



Does Parenting Moderate the Association Between Adverse Childhood Experiences and Adolescents' Future Orientation?

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Accepted: 10 February 2022
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Abstract

Adolescents who think and act towards the future are more likely to thrive. This future orientation may, however, be affected by adversity and the parenting they receive. The influence of cumulative adversity, and of parenting in the context of adversity, is yet to be explored. We investigated whether adolescents' future orientation is associated with experiences of singular and multiple types of adversity, and if parenting moderates these associations. Data from the Longitudinal Study of Australian Children K Cohort ($n = 1177$; 51.5% male; aged 16–17 years) were used to measure future orientation at age 16–17, the number of adversities experienced from age 4/5 to age 14/15 (parental separation and divorce, household substance use problem, household mental health condition, domestic violence), and parenting received at age 14/15 (warmth, hostility, communication, monitoring). Relationships and moderations were tested using stepwise moderated logistic regression analyses, controlling for demographic characteristics. Adolescents were at risk for low future orientation if they had experienced singular or multiple types of adversity, higher hostility, lower communication, and lower monitoring. We did not find a moderating effect of parenting. These results indicate that while young people are less likely to have future-related thoughts and actions if they have experienced singular or multiple types of adversity, their future orientation may be supported by effective parenting and non-hostile parent-adolescent relationships. Young people who experience both adversity and poor parenting may be at higher risk than others. Further investigation is warranted, to explore the causal relationships between adverse experiences, parenting, and future orientation.

Keywords Adolescence · Adverse childhood experiences · Future orientation · Parent-adolescent relationship · Parenting

Highlights

- Adverse childhood experiences (ACEs) are associated with greater risk for poor future orientation in adolescents.
- Adolescents who receive hostile parenting, or low levels of communication or monitoring, are at risk for poor future orientation.
- Parenting was not found to moderate the relationship between ACEs and future orientation.
- Adolescents across all levels of ACEs-exposure may benefit from effective parenting, to support their future orientation.

Supplementary information The online version contains supplementary material available at <https://doi.org/10.1007/s10826-022-02275-4>.

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Adolescents' thoughts, perceptions and actions regarding their future, termed 'future orientation', is associated with social, behavioural and emotional outcomes across the life course (Lindstrom Johnson et al., 2014). Adolescents who do not develop a healthy future orientation may be more likely to make short-term focused decisions, take risks, and fail to prepare for their transition into adulthood (Fischhoff, 2008; Steinberg, 2008). Such a focus on the present may place adolescents at increased risk for poor outcomes in domains such as interpartner violence victimisation (Mair et al., 2012), risk taking (Jackman, 2015; Polgar & Auslander, 2009), criminality (Craig, 2019), mental health problems, substance use, low educational attainment

(Guthrie et al., 2009; Polgar & Auslander, 2009), and low occupational status (Guthrie et al., 2009). These poor outcomes may affect young people during their adolescence and across their lifetime (Lindstrom Johnson et al., 2014).

A range of definitions have been used to define future orientation and have tended to emphasise different aspects of the construct, such as impulsivity, expectations about the future, perceptions of control over one's future, and tendency to think about the future (Lindstrom Johnson et al., 2014; Steinberg et al., 2009). Lindstrom Johnson et al. (2014) developed a conceptual framework that defines future orientation as comprising three components: planning, expectations and aspirations, that influence behaviours and the transition to adulthood. The Lindstrom Johnson et al. (2014) model embeds future orientation within an ecological system of factors relating to the individual, their social context, and their experiences. While the evidence around future orientation is still developing, empirical evidence has identified a range of factors that may influence adolescents' development of thoughts and actions about the future. These include individual-level factors such as physiological maturation (Steinberg et al., 2009), gender (Seginer et al., 2004; Steinberg et al., 2009), ethnicity (Guthrie et al., 2009; Lindstrom Johnson et al., 2016; Nguyen et al., 2012), and self esteem (Yeung et al., 2019). Contextual factors that may support future orientation include parental educational attainment (Dubow et al., 2009), parental employment (Wheeler et al., 2014), interpersonal relationships with peers (Iovu, 2014), school climate (Lindstrom Johnson et al., 2016), and area socioeconomic status (Nguyen et al., 2012). In addition to these contextual factors, Johnson's model highlights the role of early experiences on adolescents' future orientation development. Early experiences of adversity are critical to consider, as they are common across the globe, and may be experienced by children and adolescents across a wide range of demographic contexts (Bellis et al., 2019). These may include large scale events such as natural and man-made disasters, wars and pandemics, as well as stressors within the home environment, such as maltreatment, dysfunction, and family breakdown (Wheaton et al., 1997). All kinds of adversity can have a broad impact on individuals' lives, however the types of adversity that are related to experiences in the family environment are particularly pervasive (Frewen et al., 2019).

