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EMPIRICAL RESEARCH

Inflexible Parents, Inflexible Kids: A 6-Year Longitudinal Study of Parenting Style and the Development of Psychological Flexibility in Adolescents

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Abstract Parenting behaviors have been linked to children's self regulation, but it is less clear how they relate to adolescent psychological flexibility. Psychological flexibility is a broad construct that describes an individual's ability to respond appropriately to environmental demands and internal experiences in the service of their goals. We examined the longitudinal relationships between perceived parenting style and psychological flexibility among students at five Australian schools ($N = 749$) over 6 years, beginning in Grade 7 (50.3% female, mean age 12.39 years). Parenting style was measured in Grades 7 and 12, and psychological flexibility from Grade 9 through 12. Psychological flexibility decreased, on average, with age. Multi-level modelling indicated that authoritarian parenting (low warmth, high control) in Grade 7 predicted later (low) psychological flexibility. Moreover, increases in authoritarian parenting and decreases in authoritative parenting (high warmth and control) were associated with adolescent psychological flexibility across the high school years. Change in parenting predicted future psychological flexibility but did not predict change over time. Structural Equation Modelling revealed that adolescent psychological flexibility in Grade 9 predicted later decreases in authoritarian and increases in authoritative parenting. We discuss the implications of these findings for understanding how parenting changes and the consequences of such change for the development of psychological flexibility.

Keywords Parenting style · Self regulation · Psychological flexibility · Adolescence · Longitudinal · Reciprocal · Bidirectional

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Introduction

To become competent and psychologically healthy adults, adolescents need to develop skills for working towards their goals within complex social environments (Larsen 2011). Adolescents experience wider extremes of emotion and have a more limited time perspective than adults, and these developmental challenges can affect their efforts to remain focused and to sustain motivation (Larsen 2011). Self regulation of emotions, thoughts and behaviors is seen as a key skill to promote positive outcomes for adolescents (Larsen 2011) including better school achievement, healthier lifestyles, less psychopathology and more satisfying relationships (Tangney et al. 2004). There is increasing evidence that learning flexible, contextually appropriate regulatory strategies—known as psychological flexibility—contributes to healthy development (Kashdan and Rottenberg 2010).

Psychological flexibility is a set of dynamic processes that describes a pattern of interacting with the environment. These processes include awareness of the present moment (mindfulness), adaptation to situational demands, and the ability to shift perspective, balance competing needs, and change or maintain behavior to pursue valued ends (Hayes et al. 2006; Kashdan and Rottenberg 2010). The processes within psychological flexibility are consistent with the

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definitions of self control (Finkenauer et al. 2005), emotion regulation (Thompson 1994), and self regulation (Moilanen 2007), terms which are often used interchangeably (Finkenauer et al. 2005). Both self regulation and psychological flexibility involve flexible responding to internal and external cues in the service of personally relevant goals, and responses range from overt behavior to cognition, emotion and attention (Finkenauer et al. 2005; Hayes et al. 2006; Moilanen 2007). Both concepts are influenced by a functional, contextual view of emotion (Campos et al. 1994; Hayes et al. 2006; Thompson 1994). From this perspective, emotions can be regulated by, and serve to regulate, interactions with other people and the environment, and are closely tied to goal striving (Campos et al. 1994). Psychological flexibility has emerged relatively recently as a potentially important mediator of distress and psychopathology (Kashdan and Rottenberg 2010). Psychometric research has shown that psychological flexibility contributes to the explanation of impairment and functioning in mental health, over and above existing constructs (Gloster et al. 2011). The purpose of this study is to examine one possible influence on the development of psychological flexibility, namely parenting style.

The origins of psychological flexibility have received little research attention compared with the more established concept of self regulation (see Morris et al. 2007, for a review). There are several key differences between the two concepts which make psychological flexibility a relevant construct, worthy of separate research attention. While self regulation largely concerns the management of *socially* undesirable impulses (Finkenauer et al. 2005), psychological flexibility extends to the management of internal states (e.g., grief) and external situations (e.g., fear-provoking environments) experienced as *personally* undesirable. A second, more subtle distinction lies in the way poor functioning is defined. Poor self regulation involves the inability to down-regulate undesirable, anti-social emotions, cognitions, and behaviors through lack of skill or choice of an inappropriate regulatory strategy (Finkenauer et al. 2005). With psychological *in*flexibility, the problem lies in the attempt to control emotions, thoughts and behaviors by applying certain regulatory strategies *excessively or rigidly* (Greco et al. 2008). Lack of psychological flexibility may reduce opportunities for positive experiences and limit response options (Barber et al. 2010; Blackledge and Hayes 2001; Chawla and Ostafin 2007; Kashdan et al. 2006). For example, the socially anxious person may avoid forming relationships and interacting with people, even when both of these activities are highly valued (Kashdan and Rottenberg 2010). Psychological inflexibility involves excessive use of strategies such as inhibition, suppression and avoidance, which are often counterproductive and can rebound, with a heightening of negative thoughts, emotions, arousal and distress (Krause et al. 2003; Wegner 1994; Wegner and Zanakos 1994). In summary, psychological flexibility is an overarching construct that describes an individual's experience of emotions, thoughts, situations or symptoms and their ability to choose an adaptive response (Gloster et al. 2011). Like self regulation, psychological flexibility is likely to be a product of early socialization. Psychological inflexibility may be reinforced by the social-verbal community, as avoidance of unpleasant thoughts and feelings is considered appropriate in many social contexts (Blackledge and Hayes 2001; Greco et al. 2008). Therefore, it is reasonable to expect that socialization experiences in the family will be associated with the development of psychological flexibility.

