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ORIGINAL ARTICLE

Maternal and Paternal Bonding and Self-Esteem as Predictors of Psychological Distress Among Male and Female Adolescents

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Abstract

While poor parental bonding has been linked with psychological distress, few studies have assessed bonding with mothers and fathers separately among adolescents and whether there are gender differences in the relationships between bonding and psychological distress. Additionally, low self-esteem has been shown to predict psychological distress, but low self-esteem may develop as a result of poor bonding with parental figures. We explored the relationships between (a) perceived maternal and paternal bonding factors and (b) psychological distress, and examined whether self-esteem mediated these relationships in a non-clinical sample of 337 adolescents (aged 13–17 years, $M = 14.17$, 50.6% female) in Canberra, Australia. Relative to males, females reported lower levels of self-esteem and higher levels of psychological distress. For females, low self-esteem and perceived maternal or paternal rejection predicted higher levels of psychological distress, whereas low self-esteem predicted psychological distress for males. Implications for future research and further considerations are discussed.

Keywords: parental bonding; psychological distress; self-esteem; adolescence; gender differences

There is an extensive body of knowledge linking positive parental bonding experiences during childhood with better psychosocial outcomes and emotional wellbeing later in life (Chen, Liu, & Li, 2000; de Cock, Henrichs, Klimstra et al., 2017; de Cock, Henrichs, Vreeswijk et al., 2016; Kumar & Mattanah, 2016; Rikhye et al., 2008; Tabak & Zawadzka, 2017). In contrast, experiences of poor parental bonding have been linked with childhood adversity and psychological problems in adolescence and adulthood (Fan, Zhang, & Wang, 2017; Gao, Raine, Chan, Venables, & Mednick, 2010; Infurna et al., 2016). This has important implications for educational systems, as poor emotional wellbeing is often linked with poor academic performance, difficulties with attentional processes, school drop-out and risky adolescent behaviours (Anderson, 2005; Blaas, 2014; Davies, Woitach, Winter, & Cummings, 2008; Habrat, 2013; Kognito, 2015).

More research regarding parental bonding among secondary school adolescents is required, as many of the pre-existing studies regarding parental bonding factors and psychological distress focus on child or adult samples, with few studies exploring these relationships among teenagers under 18 years of age (e.g., Cubis, Lewin, & Dawes, 1989; Infurna et al., 2016). This is despite considerable figures relating to psychological distress among youth. For example, some studies indicate that between 20% and 50% of adolescents experience distress-related symptoms (Malhotra & Patra, 2014; Myklestad, Røysamb, & Tambs, 2012), with developmental trajectories generally indicating a higher incidence of symptoms in older adolescents (Skogen, Knudsen, Hysing, Wold, & Sivertsen, 2016) and among

females (Gomez-Baya, Mendoza, Paino, Sanchez, & Romero, 2017). Only a small percentage of these young people will receive specialist services because their difficulties are not detected. For these reasons, it is important to focus on non-clinical samples of adolescents for early intervention and prevention purposes, particularly for educational institutions, given adolescents spend a significant amount of their time at school.

Before exploring the relationships between parental bonding factors and psychological distress among youth, it is important to first define the core features of parental bonding. These are usually conceptualised as constructs of perceived care and autonomy or protection (Parker, Tupling, & Brown, 1979); that is, the adolescents' perception of warmth and nurturance (as opposed to rejection and neglect) and an appropriate level of concern for safety and security (as opposed to controlling and intrusive behaviours; Parker et al., 1979). For purposes of brevity, the care versus rejection dimension will be referred to in the current paper as 'care' and the autonomy versus control dimension will be referred to as 'autonomy'.

In the literature on parental bonding there is debate as to whether care (warmth vs. rejection) or autonomy (autonomy vs. control) factors are more important in the prediction of psychological outcomes (Chambers, Power, Loucks, & Swanson, 2000; Cheng & Furnham, 2004; Meites, Ingram, & Siegle, 2012). Generally, there is a consensus that low levels of parental care and autonomy are most strongly linked with psychological distress, with a combination of low parental care and high parental control (often termed 'overprotection') being particularly detrimental (Cubis et al., 1989; Parker, Tupling & Brown, 1979; Parker, 1983a, 1983b). However, these studies focused on adult samples and require updating, and generally do not investigate maternal and paternal bonding factors separately.

Of those studies that have investigated maternal and paternal bonding separately, there appears to be some evidence that maternal and paternal bonding may be associated with unique outcomes. For example, Cubis et al. (1989) found that adolescents who perceived paternal rejection and maternal control had the least favourable psychosocial outcomes of their cohort. Likewise, in infant studies, paternal rejection (but not maternal rejection) was linked to externalising behaviours at one year of age (Ramchandani et al., 2013). Little is known whether these constructs are similar for adolescents, given differing developmental needs. While infants are dependent upon their parents for survival, adolescents require a balance of support and autonomy from their parents during a turbulent period as they attempt identity exploration and formation (Karabanova & Poskrebysheva, 2013). This period of rapid physiological and psychological development can profoundly impact the parent-adolescent relationship, at times resulting in increased conflict and deterioration in the quality of the relationship (Branje, 2018). These temporary relational changes that create conflict and restrain closeness may be associated with the increase in psychological distress that is so often reported within adolescent cohorts.

Accordingly, emotional security theory suggests that parental processes such as warmth and security are important in organising a child's emotional experiences and psychological wellbeing (Davies & Cummings, 2015), and the absence of these nurturing experiences can heighten tendencies towards psychological distress. Emotional security theory posits that children's attachment and emotional security is profoundly influenced by the quality of the parent-child relationship, with harsh or unresponsive parenting associated with greater emotional insecurity and distress (Stronach, Toth, Rogosch, & Cicchetti, 2013). Furthermore, it is theorised that sustained operation of the emotional security system over time drains considerable psychobiological resources, depleting children of possible resources to cope with necessary developmental tasks (Davies & Cummings, 2015). This potentially decreases resilience to cope with stressors and may cause vulnerability to experiencing psychological distress.

