.).2-4 This gender[[1]](#footnote-1) difference appears to be increasing over time. In a recent publication from a nationally representative survey of adolescents aged 12-17 years in the US (N = 167,783; Daly5) rates of depression in girls were reported to be 23.4% and in boys 8.4%, and the gender difference had increased from 6.4% to 14.8% between 2009 and 2019. Understanding this gender difference and identifying potential targets for intervention to reduce depression in adolescent girls is a key goal to reduce the lifetime burden associated with depressive disorders.

The gender difference becomes evident in early adolescence when levels rise in girls much more markedly than in boys. The reasons are complex with hormonal (Angold et al.)6, psychological (Hankin)7 and social contributions. Based on available evidence it is possible that among the social contributions a vulnerability may arise from a tendency for girls to rely on friends for emotional support more than parents. Longitudinal studies suggest that girls show greater reductions in seeking support from parents and increases in support seeking from friends in early adolescence (De Goede et al; Buist et al.; Ebbert et al.).8-10 Findings from a meta-analysis and systematic review suggest that parental social support is consistently associated with reduced depressive symptoms in adolescence whereas friendship support shows a small association less consistent across studies (Gariépy et al.; Rueger et al.).11,12 In addition, in girls more than boys lack of support from parents is associated with increased depressive symptoms in childhood and adolescence.11 It is possible that turning more to friends for support in early adolescence could create vulnerability to depression, either as a reflection of lack of support from parents or because relying on peers for support is risky as they are not yet able to provide adequate support due to their youth. In this study we investigate the association between support seeking from parents and from friends and depression in early adolescence, and specifically whether preferential turning to friends over parents is associated with risk for depression. We further test whether differences in support seeking explain the gender difference in depressive symptoms. We define “support seeking” as turning to parents or friends for comfort and support when distressed. Existing evidence is limited by frequent use of non-validated measures of support seeking11, 12, in this study we use an established measure.

Bowlby’s (1969)13 Attachment Theory proposes that infants form an attachment bond with a specific caregiver with whom they seek proximity to and contact with, particularly when feeling distressed. Bowlby proposed that there is a normative developmental progression from seeking support from parents during infancy and childhood to fulfilling attachment needs with romantic partners as adults. This process of transferring attachment from parents to peers is proposed to begin in adolescence (Bowlby; Hazan et al,; Kobak et al.).13-15 Between childhood and adolescence the attachment system is thought to reorganise from a single attachment to a parent into an attachment hierarchy with multiple figures, including peers.15 Peers become increasingly important in adolescence. Adolescents spend greater amounts of time with their peers (Meuwese et al.)16 and are more concerned with peer acceptance and evaluation. Concerns about these topics, and sexuality, are more likely to be discussed with peers than parents (Cassidy et al.).17 The increasing desire for autonomy and independence in adolescence also encourages adolescents to turn to peers for support and guidance.15 In addition, advances in cognitive development during adolescence supports the use of different figures for different attachment needs (Allen et al.).18 Peer attachment relationships are more reciprocal and mutually supportive than parent-child attachments (Markiewicz et al.).19 The nature of relationships with parents also changes during adolescence and become more egalitarian, which is associated with changes in conflict and in closeness between adolescents and parents.8 Thus, overall the evidence supports Bowlby’s13 hypothesis of there being a developmental progression from parents as attachment figures to adolescents and young adults (Hazan et al,; Furman et al.; Nickerson et al.).14,20,21

The attachment construct is however multifaceted, and the developmental progression may not be the same for each different element; for the secure base effect and another aspect like comfort seeking when distressed (Hazan et al.; Nickerson et al.).14,21 Much of the conceptualisation and the measurement of attachment security has focused on emotion regulation with the help of a close other (Mikulincer et al.).22 This is the key dimension in the assignment of attachment security in the Strange Situation Procedure (SSP) (Ainsworth et al.).23 The secure infant turns to a caregiver for comfort when they are reunited after being separated, and is soothed. Insecure attachments are characterised by varieties of less efficient use of a caregiver to calm distress. Although adolescent measures do not assess emotion regulation in interaction with a caregiver, it has been proposed that attachment security assessed for example as an attachment interview, reflects interpersonal emotion regulatory strategies (Allen et al.).24 Interpersonal emotion regulation is also likely to be key to vulnerability to depression. Depression is associated with difficulties in emotion regulation, and several studies have shown associations between attachment status, emotional dysregulation and adolescent depressive symptoms (Malik et al.).25 There are therefore strong reasons to focus on the adolescent equivalent of the turning to parents when distressed seen in the SSP.

