

An Analysis of the Social Development and Emotional Health of an Adolescent and the
Influence of Parental Mental Health

Georgia Thompson

University of Adelaide

This report is submitted in partial fulfilment of the Honours degree of Bachelor of Psychological
Science (Honours)

Word Count: 4,974

Poor mental health and a disengagement from meaningful social engagement within Australian adolescents is becoming increasingly common, causing a lasting impact on their wellbeing into adulthood (AIHW, 2016). This study aims to investigate the significance of the interplay between the social and emotional factors of an adolescent, and how it affects overall wellbeing. We wish to examine the impact of a parental mental health disorder and its effect upon the psychological development and social engagement in the adolescent child.

Period of adolescence and their mental health and importance of social functioning

Through investigating and promoting predictors of positive adolescent psychological health, social development and resilience, we can advocate for enhancing wellbeing from adolescence into adulthood. The developmental period of adolescence is a phase of transition, distinguished via a range of “biological, cognitive, and psychosocial changes” (Nebhinani, 2019). Core personal characteristics begin to emerge, especially in regard to emotional vulnerability, an urge to belong within a social circle, and a desire to form a self-identity (Sagar, 2017). The World Health Organisation (2020) states that mental health disorders in the adolescent age bracket contribute to approximately “16% of the global burden of disease and injury”, highlighting the significance for further research in the field to initiate early diagnoses and appropriate treatment. Adolescents who suffer from poor mental health during their childhood have a greatly increased risk of poor physical and psychological health into adulthood, influencing their ability to engage meaningfully in life, to build relationships, develop independence and a sense of personal identity (Collins & Muñoz-Solomando, 2018).

Internalising emotions, with anxiety and depression

The mental wellbeing of an adolescent is categorised into internalised behaviours that involve the symptomatic presentations of anxiety, fear, depression and impaired self-worth, extending to externalising behaviours of antisocial behaviour, hyperactivity, poor peer conduct and decreased aggression regulation (Weeks et al. 2016). Internalising behaviours, especially with the high frequency of depression and anxiety diagnoses, are a fundamental cause of disability and poor physical health outcomes throughout adolescence (Michaud, 2005).

Externalising behaviours within the child, such as hyperactivity and aggressive responses, along with internalising behaviours residing in anxiety and isolation, can be predictors of long-term poor health outcomes in an individual (AIHW, 2016). These behaviours extend into adulthood, where in the ABS (2018) release of 2017-2018, 3.2% of Australians had an anxiety disorder, where it was recorded 10% of the Australian population experienced depressive symptoms or a depression diagnosis.

Resilience in the adolescent

The investigation examines the role of resilience, and whether the adolescent's socio-emotional state demonstrates a relationship with the individual's psychological endurance and adaptability. The concept of resilience is the individual's ability to "recover or 'bounce back' from setbacks, adapt to difficult circumstances that cannot be changed, and learn and grow from such experiences" (Connor & Davidson, 2003; Luthar, Cicchetti, & Becker, 2000; Masten, 2014; Rutter, 2006). A higher level of resilience in an individual is beneficial, as it allows the child to be able to adapt to stressful circumstances and change accordingly to thrive (Orygen, 2017). Research indicates that a nurturing home environment and parent-child relationship assists in

dealing with high levels of stress, and daily challenges which can assist in resilience building (Bowes, Maughan, Caspi, Moffitt, & Arseneault, 2010; Garmezy, 1985). Unstable home environments that involve conflict, increased levels of stress and predictors of poor mental health have a “well-documented negative effect on adolescent development and may compromise resilience” (Walper & Beckh, 2006).

How do internalising emotions, externalising behaviours and resilience all impact on an adolescent’s social functioning?

Possessing the ability to engage in social interactions and build meaningful relationships requires the meeting of emotional milestones within your childhood period, which can be compromised by poor emotional functioning (Christie, 2005). Internalising and externalising behaviours in children are associated with poor relationship building, a lack of trust and an increase in peer conflict or self-isolation (Cacioppo, 2006; Santini et al. 2015). The ability to operate within a social context relies upon the basis of a healthy mental state, where literature demonstrates that a “favourable exchange with one’s proximal social environment has positive effects on both mental health and wellbeing” (Tough et al. 2011). Factors such as social standings, the quality of relationships and the bond between the child and the family unit impact upon the psychological wellbeing of the individual, where poor social functioning is related to higher levels of depression (Tough et al. 2011). To support this, Holt-Lunstad et al. (2010) states that an engagement in self-isolation from social scenarios demonstrates a greater risk of mortality, and poor health. These studies demonstrate the importance of a healthy socio-emotional state, paired with high levels of resilience, to maintain a healthy lifestyle.

The influence of parental mental health upon an adolescent's socio-emotional development

For efficient psychological development in the child, Holt-Lunstad et al. (2010) illustrates that supportive environments in the family and in the wider community are fundamental, originating especially from a parental origin. To support healthy social and emotional functioning within a child, the presence of a supportive family unit reduces the tendency to exhibit internalising behaviours and social isolation (“Mental Health and Social Relationships”, 2013). To support this, the attachment theory alludes that a secure and healthy childhood with a strong support network results in increasingly positive social and relationship building skills for the child (Bowlby, 1958; “Mental Health and Social Relationships”, 2013). Those at great risk of poor social and emotional development often dwell in fragile home environments with a negative family network, or difficulties due to medical and financial difficulties (Bronte-Tinkew et al. 2007). The presence of a mental health condition within the mother has been demonstrated to result in less maternal warmth when examining the parenting style, which is associated in “greater frequencies of depression in their child” (Barlow et. al., 2005). Literature demonstrates that a psychological illness can directly influence how a parent is able to raise, interact with and care for their children, which in turn influences their ability to progress developmentally in an era of physical and psychological change (Bronte-Tinkew et al. 2007). The presence of a parental mental illness can significantly compromise a “parent’s ability to care for children”, resulting in a less supportive social network for emotional growth (Reupert, 2013).

The Longitudinal Study of Australian Children: Investigation into the social and emotional development of adolescent Australians

A substantial sector of the reviewed literature is based within America or Europe, regarding the influence of parental mental health and the interplay between social and emotional

functioning within the individual. This study aims to illustrate the influence within an Australian longitudinal dataset, which also allows for further investigation and comparison in future waves of data collection. Additionally, a large portion of research focuses greatly upon the maternal influence upon the child's development throughout childhood to young adulthood. Therefore, there is an included focus of paternal influence on social and emotional functioning of an adolescent to examine how it compares to the influence of a mother's mental health. This study aims to further investigate how an adolescent's mental health and social functioning is multifactorial, with an interplay between their internalised feelings upon their externalising behaviours, and investigate how it in turn impacts their prosociality and resilience.