Development of Psychological Flexibility

Parenting and family context may contribute to the development of inflexible, avoidant self regulatory strategies (Gottman et al. 1996; Mitmansgruber et al. 2009; Morris et al. 2007; Rosenthal et al. 2006). Parenting behaviors that inspire guilt, fear or resentment may deprive children of the chance to practice self regulation skills in a supportive environment, and may also shift attention from the immediate issue (the child's behavior) to the child's feelings (Moilanen et al. 2010). A child who regularly receives dismissive, punitive or derogatory responses to expressions of sadness, fear or anger may learn to label these emotions as unimportant, inappropriate or shameful (Rosenthal et al. 2006). In contrast, some parents are aware of their own and their child's emotions, even at low levels of intensity, and help the child to label them and engage in problem solving (Gottman et al. 1996). Children who receive this "emotion coaching" are better able to self-soothe or down-regulate arousal in situations that provoke strong emotions. This enables children to "focus attention, and organise themselves for coordinated action in the service of some goal" (Gottman et al. 1996, p. 247). Thus, a child's ability to respond to environmental demands appropriately, with goal-directed action—which is the essence of psychological flexibility—may be promoted by parental responsiveness and the use of reasoning, or inhibited by punitive, controlling parenting.

Links between parenting, self regulation, and well-being in younger children are well established (Morris et al. 2007). For example, among Australian children aged 9–12 years, low parental care and intrusive, overprotective parenting were associated with emotion suppression (Jaffe et al. 2010), a self regulation strategy associated with increased arousal (Gross and Levenson 1997), poor interpersonal functioning and reduced well-being (Gross and John 2003). Relatively little is known, however, about parents' socializing of self-regulatory skills in adolescents

(Finkenauer et al. 2005; Jaffe et al. 2010; Morris et al. 2007). This is an important developmental period in which young people begin to encounter complex stressors, giving parents various opportunities to discuss emotions and to coach successful, flexible regulation. These teachable moments may not be seized, however, due to increased parent–child conflict and emotional distancing (Morris et al. 2007), and parents' critical or dismissive attitudes to emotions (Gottman et al. 1996). In turn, a lack of psychological flexibility in one or both generations can aggravate parent-teen conflict (Greco and Eifert 2004). There is a need for more research in this area, particularly longitudinal studies (Jaffe et al. 2010; Morris et al. 2007). Thus, the current study addresses this gap by providing longitudinal data on the links between parenting styles and the development of psychological flexibility among adolescents.

Parenting and Self Regulation

To our knowledge, no research exists on parenting and psychological flexibility, but studies of self regulation are relevant to this question. The parental strategies most often discussed in the literature regarding self regulation are psychological control, warmth, and behavioral control. Parental psychological control is intrusive and manipulative, using the child's emotions such as fear and guilt to direct his or her behavior (Barber 1996). Behavioral control involves limit-setting, monitoring and structure (Barber 1996). Parental warmth (also called acceptance, involvement or responsiveness) and control are two dimensions that have influenced parenting research since the early 1970s (Baumrind 1991; Nelson et al. 2011). Authoritative parenting, which has consistently been shown to be the most effective style (Steinberg 2000, 2001), is a combination of high warmth with high control. Authoritarian parenting combines low warmth with high control. In a revision of her parenting styles typology, for use with adolescents, Baumrind (1991) noted that both authoritative and authoritarian parents used high levels of monitoring and limit-setting (i.e., behavioral control). Authoritarian parents were distinguished by their intrusiveness and subversion of the child's independence (i.e., psychological control), combined with low warmth. In this study, we will use a measure of authoritarian parenting to indicate high levels of psychological and behavioral control with low warmth, while authoritative parenting is an indicator of low psychological control, high behavioral control and high warmth.

Several school-based studies have examined associations between parenting strategies and adolescent self regulation. High levels of parental acceptance/involvement and low levels of psychological control were associated with better self regulation among early adolescents in the Netherlands (Finkenauer et al. 2005). Emotion regulation difficulties were more prevalent among adolescents with psychologically controlling fathers in a study at one London high school (McEwen and Flouri 2009). Short- and long-term self regulation reported by students at one US high school was correlated positively with their perceptions of parental warmth, and negatively with parental psychological control (Moilanen 2007). Two cross-sectional studies of Israeli 9th grade students found that parental conditional regard—a psychologically controlling practice—was associated with poor outcomes including emotion suppression and dysregulation (Roth et al. 2009). While providing evidence of cross-cultural associations between cold, psychologically controlling parenting and poor self regulation among adolescents, this correlational research is not able to shed light on the direction of causality.

Evidence from one longitudinal study is consistent with the proposition that psychologically controlling parenting is detrimental to the development of self regulation and is, therefore, likely to reduce psychological flexibility. Observer-rated low psychological control and high responsiveness from mothers was positively associated with concurrent self regulation in their 10-year old sons (Moilanen et al. 2010). Low levels of psychological control predicted positive change in boys' self regulation a year later (Moilanen et al. 2010). This short-term longitudinal study focused on low-income families of "at risk" boys. Nevertheless, the findings suggest that psychologically controlling parenting may impair self regulation in early adolescent males (Moilanen et al. 2010).

Intrusive, controlling parenting may have longer-term effects on self regulation and psychological flexibility into young adulthood. High levels of psychological and behavioral control reported by mothers predicted poor emotion regulation in university undergraduates (Manzeske and Stright 2009). Retrospective recall of parents' distress, punishing and minimising reactions to their emotions during childhood was associated with maladaptive self regulation strategies in young adults aged 18–30 (Krause et al. 2003). Perceived criticism in the family of origin was linked with psychological distress among female undergraduates, and this relationship was fully mediated by experiential avoidance, a component of psychological inflexibility (Rosenthal et al. 2006). This study provides preliminary evidence that parenting may relate to psychological flexibility in similar ways to self regulation. Nevertheless, these studies are limited by their correlational nature and, in the two latter studies, by the use of retrospective reports of parenting.

Effects observed in the cross-sectional studies cited above may be reversed or bi-directional; that is, children's self regulation may influence parents' behaviors, particularly their attempts to exert control (Morris et al. 2007).