Emotional security theory further suggests that quality parent-child relationships influence the development of positive self-appraisals (i.e., a sense of confidence and self-worth), with many developmental studies supporting this notion (Davies & Cummings, 2015; Zimmer-Gembeck & Collins, 2003). In contrast, poor parental bonding and warmth may shape individuals' schemas and beliefs about themselves in a manner that anticipates criticism and rejection, producing low levels of self-esteem (Campos, Besser, & Blatt, 2010). Low self-esteem is generally more predominant in females

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(Bleidorn et al., 2016), and has consistently been linked with psychological problems (Orth, Robins, Trzesniwski, Maes, & Scmitt, 2009; Van Damme, Colins & Vanderplasschen, 2014). For example, Stavrinides and Georgiou (2016) found that self-esteem mediated the effects of parental warmth and parental rejection on internalising problems. There are likely multiple pathways to psychological distress, yet, for the purposes of this study, poor quality parental relationships may predict psychological distress directly and indirectly through low self-esteem.

While there are established links between self-esteem and psychological distress among adolescents, less is known about associated relationships with maternal and paternal bonding facets in this developmental period. It is unclear whether the tenets of emotional security theory will remain true for adolescents, who are in a developmental stage of seeking independence and separation from parents, thus warranting further study.

The Current Study

The overall aim of the present study was to investigate the relationships among maternal and paternal bonding factors of care (warmth vs. rejection) and autonomy (autonomy vs. control), self-esteem, and psychological distress in a non-clinical sample of Australian adolescents, and explore whether these relationships are different for males and females.

There were three specific research objectives. First, given gender differences noted within the psychological distress literature (i.e., Gomez-Baya et al., 2017), we examined gender differences across age, psychological distress, self-esteem, and parental bonding factors. Consistent with previous research, we hypothesised that female adolescents would report greater levels of psychological distress and lower levels of self-esteem than male adolescents. Owing to limited research regarding parental bonding and gender differences, our examination was exploratory in nature.

Second, we examined the ability of age, maternal and paternal bonding factors, and self-esteem to predict psychological distress. Based upon developmental trajectories of psychological distress (Skogen et al., 2016), we expected being older to predict higher levels of psychological distress among teenage adolescents. Emotional security theory (Davies & Cummings, 2015) indicates that both care (i.e., rejection) and autonomy (i.e., control) bonding elements would predict psychological distress, with adolescents' perceptions of rejecting and controlling parents (low maternal/paternal care paired with low maternal/paternal autonomy) likely to be the strongest predictors of psychological distress (Cubis et al., 1989; Parker et al., 1979).

Finally, based on emotional security theory and recent research (e.g., Stavrinides & Georgiou, 2016), we further explored whether self-esteem would mediate the effects of maternal and paternal bonding factors on psychological distress.

Method

Design and Procedure

The current study employed a cross-sectional design and received ethics approval from the appropriate ethical boards prior to commencing. This research was part of a larger project exploring psychological and social control variables with internalising and externalising problems among adolescents and young adults (see Curcio, Mak, & George, 2016, 2017). An online survey was used to collect responses from secondary school students (aged from 13 to 17 years) from two government and two independent high schools and colleges within Canberra, Australia (approximately 2,000 students in total). Opt-in parental consent was required for government students, whereas opt-out parental consent was required for independent school students. With the assistance of the principal researcher, teachers informed students across various year levels and schools of the research project and allowed students to complete the online survey within an allocated time of 20 minutes in a school computer laboratory. Students who volunteered to participate in the research were given the

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opportunity to go into a draw to win a $150 gift voucher. Owing to the sensitive nature of the data, ethics protocol deemed that individuals and schools must remain anonymous, ensuring that results were not linked to schooling institutions. Therefore, no identifying information was recorded. All participants were assured that participation was voluntary and that they could withdraw at any time without penalty.

Participants

A total of 356 adolescents initiated the online survey, with 337 completers (94.7%). Nine participants did not identify their gender so the final sample was based on 152 who identified as male and 176 who identified as female. Ages ranged from 13 to 17 years ($M = 14.17$, $SD = 1.30$) and 50.6% were female.

Psychological distress

We assessed psychological distress using the Kessler Psychological Distress Scale (K10; Kessler et al., 2003), a widely used 10-item scale regarding emotional states over the past 4 weeks. Example items include 'Over the past 30 days, how often did you feel hopeless?' and 'Over the past 30 days, how often did you feel depressed?' with a 5-level response scale (1 = *none of the time*, 5 = *all of the time*). Scores range from 10 to 50, with higher scores indicating higher levels of psychological distress. Reliability within an adolescent community sample has previously been reported as $\alpha = .84$ (Kenny & Nelson, 2008). In the current study, reliability was $\alpha = .90$ for males and $\alpha = .93$ for females. The K-10 is sensitive to immediate stressors, with students responding to this measure during Terms 1 and 2 of the school year.

Parental bonding

A brief and current form of the Parental Bonding Instrument (PBI; Parker et al., 1979), the eight-item PBI-BC (Klimidis, Minas, & Ata, 1992), was used to measure two important dimensions of the parent-child relationship — perceived parental care (warmth vs. rejection), and perceived parental autonomy (autonomy vs. control) — on a modified response format (1 = *never*, 2 = *sometimes*, and 3 = *usually*). The four subscales of the PBI were utilised: maternal/paternal care (warmth vs. rejection) and maternal/paternal protection (autonomy vs. control), each with four items. Higher scores indicate an individual's perceptions of a caring (e.g., 'Appears to understand my problems and worries') and autonomous (e.g., 'Likes me to make my own decisions') relationship, whereas lower scores indicate perceptions of a rejecting (e.g., 'Seems emotionally cold to me') and controlling relationship (e.g., 'Tries to control everything I do'). The PBI-BC was designed using adolescent samples, with Klimidis et al. (1992) reporting satisfactory reliabilities for the four subscales (maternal care: $\alpha = .75$; paternal care: $\alpha = .80$; maternal autonomy: $\alpha = .72$; paternal autonomy: $\alpha = .72$). In the current study, the reliability for males was as follows: maternal care: $\alpha = .71$; paternal care: $\alpha = .71$; maternal autonomy: $\alpha = .51$; and paternal autonomy: $\alpha = .65$. Reliability for females was as follows: maternal care: $\alpha = .73$; paternal care: $\alpha = .80$; maternal autonomy: $\alpha = .69$; and paternal autonomy: $\alpha = .66$. Generally a score of $\alpha = .70$ is deemed acceptable reliability (Clark & Watson, 1995). Reliability coefficients from the PBI-BC were approximate to this coefficient, with the exception of maternal autonomy for the male sample. This subscale was retained despite lower than preferred reliabilities for research purposes, though it should be interpreted with caution.