Household adversities may set up a train of potential risk that can lead to significant impairments in health and wellbeing across the life course (Anda et al., 2006; Kentner et al., 2019). A key model used over the past twenty years to study the effects of adversity is the Adverse Childhood Experiences (ACEs) model, developed by Felitti and colleagues (1998; Dube et al., 2001). The original ACEs study identified ten types of adversity that had cumulative impacts on

health over the life course (Dube et al., 2001; Felitti et al., 1998). The ten ACEs include five kinds of maltreatment (physical, emotional, and sexual abuse; physical and emotional neglect), and five kinds of household dysfunction (having separated or divorced parents; domestic violence; and household mental health conditions, substance use problems, and incarceration). A large body of research has shown that the more types of adversity a young person experiences before age 18, the greater their risk for poor health and wellbeing across their lifetime (Asmussen et al., 2020; Bellis et al., 2019). An emerging area of this body of work indicates that ACEs are associated with elements of poor future orientation in adolescence, including having poor aspirations and expectations for the future (Craig, 2019) and high impulsivity (Mair et al., 2012). While the literature exploring the relationships between future orientation and adversity is limited, there is emerging evidence that future orientation may be a mechanism by which adversity contributes to poor outcomes across the life course (Mair et al., 2012). Adolescents who are able to develop a strong future orientation after adversity may, however, be protected from the deleterious effects of ACEs. For example, the Hamilton et al. (2015) study of the impact of emotional abuse in a sample of 259 children aged 12–13 years, found that adolescents with low future orientation were at risk for hopelessness and depression after experiencing emotional abuse. Conversely, adolescents who demonstrated a healthy future orientation (i.e., a strong tendency to think about the future, anticipate consequences and plan ahead) were found to have less risk for hopelessness and depression following the abuse (Hamilton et al., 2015).

Understanding more about the associations between future orientation and ACEs may therefore help to guide support for adolescents after experiencing adversity. Parenting may be an effective target for these supports, as parenting interventions are known to be effective in promoting adolescents' positive development (Burke et al., 2012; Burrus et al., 2012). In addition, adolescents' future orientation has been found to be supported by effective parenting characterised by warmth (Seginer et al., 2002), supportive communication (Seginer et al., 2002; Yeung et al., 2019), monitoring (Marotta & Voisin, 2020), autonomy granting (Seginer et al., 2004), and accessibility and responsivity (Germeijs & Verschueren, 2009; Yeung et al., 2019). In contrast, hostile parent-adolescent relationships and chaotic home environments may impede adolescents' future orientation development (Tucker et al., 2017). Positive parenting practices and higher quality parent-adolescent relationships may therefore help adolescents develop a strong future orientation, and avoid many poor outcomes across the life course. The protective role of parenting for adolescents' future orientation in the context of adversity is, however, yet to be explored.