Children who meet parental expectations for competence and assertiveness may be more likely to elicit autonomy support, whereas those less capable may prompt intrusive, controlling behaviour from parents (Bell 1968). There is limited evidence on reciprocal relationships between adolescent and parental behavior (Pardini 2008) and we identified only two studies which considered bidirectional effects in relation to parental psychological control. Adolescents high in aggression and internalising problems perceived increased levels of parental psychological control following a 2-year interval (Albrecht et al. 2007). Psychologically controlling parenting appeared to hinder identity commitment and promote broad, rather than deep, identity exploration in emerging adults; subsequently, this scattergun approach to identity exploration was associated with increases in perceived psychological control (Luyckx et al. 2007). The longitudinal data available in the current study enable us to examine associations between parent and child behavior over time as well as the direction of effects.

The role of behavioral control in the development of self regulation and psychological flexibility remains unclear, with inconsistent findings. Research by Finkenauer et al. (2005) and by Moilanen et al. (2010) suggests behavioral control may not be not an important contributor. However, other studies have shown that authoritative parenting, which combines behavioral control with warmth, continues to benefit young people in later adolescence and emerging adulthood (Heaven and Ciarrochi 2008b; Liem et al. 2010; Nelson et al. 2011). In summary, the low warmth and intrusive control characteristic of authoritarian parenting have been linked with maladaptive self regulation. Moreover, there is reason to believe that behavioral control, when combined with warmth in authoritative parenting, may promote the development of psychological flexibility. The contribution of permissive parenting, which combines low psychological and behavioral control with high warmth, is yet to be tested in relationship to psychological flexibility.

Importance of the Adolescent's Gender

One child characteristic that may affect both parenting and self regulation is gender. Parents may socialize boys and girls differently, with different outcomes for later self control. Autocratic, intrusive parenting in childhood was linked with excessive self control in young women, but inadequate self control in young men (Kremen and Block 1998). In contrast, both men and women who had more moderate, healthy levels of ego control in young adulthood had parents who were responsive and democratic. Findings are mixed, however; other studies (e.g., Finkenauer et al. 2005) have found no gender differences in the relationship between parenting and self regulation. To explore this question, gender will be included as a covariate in the present study.

Changes in Parenting Over Time

To our knowledge, there have been no previous longitudinal studies reporting systematic change in parenting styles over time. Adaptation by parents to the changing developmental needs of their adolescent children is likely to promote optimal competence and well-being (Baumrind 1991; Eccles et al. 1993). In particular, relaxation of parental authority, while maintaining warm involvement, has been linked to enhanced self esteem and school motivation (Eccles et al. 1993). There is cross-sectional evidence that parents engage in less rule-setting and monitoring with older adolescents than with younger adolescents (Bulcroft et al. 1996). In another cross-sectional study, Smetana (1995) found that authoritative parenting was more frequent for children in the sixth and eighth grades than for children in tenth grade, while authoritarian parenting was more common in the families of older children. This is in contrast to findings that parents and adolescents judge that fewer issues fall legitimately within the realm of parental authority for older, compared with younger, adolescents (Smetana and Daddis 2002). In addition, a recent longitudinal study showed that adolescents' autonomy for decision making, as reported by adolescents and their mothers, increased between ages 13 and 18 (Smetana et al. 2004). However, not all parents "loosen the reins" and this may be unhelpful to the child. One of the major challenges for parents of adolescents is to strike the right balance between continued supervision and meeting their child's need for increasing autonomy (Eccles et al. 1993; Morris et al. 2007). Parents who react to adolescent strivings for greater freedom by exerting greater psychological control may inhibit the development of psychological flexibility.

Present Study

The current study examined the longitudinal relationships between perceived parenting style and psychological flexibility among students at five Australian high schools over a 6-year period, from their first to their final year of secondary education. Students reported on their own psychological flexibility and on their perceptions of their parents' approaches to discipline and authority. Many recent studies have relied on self-report by parents and/or children's views of their parents' typical behaviors. Several writers have emphasised the value of measuring children's and

adolescents' subjective experiences of parenting as these internal representations of nurturing, support and supervision are what ultimately motivate the child's emotional states and behaviors (Barber 1996; Gray and Steinberg 1999; Liem et al. 2010). Self-report is currently the only established method for measuring the emerging construct of psychological flexibility (Gloster et al. 2011).

Multi-level modelling was used to test hypotheses regarding trajectories of psychological flexibility in the sample, links between parenting style and psychological flexibility, and associations between changes in parenting and changes in psychological flexibility. Three types of parenting behaviours were measured: authoritarian, authoritative and permissive. However, rather than classifying parents into one of the three "types" defined by Baumrind (1971, cited in Baumrind 1991), our analyses used the continuous scores for each style of behaviour. This approach acknowledges that parents adopt practices from more than one parenting style and may change and combine different practices according to context (Grusec et al. 2000). Previous research has found parenting variables to be interrelated: warmth correlated positively with behavioral control, and both warmth and behavioral control correlated negatively with psychological control (Finkenauer et al. 2005).

Our study will test four hypotheses regarding relationships between parenting styles and psychological flexibility. First, we expect that high scores for authoritarian parenting, with its emphasis on psychologically controlling discipline and low warmth, will be associated with low levels of psychological flexibility among adolescents. Second, high scores for authoritative parenting, which is accepting, responsive and allows flexible discussion of rules, will be associated with higher levels of psychological flexibility. Third, as children mature, they will rate their parents as less authoritarian, less authoritative and more permissive. Based on the balance of previous findings, we would expect that parental monitoring and supervision in our sample will reduce, on average, over time, bringing scores for authoritarian and authoritative parenting down, while scores for permissive parenting will increase as parents are perceived to relax authority while retaining involvement and responsiveness. Fourth, we would expect to find increases in authoritarian parenting and decreases in authoritative and permissive parenting to be associated with lower adolescent psychological flexibility in the later years of high school. Given that we collected 4 years of data on psychological flexibility, we will explore the extent to which adolescents changed in this construct across the years. We will also examine individual differences in change trajectories and the possibility of reciprocal relations between change in psychological flexibility and parenting practices.