Self-esteem

The Rosenberg Self-Esteem Scale (Rosenberg, 1965) was used to assess self-esteem in the current study. This scale is a commonly used 10-item scale scored on a 5-point Likert scale (0 = *strongly disagree*, 4 = *strongly agree*). Higher scale scores indicate higher levels of self-esteem. Example items include 'I feel that I have a number of good qualities' and 'I certainly feel useless at times'. Previous

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reliability coefficients have been reported as ranging from $\alpha = .77$ to $\alpha = .88$ (Rosenberg, 1965). In the current study, the reliability was $\alpha = .83$ for males, and $\alpha = .93$ for females.

Results

Analytic Plan

Data analysis was conducted using PASW Version 23.0 for Windows. After conducting initial descriptive statistical analyses, we conducted a number of analyses to address our specified research objectives. First, a series of independent samples *t* tests were conducted to explore any gender differences across age, psychological distress, self-esteem, and parental bonding factors. Second, intercorrelational analyses were performed prior to multiple regression analyses. Third, we conducted gender-specific linear hierarchical multiple regression analyses to examine the unique effects that self-esteem and the two interaction terms (of maternal/paternal care × autonomy) exerted on psychological distress above and beyond age and the parental bonding factors of maternal/paternal care and maternal/paternal autonomy. Standardised (or *z*) scores were used for parental bonding variables and for calculation of the two interaction terms prior to regression analyses to reduce multicollinearity issues (Preacher, 2010). For ease of clarity, the results of the hierarchical regression analyses are presented in a summary narrative table. Fourth, to explore the potential mediating role of self-esteem in the individual effects of maternal care, maternal autonomy, paternal care and paternal autonomy on psychological distress, we performed mediation analyses using Preacher and Hayes' (2008) method for testing direct and indirect effects.

Descriptive Statistics

Overall, under 10% of data were missing, indicating that statistical analysis is unlikely to be biased (Bennett, 2001). Missing data for scaled scores were treated with direct proration by calculating the average valid item response for each participant (Orr, 1995), where there were no more than 20% of items with missing values for a scaled score. This imputation method combines available information from the observed data for each participant in order to estimate the missing data and population parameters.

As can be seen in Table 1 listing descriptive statistics, relative to scale midpoints, male and female adolescents generally reported relatively low levels of psychological distress and self-esteem and relatively high levels of maternal/paternal care and maternal/paternal autonomy. As expected of a non-clinical population, the data were slightly positively skewed, with PASW reported skewness scores ranging between −.95 and .80. This satisfies the assumption of normality required for multivariate analysis, with a skewness value of ≥ 2, considered a substantial departure from normality (Kim, 2013).

Independent Samples t Tests

We conducted a series of independent samples *t* tests to explore any gender differences in age, psychological distress, self-esteem and parental bonding factors. As can be seen in the results summarised in Table 1, females had a significantly higher mean psychological distress score and a significantly lower mean score for self-esteem compared with males. Notably, there were no gender differences in adolescents' perceptions of maternal care, maternal autonomy, paternal care, or paternal autonomy.

Intercorrelations

Table 2 presents intercorrelations among key variables for males and females separately. For males, higher levels of psychological distress were moderately to strongly associated with being older, having lower levels of self-esteem, lower levels of maternal and paternal care (i.e., rejection), and

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Table 1. Descriptive Statistics by Gender and Independent Samples *t* Tests for Gender Differences

	Possible range	Male	Female	
		M (SD)	*M (SD)*	*t (df)*
Age	13–17	14.07 (1.29)	14.22 (1.29)	−1.05 (326)
Psychological distress	10–50	23.03 (7.81)	25.97 (9.87)	−2.93 (308.98)
Self-esteem	0–40	29.93 (4.99)	27.27 (7.10)	3.84 (299.14)
Maternal care	4–12	10.17 (1.90)	10.09 (1.99)	.36 (309)
Maternal autonomy	4–12	8.74 (1.72)	8.70 (1.90)	.18 (309)
Paternal care	4–12	9.56 (1.98)	9.21 (2.34)	1.41 (305.04)
Paternal autonomy	4–12	9.27 (1.94)	8.98 (1.97)	1.29 (306)
MC × MA	16–144	89.89 (27.09)	88.96 (28.28)	.29 (309)
PC × PA	16–144	89.90 (29.29)	84.22 (30.12)	1.67 (306)

Note: MC × MA = Maternal care × maternal autonomy interaction; PC × Note: PA = Paternal care × paternal autonomy interaction.
*$p < .01$, adjusting for conduct of multiple *t* tests.

Table 2. Intercorrelation Analysis by Gender

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Age	–	.20*	−.31**	−.10	.02	−.20**	.08	−.03	−.07
2. Psychological distress	.22**	–	−.56***	−.28***	−.16	−.33***	−.13	−.28***	−.31***
3. Self-esteem	−.24**	−.81***	–	.42***	.16	.48***	.19*	.35***	.44***
4. Maternal care	−.12	−.43***	.49***	–	.33***	.63***	.17*	.79***	.50***
5. Maternal autonomy	−.06	−.38***	.46***	.33***	–	.21*	.36***	.83***	.38***
6. Paternal care	−.27***	−.49***	.45***	.52***	.22**	–	.32***	.49***	.82***
7. Paternal autonomy	−.10	−.34***	.35***	.22**	.53***	.31***	–	.34***	.79***
8. MC × MA	−.11	−.48***	.56***	.79***	.82***	.45***	.46***	–	.53***
9. PC × PA	−.20**	−.51***	.49***	.47***	.46***	.85***	.74***	.59***	–

Note: The top half of the diagonal reflects male correlation analyses and the bottom half of the diagonal reflects female correlation analyses.
MC × MA = Maternal care × maternal autonomy interaction; PC × PA = Paternal care × paternal autonomy interaction.
*$p < .05$; **$p < .01$; ***$p < .001$.

a care × autonomy interaction (i.e., a rejecting and controlling relationship) for both mothers and fathers. Psychological distress was not associated with maternal or paternal autonomy factors among male adolescents. Lower levels of self-esteem were associated with lower maternal and paternal care (i.e., rejection), lower paternal autonomy (i.e., control), and a care × autonomy interaction (i.e., a rejecting and controlling relationship) for mothers and fathers. Self-esteem was not significantly associated with perceived maternal autonomy among males. All parental factors positively correlated with one another.

