Explaining the Gender Gap in Mental Health Across Adolescence

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Introduction

This literature review is split into 4 parts. Firstly, the rates of depression in adolescence is explored, as well as when the differences in gender begin to emerge. Following this, a variety of factors are investigated to explain the gender gap and occurrence of depressive symptoms at this particular age point. Thirdly, various models are evaluated to see how cognitive, social, and biological factors all contribute to adolescence mental health, and how these models explain the elevated female risk of depression. Finally questions from the Millennium Cohort Study questionnaires have been grouped together and linked to the relevant sections of this literature review. The full references for the in-text citations are found at the end of the document.

Key

- Name (Year) – study description or main point (Country, Age of Participants)
    - Subpoint or Reflection

➢ Concluding Summary

I

Occurrence of Adolescent Depression and the Emergence of the Gender Gap

Changes in the Occurrence of Depression Across Adolescence

- Bearman & Stice (2008) – Depression increases for girls but decreases for boys across adolescence. (US, 13-16)
- Hankin (2015) - The prevalence of depression increases over adolescence, especially for girls. (US, 13-18)
- Maughan et al (2013) - Depression levels increase once children reach early teens, and the rise is sharper in females. (Narrative review, adolescents)

➢ The occurrence of depression does increase over adolescence, but the rise is sharper for females.

Higher Depression Occurrence in Females

- Wade et al (2002) – Higher depression rates in females. (Canada/US/UK, 11-21)
- Bushnik and Statistics Canada & Special Surveys Division (2005) – Female rates of depression, anxiety, and suicidal thoughts are higher than males. (Canada, 14-16)
- Kaltiala-heino *et al.* (2000) – Higher depression and anxiety are found for girls compared to boys. (Finland, 14-16)
- Räty *et al* (2005) – Depression and anxiety is higher than boys, most so at 15-17 (Sweden, 13-20)
- Petersen *et al* (1993) – Girls have more occurrences of depressive and mood disorders. (Meta-analysis, adolescents)
- Galambos et al (2004) – More depression across adolescence in females. (Canada, 11-21)
- Marcotte *et al* (2002) – Higher depression rates in girls. (Canada, 11-18)
- Kessler (1993) - Females have a higher risk to the initial onset of depression in their reproductive years (puberty through menopause) compared to males. (US, 15-54)

➢ Depression rates are higher in female adolescence. The same is true for other internalising disorders (e.g. anxiety, mood), and these elevated rates continue throughout the female reproductive years.

Age at which the Gender Gap in Depression Emerges

- Wade et al (2002) – Depression difference from 14. (Canada/US/UK, 11-21)
- Bushnik and Statistics Canada & Special Surveys Division (2005) – Depression from 15/16, Anxiety and suicidal thoughts already significantly higher when first measured 14/15. (Canada, 14-16)
- Petersen *et al.* (1993) – depressive and mood disorders from 14-15. (Meta-analysis, 11-18)

- Bearman & Stice (2008) - Girls have significantly higher rates of depression at 15 onwards. (US, 13-16)
  - The gender gap, whilst sometimes visible earlier, does not become significantly higher until 14/15 years old. This is internationally consistent.

II

Factors to Explain Adolescent Depression and the Gender Gap

Social Relationships

- Bacete *et al* (2014) – Social support increases self-esteem, and thusly wellbeing. (Literature review, adolescence)
- Green *et al* (2005) - Adolescents with emotional disorders (such as depression) were one and a half times more likely to have scores in the lowest quartile when measuring their network of close family and friends (42% compared to 27%). (UK, 11-16)

Friends and Peers

- Skrzypiec *et al* (2012) – Friendships help prevent mental health outcomes associated with being bullied. This difference was especially visible when comparing adolescents with at least one friend, and those with no friends at all. (Australian, 12-15)
- Brendgen *et al* (2010) - Friendless children as well as children with depressed friends had higher depressed mood, compared to those with non-depressive friends. (Canada, 11-13)
    - Demonstrates the importance of not only how many friends you have, but the type and quality of friendship an adolescent has so their peer network can support them.
- Bushnik, Statistics Canada & Special Surveys Division (2005) - Higher quality of relationship with peers and friends at 14/15 decreased occurrence of mental health issues such as anxiety and depression. This trend was also visible 2 years later, suggesting a long-term effect. (Canada, 14-17)
- Colarossi & Eccles (2003) – Peer support significantly affected adolescent depression symptoms. (US, 15-18)
- Field et al (2001) – Fewer friends and less popularity lead to higher depression occurrence. (US, 17-18)
- Green *et al* (2005) - Children with emotional disorders (e.g. depression) were 4 times more likely to have a poor score when measuring their ability to make and keep friends, having 2 or more friendships, and trust in receiving emotional support from their close peers. (UK, 5-16)

➢ Peer support, a higher number of friends, and better quality of friendships is associated with decreased mental health risks.

Parents

- Ackard *et al* (2006) – Being unable to talk to parents about problems and feel uncared for by them increases risk of depression (US, 12-18)

- Sheeber *et al* (2007) - Depressive adolescents have more conflictual and less supportive relationships with both their mothers and fathers compared to healthy young people. (US, 14-18)
    - Is it that poorer parental relationships lead to depressive risk, or the other way around? Causal direction not clear.
- Field et al (2001) – Depression occurrence higher for those with worse parental relations, including verbal intimacy and physical affection (US, 17-18)
- Green *et al* (2005) - Children with emotional disorders (such a depression) were more likely to be in a family with unhealthy functioning, such as poor family relationships (UK, 5-16)
- Bushnik, Statistics Canada & Special Surveys Division (2005) – Higher quality mother-child relationships at 14/15 lead to lower depressive symptoms at 16/17. In contrast, decreased relationships with fathers over this 2-year period lead to increased depression. Therefore, important to address parents not as a unit, but as separate entities. (Canada, 14-17)

➢ Parental relationship quality is associated with depression. Yet parental relationships should be looked at as separate mother and father bonds, not just the combined parental unit. Looking into 11-year-olds, I struggled to find any studies that had a cut off age younger than 12 that looked directly at child mental health and how this is affected by maternal and paternal relationships.

Teachers

- Chu et al (2010) – Out of all forms of social support, teachers most affect psychological adjustment of adolescents (Meta-analysis, US published articles)
- Colarossi & Eccles (2003) – Teacher support significantly affected adolescent depression symptoms (US, 15-18)
- Murray & Greenberg (2000) - Students with poorer mental health and social/emotional adjustment had poorer teacher relations (US, 11)

☒ O'Connor et al (2011) - Teacher-child relationship quality did not affect internalising behaviour issues (such as depression). Suggests that teachers may affect externalising behaviour issues more. (US, Birth-Adolescence)

➢ Positive relationships with teachers is associated with lower depression. However other research suggests that teachers may have a greater effect on externalising (e.g. conduct behaviour), rather than internalising (e.g. depression, anxiety) issues in adolescents.

Bullying

- Skrzypiec *et al.* (2012) – Bullying is associated with worse mental health, including the increased display of emotional symptoms. Victims and Bully-Victims (both bullies and victims of bullying) are more at risk of negative outcomes. (Australia, 12-15)
- Kaltiala-heino *et al.* (2000) – Bullying is associated with higher recorded depression and anxiety. Bullies and victims had similar rates compared to each other, and higher rates than normal prevalence than those not involved. Bully-Victims had the highest rates of anxiety and depression by substantial margins (Finland, 14-16)
- Singham *et al* (2017) - Twin study of bullying (so greater suggestion of a causal relationship). Bullying increases risk of depression and anxiety. When asked again 2 years later anxiety was still increased. (UK, 11-16)
- Arseneault et al (2010) - Meta analysis proposing a link between bullying and lower mental health across several countries. Suggests that bullied children may become socially and biologically hypo/hyper reactive to stress → early onset mental health issues (Meta-analysis, international)

➢ Bullying is associated with lower mental health. Bully-Victims are at greater risk of mental health issues than those who are just bullies or victims. Both bullies and victims have increased mental risk compared to those not involved with bullying, but there are mixed results as to whether bullies and victims have the same or different levels of elevated risk.