The Current Study

Examining the supportive influence of parenting on future orientation in the context of ACEs may be valuable for guiding how we support families who have experienced adversity. While extant literature has demonstrated that adversity may negatively impact elements of future orientation; and that parenting may support future orientation, it is not yet known whether parenting moderates the impact that ACEs may have on young people's future orientation. Towards this goal, this paper investigates firstly, whether experiencing singular or multiple types of ACEs is associated with lower future orientation in Australian adolescents; and secondly, whether effective and ineffective parenting moderate that association. Five household dysfunction ACEs are included in the study, as captured in the Longitudinal Study of Australian Children. It was hypothesised that:

1. Adolescents who experienced ACEs will be at greater risk for having poor future orientation;
2. Risk for poor future orientation will be greater for adolescents with cumulative adversity, in comparison to those with singular adversities; and
3. The relationships between adversity and future orientation will be attenuated by effective parenting (warmth, communication, monitoring), and strengthened by ineffective parenting (hostility).

Method

Design

An existing Australian longitudinal dataset (the Longitudinal Study of Australian Children, LSAC) was used to investigate the three hypotheses. The LSAC is a major study that investigates the social, economic, and cultural factors that influence children/adolescents' wellbeing across the life course (Australian Institute of Family Studies, 2003). It is conducted by the Department of Social Services, Australian Bureau of Statistics and Australian Institute of Family Studies. Data for the LSAC has been collected bi-annually since 2004, via computer assisted personal interviews, self-complete questionnaires, and telephone interviews. Respondents include the reference children/adolescents, and their parents (denoted Parent 1, Parent 2, and Parent Living Elsewhere), carers, and teachers (Australian Institute of Family Studies, 2018).

Consent and Ethical Approval

Informed consent was obtained from all individual participants included in the study, by the administrators of the

Longitudinal Study of Australian Children. The study was granted an official waiver of ethical approval by a university human research ethics committee, as it uses non-identifiable secondary data and is of negligible risk (Clearance number 2017001553). All procedures involving human participants were in accordance the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Sample

The LSAC follows two cohorts of children. The two cohort samples were designed to be representative of the Australian population of children at the time of the first data collection (wave one), based on the state/territory and remoteness of their geographic area of residence. The B ('Baby') cohort ($N = 5107$) were aged 0–1 years at wave one, and the K ('Kindergarten') cohort ($N = 4983$) were aged 4–5 years at wave one. For details of the sampling frame and method, see the LSAC Technical Paper 1 (Soloff et al., 2005). As data on the B cohort's future orientation is not yet available at the time of writing, this paper utilises only the K cohort. The analytic dataset utilised for this paper therefore comprised all K cohort reference adolescents with wave 7 data ($n = 3089$, aged 16–17 years) who met three selection criteria. First, respondents were selected to include all adolescents who did not have missing observations for: the future orientation measure at wave 7, adversity measures in waves 1–6, parenting measures at wave 6, or demographic measures at wave 7 ($n = 1955$, 63.2% of wave 7 respondents). Second, due to the overwhelming majority (99%) of respondents having female (i.e., mother) "Parent 1" respondents, all respondents with non-female (i.e., father) "Parent 1" respondents ($n = 3$) were excluded from analysis, to make it clear that results pertain to mothers only. Third, in order to obtain a meaningful distinction between adolescents classified as "high" and "low" future orientation, the final analytic dataset included only adolescents who scored in the top quartile ($n = 649$, 54.9% of analytic dataset) or bottom quartile ($n = 533$, 45.1% of analytic dataset) of the future orientation measure.

The final analytic dataset comprised of 1177 adolescents aged 16- and 17-years old, living with their biological mothers across all states and territories of Australia. Adolescents in the sample resided in geographic areas of diverse socioeconomic status at approximately equal proportions. Most (88%) spoke English at home, were not Aboriginal or Torres Strait Islander (98%), and lived in major cities (64%). The gender split was approximately even (52% male, 48% female), and there were slightly more 16-year-olds than 17-year-olds (57% 16-years old, 43% 17-years old). Comparisons with the 2016 Australian Census of Population and Housing (Australian Bureau of Statistics

2016a) revealed small differences between the analytic sample and the Australian population of 16- to 17-year-olds, indicating the sample was broadly representative of the population (Table 1). Differences between these groups were less than 3.5% for categories of gender, area SES and state/territory of residence, and less than 7.5% across categories of age, Indigenous status, household language, and area remoteness. The adolescents' mothers (aged 34–63 years, $M = 47.35$, $SD = 4.83$) had higher educational attainment and more employment than the general Australian population of women of the same age who had ever had children (with differences between the groups ranging from 6 to 30%).