Hypotheses and rationale of the study

This study aims to determine the significance of the interplay between social and emotional factors within the child, and how they contribute to overall emotional health. In turn, we wish to examine the influence of a parental mental health disorder and its effect upon the psychological development and social engagement in the adolescent child. If an adolescent has an inadequate socio-emotional condition that is left undiagnosed or untreated, these unhealthy psychological tendencies paired with poor social functioning can extend to an unfulfilling and unhealthy adult life. In doing so, it is an attempt to stimulate discussion and generate more research within the area of interest, to optimise the child's long term health status through earlier intervention and treatment (Belfer, 2005).

This study will examine the following hypotheses:

- (1) There will be a significant positive relationship between the variables of an adolescent's overall social and emotional scores as demonstrated by the Strengths and Difficulties questionnaire, and internalising behaviours.

- (2) There will be a positive relationship between an adolescent's level of resilience with their prosociality and self-reported happiness.
- (3) The higher the adolescent scores in terms of their SDQ and internalising behaviours, the lower they will score in advantageous emotional and behavioural variables, such as resilience, prosociality and happiness.
- (4) Adolescents with a parent who has a diagnosis of a mental health condition, such as depression and anxiety, will exhibit higher scores on the Strengths and Difficulties Questionnaire (excluding prosociality values) and the internalising behaviours score.
- (5) Children with a parent who has a diagnosis of a mental health condition, such as depression and anxiety, will exhibit higher scores of resilience on the CD-RISC-10 with higher quality coping abilities and decision making in difficult situations.
- (6) Maternal mental health, in comparison to paternal mental health, will have a more significant influence upon the child's social and emotional wellbeing.

Method

Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC) dataset

The study employed the ‘Growing Up in Australia: The Longitudinal Study of Australian Children’ (LSAC). The LSAC has biennially-performed waves of data collection, and aims to analyse the development of Australian children and their families respectively, as guided by a bioecological model of child development (Bronfenbrenner, 2005). The LSAC was approved by the Australian Institute of Family Studies Ethics Committee, where parents provided written informed consent (Quach et al., 2018). A sample frame was derived from the Medicare Australia database, where the participant sample was chosen in an attempt to represent regional distribution for their age bracket (Soloff, 2005). For data generalisability, stratification was used to “ensure proportional geographic representation, and a two-stage clustered design was used through postcode selection” (Christensen, 2017). Attrition rates and the initial under-representation of single-parents, non-native English speakers and those who live within rental homes were the main issues in terms of generalisable representation (Misson, 2007). The data for this study were employed from the LSAC dataset, focusing upon variables discussing parental mental health and the study child’s mental wellbeing and social functioning. An application was made to gain access to the LSAC from the National Centre for Longitudinal Data through the Australian Data Archive online.

Participants

The study employed data from Wave 7 from the K cohort collected in 2016, when the child participants were 16 to 17 years of age. Mothers and fathers were included if they stated they had depression and anxiety as an adult to examine the influence upon their child’s social and emotional functioning. Participant exclusion criteria includes a parent with a diagnosis as an

adult of bipolar disorder, schizophrenia disorder or any other mental health conditions besides depression and anxiety, to focus upon the long-term influence of the most commonly diagnosed mental health conditions. Parents who have not been diagnosed with aforementioned mood disorders, or only experienced them as children, were employed as a comparison group. The dataset numbers reduced from 3089 observations to 1541 participants when the exclusion criteria was employed.

The mental wellbeing and social development of the child

Strengths and Difficulties Questionnaire (SDQ)

The social and emotional development of the adolescent was measured in the study using Goodman's (1999) Strengths and Difficulties Questionnaire. The measure screens for significant behavioural and emotional factors through the perspective of young children to adolescents, along with the viewpoint of parents, guardians and teacher-figures. The measure consists of 25 items, categorised into 5 scales with 5 items within each. The measure analyses the emotional symptoms, conduct behavioural problems, hyperactivity, peer relationships and prosocial behaviour of the child. The Strength and Difficulties Questionnaire demonstrates satisfactory psychometric properties, with strong internal consistency (Yao et al., 2009), good concurrent validity (Muris, Meesters & van den Berg, 2003) and good discriminant validity (Lundh et al. 2008). Externalising behaviours were examined through the SDQ Conduct Problems Scale and SDQ Hyperactivity mean values, rescaled in the LSAC dataset to be an integer 0 and 10.

Internalising behaviours

In this study, the internalising behaviours of the adolescent was examined using the Short Mood and Feelings Questionnaire (Angold et al., 1995). It was employed to assess depressive

symptomatology, where the cut off can be assessed above or equal to a value of 8 to determine the severity of those within a high internalising behaviours group. This particular measure is child self-reported, to gain insight into self-perceptions of their mood, and feelings of anxiety, fear, depressive symptoms and panic. The measure consists of a “series of descriptive phrases regarding how the subject has been feeling or acting recently, within the past two weeks and to what degree”, with 13 questions ranging from true, sometimes true to not true (Messer et al. 1995). Within the LSAC, the scale was “reverse coded” so that a higher value represented a worsening mood and feelings state.

Future Outlook

To examine the child's perceptions of their own future, the LSAC asked the participant a series of 8 questions (scored out of 32) regarding their personal goals, confidence in the self to follow these focuses and planning. These questions examined their decision making processes, overall opinion of their future, consequences of their actions and whether they could visualise themselves in 10 years time. Paired with this was general happiness value, where the study child self-reported how happy they feel in regards to their life currently, measured on a scale of 1 to 5, where 5 is that they strongly agree they're currently happy.

Children's resilience and adaptation

The Connor-Davidson Resilience Scale (CD-RISC-10)

The Connor-Davidson Resilience Scale (CD-RISC-10) was employed to measure adolescent resilience, which included their coping abilities to stress, adaptation to change and a range of resilience measures (Campbell-Sills & Stein, 2007). For each resilience measure,

participants scaled their response from 'Not true at all' (1) to 'True nearly all the time' (5).

Participants considered the proposed statements in terms of a situation within the past month or their most recent challenge. Therefore, the final summation of the values was scaled 0-40, where a higher value demonstrated higher levels of resilience in the adolescent.

Parental mental health

Kessler 6 Scale

A K-6 Likert scale with 6 items was employed to analyse the severity of depression and anxiety symptomatology in the parent. It is an abbreviated scale of the K-10, and it is considered a global measure of distress which examines the individual's level of distress over a four-week period (Kessler et al. 2003). The K-6 analyses the extent to which anxious and depressive symptoms are regular or unusual for the individual, or whether they have resulted in a functional impairment socially, or their productivity in relation to their work and daily living (Kessler et al. 2003). The LSAC presents this particular data as the raw value for each of the six items, along with an overall score and a cutoff value of either presenting with a probable serious mental condition, or not. This study employed the use of both the grouped variable using the cutoff score, along with the raw value variable ranging from the lowest value of 6 to a maximum of 30 for each parent.