Method

Participants

Participants were students at 5 high schools from a Catholic Diocese of New South Wales, Australia. Catholic schools in Australia are government-subsidised, charge low fees, and accept a proportion of students from other (generally Christian) faiths. The Diocese is centred on a regional city with a population of approximately 250,000 and includes small coastal towns, rural districts and outer suburbs of Sydney. Thus, participants were drawn from a large area with a diverse cultural and socio-economic mix. Comparisons with national statistics indicated that our participants resembled the broader Australian population on demographic characteristics such as fathers' occupation, English as a second language, and percentage of intact families (see Heaven and Ciarrochi 2007, 2008a). Data were collected from participants each year for the 6 years of their secondary education.

The study began with 749 students (50.3% female, age range 11–14 years, mean 12.39 years, SD = .51) in 2003, when students were in their first year of high school, Grade 7. The number of students present each year was as follows: Grade 8, 792; Grade 9, 786; Grade 10, 778; Grade 11, 565; Grade 12, 468. Numbers dropped sharply in Grades 11 and 12 due to students leaving secondary education. This is consistent with national figures which show that one in four students who started high school in NSW Catholic colleges in 2003 left before completing Grade 12 (Australian Bureau of Statistics 2011). Other reasons for missing data were absences from school on the day of testing, conflicting school events such as sport or rehearsals, and students moving into or out of the school district. A total of 259 students provided data in all five waves of the current study.

There were very few refusals by students; generally less than 2–4% of the student body in any given year (for further details on the sample, contact the second author). Those who completed the questionnaire in Grade 12 were more likely than non-completers to report authoritative parenting in Grade 7, means (and standard deviations) 3.62 (0.66) and 3.51 (0.61) respectively, $t(747) = 2.33$, $p < .05$. Completers did not differ from non-completers on Grade 7 permissive parenting: completers, 2.67 (0.60), non-completers, 2.68, (0.61), $t(747) = -.303$, $p > .05$; or authoritarian parenting: completers, 2.96 (0.73), non-completers, 2.95 (0.68), $t(747) = 0.10$, $p > .05$.

Procedure

Students were invited to participate in a survey of "Youth Issues". Consent was obtained from schools, parents and

students for each year of the study, and study methods and questionnaires were approved by the university ethics committee and the Catholic Schools Authority. Researchers visited each school to administer the questionnaires, which students completed without discussion, while supervised either by one of the researchers or a teacher. Students were then fully debriefed. A unique code was created for each student to enable matching of data across years, and data were de-identified to ensure confidentiality.

Materials

Psychological Flexibility

The Avoidance and Fusion Questionnaire for Youth (AFQ-Y; Greco et al. 2008) measures psychological inflexibility. For our study, scores were reversed to provide a measure of psychological flexibility. Participants are asked to rate their agreement with each of 17 items on a 5-point scale from 0 (*not at all true*) to 4 (*very true*). Sample items are: "I must get rid of my worries and fears so I can have a good life", "I can't be a good friend when I feel upset", and "I stop doing things that are important to me whenever I feel bad". The AFQ-Y was developed and validated in 5 studies using high school-based samples and was found to correlate as expected with conceptually overlapping processes (e.g., thought suppression, mindfulness) and clinically relevant indicators (e.g., symptoms of anxiety, somatisation, behavior problems, social skills). Excellent internal consistency reliability ($\alpha = .90$), medium to high item-total correlations (.47–.67) and consistent medium to high standardised loadings on a one-factor CFA model (.50–.71) were reported for this scale (Greco et al. 2008). In our sample, Cronbach's alpha reliability coefficients were: Grade 9, 0.87; Grade 10, 0.89; Grade 11, 0.89. Rasch modelling showed that the AFQ-Y targets the upper end of the school distribution, identifying children with lower than average levels of psychological flexibility (Greco et al. 2008). The AFQ-Y was adapted, for use with children and young people, from the Acceptance and Action Questionnaire (AAQ; Hayes et al. 2004). Recent psychometric research on the latest version, the AAQ-II, demonstrated that this questionnaire measured a single underlying factor which reflected the higher level construct of psychological flexibility (Gloster et al. 2011). As expected, psychological flexibility as measured by the AAQ-II was negatively correlated with measures of psychopathology and was uncorrelated with age, sex and other non-psychological variables.

Parenting Styles

The *Parental Authority Questionnaire* (PAQ; Buri 1991) is widely used to measure Baumrind's (1971, cited in Baumrind 1991) typology of authoritative, authoritarian and permissive parenting styles. Items were originally included in the questionnaire if judged by independent raters to represent and distinguish between these prototypes (Buri 1991). The items assess parental authority and discipline behaviours from the perspective of sons and daughters. A shortened version of the PAQ was created by randomly selecting 15 of the 30 items, five each for the authoritative, authoritarian and permissive styles. The language was slightly modified to suit 12-year-olds. This version has been used in previous studies of Australian adolescents (contact second author for details). Sample items are, "There are certain rules in our family and my mother discusses with us the need for those rules" (authoritative), "My mother does not let me question her decisions" (authoritarian), "My mother lets me get my own way" (permissive). Participants assessed maternal and paternal behaviours on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). As indicated above, scores were used as three continuous variables rather than to categorise parents into one global parenting style.

Previous studies with this short measure have demonstrated its reliability and validity (contact second author for details). Principal axis factoring of the data for Grade 7 (reported in previous studies) revealed three factors for mothers and fathers loading as expected on the three parenting styles. As in previous studies, we found that perceptions of parenting by mothers and fathers were correlated. For example, mother and father authoritarian correlated .63. (Grade 7) and .41 (Grade 12), and mother and father authoritative correlated .57 (Grade 7) and .48 (Grade 12). The mother and father variables also did not differ in how they predicted psychological flexibility. Parenting styles for mothers and fathers were therefore combined for all further analyses; Cronbach's alpha coefficients for Grades 7 and 12 were .72 and .79 for permissive, .80 and .79 for authoritarian, and .76 and .80 for authoritative.