Given that turning to another person when distressed implies a degree of trust and reliance on that person, and a need for them be sufficiently skilled in providing a soothing response, it may be that a too-early reliance on friends could create vulnerability. Kobak et al.15 argued that, according to their premature reorganisation of attachment hypothesis, this will be the case. According to their hypothesis, if the attachment hierarchy is prematurely reorganised so that peers are considered sources of support *above* parents this will confer risk for mental health problems. This hypothesis has received some support from two studies assessing position of friends and parents in attachment hierarchies, which were defined by ranking of attachment figures on “attachment bond” (defined as closeness, separation distress, and comfort in an emergency situation). Rosenthal et al.26 found associations between higher placement of peers and self-reported internalising and externalising problems in adolescents aged 15-18 years. In a study of 11-18 year olds, Umemera et al.27 found that higher placement of mothers, fathers and other family members in the hierarchy was associated with lower teacher-reported externalizing problems and internalizing problems. However, associations were small and not consistent across teacher, mother and self-report. “Both studies used opportunity samples from middle income26 or upper middle-income27 backgrounds which limits the generalizability of the findings to general population samples. Both studies were also cross-sectional and therefore cannot inform on the direction of the association between attachment hierarchy placement and mental health symptoms.”

Both Rosenthal et al.26 and Umemera et al.27 are relevant to the current research question, however neither provided the key contrast between turning to friends vs turning to parents. Furthermore, neither examined the possibility, considered earlier, that girls may show this preferential turning to friends more than boys, and hence this may mediate the gender difference in adolescent depression. Neither did they, nor any other published study, test whether preferential turning to friends may be more strongly associated with depression in girls than in boys. Such moderator effects are found elsewhere in the literature. For example, social comparison and feedback-seeking on social media (NESI) and friendship stress (Rudolph)28 are associated with depressive symptoms in adolescents but moderated by gender, such that the association is particularly strong among females.

Commonly the direction of association between support and depression is assumed to be that lower support confers risk. However, it is also possible that depressed adolescents seek less support from their parents and more support from their friends. Evidence supports a reciprocal relationship between parental support and adolescent depressive symptoms (Branje et al.; Cortes-Garcia et al.; Needham).29-31 In one study both directional pathways were stronger in girls30 and in another the pathways from support to depressive symptoms were stronger in girls31. There is also some evidence for reciprocal relationships for positive friendship quality and depressive symptoms, with no gender difference (Scwartz-Mette et al.).32 Depressed adolescents are also more likely to select and keep friends with similar levels of depression to themselves (Kiuru et al.)33 and evidence suggests that depression levels in friendships become more similar over time (Veed et al.)34 and one study found this in females only (Giletta et al.)35. There is evidence that higher quality friendships are characterised by higher co-rumination, which in turn is associated with increased depressive symptoms (Rose; Rose et al.; Stone et al.).36-38 There is also evidence for differences in these associations with a reciprocal relationship in girls whereby co-rumination increases friendship quality which in turn increases depression, whereas for boys whilst co-rumination increased friendship quality, friendship quality was not associated with increased depression.37 In a further study, co-rumination was found to mediate the association between gender and depressive symptoms in female college students but not in males (Calmes et al.).39

In light of this discussion, in this study we test five hypotheses. The first two aim to further evidence in support of well-established findings, and the remainder are novel:

1) There will be a gender difference in seeking support from parents, whereby girls show higher support seeking, and increased turning to parents will be more strongly associated with reduced depressive symptoms in girls than boys;

2) There will be a gender difference in seeking support from friends, whereby girls show higher support seeking. Based on existing evidence we make no directional hypothesis on the association between seeking support from friends and depressive symptoms, and no gender difference hypothesis.

3) Preferential turning to friends, assessed as turning to friends minus turning to parents for support, in 13 year olds will be higher in girls than in boys.