Measures

The measures used in this paper were sourced from the Longitudinal Study of Australian Children. The measures capture information on the adolescent's future orientation (at wave 7), experiences of adversity (in waves 1–6), parenting practices used by adolescents' mothers and the mother-adolescent relationship (at wave 6), and demographic characteristics (at wave 7).

Future orientation

Adolescents' future orientation was measured using the Future Outlook Inventory (FOI; Cauffman & Woolard, 1999). The FOI includes eight items focused on 'time perspective', that is, adolescents' tendency to think about the consequences of their actions, formulate plans, make decisions, and act according to those plans and decisions. This definition corresponds to the planning domain of the Lindstrom Johnson et al. (2014) model. The FOI has been validated with both low- and high-risk adolescent samples (Cauffman et al., 2007; Hartman et al., 2017). The FOI was previously found to have good reliability in a sample of U.S. 15-year-olds, $\alpha = 0.73$ (Butelo, 2016). The Cronbach's alpha in the current sample is 0.87.

Adversity

Of the ten adversities in the Adverse Childhood Experiences framework (Dube et al., 2001), the five household dysfunction-type adversities are captured in the LSAC dataset. These five adversities were measured at each of the six data collection waves: parental separation or divorce, household mental health condition, household problematic substance use, domestic violence, and household incarceration. As no respondent in the analytic dataset reported experiencing household incarceration, this adversity was not included in analyses. Adolescents were given a score of "1" for each type of adversity they had experienced in any

Table 1 Demographic Characteristics of the Sample with High, Medium and Low Future Orientation, and the Australian Population

	Sample		Australian population ^a
	<i>n</i>	%	%
Total	1177	100.0	N/A
Age			
16 years	669	56.8	50.0
17 years	508	43.2	50.0
Gender			
Male	606	51.5	51.2
Female	571	48.5	48.8
Mother educational attainment			
Less than Year 12	99	8.4	24.4
Year 12	86	7.3	13.9
More than Year 12	992	84.3	54.7
Mother employment status			
Employed	1032	87.7	68.7
Not employed	145	12.3	30.9
Language other than English	127	10.8	17.0
Aboriginal or Torres Strait Islander	28	2.4	4.8
Remoteness			
Major city	758	64.4	69.7
Not a major city	419	35.6	30.3
Area socioeconomic status			
Deciles 1 and 2	158	13.4	18.5
Deciles 3 and 4	218	18.5	18.5
Deciles 5 and 6	243	20.6	19.6
Deciles 7 and 8	257	21.9	20.9
Deciles 9 and 10	301	25.6	22.3
State/Territory of residence			
New South Wales	334	28.4	31.6
Queensland	262	22.3	20.9
Victoria	252	21.4	24.7
Western Australia	148	12.6	10.7
South Australia	84	7.1	7.2
Tasmania	47	4.0	2.3
Australian Capital Territory	43	3.7	1.6
Northern Territory	7	0.6	1.0

^aCensus of Population and Housing 2016 (Australian Bureau of Statistics, 2016a, 2016b). Refers to all enumerated persons aged 16–17 years, and all enumerated mothers aged 34–63

of the waves. Each type of adversity was counted only once per respondent. This method aligns with the original ACEs questionnaire (Felitti et al., 1998) and the larger body of ACEs research (e.g., Bellis et al., 2019), which count the number of types of adversity experienced, rather than the number of instances of adversity experienced. The scores were summed to give a total ACE score, representing the

number of types of adversity experienced between the ages of 4/5 and 14/15 years. In line with previous research showing the differential impact of singular vs multiple ACEs (Bellis et al., 2019), the ACE scores were grouped into three categories: no adversity, one type of adversity, and multiple types of adversity (i.e., 2–4 ACEs).