For females, higher levels of psychological distress were moderately to strongly correlated with being older, having lower levels of self-esteem, lower levels of maternal and paternal care (i.e., rejection), lower levels of maternal and paternal autonomy (i.e., control), and care × autonomy interaction (i.e., a rejecting and controlling relationship) for mothers and fathers. Lower levels of self-esteem were correlated with lower perceived maternal and paternal care (i.e., rejection), lower maternal and paternal

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autonomy (i.e., control), and care × autonomy interaction (i.e., a rejecting and controlling relationship) for mothers and fathers. All parenting factors were positively associated with one another.

Hierarchical Multiple Regression Analyses

We conducted hierarchical multiple regression analyses to examine the relative importance of age, four parental bonding variables of maternal and paternal care and autonomy, two interaction terms of maternal and paternal care × autonomy, and self-esteem, in explaining the variation of psychological distress. Assumptions testing for the regression analyses were conducted and met. At Step 1, we entered the demographic variable of age. At Step 2, maternal care, maternal autonomy, paternal care, and paternal autonomy were entered. At Step 3, the interaction terms of maternal care × maternal autonomy and paternal care × paternal autonomy were entered. Self-esteem was entered in the final step for its potential mediation effect.

Table 3 presents summaries of hierarchical regression analyses predicting psychological distress for males and female adolescents respectively. For males, there was a significant increase in the variation in psychological distress explained at each of the steps, accounting for 5%, 17%, 21% and 35% respectively of the variation explained. Nonetheless, being older in age was the only significant predictor of psychological distress at the first three steps, with self-esteem being the only significant predictor (with medium effect size) of psychological distress in the final model.

For females, being older was statistically significant in the first step (5% of explained variance), but became non-significant in the second step when parental bonding factors were entered (28% of explained variance). Low maternal care and paternal care (i.e., rejection) were significant predictors of psychological distress at Step 2. At Step 3, the increase in the variation in psychological distress explained was insignificant with the entry of the care × autonomy interaction terms, while low paternal care remained statistically significant (29% of explained variance). In the final model, low paternal care and low self-esteem were the only significant predictors, with small and large effect sizes respectively of psychological distress (65% of explained variance). Table 4 presents a summary narrative of regression analyses results for ease of clarity for the reader.

Mediation Analysis

To explore the potential mediating role of self-esteem on the relationships between (a) maternal care, maternal autonomy, paternal care, and paternal autonomy, and (b) psychological distress, we performed mediation analyses using Preacher and Hayes' (2008) method. To test for direct and indirect effects, a non-parametric bootstrapping procedure was performed (Preacher & Hayes, 2008). Bootstrapping repeatedly samples from the data-set and provides a more powerful and accurate empirical estimation of the sampling distribution, from which confidence intervals for the indirect effect are constructed (Preacher & Hayes, 2008). The following mediation analyses are based on 5,000 samples, within a 95% bias-corrected bootstrap confidence interval (CI), as recommended by Preacher and Hayes (2008). A significant indirect effect is indicated if the confidence interval does not include the value of 0. In each set of analyses, we included age and other parental bonding factors as covariates. Figure 1 depicts the statistically significant mediation results.

For males, significant indirect effects were found between paternal care (95% CI [1.12, −.10)] and psychological distress. As can be seen in Figure 1, self-esteem fully mediated the effect of perceived paternal care on psychological distress on male adolescents.

For females, significant indirect effects were identified between maternal care and psychological distress (95% CI [−1.55, −.48]), paternal care and psychological distress (95% CI [−1.10, −.11]), and maternal autonomy and psychological distress (95% CI [−1.75, −.42]). As depicted in Figure 1, females' self-esteem partially mediated the effect of paternal care on psychological distress, and fully mediated the effects of maternal care and maternal autonomy respectively on psychological distress.

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Table 3. Hierarchical Regressions Predicting Psychological Distress for Males and Females

		Males ($n = 152$)						Females ($n = 176$)					
		B	β	sr^2	R^2	ΔR^2	f^2	B	β	sr^2	R^2	ΔR^2	f^2
Step 1					.05**		.05				.05**		.04
	Age	1.48	.24**	.06				1.61	.22**	.05			
Step 2					.17**	.12**	.16				.28***	.23***	.33
	Age	1.30	.21*	.04									
	Maternal care							−.93	−.18*	.02			
	Paternal care							−1.11	−.25**	.03			
Step 3					.21*	.04*	.20				.29	.02	.35
	Age	1.20	.19*	.03									
	Paternal care							−1.21	−.27**	.03			
Step 4					.35***	.14***	.45				.65***	.35***	1.70
	Paternal care							−.67	−.15*	.01			
	Self-esteem	−.74	−.47***	.14				−1.04	−.74***	.35			

Note: Only independent variables with standardised regression coefficients with significant values are reported. For male adolescents, the final model was statistically significant; $R = .59$, $R^2 = .35$, adjusted $R^2 = .31$, $\Delta R^2 = .14$, $\Delta F(1, 120) = 25.89$, $p < .001$, a large effect ($f^2 = .45$). For female adolescents, the final model was statistically significant; $R = .81$, $R^2 = .65$, Adjusted $R^2 = .63$, $\Delta R^2 = .35$, $\Delta F(1, 147) = 147.94$, $p < .001$, a large effect ($f^2 = 1.70$).

*$p < .05$; **$p < .01$; ***$p < .001$.