Bullying Involving Females in Co-ed VS Single Sex Schools

- Green *et al* (2010) - Girls in girls only schools less likely to be bullied than girls in mixed schools. This includes both name calling and threats of/actual violence. (UK, 14-16)
    - However, also this study suggests that school characteristics have a low impact on bullying, only accounting for 3% of the variance in bullying.
    - I believe this article by Tes News (Maddern, 2010) talks about this report without referencing it, but falsely claims that girls schools increase incidences of female bullying.
- Gee & Cho (2014) - Girls less likely to be the victims or perpetrators of verbal and physical victimization or theft in all-girls than co-ed schools (South Korea, 12)
    - Thusly reduced depression due to decreased bullying and victimisation if a girl attends a single sex school?
- Pahlke et al (2014) - Girls in co-ed schools reported more victimisation than girls in single-sex schools (Meta-review, 4-18)

- There were no other published reports/peer reviewed journal articles which were directly about this topic that I could find, which was also reflected by Gee and Cho. Whilst girls may be bullied less at single-sex schools, the lack of research in this area means this conclusion should not be assumed to be fully studied.

Bullying Differences in Males vs Females

- Turner *et al* (2013) - Female levels of depression were significantly associated with both verbal and cyber bullying, but for males it was only significant for verbal. (US, 11-18)
    - Maybe females respond mentally worse to a wider range of bullying than males → increased risk of depression due to larger number of effective stressors?
- Bullying affects internalising problems (e.g. depression) more strongly for girls than boys (US, 11-15)
    - Maybe as girls are more affected by interpersonal stressors and problems, so the social isolation of bullying leads to increased depressive symptoms in girls compared to boys despite both genders being bullied?
- Brunstein klomek *et al* (2007) – For females, even infrequent bullying led to increased risk if depression. For males, only frequent bullying was associated with depression. (US, 14-18)
- Undheim & Sund (2010) - No gender difference in being bullied and elevated risk of depression. Bullying was considered a universal stressor for both genders in early adolescents. (Norway, 12-15)

- Bullying is suggested to contribute to the elevated occurrence of female depression, due to girls responding more, as well as more internalistically, than boys to victimisation. However, it should not be ignored that both genders experience negative outcomes from being bullied.

Bullying and Economic Factors

- Tippett & Wolke (2014) – Weak but significant association between low SES background and being a victim or bully victim. (Meta-analysis, 4-18)
- Elgar *et al* (2009) - The more income inequality in a country, the greater the prevalence of bullying (37 Countries – Europe/North America/Israel, 11)

- Low income on a micro family level or macro country level may lead to more bullying, but the research is not that convincing or largely explored.

Self-Determination Theory (Ryan & Deci, 2000)

- Applied to adolescent wellbeing (in an educational setting) by Bacete *et al* (2014).
- Need for 3 factors to achieve basic psychological needs and prevent mental health issues:
    - *Autonomy* – being able to make own choices and decisions about our life and actions. (see child questionnaires directly)
    - *Relatedness* – having significant relationships. Feeling a sense of belonging. (see social relationships)
    - *Competence* – Feeling confident in one's surroundings, and able to achieve goals within one's environment. (See academic pressure and self-esteem)
- It is an organismic dialectical model - reasoning between an organism and its social context can be used to make predictions about that individual.

➢ *Using this model to explain the gender difference* - girls may be more affected than boys in the relatedness and competence factors. This may be due to the greater stress felt with interpersonal issues (See Stress) and lower self-esteem (see Self-Esteem).

Self-Esteem

- Orth et al (2008) - Support for vulnerability model: Self-esteem is a risk factor and predictor for depression. (US, 15-21 (study 1))
- Sowislo & Orth (2013) - Further support for vulnerability model for depression. Pattern consistent across age and gender, so this means this study is applicable to adolescents and shows no gender differences. (Meta-analysis, some studies represent adolescents)
- Renouf & Harter (1990) - Low self-esteem correlated to low and depressive mood for both genders. (US, 11-15)

➢ Low self-esteem leads to increased risk of depression, not visa-versa, in accordance to the vulnerability model. This association is present for both genders.

Gender Differences in Self Esteem

- Derdikman-Eiron *et al.* (2011) - Girls had lower self-esteem compared to boys. This was the same when comparing girls and boys who had both depressive/anxiety symptoms and those without any symptoms. (Norway, 13-19)
- Bolognini *et al.* (1996) - Girls had lower self-esteem, and it was more globalised across all aspects of themselves. Furthermore, there was a higher correlation for depression and self-esteem in females than males. The same pattern was also seen for anxiety, but this was a weaker correlation. (Switzerland, 12-14)
- Morris et al (2008) - Increased self-worth lead to a decline in depressive symptoms of hopelessness (negative cognitions about one's future) for girls, but not for boys (US, 10-12)
    - Increasing self-esteem in girls is more beneficial for females compared to boys.

☒ Renouf & Harter (1990) - No gender difference was found in the strength of the relationship between self-esteem and depressive mood, yet girls were more than twice as likely to be depressed. (US, 11-15)

- Low self-esteem can explain a higher risk of depression, but this also suggests other factors may also contribute to the gender difference in depression.

➢ Low self-esteem is a predictor of depression. As females have lower and more globalised (across all aspects of themselves and their lives) low self-esteem than boys, and this may explain the gender gap in adolescence. However, other factors alongside lower self-esteem in females are needed to explain the gender gap in adolescence.

Competitiveness and Team Sports

- Hibbard & Buhrmester (2010) - Depression, loneliness, fewer friends, and lower quality friendships were associated with "competitiveness to win" for females, but not males. This suggests that female competitiveness to win does not fit with female social norms, leading to friendship difficulties, thus increasing loneliness, and resulting in a risk of depression. In contrast, there was no gender difference for "competitiveness to excel", and it was associated with decreased depression in both genders. Therefore in female competitiveness to excel may act as a buffer for the depressive effect of competitiveness to win. (US, 18)
- Gore et al (2003) - Team sports were associated with a reduction in depressed mood for girls with low academic performance. However, the was no significant association for team sports and lower depression for students in general after controlling for other protective factors. (US, 15-18)
- Sabiston *et al* (2013) - Increased depression was associated with decreased team sports participation for both genders. (Canada, 12-13)
    - If team sports helps reduce depression risk, the issue is that those who most need help with their depressive symptoms are those who are the least likely to participate.
- Boone & Leadbeater (2006) - Team sports participation is associated with decreased risk of depressive symptoms. However, girls were less likely to take part in and have positive experiences from team sports (Canada, 13-16).

➢ The research on team sports and depression in females is mixed.

- Team sports may help decrease depressive symptoms in girls, but it is not clear if the effect will be consistent across all adolescent females in general. Maybe team sports can help with body image (due to better health because of exercise) and making friends (due to teammates), which is suggested as potential causes of depression in adolescence in other studies. However, girls may miss benefiting from the potentially mitigating effect of team sports on depression as they participate less.
- In contrast, another conclusion is that sports may provide a risk for female depressive symptoms. For example, encouraging unhealthy competitiveness through sports may make it more difficult for girls to be positive about their achievements or make friends.

Body Image

- Stice & Bearman (2001) - Body dissatisfaction and thin ideal internalisation positively correlated with depressive symptoms for females (US, 13-17)
- Davison & McCabe (2006) - Body image significantly correlated to depression and anxiety symptoms, but no relationship was found once self-esteem was controlled for. (Australia, 12-14)

➢ There is an association between low body image and depression, but this may be due to low-self esteem rather than decreased body image directly being a risk factor for depression.

Body Image and School Gender Type for Girls

- Tiggemann (1999) - Girls who attended a single-sex or co-ed school demonstrated no difference in their body image concerns. (Australia, 16)
- Pahlke et al (2014) - Girls in single-sex and co-ed schools showed a no significant difference in body image. (Meta-analysis, 4-18)

➢ There is no association between body image and whether a girl attends a single-sex or co-ed school.

Gender Differences for Body Image

- Marcotte *et al (*2002) – Stronger association for low body image and depression for girls (Canada, 11-18)
- Bearman & Stice (2008) - Body dissatisfaction predicted depression for girls but not boys, even once controlling for other factors. (US, 13-16)
- Žukauskienė (2014) - Females have decreasing body satisfaction through early adolescent, and this dissatisfaction remains but stabilises in late adolescence. Males have increasing body satisfaction throughout adolescence. (Literature Review, Adolescence)
- Mezulis et al (2002) - Women ruminate greatly more than males about attractiveness, and rumination is associated with increased depression (see rumination) (US, 18-13)

➢ Decreased body satisfaction in females compared to males may explain the gender gap in adolescence. However, it should be questioned if a correlation would be found once other factors are controlled for, like rumination and self-esteem.