Results

The analytic sample for the model included 1541 participants for mothers and fathers alike, with approximately 1489 adolescents, following the exclusion criteria. As seen in Table 1, the mothers self-reported higher levels of depression and anxiety in comparison to the fathers of the study, with a difference of 8.7%. Compared to the adolescent, the sample displayed a greater percentage of individuals above the cutoff for the SMFQ, with 35% demonstrating a high level of cognitive and affective internalising symptomatology (Angold et al. 1995).

Table 1

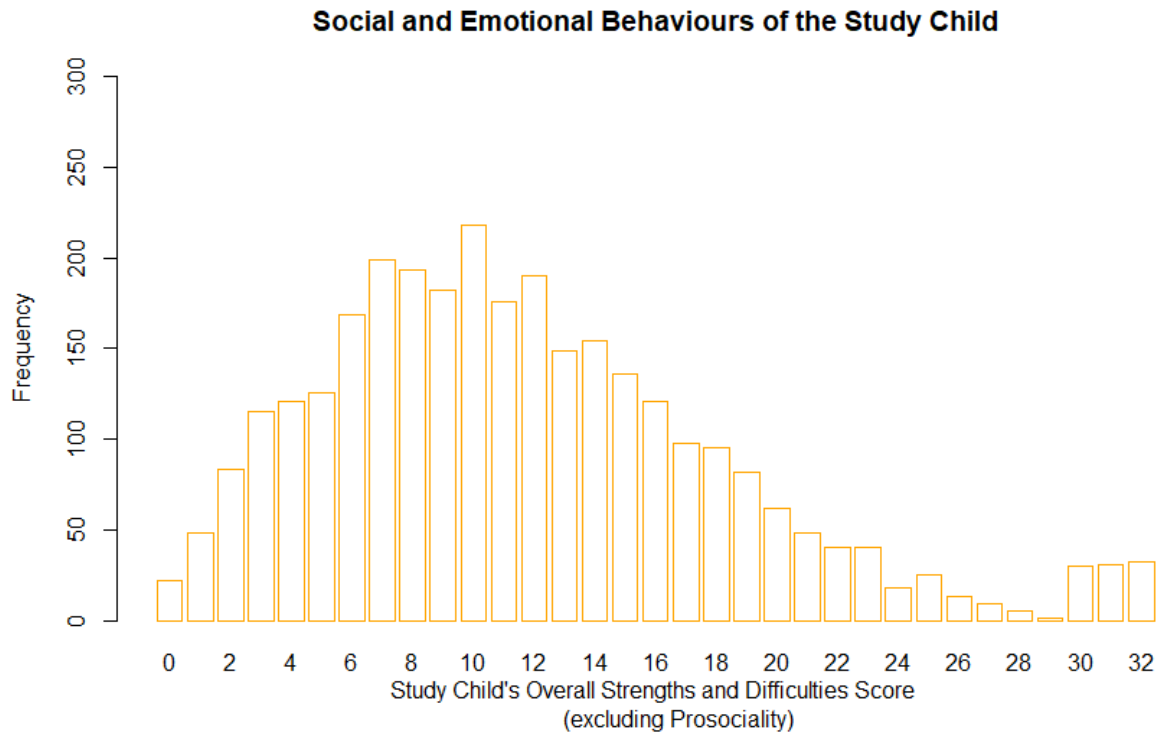
Demographics table outlining the sample sizes, along with the percentages of depression, anxiety and internalising behaviours in the parents and study child

Sample group	Sample size (n)	Method	Participants with no depression and/or anxiety, or internalising behaviours in children	Percentage with depression and/or anxiety, or internalising behaviours in children
Mothers	1541	Self-reported depression and/or anxiety diagnosis	71.25% (n = 1098)	28.75% (n = 443)
Fathers	1541	Self-reported depression and/or anxiety diagnosis	79.95% (n = 1232)	20.05% (n = 309)
Study children	1489	Short Mood and Feelings Questionnaire cutoff value	65% (n = 968)	35% (n = 521)

Figure 1

A Histogram demonstrating the Frequency of the Adolescent's Strengths and Difficulties (SDQ)

Score



Note. When scoring the overall SDQ score for the study child in the LSAC dataset, the SDQ aspect of Prosociality is removed to summarise the difficulties score. Prosociality as a positive aspect of social functioning is analysed separately.

As illustrated in Figure 1, the data is slightly skewed to the right, with fewer adolescents scoring notably high SDQ scores ranging above 24. The median SDQ value is 11, which is placed within the normal range of 0 to 15. Figure 1 does encapsulate how a reasonable sample of the adolescents would be placed within the borderline range of 16 to 19, with adolescents scoring within the abnormal range of 20 and above with a maximum recorded value of 32.

Two-sample t-tests were performed to confirm the significance of variance of these parents with a mental health condition against no mental health condition, against their K6 values. The mothers sample produced significant results with varying means of 8.14 and 10.59 on the K6 scale, $t(626) = -11.91, p = .00$. Fathers also produced significantly higher scores on the K6 scale ($\mu = 7.82$ and $\mu = 10.61$ comparatively) if they self-reported depression or anxiety as an adult, $t(366) = -12.21, p = .00$.

Table 2

Sample size, measure range and mean of the study child's social and emotional variables of interest

Study child variable of interest	Study sample size (n) for the measure	Range	μ
SMFQ (Internalising Behaviours)	1489	0 - 30	6.85
Overall SDQ score	1493	0 - 40	10.41
SDQ Emotional	1493	0 - 10	3.20
SDQ Hyperactivity	1493	0 - 10	3.94
SDQ Peer Problems	1493	0 - 9	1.76
SDQ Conduct	1493	0 - 10	1.53
SDQ Prosociality	1493	0 - 10	7.71
Resilience	1492	0 - 40	27.22

Table 2 demonstrates the varying means across a range of the variables of interest. Table 2 allows for the comparison between the overall sample mean and the values of Table 3, which

illustrate the means and standard deviations of each of these variables of interest as categorised and compared between adolescents above and below the SMFQ cutoff value of concern. Those who demonstrated higher levels of internalising behaviours demonstrated a higher mean on their overall SDQ, with a mean difference of 5.34. Adolescents below the SMFQ cutoff scored higher in advantageous emotional and behaviour variables, such as Resilience, general Happiness and Future Outlook.