4) Preferential turning to friends will be associated with higher depressive symptoms, and will mediate the gender difference in adolescent depressive symptoms.

5) The association between preferential turning to friends and higher depressive symptoms will be moderated by child gender, so that the association is substantially greater in girls than in boys.

**METHOD**

Sample

The study is embedded in the Wirral Child Health and Development Study (WCHADS), a prospective epidemiological child development study of a sample of first-time mothers (n=1233) (see Sharp et al.)40. Socioeconomic conditions on the Wirral range between the deprived inner city and affluent suburbs, with low numbers from ethnic minorities. The mean age at recruitment in pregnancy was 26.8 years (SD=5.8, range 18–51), 41.8% of the sample were in the most deprived quintile of UK neighbourhoods (2003 Indices of Multiple Deprivation, IMD) (Noble et al.)41 and 96.1% were White British. The study has collected 13 waves of data from 20 weeks gestation up to child age 13 years.

The sample analysed here are the adolescents who provided data at the age 13 data collection wave on all the measures included in this report (N=671). The mean age of the sample is 13.11 years (SD = .52), with slightly more girls (N=360, 53.7%) responding than boys (N=311, 46.3%). The majority of adolescents were living in married (59.6%, N=400) or cohabiting parent households (17.7%, N=119), with 6.3% (N=42) living with a parent with a partner who lived elsewhere and 15.8% (N=106) living with a parent either single, divorced, separated or widowed. A similar proportion of this sample to the original sample recruited was living in the most deprived quintile of UK neighbourhood at conception (39.2%, N=362).

Ethical considerations

Ethical approval for the study was granted by the Cheshire North and West Research Ethics Committee on the 27 June 2006 (reference no. 05/Q1506/107) and on 22nd December 2014 and 8th June 2020 (reference no. 14/NW/1484). All women gave written informed consent at recruitment and at subsequent assessment waves. Child Assent was gained at age 13.

Measures

Support seeking from parents and friends

Adolescent report on the Network of Relationships Inventory (NRI): Behavioral Systems Version (Furman et al.)42 was used to assess how much children sought support from their parents and their friend when distressed. The NRI assesses twelve provisions of close relationships, including five components of social support which relate to caregiving, affiliation, and attachment. For the current study, we focused only on one of these components, ‘participant seeks safe haven’. The scale comprises 3 items: ‘how much do you seek out this person when you’re upset?’ ‘how much do you turn to this person for comfort and support when you are troubled about something?’ and ‘how much do you turn to this person when you’re worried about something?’ Adolescents were directed to answer the same three questions about the parent that they spent the most time with and the friend that they spend the most time with. The items are rated on a 4-point Likert scale ranging from little/none (1) to extremely much (4) and summed to create a total score. A preferential turning to friend variable generated by subtracting the total score for parent support from the total score for friend support. Internal consistency of the scales were good, Cronbach’s alpha = .88 for parent support and .94 for friend support.

Depressive symptoms

Adolescent report on the Short Mood and Feelings Questionnaire (SMFQ) (Angold et al.)43 was used to assess depressive symptoms. The scale includes 13 items assessing DSM depression symptoms over the prior 2 weeks, items are rated on a three-point scale from 1=not true to 3 = true.

Child gender

We use child sex recorded at birth (coded 1=male and 2=female) to index gender. Gender has not been systemically assessed in the WCHADS since birth. The study has not completed any face-to-face assessments since age 9 which would have allowed us to sensitively ask about gender identity. In this paper we refer to gender differences because this is what most studies of social processes in adolescence aim to understand, but we are aware that in a small number of instances in our study, perhaps 1%, child gender is different from their sex.