Adolescents were coded as experiencing parental separation or divorce if they had ever lived with only one biological parent, based on the household relationships reported by their mother. Domestic violence was coded as ‘present’ if a resident parent has reported that they ever “have arguments with your partner that end up with people pushing, hitting, kicking or shoving”. Household mental health condition was coded as ‘present’ where any of the following conditions were met: the adolescent’s mother had reported that a household member had used or needed adult mental health services in the past 12 months; a resident parent reported using an “adult mental health service” for their family; or any resident parent’s Kessler-6 (Kessler et al., 2003) scores indicated severe psychological distress (Australian Institute of Family Studies, 2012). Household problematic substance use was coded as ‘present’ for adolescents whose mothers reported that a household member had used drug or alcohol services or had an alcohol or drug problem in the past 12 months, or where a resident parent reported alcohol consumption levels considered “problematic” according to the 2002 National Health Medical & Research Council Australian Alcohol Guidelines (Australian Institute of Family Studies, 2020).

Parenting

Parenting was represented by three aspects of effective parenting (warmth, communication, monitoring) and one aspect of ineffective parenting (hostility) that have been previously linked to future orientation (Marotta & Voisin, 2020; Seginer et al., 2002; Tucker et al., 2017; Yeung et al., 2019), and are available in the LSAC dataset. The four aspects of parenting were measured using the LSAC parenting scales from the sixth wave of LSAC. These mother-report measures captured mothers’ parenting practices and mother-adolescent relationship experienced by the adolescent at age 14/15. They have been used across a range of literature utilising the LSAC dataset (National Centre for Longitudinal Data, 2021). The four scales together represent two key aspects of the parent-adolescent relationship (warmth, hostility), and two critical areas of parenting practices (communication, monitoring) that shape children’s development (Zubrick et al., 2014).

Warmth was measured with the LSAC Parental Warmth Scale. This 6-item scale is derived from the 9-item Child Rearing Questionnaire (Sanson, 1995), to provide a measure of parents’ positive emotions and affection towards

their children over the previous 6 months. Items included, “In the last six months how often did you have warm, close times together with this child?” Responses were given on a five-point Likert-type scale ranging from 1 (Never/Almost never) to 5 (Always/Almost always). Average subscale scores were used, whereby higher scores indicated more warmth. The Parental Warmth Scale was found to have excellent reliability in the total LSAC K cohort at age 10/11 years, with an H-index of scale reliability of $H = 0.95$ where scales with $H \geq 0.80$ are considered desirable (Zubrick et al., 2014). Internal consistency of the warmth scale in the current sample was high, with Cronbach’s alpha statistic $\alpha = 0.90$.

Hostility was measured with 4 items from the LSAC Angry Parenting Scale, as used by Rioseco et al. (2020). This scale was derived from the Ineffective/Hostile Parenting Scale developed for the Canadian National Longitudinal Study of Children and Youth (Statistics Canada, 2006). The items pertain to parents’ negative feelings and communications towards their children, e.g., “How often do you tell this child that he/she is bad or not as good as others?” Responses were given on a five-point Likert-scale ranging from 1 (All the time) to 5 (Never/Almost never). Scores were reverse-coded and averaged to provide an overall measure where a higher score indicated more hostility. The Angry Parenting Scale had good reliability in the total LSAC K cohort at age 10/11 years, $H = 0.81$ (Zubrick et al., 2014). In the current sample, internal consistency was acceptable, $\alpha = 0.70$.

Communication was measured with two items from the Parent Social Support Index that was developed for the Maryland Adolescent Development in Context Study (Wang & Eccles, 2012). The two parent-report items assess how often parents talk with their children about their life and their friends, e.g., “How often do your child and you talk about what is going on in his or her life?” Responses were given on a five-point Likert-type scale ranging from 1 (Never/Almost never) to 5 (Always/Almost always). Average scores were used to create a subscale score, where higher scores indicated more communication. In the current sample, the two communication items had an inter-item correlation of $R = 0.77$, a Cronbach’s alpha of 0.87, and a Spearman-Brown coefficient of .88, indicating good reliability.