Gender Additive Model – Stice and Bearman

- Bearman & Stice (2008) - Suggests that through puberty girls' bodies move away from the thin ideal. This creates addition stress compared to boys and causes an increased risk in depression in females. (US, 13-16)

- Stice & Bearman (2001) - The pressure for females to be thin due to societal ideals promotes body dissatisfaction, and this in turn increases the risk of developing depressive symptoms. (US, 13-17)
- Hargreaves & Tiggemann (2004) - Media promoting the thin ideal for females lead to immediate decreased body satisfaction, negative appearance comparison, and lowered mood in females. This effect was more stronger and more normative in girls compared to boys. (Australia, 13-18)

➢ Societal pressures for females to be thin could increase depressive symptoms and the gender gap in depression.

Pubertal Change

- Koenig & Gladstone (1998) - Puberty stressful for both males and females. However boys have a more positive experience after initial puberty onset, whilst girls have a less positive one such as increased body image issues (see the Gender Additive Model). (US, 14-19)
- Bearman & Stice (2008) - Suggests that through puberty girls' bodies move away from the thin ideal, which creates addition stress compared to boys and causes an increased risk in depression in females. In comparison it is suggested that boys care less about how puberty is changing their bodies and more about other factors, such as academic achievement (US, 13-16)
- Žukauskienė (2014) - Discusses the stage termination hypothesis, which an early puberty is perceived as more stressful to the individual, and results in higher depression. As girls mature earlier than boys, this puts them at greater risk for depression as they are more likely to go through puberty earlier than boys. (Literature Review, Adolescence)

➢ Pubertal change in females may cause more social stressors in females as well as earlier in girls' lives, which may increase the risk of depression

Pubertal Change and School Transitioning

- Petersen et al (1991) – depressive symptoms and poor emotional tone (low self-esteem) are more likely to occur in adolescents who went through puberty before or during their transition to high school. Petersen et al propose that coinciding developmental and life event stressors leads to greater mental health risks. As girls go through puberty sooner than boys, this puts them at greater risk of going through these two stressful events simultaneously, and therefore may explain their increased depression compared to boys. (US, 11-18)
- Petersen *et al* (1994) - Both boys and girls who had gone through puberty before or during transitioning to a higher-level school were at greater risk of depressive symptoms. However, girls matured earlier, so were more likely to have gone through or be going through puberty whilst changing schools. (US, 11-18)

➢ The multiple layering of stresses in girls may put them more risk of depression compared to boys, causing the gender gap to emerge. However Petersen et al's argument is weak as the transitioning age in most schools is 10-12 years old, yet the gender gap does not significantly emerge until 14/15 years old. Nonetheless, the idea that girls have or perceive more stress than boys so have an increased risk of depression is more plausible.

Biological Explanations for the Gender Difference

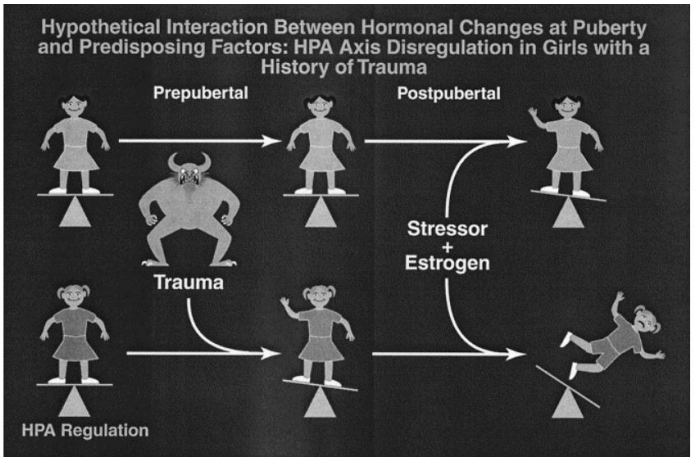
Genetic

- Bebbington (1996) - Genetics enough to explain the increased risk of depression in general, but not the gender gap. (Literature Review, Adolescents)
- Bebbington (1998) - Genetics cannot explain the difference in gender gap (Literature Review, Adolescents)
- Silberg *et al.* (1999) - Suggests that depression occurs for males due to life stress, but for females it occurs even if there is no life stress. Therefore, underlying genetic factors may explain depression (US, 8-16)
- Abela and Hankin (2008) - Evidence in the literature is mixed (Literature Review, Adolescents)
    - Lacks reliability, and arguably not as relevant to this review compared to other factors e.g. self-esteem, school differences etc.

➢ Genetics is a risk factor for depression in the population as a whole, but it does not explain the occurrence of depression in adolescence in particular, why there is a gender difference, and why the gender gap occurs in adolescence specifically. The inconsistency in the literature makes the argument for genetic factors in the context of this literature review unconvincing.

Hormones

- Naninck et al (2011) - Adolescence have a maturing HPA axis (collection of mostly hormone-secreting glands to regulate the stress response), as well as increased sex steroid levels. For girls, the effect of sex hormones (which also cyclically fluctuate more) increase sensitivity to stress, whilst for boys androgens are protective. Combined with psychosocial factors this puts females at greater risk of depression (Literature Review, Adolescents)
- Netherton *et al* (2004) - Post puberty females had more cortisol than males. As cortisol affects depression (Burke *et al.*, 2005), maybe it's linked? (UK, 8-16)
- Hayward & Sanborn (2002) - Trauma may affect HPA Axis, which when combined with pubertal hormone changes and stressors leads to increased risk of depression (see diagram on the next page) (US literature review, Adolescent)



Hayward & Sanborn (2002)

- Brooks-Gunn & Warren (1989) - Pubertal and hormonal factors accounted for far less variance in depressive symptoms compared to social factors. (US, 10-14)
- Abela & Hankin (2008) - Mixed results across the literature for the role of cortisol and sex hormones in the gender difference, but lots of it is negative (Literature Review, Adolescents)
- Hayward & Sanborn (2002) - Inconsistency in studies when associating internalizing symptoms (including depression) to hormone levels (including estrogen, testosterone, gonadotropin, HPA axis). Difficult to measure the effect of a singular hormone when it's probably about their combined effect. (US Literature review, Adolescent)

➢ To claim that hormones, or even a singular hormone, was the cause of gender differences is reductionist. Whilst a mixed of hormones may play a role in elevated depression in females, the literature is mixed and lack consistent conclusions. Therefore it is important to include how the role of social factors interact with biological ones when explaining the gender gap.

Cognitive Vulnerabilities – Gender Differences

- Calvete & Cardenoso (2005) - Females have higher negative orientation, need for success and acceptance, expectation of problems to be unsolvable, doubts in abilities to solve conflicts, and lower automatic positive and self-focused thoughts → linked to internalising problems (e.g. depression). Boys scored higher on positive orientation, which further protects them from depression. (Spain, 14-17)
- Hankin & Abramson (2002) - Girls show higher negative cognitive style, attributional style, and negative inferences, which can account for the elevated levels of depressive symptoms compared to boys (US, 13-18)

➢ Girls have a more negative cognition style, which puts them at higher risk of depressive symptoms

Rumination

- Papageorgiou & Wells (2008) (gender inclusive model):

This model is illustrated in Figure 1.5. According to this model, positive beliefs about the benefits and advantages of rumination are likely to motivate individuals to engage in sustained rumination. Once rumination is activated, individuals then appraise this process as both uncontrollable and harmful (negative beliefs 1) and likely to produce detrimental interpersonal and social consequences (negative beliefs 2). The activation of negative beliefs and appraisals about rumination then contributes to the experience of depression. Therefore, a number of vicious cycles of rumination, depression, and specific metacognitive beliefs may be responsible for the maintenance of the depressive

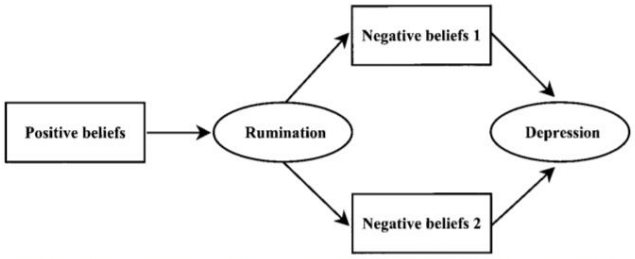


Figure 1.5. Basic components and structure of a clinical metacognitive model of rumination and depression

- Jose & Brown (2008) - At 12 years old the gender gap in rumination occurs as it increases for females. Furthermore, the association of rumination and depression is stronger for girls, and increasing depression coincides with rising stress and rumination for girls. Increased rumination also increases depression for boys, but girls ruminate more and rumination is more likely to lead to depressive symptoms for females. (New Zealand, 10-17)
- Cox et al (2010) - Girls have increased rumination at 15, but it is the same as boys at 11. Girls with greater feminine gender role identity have increased rumination. Mothers who encourage negative emotional expression (which was especially true for mothers with more traditional

gender roles attitudes) leads to daughters having increased risk of depressive rumination. To sum up: feminine gender role identity + encouraged emotional expression by mother → increased depressive rumination (US, 11-15)

  - Importance of both the cogitative (e.g. rumination) and social (e.g. gender roles, social relationships) factors when explaining the gender difference in depression

- Mezulis et al (2002) – Rumination was higher in females, but to different effect sizes. Achievement was small (see academic pressure and competitiveness), negative interpersonal was moderate (see social relationships), and body image/attractiveness (see body image) was high. (US, 18-13)
  - Suggests that rumination can affect many areas of a girl's life, but to different extents. As all these areas affect depression, rumination indirectly causes depression.