Confounding variables

Socioeconomic status was determined using the revised English Index of Multiple Deprivation (IMD)41 based on data collected from the UK Census in 2001. According to this system, postcode areas in England are ranked from most deprived (i.e. IMD of 1) to least deprived (i.e. IMD of 32,482) based on neighbourhood deprivation in seven domains: income, employment, health, education and training, barriers to housing and services, living environment, and crime. All mothers were given IMD ranks according to the postcode of the area where they lived during pregnancy and were assigned to a quintile based on the UK distribution of deprivation (1= most deprived, 5 = least deprived). A binary variable reflecting 1= living in the most deprived quintile versus 0 = quintiles 2-5 was used in analysis. Age in months when questionnaire completed was calculated using the date of completion and date of birth. Pubertal status was assessed using adolescent-report on the Pubertal Development Scale (PDS; Peterson et al.)44. The PDS is a self-report measure for adolescents assessing the development of growth in height, body hair and skin changes (three items), plus two gender specific items (deepening of voice and growth of facial hair in boys and the growth of breasts in girls and menstruation in girls). Each item, apart from Menarche which is rated 1= no 4 = yes, is rated a 4-point scale (from has not yet begun =1 to seems completed = 4). The items were converted to 5 maturation categories (ranging from pre-pubertal to post-pubertal) to reflect the Tanner stages following Carskadon et al.45 This involves summing the scores for males and females separately, and assigning to the maturation categories according to the total score and a set of rules laid out in Carskadon et al.45 (for example, to be classified as late pubertal a girl must have experienced menarche and have a total score =<7). For the purpose of this study, maturational stages 1 and 2 were grouped to represent “early pubertal” (30.2%, N=94 for boys and 3.6%, N=13 for girls), development category 3 represents “mid-pubertal” development (44.4%, N=133, for boys and 21.1%, N=76, for girls), and 4 and 5 were grouped to represent “late pubertal development” (25.4%, N=79, for boys and 75.3%, N=271, for girls) (Koopman-Verhoeff et al.)46. Dummy variables reflecting early- and mid-pubertal development were included as confound variables, with late pubertal development acting as the reference.

Analysis plan

Bivariate associations were examined using Spearman’s correlations. All analyses were conducted in Stata version 17 (StataCorp 2021).47 Adolescent depression scores were highly skewed with a mode of zero so not suitable for transformation. Therefore, the gsem command in Stata was used to test the main study hypotheses, using path analysis with depression scores modelled with a negative binomial distribution. Indirect effects were tested using the nlcom command. Interactions were plotted using the margins command in Stata, showing the association between support seeking and adolescent outcome in boys and girls. Interactions were explored using the margins command to estimate the marginal effects of support seeking at 1 SD above below the mean and at mean on depressive symptoms in boys and girls separately. Variables were standardised prior to generating interaction terms.

Results

The descriptive statistics for support seeking and depressive symptoms on the total sample (N=671) and by gender are shown in Table 1. Due to significant skew, a Kolmogorov–Smirnov test was used to examine for a gender difference in depressive symptoms, which was highly significant (p<.001) with females showing higher mean depression scores (Cohen’s *d*=.35)

The bivariate associations between hypothesis testing and confounding variables are shown in Table 2 in boys and girls separately. Parent support seeking was significantly negatively associated with depression symptoms, strongly in girls and more weakly in boys. Friend support seeking was very weakly associated with depression symptoms in boys but not in girls. Friend and parent support were positively associated in both genders, but more strongly in boys. Preferential friend support seeking was strongly associated with depression symptoms in girls and not at all in boys. Of the confounding variables, age and increased pubertal development were weakly associated with increased depression symptoms in girls, and increased pubertal development with less parent support seeking.

Turning to parents

In a test of Hypothesis 1, in one-way ANOVA accounting for confounders there was a significant gender difference in turning to parents for support (score based on a 1-7 likert scale), with girls showing higher levels, although this was a tiny effect (eta squared = .01, 95% CI 0 -.03, p=.044). In the gsem model, there was a negative association, with decreased turning to parents for support associated with increased depression symptoms (estimate -.35, 95 CI -.41 to -.25, p<.001). Means and SDs shown in Table 1. Given the significant gender difference in turning to parents, mediation of the gender difference to depression symptoms was tested, by using the nlcom command in Stata to estimate the indirect effect of gender on depression via turning to friends, and the direct effect of gender on depression symptoms. The nlcom command uses the delta method for the computing the standard error. The indirect effect of gender via turning to parents on depression symptoms was non-significant (indirect effect estimate = -.06, 95% CI -.12 to .01, p=.075; direct effect estimate = .48, 95% CI .28 to .67, p<.001) indicating no mediation. As predicted, the negative association between turning to parents and depression symptoms was significantly stronger in girls than in boys (Interaction term estimate =-.20, 95% CI -.35 to -.04, p=.012). This is shown in Figure 1, where it can be seen that decreasing support seeking from parents is associated with increasing depression symptoms in girls but not boys. This was explored by estimating the marginal effects of turning to parents on depression symptoms at 1 SD above and below the mean and at mean in girls and boys separately. The marginal effect was highest for girls 1 SD below the mean on turning to parents (marginal effect = 10.24, SE .23) and progressively lower for those at mean (marginal effect = 6.90, SE .14) and then 1 SD above (marginal effect = 4.65, SE .15). Boys also showed the largest effect at 1 SD below mean which decreased from mean to 1 SD below, but the differences were smaller (marginal effect = 4.72, SE .18, marginal effect = 3.88, SE .11, and marginal effect 3.18, SE = .15, respectively).