Monitoring was measured using the 3-item LSAC Parental Monitoring Scale. This scale was developed by the LSAC team from the 6-item monitoring scale used in the Iowa Youth and Families Project 1989–1992 (Conger et al., 2011). It provides an indication of parents’ knowledge about their child’s activities and companions, using items such as, “In the course of a day, how often do you know where your child is?” Items were rated on a five-point Likert-type scale ranging from 1 (Always) to 5 (Never). For the current analysis, scores were reverse-coded, and an

average score was calculated, to provide a subscale where higher scores indicated more parental monitoring. In the current sample, the internal consistency measure was $\alpha = 0.64$.

Demographic characteristics

Demographic characteristics were measured when adolescents were 16/17 years old. These characteristics have previously been identified as significant predictors of adversity and/or future orientation (Australian Institute of Health and Welfare, 2017; Bellis et al., 2014; Bellis et al., 2014; Khampirat, 2020; McLoyd et al., 2011; O'Connor et al., 2020; Soares et al., 2016; Steinberg et al., 2009). They included the following characteristics of the adolescent, their mother, their household, and their geographic area of residence: adolescent's age, gender and Indigenous status; mother's educational attainment and employment status; household language and income; and area socio-economic status (SES; measured as national deciles of the Index of Relative Socio-economic Advantage and Disadvantage; Australian Bureau of Statistics, 2016b), and remoteness (measured using the Australian Statistical Geography Standard; Australian Bureau of Statistics, 2013). Mothers' age and state/territory of residence were additionally used to describe the sample.

Results

Descriptive Analysis

The distribution of responses on the future orientation, adversity and parenting measures were examined to describe the sample's characteristics, and identify issues of range restriction and departures from normality that may affect analyses.

Future orientation

As detailed in the measures section of this paper, respondents were split into groups depending on their score on the future orientation measure. Prior to refining the sample to include only respondents in the "high" or "low" future orientation groups, scores in the larger dataset ($n = 1952$) ranged from 1 to 32. The first quartile (the "low" group, $n = 533$) scores ranged from 1 to 19 ($Md = 17$, $M = 16.58$, $SD = 2.78$), and the fourth quartile (the "high" group, $n = 649$) scores ranged from 24 to 32 ($Md = 26$, $M = 26.31$, $SD = 2.31$). Only the respondents in these "low" and "high" future orientation groups were used in analyses. The distribution of future orientation scores across the groups are demonstrated in Fig. 1.

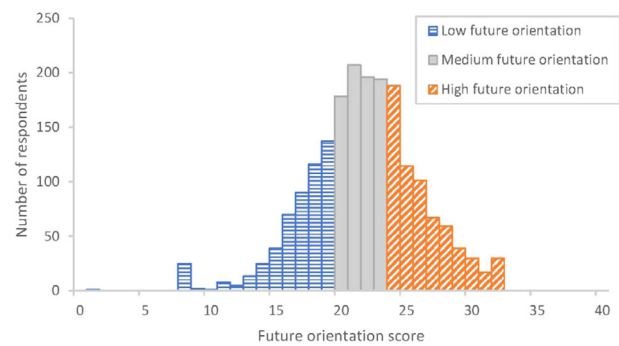


Fig. 1 Future Orientation Scores of Respondents in the Low, Medium and High Future Orientation Groups