Multilevel Analysis Plan

The data constituted a multilevel structure in which we treated yearly observations of psychological flexibility as nested within participants. The multilevel model of change, or growth curve modelling, is a powerful method for analysing longitudinal data (Cillessen and Borch 2006; Duncan et al. 2006; Nezlek 2001; Singer and Willett 2003). One of the strengths of multilevel modelling is its ability to handle unbalanced data and missing values. Missing data occur frequently in longitudinal research in schools. An advantage of the multilevel model of changes is that even if individuals vary in the number of time points to which they

contributed data, participant analysis is possible (Singer and Willett 2003).

The outcome variable in multilevel analyses was psychological flexibility. This variable changes over time and was measured from Grades 9 to 12. Time is a predictor measured by measurement wave number, with each measurement wave being separated by a year. In addition to examining the linear effect of time on psychological flexibility, we examined higher order effects to test for non-linear change. Specifically, we examined linear and quadratic effects of time on psychological flexibility. Other predictors in the model included parenting styles at Grades 7 and 12 and gender. All variables were covariates for all others. In order to evaluate whether a variable was significant, we compared the fit of the model (IGLS deviance) with and without the variable and used Chi-square to test whether this difference was significant (Rashbash et al. 2004).

Missing Value Analysis

We examined means based on only those who completed all waves (completers) versus estimates based on the full sample (Expectation Maximum Likelihood). There was little difference in the parental style means between completers and the means obtained from the whole sample. Grade 12 authoritative, authoritarian and permissive mean scores were respectively .709, .706, and .619 for completers and .693 .676, and .600 for the full sample, respectively. Grade 7 authoritative, authoritarian and permissive mean scores were .666, .741, and .593 for completers and .642, .707, and .604 for the full sample, respectively. Grade 9–12 inflexibility scores tended to be slightly lower for completers (.668, .724, .730, and .736) than for the full sample (.683, .725, .744, and .774).

Results

Preliminary Analyses

Table 1 presents the descriptive statistics by gender. There were no gender-related differences in the link between perceived parenting style and psychological flexibility, and therefore we will discuss effects both within gender (reported in Table 1) and in the total sample (reported below). Higher perceived authoritarian parenting style was generally associated with lower psychological flexibility when authoritarianism was measured in Grade 7 (overall sample: $r_9 = .20$; $r_{10} = .12$; $r_{11} = .18$; r_{12} = not significant) and in Grade 12 ($r_9 = .24$; $r_{10} = .21$; $r_{11} = .18$; $r_{12} = .18$). Perceived authoritative parenting was associated with higher psychological flexibility when authoritativeness was measured in Grade 12 ($r_9 = -.20$; $r_{10} = -.17$; $r_{11} = -.13$; $r_{12} = -.17$) but not when authoritativeness was measured in Grade 7 (r_9 = NS; r_{10} = NS; $r_{11} = -.09$; r_{12} = NS). There was little reliable link between permissive parenting and psychological flexibility (the *r*s based on overall sample were all non-significant).

Table 1 The cross-sectional and longitudinal relationship (Pearson r) between parenting style and psychological flexibility

	Authoritarian		Authoritative		Permissive		Psychological flexibility			
	G7	G12	G7	G12	G7	G12	G9	G10	G11	G12
Parenting style										
1 Authoritarian style Grade 7	1.00	.32**	.30**	.05	−.22**	−.13	−.19**	−.11	−.17*	−.08
2. Authoritarian style Grade 12	.31**	1.00	.08	.03	−.06	−.22**	−.15*	−.19**	−.14	−.16*
3. Authoritative style Grade 7	.14**	−.09	1.00	.38**	−.12*	−.10	−.01	.07	.14	.02
4. Authoritative style Grade 12	−.09	−.14*	.29**	1.00	.00	.03	.13	.12	.18*	.23**
5. Permissive style Grade 7	−.18**	−.15*	−.02	−.03	1.00	.26**	−.07	−.15**	−.10	.02
6. Permissive style Grade 12	−.09	−.41**	−.08	.12	.28**	1.00	−.17*	−.10	.00	−.09
Psychological flexibility										
7. Grade 9	−.21**	−.31**	.03	.27**	.12*	.09	1.00	.52**	.50**	.57**
8. Grade 10	−.13*	−.22**	.03	.21**	.10	.03	.60**	1.00	.59**	.50**
9. Grade 11	−.18**	−.21**	.05	.07	.17**	.04	.54**	.63**	1.00	.53**
10. Grade 12	−.11	−.19**	.06	.11	.05	−.04	.51**	.56**	.62**	1.00
Descriptives										
Means for boys	2.99	2.90	3.51	3.37	2.71	2.86	1.09	1.14	1.23	1.16
Means for girls	2.92	2.80	3.62	3.50	2.64	2.73	1.10	1.10	1.22	1.20

Boys are above diagonal; girls below

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

Table 1 also illustrates that perceived parenting style had only modest stability across time (*r*s between .25 and .35), whereas psychological flexibility showed moderate stability (*r*s from .50 to .65). There were modest relationships between different parenting styles both within and between years, indicating that parents could be rated as displaying multiple parenting styles (e.g., both authoritative and permissive). That is, being high in one parenting style did not strongly predict being low or high in another parenting style.

Mean scores for parenting styles and psychological flexibility are presented in Table 1. ANOVAS revealed no significant sex differences in perceived parenting style or psychological flexibility. Repeated measure ANOVAs showed that parents were perceived as becoming significantly more permissive, and less authoritative and authoritarian, all $Fs > 5.4$, $ps < .05$ (see bottom of Table 1). There were no significant interactions involving gender, indicating that parenting style changes were similar for males and females. Change analysis involving psychological flexibility is reported below.

Multi-Level Modelling of Change in Psychological Flexibility

We tested a series of models of increasing complexity using *MLwiN* (Rashbash et al. 2004). The simplest, the *unconditional mean model*, estimates the amount of between- and within-person variance in flexibility. Both the between ($\sigma^2_u = .287$, SE = .018) and within-person ($\sigma^2_e = .241$, SE = .008) variance were significantly different from zero, with the interclass correlation of .54 (.287/.528) indicating that 54% of the variance occurred between persons with 46% occurring within persons. We next assessed the *unconditional growth model*, which estimates within-person status and rate of change when there are no other predictors in the model.