➢ Girls begin to ruminate more than boys at a similar time as the gender gap in depression occurs, so this may be linked. However, rumination is also linked to other factors such as gender role identity and body image, so should not be used as the sole cause of adolescent gender differences.

Stress and Coping Strategies

- Hampel & Petermann (2005) – Girls had higher perceived interpersonal stress. Girls used less emotional regulatory and problem-focused coping strategies, and more maladaptive coping strategies (e.g. rumination, aggression) → worse at dealing with stress and therefore increased risk of depressive symptoms (Germany, 8-14)
- Stroud et al (2002) - HPA Axis (which is the biological pathway for stress) resulted in a greater cortisol response for interpersonal stressors in females, and academic stressors in males. Therefore girls may experience greater interpersonal stress than academic stress, so social rejection may be a greater trigger for depression and explain the increased occurrence in girls. (US, 17-23)
    - Ppt age was a bit older, and it is documented in other studies (E.g. Naninck, et al, 2011) that the HPA axis is still developing in adolescence, so generalisability of this study to younger people is questionable
- Green *et al* (2005) - Children with emotional disorders (such as depression) were twice as likely to have had experienced 2 or more stressful life events (59% compared to 25%). (UK, 5-16)

➢ Stress is associated with adolescent depression, and girls perceive more stress in a variety of areas, especially interpersonal. In response to the stress, the coping methods that girls employ are often more maladaptive than helpful. This may lead to a heighted biological and social response to stress by girls, increasing the risk of depression.

Exam Stress and Academic Pressure

- Department of Children and Youth Affairs (2017) - Girls are more stressed than boys in all measured areas: exams, complete difficult tasks, comparing progress, homework, what to do once they have finished school, being around disruptive students, getting help from teachers, speaking out inform of others, amount of work given, number of subjects doing. (Ireland, 12-17)
    - Basis of news article by The Irish Times (Harris, 2018), in which girls' increased mental health problems were suggested to be due to more exam stress, negative school experiences, pressures to conform, perfectionism, and intense competition.
    - School may be more stressful for girls than boys. It could be that girls are more stressed by same school stressors faced by males. However in the same study girls felt like they got less attention and fair treatment from teachers, so instead it could be that schools themselves provide more stress for girls?
- Tiggemann (1999) - Girls from single-sex schools were more concerned with their achievement academically and professionally than girls from co-ed schools. (Australia, 16)

- Sankar (2017) - Those with academic stress had a 2.4 times higher risk of depression. Academic stress was higher in girls. (India, Adolescents)
- Deb et al (2015) - No gender differences in terms of academic pressure and mental health occurrence, though females were more likely to report higher exam stress and subsequent mental health symptoms. (India, 16-18)
    - This study uses adolescences who are much older, so may not be applicable to younger adolescence. As younger adolescents have less official exams they may have lower examination stress, so it may not be a huge contributor to the gender gap which emerges in early adolescence.

➢ Exam stress is widely concluded to be higher for females. However, there were mixed results for whether there was a gender gap in academic pressure. There are not as many studies into academic pressure for adolescents, the gender differences, and link to depression as expected. Lots of the research focuses on "gifted children" only, which was decided as beyond the scope of the literature review.

Sexual and Physical Abuse

- Nolen-Hoeksema (2001) - Girls are more likely to be victims of sexual abuse, and this could account for 35% of the gender difference in depression (Literature review, adolescents)
- Schraedley, et al (1999) - Girls more likely to face sexual and physical abuse in childhood and adolescence (US, 9-20)
- Putnam (2003) - Both males and females have increased risk of depression after sexual abuse. (Literature review, all ages and included studies researching adolescents)

➢ Sexual abuse puts all at increased risk of depression, but as females are more likely to face abuse this may explain increased depressive rates in girls.

Low Socio-Economic Status (SES)

- Reiss (2013) - Persistently low or decreasing SES across adolescence leads to decreased mental health outcomes. (International meta-analysis, 13-18)
- Goodman *et al* (2003) – Low school SES increased risk of depression. However, higher school income prevented depressive effect of low home SES. (US, 12-18)
- Green *et al* (2005) - Low income and SES was associated with higher prevalence of mental health issues in children, especially for emotional disorders such as depression. (UK, 5-16)

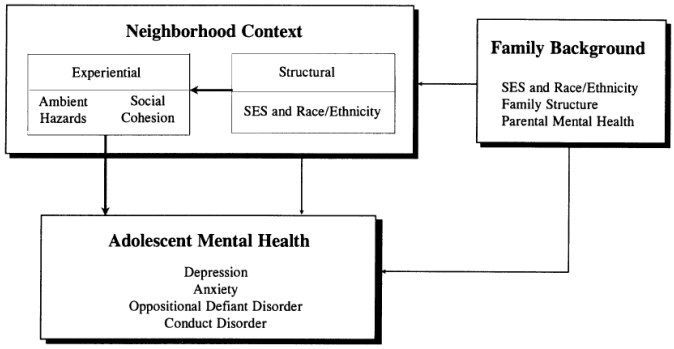
☒ Wadsworth & Achenbach (2005) – SES only starts to affect depression/anxiety in adulthood. Researchers suggests that the diathesis-stress model may be more helpful. (US, 8-17)

- Maybe financial issues stress out adults more than adolescents, so SES is a stressor and trigger of depression more relevant for adults?

➢ Whilst it was well documented that poverty can affect physical health, especially for adults, the effect of SES and depression in adolescence is less well explored. Whilst school or family SES may affect adolescent depression, it is clear that other factors also contribute to adolescent depression.

Neighbourhood Contextual Effects – (Aneshensel & Sucoff, 1996)

- Rooted in the ecological school of thought (environment effects a person)
- Builds on ecological perspectives which focus on proximal influences (e.g. family, peers, and school) on development.
- Three main components:
    - **Family background** – exogenous family aspects e.g. SES, race
    - **Neighbourhood context** – where family is located is determined by family background i.e. living in areas with others due to similar income and racial segregation (structural characteristics of a neighbourhood). Neighbourhoods are also characterised by the ambient hazards and social cohesion within the area and community (experiential)
    - **Mental Health** – the internalised disorders depression and anxiety is called by a mix of the previous two factors.
- Family background → determines what neighbourhood a family lives in → shapes the neighbourhood context → causes different levels of ambient hazards and social cohesion in an area (with low SES leading to more hazards, but race not affecting social cohesion) → affects mental health
- Higher ambient hazards (e.g. graffiti, crime, violence, drugs) → higher depression and anxiety
- Suggestion of low social cohesion → higher depression (this conclusion has low reliability)



➢ This may link back to the single-sex vs co-ed question. As single-sex schools tend to be grammar or private, this leads the family to more likely to have high SES and the school to be in a better area. This effect is amplified as families move to be closer to the school, creating a neighbourhood of higher social cohesion and lower ambient hazards.