Turning to friends

In a test of Hypothesis 2, in one-way ANOVA accounting for confounders there was a significant gender difference in turning to friends for support, with girls showing higher levels with a moderate to large effect size (partial eta squared = .16, 95% CI .11 to .21, p=<.001). Means and SDs shown in Table 1. In the gsem model, turning to friends for support was not associated with depression symptoms (estimate = -.02, 95% CI -.05 to .01, p=.237). As there was no gender difference in turning to friends mediation was not tested. There was a significant interaction between child gender and turning to friends predicting depression symptoms (estimate = -.17, 95% CI -.32 to -.03, p=.018). This is shown in Figure 2, where it can be seen that decreasing support seeking from friends is associated with increasing depression symptoms in boys but not girls. This was explored by estimating the marginal effects of turning to parents on depression symptoms at 1 SD above and below the mean and at mean in boys and girls separately. The marginal effect was highest for boys 1 SD below the mean on turning to friends (marginal effect = 4.56, SE .16) and progressively lower for those at mean (marginal effect = 3.81, SE .14),) and then 1 SD above (marginal effect = 3.18, SE = .21). For girls there was no difference between the three levels (marginal effect = 6.92, SE .25, marginal effect = 7.02, SE .16, and marginal effect = 7.13, SE .17, respectively).

Preferential turning to friends

Hypothesis 3 was supported in one-way ANOVA accounting for confounders where there was a significant gender difference in preferential turning to friends for support, with girls showing higher levels with a moderate to large effect size (partial eta squared = .07, 95% CI .03 to .11, p<.001). In the gsem model, preferential turning to friends for support was associated with increased depression symptoms (estimate = .22, 95% CI .14 to .30, p<.001). In the light of this finding we examined mediation of the gender difference in depression symptoms by preferential turning to friends (Hypothesis 4). There was a significant indirect effect of gender of the adolescent via preferential turning to friends on depression symptoms (indirect effect estimate = .13, 95% CI .09 -.21, p<.001; total effect estimate = .48, 95% CI .28 - .69, p<.001). In a test of Hypothesis 5, the association between preferential turning to friends and depression symptoms was significantly greater in girls than in boys (interaction term estimate = .26, 95% CI .09 to .42, p=.002). This is shown in Figure 1, where it can be seen that increasing preferential turning to friends is associated with increasing depression symptoms in girls but not boys. This was explored by estimating the marginal effects of preferential turning to friends on depression symptoms at 1 SD above and below the mean and at mean in girls and boys separately. The marginal effect was highest for girls 1 SD above the mean on turning to parents (marginal effect = 8.41, SE .56) and progressively lower for those at mean (marginal effect = 6.14, SE .36) and then 1 SD below (marginal effect = 4.48, SE .39). Boys also showed the largest effect at 1 SD above mean which decreased from mean to 1 SD below, but the differences were small (marginal effect = 3.99, SE .32; marginal effect = 4.23, SE 30; and marginal effect = 3.99, SE .32; respectively).