Table 4. Summary Narrative Table of Hierarchical Regressions Predicting Psychological Distress

Independent Variables	Males	Females	Overall findings
Age	Males who were older in age reported significantly higher levels of psychological distress than younger males. This finding became non-significant when self-esteem was considered.	Females who were older in age reported significantly higher levels of psychological distress than younger females. This finding became non-significant when maternal and paternal care factors were considered.	For males, low self-esteem was the strongest significant predictor of psychological distress. Males who were older in age also reported higher levels of psychological distress than younger males.
Maternal care	Non-significant finding.	Females who perceived maternal rejection reported significantly higher levels of psychological distress. This finding became non-significant when self-esteem was considered.	For females, low self-esteem and perceived paternal rejection were the strongest predictors of psychological distress. Females who perceived maternal rejection and who were older in age also reported significantly higher levels of psychological distress.
Paternal care	Non-significant finding.	Females who perceived paternal rejection reported significantly higher levels of psychological distress.	
Maternal autonomy	Non-significant finding.	Non-significant finding.	Maternal and paternal autonomy, and the interaction between maternal/paternal care and autonomy did not significantly predict psychological distress. In this study, rejecting parenting styles predicted psychological distress more so than controlling parenting styles, particularly for females.
Paternal autonomy	Non-significant finding.	Non-significant finding.	
Maternal care × maternal autonomy interaction	Non-significant finding.	Non-significant finding.	
Paternal care × paternal autonomy interaction	Non-significant finding.	Non-significant finding.	
Self-esteem	Low self-esteem was the strongest significant predictor of reported psychological distress in males.	Low self-esteem was the strongest significant predictor of reported psychological distress in females.	

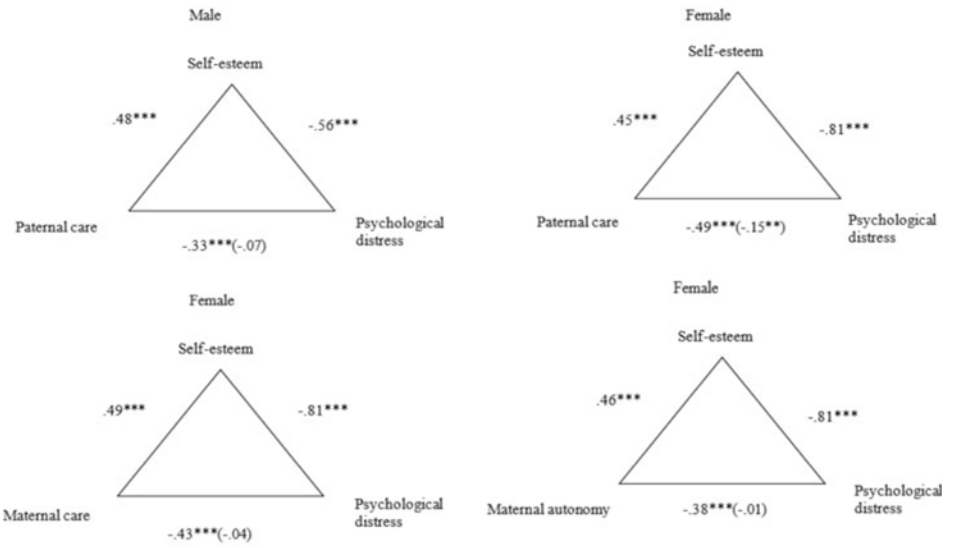

Figure 1. Statistically significant mediation relationships of self-esteem between paternal care and psychological distress for male adolescents, and between (a) maternal care, paternal care and maternal autonomy respectively, and (b) psychological distress for female adolescents. Age and parental bonding dimensions were included as covariates.
Note: $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Discussion

In the current study, we examined the relationships among maternal and paternal bonding factors of care (warmth vs. rejection) and autonomy (autonomy vs. control), self-esteem, and psychological distress in a non-clinical sample of Australian adolescents, and explored whether these relationships were different for males and females.

Our first objective was to explore gender differences across psychological distress, self-esteem, and parental bonding factors. Notably, we did not find any gender differences between perceived maternal care, maternal autonomy, paternal care, or paternal autonomy. Consistent with our hypothesis and previous research (e.g., Gomez-Baya et al., 2017), females were found to report significantly greater mean scores for psychological distress than males, and were also found to report significantly lower mean scores for self-esteem compared with males. There is research to suggest that females tend to be more introspective, egocentric and self-conscious, leading them to ruminate about how they are perceived by others (Bluth, Campo, Futch, & Gaylord, 2017), which may have an impact upon self-esteem and psychological distress.

Second, we investigated the ability of age, maternal and paternal bonding factors, and self-esteem to predict psychological distress among males and females. Consistent with the extant literature (e.g., Skogen et al., 2016), being older predicted greater levels of psychological distress among teenagers, particularly among males. In addition to age, we further examined maternal and paternal care and autonomy factors in predicting psychological distress. Based on emotional security theory (Davies & Cummings, 2015), we expected lower levels of maternal and paternal care (i.e., rejection), and lower levels of maternal and paternal autonomy (i.e., control) to predict greater levels of psychological distress, with a care × autonomy interaction (i.e., adolescents' perceptions of rejecting and controlling parents) expected to be a particularly strong predictor of psychological distress. Inconsistent with this hypothesis, but consistent with some findings in the field (e.g., Chambers et al., 2000), the current study found that perceiving a cold and rejecting parental relationship (low care) was more important in the prediction of psychological distress than perceiving the parent as controlling (or an interaction between rejection and control). We did not find any significant interaction effect of maternal

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or paternal care × autonomy. Adolescence is a time of development where the young person begins to separate somewhat from the parent and experience greater independence (Bluth et al., 2017; Karabanova & Poskrebysheva, 2013). Parental autonomy or control may therefore be less relevant for adolescents, who may spend more time away from their parents than perhaps for a younger child-parent dyadic.

We further examined a possible mediating role of self-esteem in the relationship between each parental bonding variable and psychological distress. Among male adolescents, the relationship between perceived paternal care and psychological distress was mediated by self-esteem. Among female adolescents, the relationships between (a) each of maternal care, paternal care, and maternal autonomy, and (b) psychological distress were mediated by self-esteem. These findings are partly consistent with previous research (e.g., Stavrinides & Georgiou, 2016). It is possible that experiencing rejecting and controlling parental interactions may contribute to low self-esteem through perceptions of oneself as being unworthy and incapable (Campos et al., 2010; Davies & Cummings, 2015), which in turn may have an impact upon psychological distress. Given that females are considered to be more social and relational than males, they may be more vulnerable to experience relationship-related distress. However, without temporal ordering, it is impossible to establish whether perceiving one's parents as rejecting or controlling may reflect an adolescent's level of self-esteem rather than contributing to it.