Table 3

A summary of the mean values and standard deviations of the social and emotional variables of interest, when compared between adolescents below and above the SMFQ cutoff value.

Variables	Range (min - max)	Adolescents below the SMFQ cutoff		Adolescents above the SMFQ cutoff	
		μ	SD	μ	SD
Overall SDQ	0 - 40	8.54	4.77	13.88	5.64
SDQ Conduct	0 - 10	1.26	1.38	2.20	1.67
SDQ Peer Problems	0 - 10	1.41	1.39	2.39	1.75
SDQ Hyperactivity	0 - 10	3.49	2.26	4.77	2.24
SDQ Prosociality	0 - 10	7.72	1.69	7.7	1.75
Resilience	0 - 40	28.48	6.11	24.99	6.82
Happiness	0 - 6	4.94	1.08	4.4	1.02
Future Outlook	8 - 32	22.70	4.03	21.56	4.49

A Pearson's correlation matrix was conducted to analyse the strength and direction of the relationships between the adolescents social and emotional measures, and their parents mental health status. As illustrated in Table 4, the mother's K6 values demonstrate a significant and positive relationship between the study child's overall SDQ and SMFQ score. In turn, the father's K6 score displayed a strong and significant positive correlation with the child's SDQ score. As represented in Table 4, the SDQ scores were significantly and negatively correlated with the variable of Resilience (-0.51***), Prosociality (-0.19***) and Happiness (-0.23***).

Table 4

A summary of Pearson's correlations between the parental K6 scores and the study child's social and emotional variables.

Variable	1	2	3	4	5	6	7
1 Mother's K6 score	1						
2 Father's K6 score	0.17***	1					
3 Study Child's Resilience	-0.1**	-0.06	1				
4 Study Child's Prosociality	0.00	-0.02	0.31***	1			
5 Study Child's Happiness	-0.1	-0.05	0.23***	0.1	1		
6 Study Child's overall SDQ	0.2***	0.15***	-0.51***	-0.19***	-0.23***	1	
7 Study Child's SMFQ score	0.18***	0.04*	-0.28***	0.00	-0.26***	0.44***	1

Note. *p < .05, **p < 0.01, ***p < 0.001.

As indicated in Table 5, the measured t values examine whether there is a significant association between the predictor and the outcome variable, which is indicated for each variable besides the Mother's K6 score. The Adjusted R Squared value for the model is 0.9, and as it is close to 1, it indicates that the model displayed explains a substantial amount of the variance in the SDQ scores of the adolescent.

Table 5

Multiple Linear Regression Analysis Summary of Parental Mental Health Factors and Emotional Measures that Influence an Adolescent's Emotional and Social Development

Variables	Odds Ratio	SE(B)	t
Constant	1.73	0.41	4.26***
Adolescent's SMFQ cutoff	0.77	0.19	4.10***
Mother's K6 score	0.016	0.014	1.10
Father's K6 score	0.03	0.02	1.96*
Adolescent's Prosociality score	0.31	0.03	10.11***
Adolescent's Resilience score	-0.17	0.01	-20.14***
Adolescent's Outlook score	0.07	0.01	5.49***
Adolescent's SMFQ score	0.03	0.01	2.81**
Adolescent's Hyperactivity score	1.15	0.02	47.65***
Adolescent's Conduct score	1.13	0.04	31.10***
Adolescent's Peer Problems score	1.26	0.03	38.08***

*p < .05, **p < 0.01, ***p < 0.001.

Note. The Adjusted R squared value for the Multiple Linear Regression is 0.9034.

Two sided Two-Sample t-tests were performed to examine the influence of a maternal mood disorder, and how their mental health influenced the social and emotional development of the child. Levene's tests were performed for the assumption of homogeneity of variance. The variables of SDQ Peer Problems and SDQ Conduct produced significant Levene's test results, which resulted in the rejection of the null hypothesis that these variances were equal, and for these variables the Welch Two Sample t-test was performed.

The adolescents who have mothers with a depression or anxiety diagnosis as an adult exhibited higher scores ($\mu = 11.39$) on their overall SDQ measure, $t(1491) = -4.21$, $p = .00$; $d = 0.24$, which supported the studies hypothesis through a significant result, yet it produced a small effect size. Upon comparison to a paternal influence, adolescents who have a father with depression or anxiety have a higher mean SDQ score ($\mu = 4.22$ compared to $\mu = 3.80$) compared to fathers without any mental health condition, $t(1491) = -2.62$, $p = .00$; $d = 0.17$. The result was significant with a small effect size, yet upon comparison, there was a larger t value within the mothers sample compared to the fathers, signifying a larger difference existing between the two sample sets.

When comparing the SDQ emotional score, adolescents who had a mother with depression or anxiety had a higher score ($\mu = 3.54$) in regard to worries, fears, nervousness and depressive symptoms $t(1491) = -3.36$, $p = .00$. Adolescents of these mothers scored significantly higher on the scales of Hyperactivity $t(1491) = -2.98$, $p = .00$, Peer Problems $t(718.3) = -3.29$, $p = .001$ and Conduct $t(756) = -2.01$, $p = .04$ to support the hypothesis regarding maternal mental health influencing the psychological state of the adolescent. For fathers, a mental health diagnosis had a significant effect upon the child's emotional SDQ aspect, $t(1491) = -2.13$, $p = .03$, yet they did not produce significant relationships with the variables of SDQ Hyperactivity

t(1491) = -1.83, p-value = .06, SDQ Conduct t(1491) = -1.88, p-value = .06 and SDQ Peer Problems t(1491) = -1.54, p-value = .12.

In terms of parental mental health and its influence on resilience, adolescents with mothers with depression and anxiety scored significantly lower ($\mu = 26.64$ compared to $\mu = 27.45$) on the CD-RISC-10 resilience scale shown through $t(1490) = 2.12$, $p = .03$, whereas the fathers sample did not produce a significant result, $t(1490) = 0.03$, p -value = .98.

Table 6

Comparison of social and emotional variables between the study children below and above the Short Moods and Feelings Questionnaire cutoff

Variables	Mean for group below the SMFQ cutoff value	Mean for group above the SMFQ cutoff value	t	df	p value	Cohen's d
Resilience	28.71	24.94	10.08	1485	.00***	0.55
Prosociality	7.72	7.7	0.20	1486	.84	0.01
Happiness	4.94	4.29	9.46	1124.5	.00***	0.5
Outlook	22.10	21.60	2.16	971.43	.03*	0.12
SDQ score	8.54	13.88	-18.36	921.49	.00***	1.05

Note. * $p < .05$, ** $p < 0.01$, *** $p < 0.001$.