Discussion

In this study we examined associations based on hypotheses for the role of friends and parents in providing emotional support in 13-year-olds. Drawing on the idea that reliance on friends at this age may create vulnerability, we hypothesised that a higher preferential turning to friends score (turning to friends minus turning to parents) would be associated with higher depressive symptoms. This hypothesis was supported. In view of the well-established difference in levels of depressive symptoms in boys and girls at this age, we then considered the possibility that vulnerability associated with preferential turning to friends is implicated in this gender difference. Prior to examining mediation we asked whether levels of preferential turning to friends were higher in girls than in boys, and found a large difference. In mediation analyses for the gender difference in depressive symptoms, we found an indirect effect of preferential turning to friends. We also considered the possibility that the vulnerability for depression associated with preferential turning to friends is greater in girls than boys. Consistent with this hypothesis we found that child gender moderated the association between preferential turning to parents and depressive symptoms. While the findings are reported in the context of possible mechanisms for adolescent vulnerability to depression, in this cross-sectional study, it is not possible to tell which of the associations arose from effects of low mood on relationships with friends and parents.

The study was conducted in the context of Bowlby’s13 hypothesis that there is a normative developmental transition from fulfilling attachment needs with parents to peers, and Kobak’s proposal15 that if this occurs too early, it creates vulnerability because peers are not yet ready to provide the necessary emotional resources. The findings are consistent with studies described earlier in the paper showing that assigning friends a higher position in the attachment hierarchy across different kinds of relationship is associated with higher mental health problems26,27. Our findings also replicated the well-established gender difference in young adolescent depressive symptoms.2-4 As far as we are aware previous studies have not asked whether a premature reliance on friends may help to explain this difference. More broadly there is little evidence on the possible role of social supports in explaining the greater vulnerability of adolescent girls to depression. To our knowledge no previous study has examined social supports. There is some evidence implicating social processes, such as greater friend and peer related stressand greater co-rumination39 in explaining the gender difference. The findings reported here, consistent both with mediation and moderation by preferential turning to friends of the gender difference in depression, are therefore both novel.

We also replicated some further well-established findings in the literature in this sample. This includes a gender difference in seeking support from friends, with girls showing higher support seeking (De Goede et al.; Nickerson et al.; Gorrese et al.).8,21,48 Parental support was significantly associated with reduced depressive symptoms, and this was stronger in girls.11 We also found no association between friend support seeking and depressive symptoms, which is consistent with prior meta-analyses which have found small and inconsistent associations.11,12 Our finding of a strong positive association between preferential turning to friends and depressive symptoms, is consistent with the hypothesis that reliance on friends to perform functions typically served by parents in early adolescence may create psychological vulnerability. A negative association between turning to friends and depressive symptoms might have been expected based on the idea that friends are valuable source of support when this is complemented by parental support. This finding may however indicate that, while friends are an important source of support more broadly defined, they are not a key source of comfort for distress. However, in moderation analysis, turning to friends was associated with depressive symptoms in boys, consistent with a risk effect where lower turning to friends was associated with higher depressive symptoms. This was not anticipated and gender differences in the association between friend support and depressive symptoms were not found in the previous meta-analyses.11,12

**Strengths & limitations**

A major strength of the study is that the data were generated from a large well-characterised general population birth cohort. The recruitment method limited systematic biases in the sample by approaching every first time pregnant women booking into an antenatal clinic over a defined period of time. This was the only UK NHS facility within the well defined geographical area of the Wirral. The deprivation profile of the study sample closely matched published information on the profile of that region. Analyses controlled for pubertal status, which is associated with decreased attachment to parents in females (Papini et al.)49 and increased depressive symptoms in females6. We focused on a sample with a narrow age range in early adolescence, the time at which the gender difference in depression emerges.

Nevertheless generalisation to the population of the UK could be limited in two ways both related to the demographic profile of the Wirral. First rates of deprivation are higher than in the UK as a whole, and so it is not possible to rule out that the patterns of association are a function of area deprivation. Second the Wirral has very few ethnic minority families, which was reflected in the study sample. Further study with sufficient representation of one or more ethnic minority groups is needed to test whether the findings are moderated by ethnicity.

A key limitation of the current study is the cross-sectional design. It is therefore possible that the associations which we report arise from a greater impact of depression on preferential turning to friends in girls than in boys. It is also possible that there was a third variable effect which also was gender dependent. Furthermore, all of the measures used in the study were based on adolescent self-report, which may have inflated associations through common method variance, and perceptions of turning to friends and to parents may have been influenced by low mood. However, the key hypotheses concerned differences in boys and girls for which common method variance and mood effects would be relevant only if they also varied by child gender which seems unlikely. The measures were broad brush and do not make distinctions which may be highly informative, such as whether the young people were reporting on turning to same or opposite gender friends. Similarly the measure did not differentiate between turning to mothers or to fathers.