Single-Sex vs Co-ed Schools – Females

- Sullivan et al (2012) – Mental health of women as adults not affected by school gender type (42, UK)
    - Also noted that there is no other study on single-sex vs co-ed and its effect on mental health on either children or adults, which I am inclined to believe as I can't find any either
- Watson et al (2002) - Single-sex female students have higher realistic and aspirational careers than co-ed female students (11-18, US)
    - Leads to greater pressure → mental health risk?
- Hart (2015) - Girls enjoy the school environment in single-sex schools more than in co-ed. No difference in academic attitudes. (US, 11-14)
    - More enjoyable environment → decreased mental health in single sex schools?
- Tiggemann (1999) - Girls who attended a single-sex or co-ed school demonstrated no difference in their body image concerns. However, girls from single-sex schools were more concerned with their achievement academically and professionally (Australia, 16).
    - Increased academic pressure in single-sex schools → potential increased depression risk?
- Chouinard et al (2008) - Girls from either school type showed no differences in perceived parental and teacher support, and in achievement motivation in language arts and mathematics (12-15, US)

➢ There is no study that I can find that investigates mental health and school gender type for adolescents. Many studies have researched differences into outcomes for females, and how this relates back to mental health is suggested above. Another issue is that single-sex schools researched in these studies are private, so it is difficult to generalise these studies across different school types (e.g. comprehensive, grammar, private/public).

III

Models of Depression

‘Model 3’ - Nolen-Hoeksema & Girgus (1994)

- Model 3 proposes that girls have a greater risk for depression pre-adulthood, but it is not until early adolescence when girls experience increased stressors that the gender difference is triggered.
- Described as a “vulnerability-stress framework” by Abela & Hankin (2008).
- E.g. Hayward & Sanborn (2002) – girls experience victimisation/physical abuse/sexual abuse, which changes there HPA Axis during prepubescent. Thus once dealing with the added stresses and hormone changes of adolescence, they are more likely to develop depression (see diagram)
- Context – this was the first systematic review of the causes adolescent gender differences in depression. When reviewing the studies, the authors proposed two other models, but they were deemed to have less evidence supporting them:
    - Model 1 – same factors cause depression for both genders, but girls experience more of them
    - Model 2 – Different causes of depression in each gender, and the causes for girls found more in adolescence than boys

➢ The model is very vague, as it attempts to describe the core structure of several of the models the authors reviewed. However this basic framework is useful as it does work well as a simplistic summary for some of the other models in this section of the literature review (see ‘ABC’ Model, Elaborate Cognitive Vulnerability-Transactional Stress Model, and Cyranowski et al’s Theoretical Model)

'ABC' Model of Gender Differences in Depression in Adolescence - Hyde et al (2008)

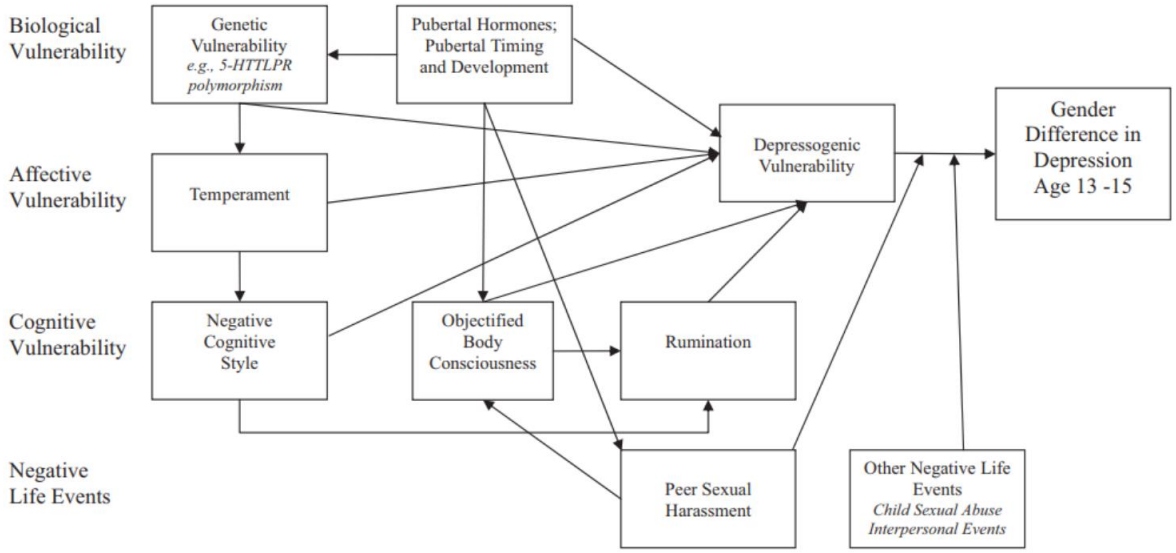


Figure 1. A conceptual diagram of the ABC model of the emergence of gender differences in depression in adolescence. (Depressogenic Vulnerability represents the collection of all the vulnerabilities, all of which are hypothesized to interact with negative events to yield gender differences in depression.)

- **Affective** – Temperament, i.e. negative emotionality. Researchers admit little gender difference in negative emotionality, however since girls have higher variance this distribution leads to more negatively scoring girls.
- **Biological** – Pubertal change, hormones, and genetics
    - Acknowledgement of the importance of the impact alongside social factors, rather than direct effect of biological factors on depression. For example, pubertal change leading to more body image issues in women (see pubertal change). Social factors may have more of an impact than biological ones, but biological factors still contribute (Brooks-Gunn & Warren, 1989).
- **Cognitive –** Negative cognition, low body confidence, increased societal expectations for women to be pretty, and increased rumination .
- **Negative life events –** Females more likely to face sexual abuse/harassment, and interpersonal issues.

➢ The affective and biological arguments are not convincing, considering the evidence previously explored in this literature review. However, it should be appreciate that the researchers have acknowledged the range of pathways that may lead to depression, and how they interlink.

Elaborate Cognitive Vulnerability-Transactional Stress Model - Hankin & Abramson (2001)

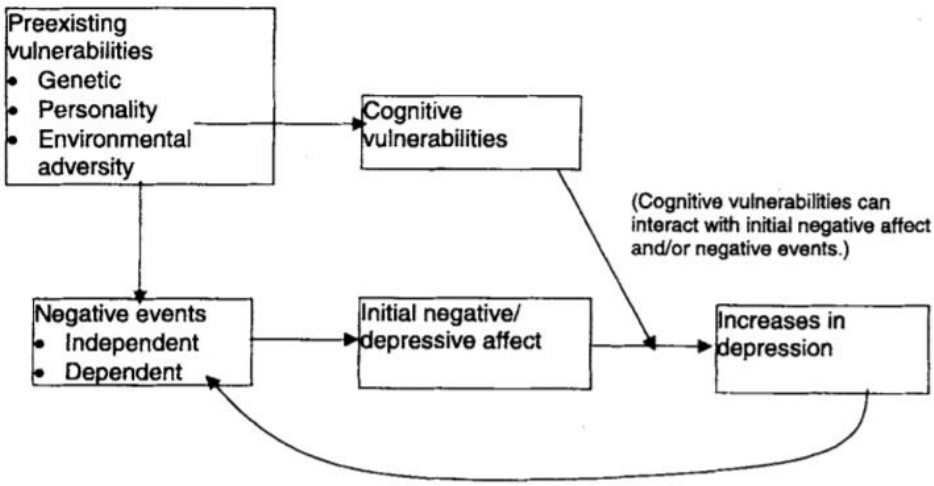


Figure 2. Schematic diagram of the proposed, general elaborated cognitive vulnerability-transactional stress model of depression.

- **Negative Affect** – poor mood and emotion. Comes after event to allow for other simultaneous psychological symptoms that might occur as well as depressive ones.
- **Cognitive Vulnerabilities –** may also interact with negative events and affect. Includes rumination
- **Negative events** – independent are fateful events out of the person's control, and dependant events are a result of one's actions and behaviours. Girls report more interpersonal (independent) stressors than boys.

➢ There are many unexplained parts of the model regarding the gender gap (see diagram below), but there are merits in how transparent they have been about the limitations of their model. Visually this model best communicates why girls have elevated depression compared to boys.