Displayed within Table 6, measures of Resilience, Happiness, Outlook and the overall SDQ score produced significant t-tests results when comparing to adolescents below and above the SMFQ cutoff, with effect sizes ranging from a small effect for Life Outlook, a medium effect size for Resilience, to a large effect size for their SDQ score. Prosociality was demonstrated to not have a significant difference between the means of the two varying groups of SMFQ values.

Figure 2

A box plot to visually demonstrate the differences between adolescents Below the SMFQ Cutoff Value and Above the SMFQ Cutoff Value for the CD-RISC-10 Resilience Score.

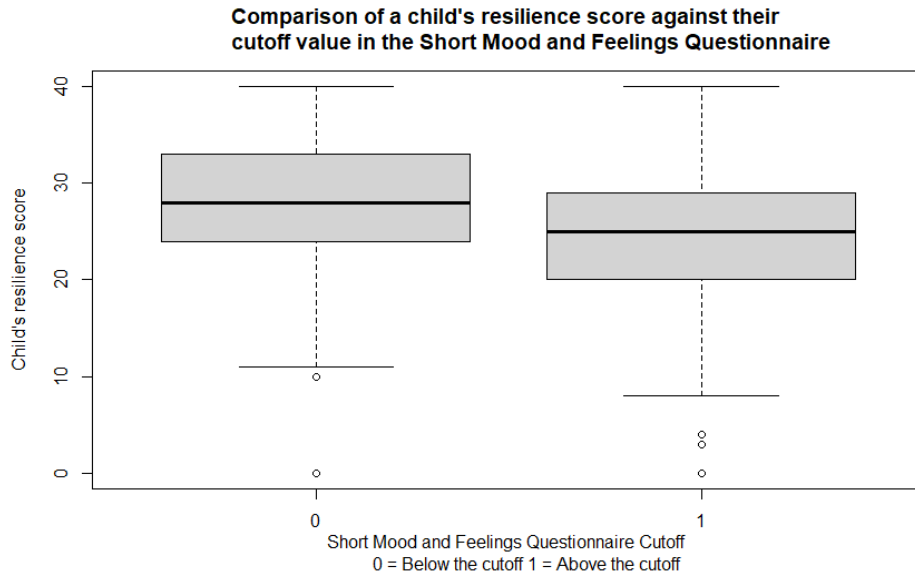


Figure 3

A box plot to visually demonstrate the differences between adolescents Below the SMFQ Cutoff Value and Above the SMFQ Cutoff Value for the SDQ Peer Problems Score.

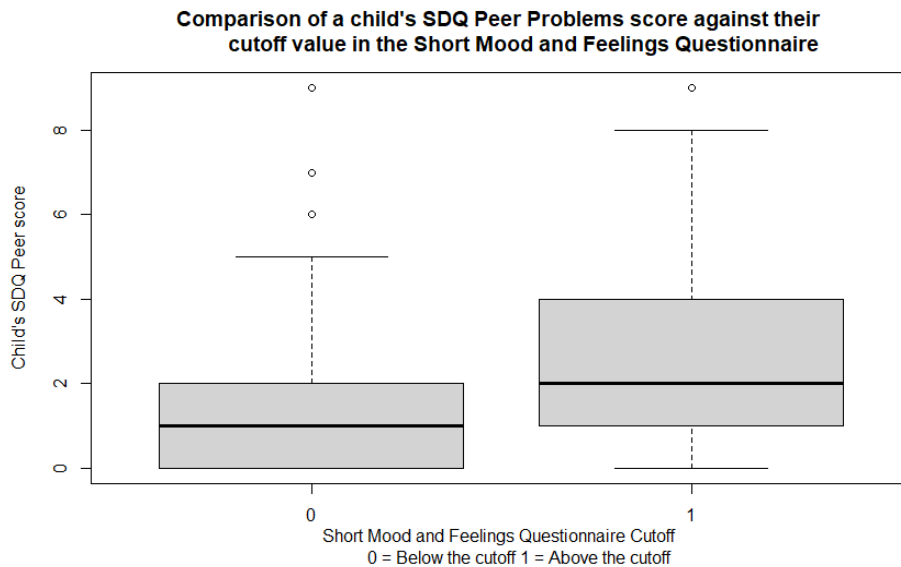
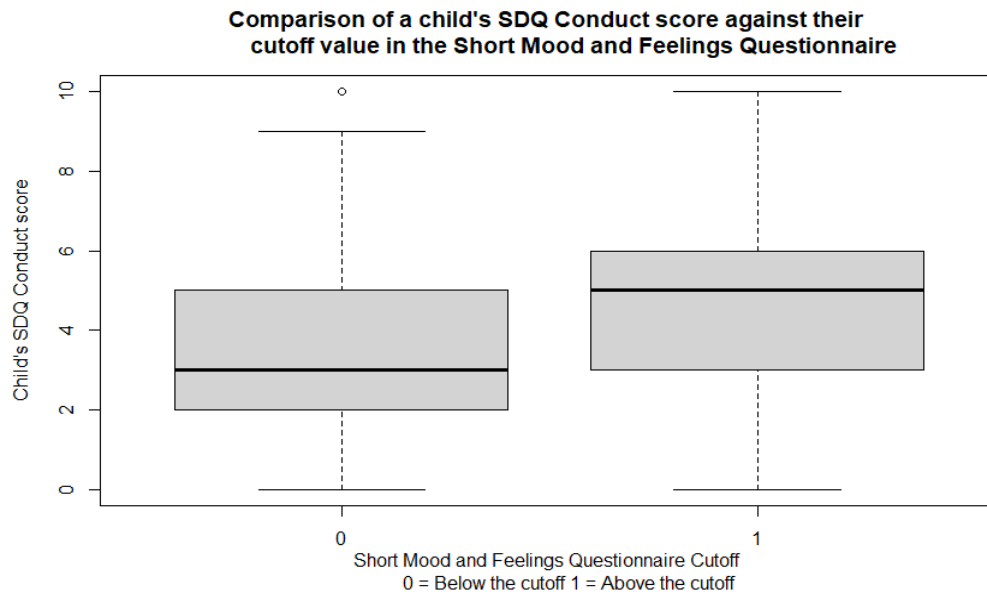


Figure 4

A box plot to visually demonstrate the differences between adolescents Below the SMFQ Cutoff Value and Above the SMFQ Cutoff Value for the SDQ Conduct Score.



Discussion

This study aimed to identify how measures of social and emotional functioning influence one another in the overall emotional wellbeing of the child in the late stages of adolescence at the ages of 16 to 17. It aimed to investigate the significance of parental mental health and its influence upon the mental health, the quality of social engagement and psychological resilience of their child in adolescence. Adolescents with greater internalising behaviours, such as anxiety, worries, fear and depressive symptoms, demonstrate a higher SDQ score over a range of emotional and social difficulties, supporting the initial hypothesis, as demonstrated in significant results with large effect sizes in Table 4 and 6.