**Implications of the findings**

Irrespective of the direction of effects, the findings point to important differences in mechanisms associated with male and female depression in early adolescence. Given that adolescent depression commonly recurs later in adolescence and into adult life, these mechanisms may have long term implications. A priority therefore is to establish using prospective design, the temporal associations between emotional support from friends and parents, and depression. This should be examined from childhood through to late adolescence or early adulthood.

While there is a considerable body of research into the role of friendships and parent-child relationships in relation to mental health10,29-31, there is very little regarding the interplay between them. Given that, in this study, there was no association between turning to friends and depressive symptoms, but a strong association with turning preferentially to friends, it may be that, at least at this age it is important to assess the role and quality of friendships in relation to those of parents. It then becomes an important developmental question as to whether this is also true of younger children, and whether later in adolescence the role of friendships becomes more differentiated from that of parents. Similarly, the developmental antecedents of preferential turning to friends may be different, from turning to parents and turning to friends. In that case it will be productive to examine outcomes referring to the child’s social system rather than any particular domains of relationship. Furthermore difficulties identifying accurately the interpersonal resources available in different social domains, not only family and friends, but more widely, may reflect limitations in personality functioning (Crick et al.; Hill et al.)50,51. This in turn may create vulnerability to psychopathology in adolescence and adult life. Prospective examination of the associations we have found in cross-section is needed before drawing strong conclusions regarding implications for interventions. If preferential turning to friends creates vulnerability to depression, particularly in girls, interventions might focus on those scoring high on this dimension, with a view to strengthening role of parents in responding to their children’s emotional needs in that group.

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**Conflict of interest**

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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**Data availability**: Due to ethical constraints supporting data cannot be made openly available. Supporting data are available to bona fide researchers on approval of an application for access. Further information about the data and conditions for access are available at the University of Liverpool Research Data Catalogue: https://doi.org/10.17638/datacat.liverpool.ac.uk/564.

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Table 1: Descriptive statistics for the key study variables in boys and girls

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Total sample | | Boys n=311 | | Girls n=360 | |
|  | Mean | SD | Mean | SD | Mean | SD |
| Depression | 5.79 | 5.85 | 3.99 | 4.38 | 7.35 | 6.48 |
| Turning to parents | 7.60 | 2.58 | 7.51 | 2.40 | 7.67 | 2.73 |
| Turning to friends | 6.64 | 2.74 | 5.33 | 2.25 | 7.77 | 2.63 |
| Preferential turning to friends | -.96 | 3.39 | -2.18 | 2.78 | .10 | 3.51 |

Table 2: Spearman’s correlations between the study variables in boys and girls, boys shown on top diagonal and girls shown on bottom

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Depression | Parents | Friends | Preferential friend | Age | IMD | Puberty |
| Depression |  | -.19\*\* | -.12\* | .05 | -.06 | .11 | .01 |
| Parent support | -.51\*\*\* |  | .30\*\*\* | -.64\*\*\* | -.05 | .05 | -.06 |
| Friend support | .02 | .15\*\* |  | .49\*\*\* | -.01 | .01 | -.01 |
| Preferential friend | .41\* | -.66\*\*\* | .60 |  | .05 | -.04 | .05 |
| Age at assessment | .13\* | -.05 | -.06 | -.03 |  | .14\* | .37\*\*\* |
| IMD most deprived | .01 | .01 | -.01 | -.01 | -.01 |  | .10 |
| Increased pubertal development | .13\* | -.15\*\* | -.08 | .06 | .30\*\*\* | .06 |  |

\*p<.05, \*\*p<.010, \*\*\*p<.001

Figure 1: The association between seeking support from parents and adolescent depression symptoms in boys and girls

Figure 2: The association between seeking support from friends and adolescent depression symptoms in boys and girls

Figure 3: The association between preferential turning to friends and adolescent depression symptoms in boys and girls

1. Assignment to gender and sex is explained in the method section [↑](#footnote-ref-1)