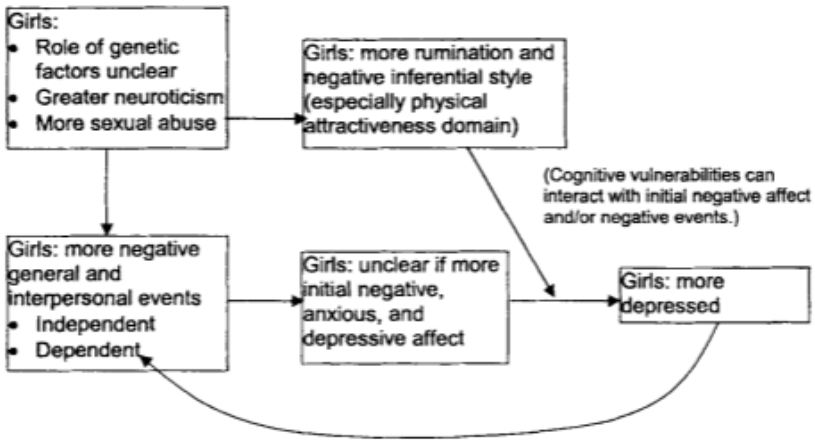
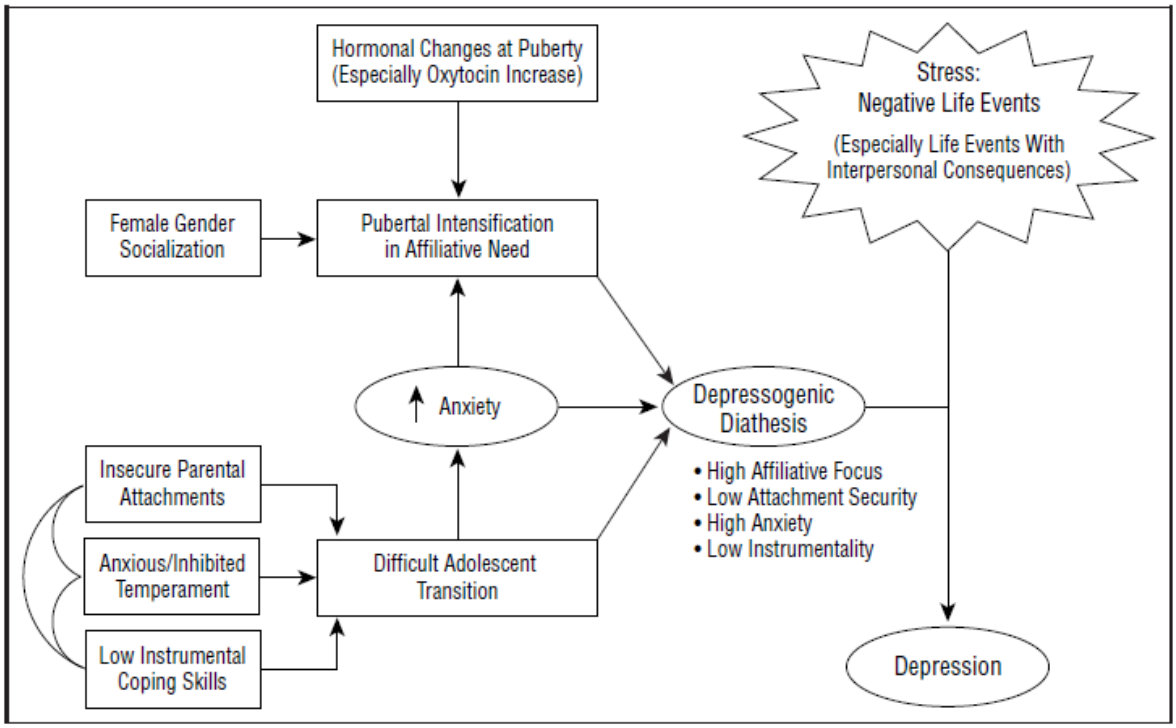


Figure 3. Schematic diagram illustrating the specific case of the emergence of the gender difference in depression derived from the elaborated cognitive vulnerability-transactional stress model of depression.

Cyranowski et al's Theoretical Model – Cyranowski *et al.* (2000)



Comprehensive representation of the current theoretical model, explaining how various biological and psychosocial forces may interact to produce increased rates of depression in adolescent females.

- **Hormonal changes** – Focus on the gonadal system, but there is an understanding that it cannot explain the whole picture (see hormones)
- **Gender Socialisation** – Women socialise more (→ more risk of interpersonal issues)
- **Pubertal intensification** - societal pressures for feminine ideals as girls start to go through puberty e.g. focus on attractiveness/body image (→ body image pressure)
- **Anxiety** – females more likely to display anxiety. Anxiety can be genetically or socially triggered
- **Insecure parental attachments** – no gender difference listed, but does cause difficulties for adolescents (see parent relationships)
- **Anxious/inhibited temperament** – no gender difference listed, partly biologically determined.
- **Low Instrumental coping skills** – used to socialising and peer support compared to males, so less prepared to deal with stress independently. Increased rumination compared to males.
- **Depressogenic Diathesis** – all the factors above put girls at risk. Mentions that even if boys have similar problems, they may be more likely to express it in an externalising way, whilst girls express symptoms internalisticly such as through depression.
- **Negative life events** – Females report a greater number and more severe stressful life event occurring from 13.

- The model can explain the occurrence of adolescent depression, but not all the factors can explain the gender difference (e.g. insecure parental attachments, temperament). It is unique to the other models in the way it gathers all these risk factors girls face for depression under their depressogenic diathesis concept. However, this model at its core follows the same pattern of the other models - social, biological, and cognitive factors put girls at elevated risk of depression, and when faced with the stressors of adolescence this may trigger depression.

IV

Millennium Cohort Study Questionnaires

Child Questionnaire at 14 Years Old - MCS6

The questions in the MSCS6 young person questionnaire has been linked to the relevant section of this literature review. Please see the Centre for Longitudinal Studies (2015) for the questionnaire in full.

Factor	Variable	Question
Academic Expectations	ATQL	How much do you agree or disagree that nowadays you need qualifications in order to get a job worth having?
	CARR	When you grow up what would you like to be?
	HLPC	How often does anyone at home make sure you do your homework?
	HWKM	In a typical week in term-time, including weekends, how many hours do you spend doing homework?
	STYN	What is the main reason why you might not stay on in full-time education at the end of [^Year 11/Fifth year (S5)/Year 12]8?
	STYU	How likely do you think it is that you will go to university?
	STYY	How likely (0-100%) do you think it is you will stay on in full-time education at the end of [^Year 11/Fifth year (S 5)/Year 12]7?
	WHRD	How important is it to you to work hard?
Academic Stress	SCWK	Your school work? (On a scale of 1 to 7 where '1' means completely happy and '7' means not at all happy, how do you feel about the following parts of your life?)
Autonomy	OPWE	Who decided which subjects you would be studying in [^Year 10/ Third year (S3)/Year 116]?
Body Image	ETLS	Have you ever eaten less food, fewer calories, or foods low in fat to lose weight or to avoid gaining weight?
	EXWT	Have you ever exercised to lose weight or to avoid gaining weight?
	LSWT	Which of the following are you trying to do about your weight?
	WEGT	Which of these do you think you are? (Underweight/Right Weight/Overweight etc)
	WYLK	The way you look? (On a scale of 1 to 7 where '1' means completely happy and '7' means not at all happy, how do you feel about the following parts of your life?)
Bullying	BULB	How often do your brothers or sisters hurt you or pick on you on purpose?

	BULP	How often do you hurt or pick on your brothers or sisters on purpose?
	CYBO	How often have you sent unwanted or nasty emails, texts or messages or posted something nasty about other children on a website?
	CYBU	How often have other children sent you unwanted or nasty emails, texts or messages or posted something nasty about you on a website?
	FGHT	How wrong do you think it is for someone your age to start a fight with someone?
	HURT	How often do other children hurt you or pick on you on purpose?
	PCKP	How often do you hurt or pick on other children on purpose?
Happiness	LIFE	Your life as a whole? (On a scale of 1 to 7 where '1' means completely happy and '7' means not at all happy, how do you feel about the following parts of your life?)
Mental Health	HARM	In the past year have you hurt yourself on purpose in any way?
	MDSA	I felt miserable or unhappy (feeling or acting in the past two weeks)
	MDSB	I didn't enjoy anything at all (feeling or acting in the past two weeks)
	MDSC	I felt so tired I just sat around and did nothing (feeling or acting in the past two weeks)
	MDSD	I was very restless (feeling or acting in the past two weeks)
	MDSE	I felt I was no good any more (feeling or acting in the past two weeks)
	MDSF	I cried a lot (feeling or acting in the past two weeks)
	MDSG	I found it hard to think properly or concentrate (feeling or acting in the past two weeks)
	MDSH	I hated myself (feeling or acting in the past two weeks)
	MDSJ	I felt lonely (feeling or acting in the past two weeks)
	MDSK	I thought nobody really loved me (feeling or acting in the past two weeks)
Negative Cognition	MDSI	I was a bad person (feeling or acting in the past two weeks)
	MDSL	I thought I could never be as good as other kids (feeling or acting in the past two weeks)
	MDSM	I did everything wrong (feeling or acting in the past two weeks)
Pubertal Change	AGMN	How old were you when you had your first period? (Female only)
	PUBH	How about the growth of your body hair?
	PUBR	How would you describe the growth of your breasts? (Female only)
	PUFH	How about the growth of your facial hair? (Male only)