Overall, the current study found that low self-esteem was the strongest predictor of psychological distress for both male and female adolescents under 18 years of age, with lower levels of maternal and paternal care also important for females. For males, small to moderate bivariate associations between (a) maternal and paternal care, and (b) psychological distress were not maintained when controlling for age and other parental bonding factors. Parental rejection signals to adolescents that they are not worthy of love, which may increase levels of psychological distress directly and indirectly through negative self-appraisals and low self-esteem (Davies & Cummings, 2015; Stavrinides & Georgiou, 2016). Parental warmth may provide adolescents with safety and security, which foster coping skills and better psychosocial adjustment. The current study found that the level of warmth and emotional availability provided by fathers may be particularly important in promoting psychological wellbeing among adolescent females.

Strengths and Limitations

The current study had a number of strengths. It examined adolescents' perceptions of various dimensions of parental paternal bonding, differentiating between care/rejection and autonomy/control in a non-clinical sample. Investigating maternal and paternal bonding factors separately demonstrated the important role of warm and caring fathers, as well as caring and autonomous mothers, in mitigating against psychological distress for female adolescents. This study also explored the mediating role of self-esteem, finding differences between male and female adolescents. These findings can better direct early intervention and prevention efforts.

While the current study added valuable insights into the literature on parental bonding and psychological distress among adolescents, there are some limitations to note. There were common method variance issues when assessing intercorrelated psychological variables using only self-reports. It is plausible that traits such as neuroticism could have influenced all of the self-reports; this could have partly contributed to the medium to large associations between self-esteem and psychological distress. Similarly, the K-10 is a measure that is sensitive to immediate stressors and environmental demands (such as assessment pieces or exams). Students responded to this measure in Terms 1 and 2 of the school year, which may have been associated with decreased stressors as compared to the end of the school year, when many assessment items are due. Furthermore, all information on psychological distress resulted from one measure and one informant, with the K-10 intended as a screening tool more so than a comprehensive measure of psychological symptoms. Similarly, the PBI-BC measures adolescents' perceptions of parents, which can provide useful insights into an adolescents' subjective perception of parental behaviour, but can also be biased by the adolescents' personality and mood

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(Parker, 1983b). For example, if an adolescent is experiencing depression then they may view their parents' reactions more negatively. Similarly, critical appraisals of parents may be more common during adolescence, which is a developmental stage when the child separates from parent (Cubis et al., 1989). Some of the reliabilities were slightly low for maternal and paternal autonomy subscales for males, which may have affected the results. Having only four items in each parental bonding subscale of the PBI-BC could have been problematic. Given the limited number of schools that were involved in the current study and the reliance on convenience sampling, it is important to note that results are not generalisable. Owing to ethics protocol requiring the de-identification of schools, we were unable to identify participants' class or school membership. As such, it is not possible to determine whether there was an impact of school site on findings. Where possible, future research should account for these potential effects, either statistically (Garson, 2013) or by implementing random or stratified sampling approaches. However, we note that the current method is consistent with similar research (e.g., Finan, Schulz, Gordon & Ohannessian, 2015; Karyadi & Cyders, 2015; Ohannessian, 2012) and is often required due to the sensitive nature of the data.

Future Research Directions

The current study provides useful directions for future research. First, longitudinal investigations would be beneficial to consider temporal relationships. Second, the current study did not examine family structure (e.g., single parent households, divorced families, foster families) and we recommend that future research consider the potential influence of family structure. Third, examining whether the presence of a healthy role model (such as a teacher or sports coach), peer or romantic relationships, or a sense of feeling connected to school can mitigate against risks associated with a rejecting parental relationship is recommended. Fourth, studies to consider the applicability of findings across diverse cultural samples and cross-culturally is recommended. Finally, investigating the relationship between maternal/paternal care and autonomy with externalising behaviours, such as delinquency and problem drinking, and among young adult samples, as well as examining other potentially confounding factors such as personality variables and factors that may have an impact upon self-esteem, would provide further insight into the influence of parent-child relationships on various psychosocial outcomes across different developmental cohorts.

Implications for Schooling Institutions

While low self-esteem and poor emotional wellbeing have implications for school performance and academic outcomes (Blaas, 2014; Habrat, 2013), schooling institutions may be protective in the absence of ideal parental relationships.

Utilising mental health clinics, counselling and hotlines within schooling institutions, along with peer support, mental health education and general wellness campaigns, schools can reduce the stigma around help-seeking and alleviate some emotional distress (Kognito, 2015). Without this, adolescents may feel disconnected from school and may experience rejection or control from the school context itself. Though increasing mental health support involves an investment of time, money and resources, the long-term impacts can lead to lower school drop-out rates, increases in school connectedness, student performance and proactive prevention of mental health difficulties by promoting stress reduction and resiliency (Kognito, 2015).

Conclusion

This study examined the relationships among dimensions of maternal and paternal bonding, self-esteem, and psychological distress in a non-clinical sample of Australian male and female adolescents. We did not find gender differences in any dimension of perceived parental bonding, but found that females reported lower levels of self-esteem and higher levels of psychological distress. We also

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found gender differences in what constitutes predictors of psychological distress. Lower levels of perceived maternal care, paternal care, and self-esteem were important in the prediction of psychological distress for females. The relationships between (a) maternal care, paternal care, and maternal autonomy, and (b) psychological distress were mediated by self-esteem for female adolescents. Being older and having lower levels of self-esteem were important predictors of psychological distress for males, with self-esteem mediating the relationship between paternal care with psychological distress. Addressing mental health within educational institutions may greatly benefit students, particularly for those who report impoverished parental relationships.

References

Anderson, S. (2005). The relationship between student psychological wellbeing, behaviour and educational outcomes: A lesson from the MindMatters Plus Demonstration Schools. *Journal of Psychologists and Counsellors in Schools*, **15**, 235–240. doi: 10.1375/ajgc.15.2.235

Bennett, D.A. (2001). How can I deal with missing data in my study? *Australian and New Zealand Journal of Public Health*, **25**, 464–469.