Literature demonstrated that higher levels of resilience within the child has resulted in greater engagement in prosocial behaviour, such as assisting others or creating healthy relationships (Springer, 1997). This study hypothesised that there would be a positive relationship on scores of the CD-RISC-10 for resilience, along with SDQ Prosociality and the overall self-reported Happiness of the adolescent. Pearson's correlations demonstrated significant and positive correlations for Resilience with Prosociality and Happiness, supporting the hypothesised concept that an increasingly resilient adolescent will engage in more prosocial behaviours. This concept accords with literature, where resilience allows for the individual to adapt to changing environments, cope with stress, unpleasant feelings or situations, which results in a happier individual (Luthar, Cicchetti, & Becker, 2000; Connor & Davidson, 2003). In turn, an individual who demonstrates resilient behaviours, along the ability to regulate emotions in the face of circumstantial stress, is able to engage in prosocial behaviours such as being considerate, kind and sharing towards others (Rutter, 2006; Masten, 2014; Bøe et al. 2016). Poole et al.

(2017) states how advocating for adolescent resilience promotes the ability to cope with adversity, and engage meaningfully in life and relationships, as linked with this study's findings.

A principle aim of the study was to examine how the state of an adolescent's socio-emotional wellbeing will influence aspects of resilience, happiness and future perceptions. As was indicated in the correlation matrix, the SDQ scores were significantly and negatively correlated with the variable of Resilience, Prosociality and Happiness. The SMFQ score was negatively and significantly associated with Resilience and Happiness, but did not produce a significant result for Prosociality. These results were supported with significant values and medium to large effect sizes, demonstrating a difference between group means. Figure 2 visually illustrates the comparison of the SMFQ cutoff groups against resilience through a boxplot, with a higher mean displayed in the group with lower SMFQ. Table 5 outlines a Multiple Linear Regression with the SDQ against prosociality and resilience, where there was a significant *t* value for both variables. There are a multitude of studies that demonstrate that resilience, and in turn self-perceived happiness, is negatively correlated with internalising behaviours such as anxiety disorders and depression (Miller and Chandler, 2002; Wells et al., 2012; Poole et al., 2017; Shapero et al., 2019). This finding agrees with the statement that anxiety and depressive episodes are linked to a "poorer adjustment in adulthood, lower life satisfaction, poor coping skills and high chronic stress"; a cascade effect leading to a decrease in wellbeing (Essau et al. 2014).

Figure 3 and 4 demonstrate that adolescents with a higher SMFQ score will score higher on both aspects of SDQ Peer Problems and SDQ Conduct, suggesting a decreased quality in social engagement, interactions and increased issues in relationship forming. This is supported in

the significant positive correlations witnessed between SMFQ scores with these variables in Table 4, along with the associated significant t-test values in Table 6. This finding links directly to literature stating that internalising behaviours can be associated with poor engagement with peers, such as social anxiety, resulting in decreased quality and frequency of relationships, loneliness, bullying in adolescence and the inability to regulate emotions of anger and distress (APA, 2013; Essau et al. 2014). In turn, a lack of healthy peer interaction to formulate a supportive network results in the loss of protective factors which can help reduce the risk of depression, anxiety, and other mood disorders (Pickering, 2020).

There were significant associations between a parental mental health diagnosis and the increase in an adolescent's self-reported internalising behaviours and emotional difficulties. The results evident in the significant correlations and t-tests of the study supported the hypothesis that a maternal mental health condition would produce more significant results upon the child's social and emotional wellbeing, as shown through as higher t values, a larger effect size and correlations. Whilst a small effect size can suggest the difference is less important, it can, however, be caused by the large population sample size. The larger the correlation value, in comparison, represents a stronger linear relationship between the variables, where the maternal correlations demonstrated a higher value. An unexpected result was witnessed in the Multiple Linear Regression of Table 5, where the mother's K6 scale sum produced a non-significant result, and a low Odds Ratio and SE. These findings contrasted the significance of the correlations, t-tests and previous investigations into the maternal influence upon a child's social and emotional measures. The hypothesised statement is linked to a principle concept stated in the literature review; that maternal mental health has demonstrated a significant and lasting influence upon the socio-emotional wellbeing of their child and their continual development throughout

their childhood (Bronte-Tinkew et al. 2007; Barlow et. al., 2005; Christensen, 2017). However, contrasting significance values did not directly support the hypothesis.

It was initially hypothesised that adolescents who have experienced their parental figure express symptoms of depression or anxiety would become more resilient in the process, and measure higher on the resilience scale. However, the results of the study did not support this hypothesis. Adolescents who did not have a mother or father with a mental health condition demonstrated a larger CD-RISC-10 value and negative linear relationships, suggesting that they have more developed coping capabilities, higher quality decision making processes in difficult situations and more resilience to change. This unsupported hypothesis might be due to an adolescent's resilience being enhanced via rich support networks, through socially mirrored coping mechanisms and healthy wellbeing suited to handle stressful and changing circumstances (Moos, 1993)

A key pattern that emerged from the study was the interplay between all social components of the adolescent, paired with the emotional elements of both internalising and externalising factors as a multi-faceted continuum. The study's results support current literature which demonstrates how reduced interpersonal and socio-emotional regulation, along with poor behavioural conduct, can influence social functioning, which is imperative for adolescent development and functioning in a community (Cacioppo, 2006; Santini et al. 2015). It influences how resilient an adolescent can be, how they engage with the community and peers, their self-perceptions of their happiness and a future, and how efficiently they engage with life at a meaningful level (Elsenberger, 2012; Santini et al. 2015). An overarching theme is that through nurturing resilience, adolescent prosocial behaviours and positive outlook improve.

A measure of parental mental health in the LSAC relied upon a high cutoff value on the K6, categorising these individuals into no probable mental health condition and a probable serious mental health illness. Future collections of the LSAC dataset might rely upon a lower cutoff for the K6 to indicate the presence of a probable mental health illness to allow for a more generalisable speculation. Certain measures that we reviewed, such as Outlook and Happiness, did not have extensive studies with high methodological design quality to support their use, where they were employed for use with the LSAC alone. As they were not assessed for their psychometric properties and design, the precision and reliability of the data might be influenced.

The longitudinal dataset relies upon self-reporting from the study child, along with their parental figures. These self-reported responses can be either exaggerated or understated, influenced by a range of biases or presenting the more socially acceptable response which deviates from its true nature. Future research in this field could employ measures that rely less on self-reporting that are more independent, to increase the precision in the dataset. There is the influence of attrition in a longitudinal design, especially in Wave 7, and there is under-representation of minority groups such as “single-parents, non-English speaking individuals and those in rental properties” in the LSAC (Christensen, 2017).