To facilitate interpretation of parameters, time was centred so that zero represented the first point at which we measured psychological flexibility (Grade 9). The intercept ($B_0 = 1.1$) in this model indicates the average *in*flexibility value in Grade 9. There was a significant linear effect of time on psychological flexibility ($B = .041$; $\chi^2(1) = 17$, $p < .001$), but no significant quadratic effect, $p > .10$. The positive coefficient indicates that psychological flexibility generally decreased from Grade 9 to 12. In order to evaluate whether the linear psychological flexibility trajectories varied within individuals, we compared the fit of the model that assumed a random slope with one that assumed the fixed slope. The model that assumed a fixed slope had a deviation of 4,913.97. The random slope model significantly improved fit (deviation = 4,898.884, $\chi^2_{diff} = 15.09$, $df = 2$; $p < .01$), suggesting that adolescents varied in the extent to which they decreased in flexibility. To get an estimate of the size of the variation, we examined slope variance (.008) and standard deviation (.089) and generated confidence intervals around the average slope (.041). About 95% of students had slopes between −.137 (−2 SD) and .219 (+2 SD). Thus, while most adolescents were decreasing in psychological flexibility across the years, some adolescents did not change, and some became more flexible.

The next model added gender, which was not significant ($B = -.007$, SE = .041). The penultimate model involved adding the parenting variables into the equation simultaneously and examining the improvement in fit (an omnibus test). We added six variables, which involved three types of parenting style (authoritative, authoritarian, and permissive) and two time points (Grades 7 and 12). Parenting style had a highly reliable effect on psychological flexibility (deviation = 2,487; $\chi^2_{diff} = 2{,}406.806$, $df = 6$; $p < .001$). We found that perceived authoritarian parenting had a significant negative link with psychological flexibility in Grade 7 ($B = .109$, SE = .043) and Grade 12 ($B = .177$, SE = .045), and authoritative parenting had a significant positive link with psychological flexibility in Grade 12 ($B = -.154$, SE = .043).

Because all variables act as covariates in the model, the Grade 12 scores indicate residual change from baseline (as Grade 7 was covaried). Thus, increases in perceived authoritarian parenting were associated with lower psychological flexibility, and increases in perceived authoritative parenting were associated with higher psychological flexibility. In addition, higher perceived authoritarian parenting in Grade 7 predicted lower psychological flexibility in Grades 9 through 12. The final multi-level analyses tested interactions between our Grade 7 parenting measures and time and found no significant interactions, all $ps > .05$.

Our final analyses involved a panel design that was designed to assess the possibility of reciprocal influence between parenting style and student psychological flexibility. Structural equation modelling utilized the earliest available measures of psychological flexibility (Grade 9) and parenting style (Grade 7) to predict the latest measures of these constructs (Grade 12). Parenting style in Grade 7 predicted parenting style in Grade 12 (autocorrelation), psychological flexibility in Grade 12, and psychological flexibility in Grade 9. Psychological flexibility in Grade 9 predicted psychological flexibility in Grade 12 (autocorrelation) and parenting in Grade 12. The Grade 12 disturbances were correlated making the SEM models just-identified. Two models were tested using the previously significant parenting styles, authoritative and authoritarian.

The SEM revealed that adolescents who experienced authoritarian parenting in Grade 7 were less psychologically flexible than peers in Grade 9 ($\beta = -.21$, $p < .001$), and Grade 9 inflexibility predicted increasing authoritarian parenting by Grade 12 ($\beta = -.17$, $p < .001$), controlling for baseline parenting. There was no significant direct effect from Grade 7 authoritarian parenting to Grade 12 psychological flexibility. Higher psychological flexibility in Grade 9 predicted increasing authoritative parenting in Grade 12 ($\beta = .19$, $p < .001$), controlling for baseline. There were no direct effects of Grade 7 authoritative parenting on Grade 12 psychological flexibility.

Discussion

In the current study, we examined longitudinal links between parenting styles and psychological flexibility among adolescents. Relationships with parents provide an essential foundation for development. Warm, involved and democratic parenting fosters empathy and self regulation (e.g., Padilla-Walker and Christensen 2010) whereas psychologically controlling parenting impairs self regulation and adjustment (e.g., McEwen and Flouri 2009; Manzeske and Stright 2009). Psychological flexibility describes the way in which an individual experiences private and external events such as thoughts, emotions, symptoms or social situations, and their ability to choose a response that best serves their goals (Gloster et al. 2011). It is a broad construct that encompasses, and extends beyond, self regulation. The development of a psychologically flexible approach is proposed to promote mental health and protect against psychopathology (Hayes et al. 2006; Kashdan and Rottenberg 2010). While the self regulation literature offers some insight into how psychological flexibility might develop, the current study is one of the first to look specifically at this construct in relationship to parenting practices.

Our hypotheses that authoritarian parenting would be associated with lower psychological flexibility, while authoritative parenting would be associated with higher psychological flexibility, were largely supported by the data. The hypotheses that parenting styles would change on average over time, and that those changes would be linked to psychological flexibility in the final year of high school, were also supported. We found that psychological flexibility decreased, on average, with age.

Parenting Styles and Psychological Flexibility

As hypothesised, authoritarian parenting in Grade 7 was correlated negatively with psychological flexibility in Grades 9, 10 and 11 (but not Grade 12), while authoritarian parenting in Grade 12 was correlated negatively with psychological flexibility in Grades 9–12 inclusive. Multi-level modelling confirmed that higher levels of authoritarian parenting in Grade 7 predicted lower psychological flexibility among students in Grades 9–12. The hypothesis that perceptions of authoritative parenting would be associated with greater psychological flexibility was partially supported. Authoritative parenting in Grade 12 was correlated positively with psychological flexibility in Grades 9–12; however, authoritative parenting in Grade 7 was not correlated with psychological flexibility in most school years, with the exception of a small positive correlation in Grade 11. Correlations of psychological flexibility with level of permissiveness at Grade 7 or Grade 12 were small and mostly non-significant.