	PUHG	How would you describe your growth spurt?
	PUMN	Have you started your periods? (Female only)
	PUSK	How would you describe the changes to your skin?
	PUVC	How would you describe your voice? (Males only)
School Enjoyment	SCHL	The school you go to? (On a scale of 1 to 7 where '1' means completely happy and '7' means not at all happy, how do you feel about the following parts of your life?)
	MNWO	How often do you find it difficult to keep your mind on your work at school?
	SCBE	How often do you try your best at school?
	SCWA	How often do you feel school is a waste of time?
	SINT	How often do you find school interesting?
	STIR	How often do you get tired at school?
	SUNH	How often do you feel unhappy at school?
Self-Esteem	ENGL	I am good at English
	GDPE	I am good at PE
	MTHS	I am good at Maths
	SCIE	I am good at Science
	WSH	I am good at Welsh
	DOWL	I am able to do things as well as most other people
	GDQL	I feel I have a number of good qualities
	GDSF	I feel good about myself
	SATI	On the whole, I am satisfied with myself
	VALU	I am a person of value
Social Relationships	NCLS	There is no one I feel close to.
	SAFE	I have family and friends who help me feel safe, secure and happy.
	TRSS	There is someone I trust whom I would turn to for advice if I were having problems.
	TRST	How much would you say you trust other people?
	WELK	How important is it to you to be well liked?
	WRRY	What do you do if you are worried about something?

Social Relationships - Friends and Peers	FRNS	Your friends? (On a scale of 1 to 7 where '1' means completely happy and '7' means not at all happy, how do you feel about the following parts of your life?)
	NUFR	By close friends we mean other young people you feel at ease with or who you can talk to about things that are private. Do you have any close friends?
	PLWE	At the weekend how often do you spend time with your friends, but without adults or older children, doing things like playing in the park, going to the shops or just 'hanging out'?
	PLWK	In the afternoon after school, how often do you spend time with your friends, but without adults or older children, doing things like playing in the park, going to the shops or just 'hanging out'?
	STFR	When you are not at school, how often do you spend time with your close friends?
Social Relationships - Parents	FMLY	Your family? (On a scale of 1 to 7 where '1' means completely happy and '7' means not at all happy, how do you feel about the following parts of your life?)
	QUAF	Most young people have occasional arguments with their parents. How often do you argue with your father?
	QUAM	Most young people have occasional arguments with their parents. How often do you argue with your mother?
	RLQF	Overall, how close would you say you are to your father?
	RLQM	Overall, how close would you say you are to your mother?
Victimisation and Abuse	VICA	Been physically violent towards you, e.g. pushed, shoved, hit, slapped or punched you? (In the past 12 months has anyone done any of these things to you?)
	VICC	Hit you with or used a weapon against you? (In the past 12 months has anyone done any of these things to you?)
	VICE	Stolen something from you. e.g. a mobile phone, money etc.? (In the past 12 months has anyone done any of these things to you?)

	VICF	Made an unwelcome sexual approach to you or assaulted you sexually? (In the past 12 months has anyone done any of these things to you?)
	VICG	Insulted you, called you names, threatened or shouted at you in a public place, at school or anywhere else? (In the past 12 months has anyone done any of these things to you?)

Parent Questionnaire at 14 Years Old - MCS6

The questions in the MSCS6 parent questionnaire has been linked to the relevant section of this literature review. Please see the Centre for Longitudinal Studies (2015) for the questionnaire in full.

Factor	Variable	Question
Academic Expectations	ASMI	What would you like [^Cohort member's name] to do when [^he/she] is 16 years of age?
	ASLU	How likely or unlikely do you think it is that [^Cohort member's name] will attend university?
Mental Health	RASN	What are the reasons for [^Cohort member's name]'s additional support needs? (See 11 - Mental illness/depression, 15 - Bullying)
	RSEN	What are the reasons for [^Cohort member's name]'s special educational needs? (See 11 - Mental Health/Depression)
	CLSI	Does [^Cohort member's name] have any physical or mental health conditions or illnesses lasting or expected to last 12 months or more?
	CLSM	Does this (Do any of these) condition(s) or illness(es) affect [^Cohort member's name] in any of the following areas? (See 7 - Mental Health)
	CLSL	Does this (Do any of these) condition(s) or illness(es) reduce [^Cohort member's name]'s ability to carry out day-to-day activities?
	CLSP	For how long has [^Cohort member's name]'s ability to carry out day-to-day activities been reduced?
	EMOT	On the whole how good would you say [^Cohort member's name] is at controlling [^his/her] emotions?
Neighbourhood Safety	SAFE	How safe is it for young people of [all cohort members' names]'s age to walk, play or hang out in this area during the day?
School Gender Type	SCSX	And (can I just check) is it a single sex or mixed school?
SES	NETA	What was your take-home pay the last time you were paid, that is after any deductions were made for tax, National Insurance, pension, union dues and so on?
	NETP	(What was your take-home pay the last time you were paid, that is after any deductions were made for tax, National Insurance, pension, union dues and so on?) What period did this cover?

	SEPA	I know that it is sometimes difficult for self-employed people to give an exact figure for their income, but could you please think about your take home income in the last 12 months. That is, the amount you personally took out of the business after all taxes and costs. About how much is this?
Social Relationships - Parents	TAIM	How often do you talk to [^Cohort member's name] about things that are important to [^him/her]?
	CHTI	A lot of people nowadays feel they don't have enough time to spend with their children. Which of the statements on this card best describes how you feel about the amount of time you have to spend with [^Cohort member's name]?
	SCHC	Overall, how close would you say you are to [^Cohort member's name]?
	QARP	Most parents have occasional quarrels with their children. How often do you quarrel with [^Cohort member's name]?

Strengths and Difficulties Questionnaire – MSC6

Alongside the main questionnaire, the parents were asked to complete the Strengths and Difficulties Questionnaire (SDQ). Previously in the MSC5, these questions had been integrated into the main parent questionnaire. The relevant questions have been identified below, and the full questionnaire can be found on the website for the Centre for Longitudinal Studies (2015).

Factor	Question
Bullying	Often fights with other children or bullies them
	Picked on or bullied by other children
Mental Health	Many worries, often seems worried
	Often unhappy, down-hearted or tearful
Self-Esteem	Nervous or clingy in new situations, easily loses confidence
Social Relationships - Friends and Peers	Has at least one good friend
	Generally liked by other children

Child Questionnaire at 11 Years Old – MCS5

The questions in the MSCS5 young person questionnaire has been linked to the relevant section of this literature review. Please see the Centre for Longitudinal Studies (2012) for the questionnaire in full.

Factor	Q No	Question
Academic Expectations	80a	I care about how well I do at school
	81	Do you want to stay on at school or college full-time when you are 16?
	82	When you grow up what would you like to be?
	34	How often do you try your best at school?
Academic Stress	10a	How do you feel about your school work?
Body Image	10b	How do you feel about the way you look?
Bullying	48	How wrong do you think it is for someone your age to start a fight with someone?
	53	How often do your brothers or sisters hurt you or pick on you on purpose?
	54	How often do you hurt or pick on your brothers or sisters on purpose?
	55	How often do other children hurt you or pick on you on purpose?
	56	How often do you hurt or pick on other children on purpose?
Happiness	10f	How do you feel about your life as a whole?
Mental Health	73	In the last four weeks, how often did you feel happy?
	74	In the last four weeks, how often did you get worried about what would happen to you?
	75	In the last four weeks, how often did you feel sad?
	76	In the last four weeks, how often did you feel afraid or scared?
	77	In the last four weeks, how often did you laugh?
	78	In the last four weeks, how often did you get angry?
Neighbourhood Safety	23	How safe is it to walk, play or hang out in this area during the day?
School Enjoyment	10e	How do you feel about the school you go to?
	29	How much do you like school?
	35	How often do you find school interesting?
	36	How often do you feel unhappy at school?
	37	How often do you get tired at school?
	38	How often do you feel school is a waste of time?