One wave of the longitudinal dataset was examined in this study, which provided a snapshot into how the socio-emotional state and parental mental health has, in only that age bracket, influenced overall wellbeing. Future studies could incorporate multiple age ranges of the child, extending into young adulthood in future waves, to examine how it influences their development and behaviours over time, for comparison.

Study summary and conclusions

This study exhibited how adolescent wellbeing is a multi-faceted and complex framework that integrates both social and emotional behaviours to contribute to their mental health continuum. The results identified how both the mother and father's mental health can shape their child's emotions in both internalising and externalising forms, along with their conduct with peers and quality of social interactions. The study illustrated how adolescents, near young adulthood, who have a parent with a mental health condition, are more likely to display higher levels of social impairment and emotional distress. The results suggest that regular mental health screening of both the child and parent might allow for earlier intervention and treatment to assist in improving overall wellbeing and development.

References

- Angold, A., Costello, E.J., Messer, S.C., Pickles, A., Winder, F., & Silver, D. (1995). Development of a short questionnaire for use in epidemiological studies of depression in children and adolescence. *International Journal of Methods in Psychiatric Research*, 5, 237- 249.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Association
- Australian Bureau of Statistics. (2018). *Mental Health 2017-2018 Financial Year*. <https://www.abs.gov.au/statistics/health/health-conditions-and-risks/mental-health/2017-18>.
- Australian Institute of Health and Welfare. (2016). *Australia's health 2016*. Australia's health series no. 15. Cat. no. AUS 199. Canberra: AIHW.
- Barlow, J., Parsons, J. & Stewart-Brown, S. (2005). Preventing emotional and behavioural problems: the effectiveness of parenting programmes with children less than 3 years of age. *Child Care Health Dev*, 31(1), 33-42.
- Belfer, M. L. (2008). Child and adolescent mental disorders: The magnitude of the problem across the globe. *Journal of Child Psychology and Psychiatry*, 49(3), 226-236.
- Bøe, T., Hysing, M., Skogen, J. C., & Breivik, K. (2016). The Strengths and Difficulties Questionnaire (SDQ): Factor Structure and Gender Equivalence in Norwegian Adolescents. *PloS one*, 11(5), e0152202. <https://doi.org/10.1371/journal.pone.0152202>
- Bowes, L., Maughan, B., Caspi, A., Moffitt, T. E., & Arseneault, L. (2010). Families promote emotional and behavioural resilience to bullying: Evidence of an environmental effect. *Journal of Child Psychology and Psychiatry*, 51(7), 809-817.
- Bowlby, J. (1958), The nature of the child's tie to his mother. *International Journal of PsychoAnalysis*, XXXIX, 1-23.
- Bronfenbrenner, U. (2005). *Making human beings human: Bioecological perspectives on human development*. Sage Publications.
- Bronte-Tinkew, J., Moore, K., Matthews, G. & Carrano, J. (2007). Symptoms of major depression in a sample of fathers of infants. *J Fam Issues*, 28, pp. 61-99. doi: 10.1177/0192513X06293609.

Burešová, I., Jelínek, M., Dosedlová, J., & Klimusová, H. (2020). Predictors of Mental Health in Adolescence: The Role of Personality, Dispositional Optimism, and Social Support. *SAGE Open*. <https://doi.org/10.1177/2158244020917963>

Cacioppo, J., Hughes, M., Waite, L., Hawkley, L. & Thisted, R. (2006). Loneliness as a specific risk factor for depressive symptoms: cross-sectional and longitudinal analyses. *Psychol Aging*, 21, 140–151.

Christensen, D., Fahey, M. T., Giallo, R., & Hancock, K. J. (2017). Longitudinal trajectories of mental health in Australian children aged 4-5 to 14-15 years. *PloS one*, 12(11), e0187974. <https://doi.org/10.1371/journal.pone.0187974>

Christie, D., & Viner, R. (2005). Adolescent development. *BMJ (Clinical research ed.)*, 330(7486), 301–304. <https://doi.org/10.1136/bmj.330.7486.301>

Collins, A., & Muñoz-Solomando, A. (2018). The transition from child and adolescent to adult mental health services with a focus on diagnosis progression. *BJPsych bulletin*, 42(5), 188–192. <https://doi.org/10.1192/bjb.2018.39>

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: *The Connor-Davidson Resilience Scale (CD-RISC)*. *Depression and Anxiety*, 18(2), 76-82.

Eisenberger, N. & Cole, S. (2012). Social neuroscience and health: neurophysiological mechanisms linking social ties with physical health. *Nat Neurosci*, 15, 669–674.

Essau, C. A., Lewinsohn, P. M., Olaya, B., & Seeley, J. R. (2014). Anxiety disorders in adolescents and psychosocial outcomes at age 30. *Journal of Affective Disorders*, 163, 125–132. <https://doi.org/10.1016/j.jad.2013.12.033>.

Evans, S., Bhide, S., Quek, J., Nicholson, J. M., Anderson, V., Hazell, P., Mulraney, M., & Sciberras, E. (2020). Mindful Parenting Behaviors and Emotional Self-Regulation in Children With ADHD and Controls. *Journal of Pediatric Psychology*, 45(9), 1074–1083. <https://doi.org/10.1093/jpepsy/jsaa073>

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A Research Note. *Journal Of Child Psychology And Psychiatry*, 38(5), 581-586. doi: 10.1111/j.1469-7610.1997.tb01545.x

Guy, S., Furber, G., Leach, M., & Segal, L. (2016). How many children in Australia are at risk of adult mental illness? *Australian & New Zealand Journal of Psychiatry*, 50(12), 1146–1160. <https://doi.org/10.1177/0004867416640098>

Holt-Lunstad, J., Smith, T. & Layton, J. (2010). Social relationships and mortality risk: a meta-analytic review. *PLoS Med*, 27 (7).

Jamnik, M. R., & DiLalla, L. F. (2019). Health Outcomes Associated With Internalizing Problems in Early Childhood and Adolescence. *Frontiers in psychology*, 10, 60. <https://doi.org/10.3389/fpsyg.2019.00060>

Keating, D. & Hertzman, C. (1999). *Developmental health and the wealth of nations: Social, biological and educational dynamics*. The Guilford Press.