Blaas, S. (2014). The relationship between social-emotional difficulties and underachievement of gifted students. *Journal of Psychologists and Counsellors in Schools*, **24**, 243–255. doi: 10.1017/jgc.2014.1

Bleidorn, W., Arslan, R.C., Denissen, J.J.A., Rentfrow, R.J., Gebauer, J.E., Potter, J., & Gosling, S.D. (2016). Age and gender differences in self-esteem - A cross-cultural window. *Journal of Personality and Social Psychology*, **111**, 396–410. doi: 10.1037/pspp0000078

Bluth, K., Campo, R.A., Futch, W.S., & Gaylord, S.A. (2017). Age and gender differences in the associations of self-compassion and emotional well-being in a large adolescent sample. *Journal of Youth and Adolescence*, **46**, 840–853. doi: 10.1007/s10964-016-0567-2

Branje, S. (2018). Development of parent-adolescent relationships: Conflict interactions as a mechanism of change. *Child Development Perspectives*, **12**, 171–176. doi.org/ 10.1111/cdep.12278

Campos, R.C., Besser, A., & Blatt, S.J. (2010). The mediating role of self-criticism and dependency in the association between perceptions of maternal caring and depressive symptoms. *Depression and Anxiety*, **27**, 1149–1157. doi: 10.1002/da.20763.

Chambers, J.A., Power, K.G., Loucks, N., & Swanson, V. (2000). Psychometric properties of the parental bonding instrument and its association with psychological distress in a group of incarcerated young offenders in Scotland. *Social Psychiatry and Psychiatric Epidemiology*, **35**, 318–235.

Chen, X., Liu, M., & Li, D. (2000). Parental warmth, control, and indulgence and their relations to adjustment in Chinese children: A longitudinal study. *Journal of Family Psychology*, **14**, 401–419. doi: 10.1037/0893-3200.14.3.401

Cheng, H., & Furnham, A. (2004). Perceived parental rearing style, self-esteem and self-criticism as predictors of happiness. *Journal of Happiness Studies*, **5**, 1–21.

Clark, L.A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, **7**, 309–319.

Cubis, J., Lewin, T., & Dawes, F. (1989). Australian adolescents' perceptions of their parents. *Australian and New Zealand Journal of Psychiatry*, **23**, 35–47.

Curcio, A.L., Mak, A.S., & George, A.M. (2016). Predictors of drinking behaviour among adolescents and young adults: A new psychosocial control perspective. *International Journal of Child, Youth and Family Studies*, **7**, 81–103.

Curcio, A.L., Mak, A.S., & George, A.M. (2017). Predictors of delinquency among adolescents and young adults: A new psychosocial control perspective. *Australian and New Zealand Journal of Criminology*, **50**, 155–175. doi: 10.1177/0004865816628594

Davies, P.T., & Cummings, E.M. (2015). Interparental discord, family process, and developmental psychopathology. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology: Vol 3: Risk, disorder and adaptation* (2nd ed., pp. 86–128). New York: Wiley.

Davies, P.T., Woitach, M.J., Winter, M.A., & Cummings, E.M. (2008). Children's insecure representations of the interparental relationship and their school adjustment: The mediating role of attention difficulties. *Child Development*, **79**, 1570–1582. doi: 10.1111/j.1467-8624.2008.01206.x

de Cock, E.S.A., Henrichs, J., Klimstra, T.A., Maas, A.J.B.M., Vreeswijk, C.M.J.M., Meeus, W.H.J., & van Bakel, H.J.A. (2017). Longitudinal associations between parental bonding, parenting stress, and executive functioning in toddlerhood. *Journal of Child and Family Studies*, **26**, 1723–1733. doi: 10.1007/s10826-017-0679-7

de Cock, E.S.A., Henrichs, J., Vreeswijk, C.M.J.M., Maas, A.J.B.M., Rijk, C.H.A.M., & van Bakel, H.J.A. (2016). Continuous feelings of love? The parental bond from pregnancy to toddlerhood. *Journal of Family Psychology*, **30**, 124–134. https://doi.org/10.1037/fam0000138

Fan, H., Zhang, B., & Wang, W. (2017). Family functions in relation to behavioural and psychological disorders in Chinese culture. *The Family Journal*, **25**, 130–136. https://doi.org/10.1177/1066480717697681

https://doi.org/10.1017/jgc.2018.14 Published online by Cambridge University Press

Finan, L.J., Schulz, J., Gordon, M.S., & Ohannessian, C.M. (2015). Parental problem drinking and adolescent externalizing behaviours: The mediating role of family functioning. *Journal of Adolescence*, **43**, 100–110. doi: 10.1016/j. adolescence.2015.05.001

Garson, D.G. (2013). *Hierarchical linear modelling: Guide and applications*. Thousand Oaks, CA: Sage.

Gao, Y., Raine, A., Chan, F., Venables, P.H., & Mednick, S.A. (2010). Early maternal and paternal bonding, childhood physical abuse and adult psychopathic personality, *Psychological Medicine*, **40**, 1007–1016. doi: 10.1017/S0033291709991279

Gomez-Baya, D., Mendoza, R, Paino, S., Sanchez, A., & Romero, N. (2017). Latent growth curve analysis of gender differences in response styles and depressive symptoms during mid-adolescence. *Cognitive Therapy and Research*, **41**, 289–303. doi: 10.1007/s10608-016-9822-9

Habrat, A. (2013). The effect of affect on learning: Self-esteem and self-concept. In E. Piechurska-Kuciel & E. Szymańska-Czaplak (Eds.), *Language in cognition and affect* (pp. 239–253), Berlin: Springer.

Infurna, M.R., Brunner, R., Holz, B., Parzer, P., Giannone, F., . . . Kaess, M. (2016). The specific role of childhood abuse, parental bonding, and family functioning in female adolescents with Borderline Personality Disorder. *Journal of Personality Disorders*, **30**, 177–192. doi: 10.1521/pedi_2015_29_186

Karabanova, O.A., & Poskrebysheva, N.N. (2013). Adolescent autonomy in parent-child relations. *Procedia Social and Behavioural Sciences*, **86**, 621–628.