In our study, adolescents who reported dictatorial, cold, intrusive parenting in their first year of secondary education were more likely to report low psychological flexibility in later years. Perceived warm, democratic parenting was associated with greater psychological flexibility. These findings are generally consistent with previous research on the component processes of psychological flexibility, particularly studies of the contribution of parenting to the development of self regulation. The lack of gender-specific effects of parenting on psychological flexibility is consistent with earlier studies of self regulation (e.g., Finkenauer et al. 2005). Our findings echo those from a recent cross-sectional study of Australian children, in which low care and intrusive, overprotective parenting were linked with emotion suppression (Jaffe et al. 2010). Psychological control by fathers (McEwen and Flouri 2009) and mothers (Manzeske and Stright 2009) has been associated concurrently with poor emotion regulation in high-school students and emerging adults respectively. Similarly, thought suppression and avoidant coping were more prevalent among young adults who recalled their parents' punishing and minimising reactions to emotional expression (Krause et al. 2003). Our study extends earlier research on emotion regulation and parenting to cover the high school years. It provides longitudinal evidence that perceived psychologically controlling behavior by parents impairs the development of psychological flexibility among adolescents.

Both authoritative and authoritarian parenting styles provide high levels of monitoring and supervision, but what distinguishes the latter is its lack of warmth and high levels of psychological control (Baumrind 1991; Gray and Steinberg 1999). This combination of low care and overprotection is problematic: parents need to allow children some autonomy in emotionally charged situations so that they can practise and master their own regulation of emotions (Jaffe et al. 2010). Critical or invalidating responses by parents to children's emotional expression focus the child's attention on pleasing (or not displeasing)

the parent rather than on awareness of their own internal states, their environment, and the consequences of their actions. Such parenting is likely to hinder the development of more adaptive regulatory strategies and limit psychological flexibility (Rosenthal et al. 2006). In contrast, sensitive, problem-solving approaches help the child learn how to self-soothe physiological arousal (Gottman et al. 1996) and thus to respond to internal states and environmental demands in a psychologically flexible way.

Perceived permissive parenting appeared to be neutral with respect to psychological flexibility, suggesting that it neither promoted nor impaired the development of self regulation in adolescents. Concurrent links have been demonstrated between self regulation and parental warmth, either in combination with low psychological control (Finkenauer et al. 2005; Moilanen 2007) or alone (Padilla-Walker and Christensen 2010). Baumrind (1991) found that adolescents from more democratic (i.e., permissive) homes were as competent as those from authoritative homes, although they had a higher risk of involvement in risky behavior such as drug taking. She concluded that adolescent development was "… held back by authoritarian, officious, or nondirective and disengaged practices, and facilitated by reciprocal, balanced, committed caregiving characteristic of both authoritative and democratic parents" (Baumrind 1991, p. 91). Other researchers have suggested that the absence of intrusive control, rather than the presence of warmth, may be the key to promoting improvements in self regulation over time (Moilanen et al. 2010). In their discussion of the variety of domains in which parents operate to socialize their children, Grusec and Davidov (2010) suggested that behaviors in the "control domain" would be influenced primarily by parent control and discipline, rather than by warmth. Our findings appear to support this domain-specific approach to socialization. Warm, responsive parenting may make children more receptive to parental discipline, but where discipline is lacking, as in permissive parenting, warmth alone does not benefit psychological flexibility.

Changes in Perceived Parenting Over Time

As hypothesized, perceived parenting on average became more permissive (democratic) with time, while levels of authoritative and authoritarian parenting decreased. As far as we are aware, this is a novel finding. It is, however, consistent with cross-sectional evidence that parents provide greater independence and less monitoring and rule-setting to older, compared with younger, adolescents (Bulcroft et al. 1996) and with studies by Smetana and colleagues on adolescents' and parents' judgments on the legitimacy of parental authority and how these vary with the age of the adolescent. For example, mother-reported monitoring and psychological control decreases longitudinally with the age of the child (Smetana and Daddis 2002; Smetana et al. 2004). As adolescents mature, both they and their parents expand the range of issues deemed to be outside the sphere of legitimate parental authority (Cumsille et al. 2009).

We are aware of only one other study to look specifically at parenting styles and age during adolescence. This was a cross-sectional study, which found that parenting styles differed for children in sixth, eighth and tenth grades (Smetana 1995). Authoritative parenting was less prevalent in the older group; similarly, we found that perceived authoritativeness decreased, on average, with age of adolescent. Authoritarian parenting was, however, more prevalent in the older group, contrary to our finding of decreasing levels of authoritarianism over time. Both studies used the PAQ (Buri 1991) to measure parenting styles, but differences in scoring methods and cohort differences in the earlier study (Smetana 1995) may have contributed to the different findings.

On average, parents in our sample relaxed their monitoring and control over time, but these mean scores mask differences in individual trajectories of change. Adolescents vary in their perceptions about parental authority, and in the timing of transitions in taking on greater personal control of decisions (Cumsille et al. 2009). Further, some parents overreact to adolescents' strivings for greater autonomy by setting and enforcing more rules and exerting more psychological control (Kakihara et al. 2010; van den Akker et al. 2010). Indeed, these parental strategies may compound as older teenagers tend to experience excessive monitoring (i.e., behavioral control) as *psychologically* controlling (Kakihara et al. 2010; Smetana and Daddis 2002). Thus, older adolescents whose parents continue or increase behavioral control may perceive this as escalating authoritarianism. Further research is required with other samples to confirm whether the increase in permissiveness we observed in our sample is normative.