School Transition	46	How much are you looking forward to going to secondary school?
	47	How many of your friends are going to the same secondary school as you?
Self-Esteem	11a	On the whole, I am satisfied with myself
	11b	feel that I have a number of good qualities
	11c	I am able to do things as well as most other people
	11d	I am a person of value
	11e	I feel good about myself
	45a	I am good at English
	45b	I am good at Maths
	45c	I am good at Science
SES	21	Compared to your friends, is your family richer, poorer or about the same?
	22a	I wish my family could afford to buy me more of what I want
	22b	I like clothing with popular labels
	22c	It bothers me if my friends have things I don't
Social Relationships - Friends and Peers	8	How often do you exchange messages with friends on the internet using instant messaging, such as MSN, or email, such as hotmail?
	10d	How do you feel about your friends?
	16	How often do you argue or fall out with your friends?
	17	When you are not at school, how often do you spend time with your friends?
	18	At the weekend how often do you spend time with your friends, but without adults or older children, doing things like playing in the park, going to the shops or just 'hanging out'?
	19	In the afternoon after school how often do you spend time with your friends, but without adults or older children, doing things like playing in the park, going to the shops or just 'hanging out'?
Social Relationships - Parents	10c	How do you feel about your family?
Social Relationships - Teachers	42	How much do you like your class teacher?
	43	How often do you think your class teacher is getting at you?
Social Relationships	79	What do you do if you are worried about something?
	80c	I do not show my emotions to others

Parent Questionnaire at 11 Years Old – MCS5

The questions in the MSCS5 parent questionnaire has been linked to the relevant section of this literature review. Please see the Centre for Longitudinal Studies (2012) for the questionnaire in full.

Factor	Variable	Question
Academic Expectations	ASMI	What would you like [^Cohort child's name] to do when [^he/she] is 16 years of age? Would you like [^him/her] to...
	ASLU	How likely or unlikely do you think it is that [^Cohort child's name] will attend university?
Bullying	SDFB	Please give your answers on the basis of [^Cohort child's name]'s behaviour over the last six months. [^Cohort child's name] often fights with other children or bullies them
	SDPB	Please give your answers on the basis of [^Cohort child's name]'s behaviour over the last six months. [^Cohort child's name] is picked on or bullied by other children
Examinations	ENEX	Has [^Cohort child's name] taken any entrance exams for secondary school?
Happiness	SDUD	Please give your answers on the basis of [^Cohort child's name]'s behaviour over the last six months. [^Cohort child's name] is often unhappy, down-hearted or tearful
Mental Health	RASN	What are the reasons for [^Cohort child's name]'s additional support needs? (See 11 - Mental Helath/Depression)
	RSEN	What are the reasons for [^Cohort child's name]'s special educational needs? (See 11 - Mental Helath/Depression)
	CLSI	Does [^Cohort child's name] have any physical or mental health conditions or illnesses lasting or expected to last 12 months or more?
	CLSM	Does this (Do any of these) condition(s) or illness(es) affect [^Cohort child's name] in any of the following areas? (See 7 - Mental Health)
	CLSL	Does this (Do any of these) condition(s) or illness(es) reduce [^Cohort child's name]'s ability to carry out day-to-day activities?
	CLSP	For how long has [^Cohort child's name]'s ability to carry out day-to-day activities been reduced?

	SDMW	Please give your answers on the basis of [^Cohort child's name]'s behaviour over the last six months. [^Cohort child's name] has many worries, often seems worried
Pubertal Change	PUHG	Would you say that [Cohort child's name]'s growth spurt ....?
	PUBH	How about the growth of [Cohort child's name]'s body hair? By "Body hair" we mean hair any place other than [^his/her] head or face, such as under [^his/her] arms.
	PUSK	How about any changes to [^his/her] skin such as spots?
	PUVC	How about his voice getting deeper?
	PUFH	How about the growth of his facial hair? By facial hair we mean hair on his face, such as on his top lip or chin?
	PUBR	How about the growth of her breasts?
	PUMN	Has [Cohort child's name]'s begun to menstruate? By menstruate we mean started to have her period?
	AGMN	How old was [Cohort child's name] when she started to menstruate?
School Enjoyment	ADEN	Now I'd like to ask a few questions about how [^Cohort child's name] feels about school. How often does [^Cohort child's name] enjoy school?
	ADBR	How often does [^Cohort child's name] seem bored by school?
School Gender Type	SCSX	And (can I just check) is it a single sex or mixed school?
	SCSX2	And (can I just check) is it a single sex or mixed school? (For secondary school child intends to attend)
School Transition	SSAT	Moving from primary to secondary school is a big change in children's lives. How much is |[^Cohort child's name] looking forward to moving to secondary school? Would you say ...
	SSCP	How easy or difficult do you think [^cohort child's name] will find moving to secondary school?
Self-Esteem	SDNC	Please give your answers on the basis of [^Cohort child's name]'s behaviour over the last six months. [^Cohort child's name] is nervous or clingy in new situations, easily loses confidence
SES	NETA	What was your take-home pay the last time you were paid, that is after any deductions were made for tax, National Insurance, pension, union dues and so on?

	NETP	(What was your take-home pay the last time you were paid, that is after any deductions were made for tax, National Insurance, pension, union dues and so on?) What period did this cover?
	SEPA	I know that it is sometimes difficult for self-employed people to give an exact figure for their income, but could you please think about your take home income in the last 12 months. That is, the amount you personally took out of the business after all taxes and costs. About how much is this?
Social Relationships - Friends and Peers	VIFR	Apart from at school, how often does [^Cohort child's name] spend time with [^his/her] friends?
	PLWE	How often, if at all, does [^Cohort child's name] spend time with [^his/her] friends, but without adults or older children, doing things like playing in the park, going to the shops or just 'hanging out' at the weekend?
	PLWK	How often, if at all, does [^Cohort child's name] spend time with [^his/her] friends, but without adults or older children, doing things like playing in the park, going to the shops or just 'hanging out' in the afternoon after school?
	SDGF	Please give your answers on the basis of [^Cohort child's name]'s behaviour over the last six months. [^Cohort child's name] has at least one good friend
	SDLC	Please give your answers on the basis of [^Cohort child's name]'s behaviour over the last six months. [^Cohort child's name] is generally liked by other children
Social Relationships - Parents	SCHC	Overall, how close would you say you are to [^Cohort child's name]?
	CHWL	I have frequent battles of will with [^Cohort child's name]
	ACTI	How often do you… play sports or physically active games outdoors or indoors with [^Cohort child's name]?
	GAME	(How often do you…) play indoor games with [^Cohort child's name]?
	TAIM	How often do you talk to [^Cohort child's name] about things that are important to [^him/her]?
Social Relationships - Teachers	ADTL	How often does [^Cohort child's name] look forward to seeing [^his/her] school teacher?

Teacher Questionnaire at 11 Years Old – MCS5

The questions in the MSCS5 teacher questionnaire has been linked to the relevant section of this literature review. Please see the Centre for Longitudinal Studies (2012) for the questionnaire in full.

Factor	Q No	Question
Bullying	5l	Often fights with other children or bullies them
	5s	Is picked on or bullied by other children
	17a	During this school year how often, if at all have other children at school hurt or picked on this child on purpose?
	17b	During this school year how often, if at all has this child hurt or picked on other children at school on purpose?
Mental Health	5h	Has many worries, often seems worried
	5m	Is often unhappy, down-hearted or tearful
	6	Overall, to summarise, do you think that this child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?
	13(k)	Are any of the following the reason or reasons for this child's Special Educational Needs (SEN)? (See k - Mental Illness/Depression)
School Enjoyment	3a	seem to enjoy school?
	3b	seem bored by school?
Academic Expectations	3c	try their best at school?
	19a	How likely do you think it is that this child will stay on in full-time education after age 16?
	19b	How likely do you think it is that this child will stay on in full-time education after age 16? How likely do you think it is that this child will go to university?
	20a	How interested would you say this child's parents or parent figures appear to be in his or her education? Mother or mother-figure
	20b	How interested would you say this child's parents or parent figures appear to be in his or her education? Father or father-figure
School Transition	18	How well prepared do you think this child is for secondary school?
Self-Esteem	5p	Is nervous or clingy in new situations, easily loses confidence
Social Relationships - Friends and Peers	5k	Has at least one good friend
	5n	Is generally liked by other children

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