Karyadi, K.A., & Cyders, M.A. (2015). Elucidating the association between trait mindfulness and alcohol use behaviours among college students. *Mindfulness*, **6**, 1242–1249. doi: 10.1007/s12671-015-0386-7.

Kenny, D.T. & Nelson, P.K. (2008). *Young offenders on community orders: Health, welfare and criminogenic needs*. Sydney, Australia: Sydney University Press.

Kessler, R.C., Barker, P.R., Colpe, L.J., Epstein, J.F., Gfroerer, J.C., . . . Zaslavsky, A.M. (2003). Screening for serious mental illness in the general population. *Archives of General Psychiatry*, **60**, 184–189.

Kim, H. (2013). Statistical notes for clinical researchers: Assessing normal distribution using skewness and kurtosis. *Restorative Dentistry and Endodontics*, **38**, 52–54. doi: 10.5395/rde.2013.38.1.52

Klimidis, S., Minas, I.H., & Atta, A.W. (1992). The PBI-BC: A brief and current form of the Parental Bonding Instrument for adolescent research. *Comprehensive Psychiatry*, **33**, 374–377.

Kognito. (2015). *Increasing student retention through improved mental health*. Retrieved August, 2018 from http://www.jedcampus.org/wp-content/uploads/2018/01/HiEd_WP_020717_StudentRetentionWP.pdf

Kumar, S.A. and Mattanah, J.F. (2016), Parental attachment, romantic competence, relationship satisfaction, and psychosocial adjustment in emerging adulthood. *Personal Relationships*, **23**, 801–817. doi: 10.1111/pere.12161

Malhotra, S., & Patra, B.N. (2014). Prevalence of child and adolescent psychiatric disorders in India: A systematic review and meta-analysis. *Child and Adolescent Psychiatry and Mental Health*, **1**, 8–22. doi: 10.1186/1753-2000-8-22

Meites, T.M., Ingram, R.E., & Siegle, G.J. (2012). Unique and shared aspects of affective symptomatology: The role of parental bonding in depression and anxiety symptom profiles. *Cognitive Therapy Research*, **36**, 173–181. doi: 10.1007/s10608-011-9426-3

Myklestad, I., Røysamb, E., & Tambs, K. (2012). Risk and protective factors for psychological distress among adolescents: A family study in the Nord-Trøndelag Health Study. *Social Psychiatry and Psychiatric Epidemiology*, **47**, 771–782. doi: 10.1007/s00127-011-0380-x

Ohannessian, C.M. (2012). Parental problem drinking and adolescent psychosocial adjustment: The mediating role of adolescent-parent communication. *Journal of Research on Adolescence*, **22**, 498–511. doi: 10.1111/j.1532-7795.2012.00791.x

Orr, D.B. (1995). *Fundamentals of applied statistics and surveys*. New York, NY: Chapman and Hall.

Orth, U., Robins, R.W., Trzesniwski, K.H., Maes, J., & Scmitt, M. (2009). Low self-esteem is a risk factor for depressive symptoms from young adulthood to old age. *Journal of Abnormal Psychology*, **118**, 472–478. doi: 10.1037/a0015922

Parker, G. (1983a). *Parental overprotection: A risk factor in psychological development*. New York, NY: Grune and Stratton.

Parker, G. (1983b). Parental 'affectionless control' as an antecedent to adult depression: A risk factor delineated. *Archives of General Psychiatry*, **40**, 956–960.

Parker, G., Tupling, H., & Brown, L.B. (1979). A parental bonding instrument. *British Journal of Medical Psychology*, **52**, 1–10.

Preacher, K.J. (2010). *A primer on interaction effects in multiple linear regression*. Retrieved from https://www.scribd.com/document/128123046/A-Primer-on-Interaction-Effects-in-Multiple-Linear-Regression

Preacher, K.J., & Hayes, A.F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavioural Research Methods*, **40**, 879–891. doi: 10.3758/BRM.40.3.879.

Ramchandani, P.G., Domoney, J., Sethna, V., Psychogiou, L., Vlachos, H., & Murray, L. (2013). Do early father-infant interactions predict the onset of externalising behaviours in young children? Findings from a longitudinal cohort study. *Journal of Child Psychology and Psychiatry*, **54**, 56–64. https://doi.org/10.1111/j.1469-7610.2012.02583.x

Rikhye, K., Tyrka, A.R., Kelly, M.M., Gagne, G.G., Mello., . . . Carpenter, L.L. (2008). Interplay between childhood maltreatment, parental bonding and gender effects: Impact on quality of life. *Child Abuse and Neglect*, **32**, 19–34. doi: 10.1016/j.chiabu.2007.04.012.

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.

Stavrinides, P., & Georgiou, S.N. (2016). Parenting and children's adjustment problems: The mediating role of self-esteem and peer relations. *Emotional and Behavioural Difficulties*, **23**, 203–212. doi: 10.1080/13632752.2016.1236228.

Stronach, E.P., Toth, S.L., Rogosch, F., & Cicchetti, D. (2013). Preventive interventions and sustained attachment security in maltreated children. *Development and Psychopathology*, **25**, 919–930. doi: 10.1017/S0954579413000278.

Skogen, J.C., Knudsen, A.K., Hysing, M., Wold, B., & Sivertsen, B. (2016). Trajectories of alcohol use and association with symptoms of depression from early to late adolescence: The Norwegian Longitudinal Health Behaviour Study. *Drug and Alcohol Review*, **35**, 307–316. doi: 10.1111/dar.12350

Tabak, I., & Zawadzka, D. (2017). The importance of positive parenting in predicting adolescent mental health. *Journal of Family Studies*, **23**, 1–18. doi.org/10.1080/13229400.2016.1240098

Van Damme, L., Colins, O.F., & Vanderplasschen, W. (2014). Gender differences in psychiatric disorders and clusters of self-esteem among detained adolescents. *Psychiatry Research*, **220**, 991–997. doi: 10.1016/j.psychres.2014.10.012

Zimmer-Gembeck, M.J., & Collins, W.A. (2003). Autonomy development during adolescence. In G.R. Adams & M.D. Berzonsky (Eds). *Blackwell handbook of adolescence* (pp. 175–204). Oxford, UK: Wiley-Blackwell.

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