Kessler, R., Angermeyer, M. & Anthony, J.(2007). Lifetime prevalence and age-of-onset distributions of mental disorders in the World Health Organization’s World Mental Health Survey Initiative. *World Psychiatry*, 6: 168–76

Kessler, R. C., Barker, P. R, Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., Howes, M.J., Normand, S.L., Manderscheid, R. W., Walters, E. E., Zaslavsky, A. M. (2003). Screening for serious mental illness in the general population. *Arch Gen Psychiatry*, 60(2), 184-9.

Lawrence, D., Johnson, S., Hafekost, J., de Haan, K. B., Sawyer, M., Ainley, J., & Zubrick, S. R. (2015). The mental health of children and adolescents. *Report on the second Australian Child and Adolescent Survey of Mental Health and Wellbeing*. Canberra: Department of Health.

Lundh, L.G., Wangby-Lundh, M., & Bjarehed, J. (2008). Self reported emotional and behavioral problems in Swedish 14 to 15-year-old adolescents: A study with the self-report version of the Strengths and Difficulties Questionnaire. *Scandinavian Journal of Psychology*, 49, 523–532.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3), 543-562.

May, T. (2021). Parent-reported Autism Diagnostic Stability and Trajectories in the Longitudinal Study of Australian Children. *Autism Research.*, 14(4), 773–786. <https://doi.org/10.1002/aur.2470>

Masten, A. S. (2014). Global perspectives on resilience in children and youth. *Child Development, 85*(1), 6-20.

Mental Health and Social Relationships. (2013, May 23). Retrieved from <https://esrc.ukri.org/news-events-and-publications/evidence-briefings/mental-health-and-social-relationships/>.

Messer, S. C., Angold, A., Costello, E.J., Loeber, R., Van Kammen, W., & Stouthamer-Loeber, M. (1995). Development of a short questionnaire for use in epidemiological studies of depression in children and adolescents: Factor composition and structure across development. *International Journal of Methods in Psychiatric Research, 5*, 251-262.

Michaud, P. A., & Fombonne, E. (2005). Common mental health problems. *BMJ (Clinical research ed.)*, *330*(7495), 835–838. <https://doi.org/10.1136/bmj.330.7495.835>

Miller, A. M., and Chandler, P. J. (2002). Acculturation, resilience, and depression in midlife women from the former Soviet Union. *Nurs. Res.*, *51*, 26–32. doi: 10.1097/00006199-200201000-00005

Muris, P., Meesters, C., & van den Berg, F. (2003). The Strengths and Difficulties Questionnaire (SDQ): Further evidence for its reliability and validity in a community sample of Dutch children and adolescents. *European Child and Adolescent Psychiatry, 12* (1), 1–8.

Nebhinani, N. & Shreyance, J. (2019). Adolescent mental health: Issues, challenges, and solutions. *Annals of Indian Psychiatry, 3*(4). DOI: 10.4103/aip.aip_24_19.

Orygen, The National Centre of Excellence in Youth Mental Health. (2017). *Under the radar: The mental health of Australian university students*. Melbourne: Orygen. The National Centre of Excellence in Youth Mental Health.

Pickering, L., Hadwin, J.A. & Kovshoff, H. (2020). The Role of Peers in the Development of Social Anxiety in Adolescent Girls: A Systematic Review. *Adolescent Res Rev*, *5*, 341–362. <https://doi.org/10.1007/s40894-019-00117-x>

Poole, J. C., Dobson, K. S., and Pusch, D. (2017). Childhood adversity and adult depression: the protective role of psychological resilience. *Child Abuse Negl.* *64*, 89–100. doi: 10.1016/j.chiabu.2016.12.012

Prochaska, J. J., Sung, H. Y., Max, W., Shi, Y., & Ong, M. (2012). Validity study of the K6 scale as a measure of moderate mental distress based on mental health treatment need and

utilization. *International journal of methods in psychiatric research*, 21(2), 88–97.
<https://doi.org/10.1002/mpr.1349>

Quach, J., Nguyen, C., Williams, K. & Sciberras, E. (2018). Bidirectional Associations Between Child Sleep Problems and Internalizing and Externalizing Difficulties From Preschool to Early Adolescence. *JAMA Pediatr*, 172(2), doi:10.1001/jamapediatrics.2017.4363.

Reupert, A., Maybery, D. & Kowalenko, N. (2013). Children whose parents have a mental illness: prevalence, need and treatment. *Med J Aust*. 199 (3) Suppl:S7–9.

Rutter, M. (2006). Implications of resilience concepts for scientific understanding. *Annals of the New York Academy of Sciences*, 1094, 1-12.

Sagar, R. & Krishnan, V. (2017). Preventive strategies in child and adolescent psychiatry. *Indian Journal of Social Psychiatry*, 33 (118).

Santini, Z., Koyanagi, A., Tyrovolas, S., Mason, C. & Haro, J. (2015). The association between social relationships and depression: a systematic review. *J Affect Disord*, 175, 53–65.

Soloff, C., Lawrence, D., Johnstone, R. (2005). *LSAC Sample Design. LSAC Technical Paper No. 1*. Australian Institute of Family Studies.

Springer, J. (1997). Family interventions and adolescent resiliency: The Southwest Texas State High-Risk Youth Program. *Journal of Community Psychology*, 25(5), 435–452.

Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences*, 9, 69-74. doi:10.1016/j.tics.2004.12.005

Tough, H., Siegrist, J., & Fekete, C. (2017). Social relationships, mental health and wellbeing in physical disability: a systematic review. *BMC public health*, 17(1), 414.
<https://doi.org/10.1186/s12889-017-4308-6>

Walper, S., & Beckh, K. (2006). Adolescents' development in high-conflict and separated families: Evidence from a German longitudinal study. In A. Clarke-Stewart, & J. Dunn (Eds.), *Families count: Effects on child and adolescent development* (pp. 238-270). New York: Cambridge University Press.

Weeks, M., Ploubidis, G. & Cairney, J. (2016) Developmental pathways linking childhood and adolescent internalizing, externalizing, academic competence, and adolescent depression. *J Adoles*, 51, 30–40.

Wells, M., Avers, D., and Brooks, G. (2012). Resilience, physical performance measures, and self-perceived physical and mental health in older catholic nuns. *J. Geriatr. Phys. Ther.* 35, 126–131. doi: 10.1519/jpt.0b013e318237103f

Wilson, C., Rickwood, D., & Deane, F. (2007). Depressive symptoms and help-seeking intentions in young people. *Clinical Psychologist*, 11(3), 98-107.
doi:10.1080/13284200701870954

Yao, S., Zhang, C., Zhu, X., Jing, X., McWhinnie, C. M., & Abela, J. R. Z. (2009). Measuring Adolescent Psychopathology: Psychometric Properties of the Self-Report Strengths and Difficulties Questionnaire in a sample of Chinese adolescents. *Journal of Adolescent Health*, 45, 55–62.