Increasing Control, Decreasing Flexibility

The hypothesis that perceptions of increasingly authoritarian, decreasingly authoritative, parenting from Grades 7 to 12 would be associated with less psychological flexibility in Grade 12 was supported. Students who reported increases in authoritarian parenting were less flexible than peers, while those who reported increases in authoritative parenting tended to be more flexible than peers. To our knowledge, this is the first study to demonstrate links between negative changes in parenting style (i.e., less warmth and more psychological control over time) and maladaptive self regulation in later adolescence. We were also able to show that providing greater warmth

and autonomy support as the child matures is associated with more psychological flexibility among those in their final year of high school.

Our findings support the view that good parenting involves gradually providing greater freedom to children to match their developmental needs, while maintaining close, caring involvement (Baumrind 1991; Eccles et al. 1993). A balance of warmth and structure without intrusiveness is especially important for the well-being of adolescents, who are testing limits but still need support and acceptance (Liem et al. 2010). Our study extends previous research by showing that authoritarian parenting is longitudinally related to reduced psychological flexibility among older adolescents. This outcome is of interest because of its association with psychological distress in emerging adulthood (Krause et al. 2003; Kashdan et al. 2006; Rosenthal et al. 2006) and beyond (Kashdan and Rottenberg 2010).

Psychological flexibility among high school students was reasonably stable over time, with medium to large longitudinal correlations (rs = .50–.65). On average, flexibility decreased with age in a linear fashion, although trajectories varied among individuals. Psychological inflexibility may increase as adolescents learn what is expected of them. In many contexts the culturally appropriate response to an unwanted thought or feeling is to "get rid of it" (Blackledge and Hayes 2001, p. 244). Repeated efforts to change, avoid or suppress unpleasant experiences, reinforced by parents and other influential figures such as teachers, would tend to strengthen this type of response. Our finding apparently documents this process among a normal population of high school students; however, this is one of the first studies to present longitudinal data on psychological flexibility and replications are required.

Our study found evidence that adolescents' psychological flexibility predicted changes in perceived parenting. Adolescents who were more inflexible in Grade 9 reported increased authoritarian parenting in Grade 12, while those more flexible in Grade 9 reported increased authoritative parenting in Grade 12. This finding offers some support to Bell's (1968) contention that intrusive control may, to some extent, be a response to children's characteristics, rather than a fixed parenting technique. It is consistent with earlier studies finding that parental psychological control apparently increased in response to maladaptive adolescent behaviors such as aggression and internalising (Albrecht et al. 2007) and prolonged, unfocused identity exploration (Luyckx et al. 2007).

Parenting style predicted future levels of psychological flexibility, but did not predict *change* in flexibility. Some previous studies of reciprocal relationships also have shown stronger child than parental effects prospectively (e.g., Stice and Barrera 1995). Indeed, findings in the area of reciprocal relations are mixed and it is possible that effects vary according to the nature of the behavior and the age of the child (Arim et al. 2011). It would be, for example, important in future research to examine the effects of parenting on change in flexibility among children in primary school (prior to the onset of our study).

Limitations and Future Directions

This study has produced some novel findings on longitudinal links between parenting styles and psychological flexibility; however, a number of limitations are acknowledged. Our measure of psychological flexibility relied on self reports by adolescents, who also reported on their subjective experience of parenting. The child's perspective provides useful insights (Barber 1996; Gray and Steinberg 1999; Buri 1991; Liem et al. 2010), but may not correspond to the parents' reports of their own beliefs and practices, particularly regarding monitoring (Hayes et al. 2003) and decision-making autonomy (Smetana et al. 2004). Children's characteristics, such as temperament, may bias assessment both of self regulation and of parenting (Jaffe et al. 2010) although parent reports of their own behavior and their child's self regulation may also be biased (Finkenauer et al. 2005). Our options for measuring psychological flexibility were restricted, due the novelty of this construct (Gloster et al. 2011). Our measure of parenting did not allow full separation of the dimensions of warmth, psychological control and behavioral control and we would recommend that future studies choose separate measures for these constructs to enable a clearer view of their relative contributions.

Neurobiological assessments or reports from parents and/or teachers could be incorporated into future studies to provide additional sources of data on psychological flexibility (Greco et al. 2008). It would also be desirable to include children's characteristics other than gender (e.g., temperament) as covariates, as the amount and nature of parental control required to modify a child's behavior and encourage self regulation is likely to vary according to such characteristics (Grusec and Goodnow 1994). In addition, our results require replication in diverse samples. There was a linear decrease in psychological flexibility, on average, in our sample; further work is needed to clarify whether this is a common pattern and whether it changes in adulthood. Replication with other populations is needed to establish whether increasing permissiveness is normative for parents of high school students and to what extent this change in parenting contributes to positive outcomes.

Conclusions

This study contributes to understanding psychological flexibility by using an alternative measure to the AAQ

(Hayes et al. 2004), on which many previous studies have relied (Greco et al. 2008). Psychological inflexibility is assumed to stem from the literal and evaluative use of language (Chawla and Ostafin 2007) and would therefore be expected to relate strongly to the social and verbal context in which a child is raised. We used a measure of psychological flexibility designed for children and adolescents, the AFQ-Y (Greco et al. 2008), and found that in general it correlated as expected with adolescents' subjective experience of parental warmth, psychological control and monitoring.

The current study addresses the need for longitudinal evidence on relationships between parenting and self regulation (Jaffe et al. 2010; Morris et al. 2007; Roth et al. 2009) and indicates that self-regulatory strategies continue to be shaped by perceived parenting beyond childhood and into late adolescence. It provides support for the hypothesis that psychological control and low warmth, characteristic of authoritarian parents, are associated longitudinally with the development of low psychological flexibility in adolescents, while authoritative parenting is associated with greater psychological flexibility. Further, increasing levels of authoritarian parenting over the course of secondary schooling are linked to low psychological flexibility in final-year high school students. Preliminary evidence of bidirectional effects also was found: adolescent psychological flexibility in Grade 9 predicted later parenting, controlling for baseline levels. This study highlights the role of parenting in the development of psychological flexibility, an emerging construct of research and clinical importance due to its associations with psychopathology in emerging adulthood and beyond.

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