Adversity

Less than one-third (28%, $n = 328$) of adolescents had not experienced any of the four measured adversities (i.e., parental separation/divorce, domestic violence, household mental health condition, household problematic substance use). An estimated 72% of adolescents ($n = 849$) had experienced adversity, with 40% ($n = 471$) experiencing one type of adversity, and 32% ($n = 378$) experiencing between 2 and 4 types of adversity. Household problematic substance use was the most common type of adversity, experienced by half (51%, $n = 597$) of the total sample, and by most of the adolescents who had experienced 1 ACE or 2–4 ACEs (59%, $n = 278$, and 84%, $n = 319$, respectively). Parental separation/divorce, household mental health condition, and domestic violence were each experienced by around one-fifth of all respondents ($ns = 272$, 257 and 230, respectively). Each of these adversities were experienced by 13–15% ($ns = 71$, 61 and 61, respectively) of the adolescents who had 1 ACE, and by 45–53% ($ns = 201$, 196 and 169, respectively) of adolescents who had 2–4 ACEs.

Parenting

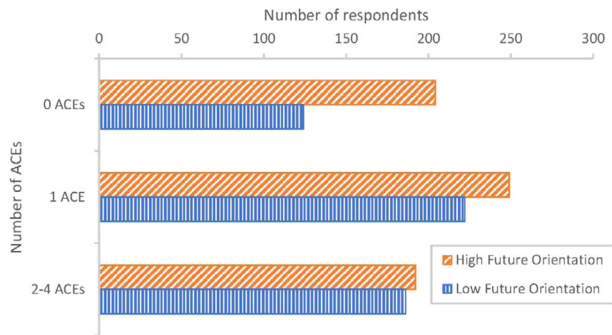
Scores on the parenting scales spanned almost the entire range of each scale (i.e., 1–5). Although scores were slightly skewed and kurtotic, values were within the acceptable range of -2 to $+2$, and thus not likely to cause substantial problems with analyses (George & Mallery, 2011). Adolescents' mothers tended to report high levels of warmth, communication and monitoring, and low levels of hostility. Descriptive statistics for the parenting scales are presented in Table 2.

Bivariate associations between future orientation and adversity, and other predictors

Bivariate associations between future orientation, adversity, parenting, and demographic characteristics were analysed to explore the relationships between the constructs, and identify shared variance that may influence the results and interpretation

Table 2 Descriptive Statistics of Scores on the Parenting Scales for the Analytic Sample

	Range	Median	IQR	Skew (SD)	Kurtosis (SD)
Warmth	1.67–5.00	4.00	3.67–4.67	−0.41 (0.07)	−0.31 (0.14)
Hostility	1.00–4.50	1.75	1.25–2.00	1.17 (0.07)	1.77 (0.14)
Communication	2.00–5.00	4.67	4.33–5.00	−1.00 (0.07)	1.78 (0.14)
Monitoring	1.50–5.00	4.00	4.00–5.00	−0.38 (0.07)	−0.15 (0.14)

**Fig. 2** Number of Respondents with High and Low Future Orientation, by the Number of Adversities Experienced

of coefficients from the multivariate analyses. Tests included the Pearson's Chi-Square test of independence, Cramer's V, Mann-Whitney U, Kruskal-Wallis one-way analysis of variance, and Spearman's rank correlation coefficient.

As displayed in Fig. 2, future orientation significantly differed across the levels of adversity, however the size of the overall difference was small. Bivariate associations (Table 3) indicated that high future orientation was weakly associated with being female. Adolescents with 0 ACEs were more likely to have high future orientation, while adolescents with 1 or 2–4 ACEs were roughly equally likely to have low or high future orientation. In comparison to parents of adolescents with high future orientation, parents of adolescents with low future orientation reported more hostility, and less monitoring and communication, $ps < .001$.

Bivariate associations indicated that adolescents with 1 or no ACEs were more likely to live in major cities and be non-Indigenous, while adolescents with 2–4 ACEs were more likely to live outside of major cities and be Indigenous. In addition, the more adversities an adolescent experienced, the less likely they were to live in a higher SES area or a higher income household. Mann-Whitney tests revealed the median (Md) household income was significantly higher for adolescents with no ACEs ($Md = \$3202.45$, $n = 328$) than with 1 ACE ($Md = \$2679.43$, $n = 471$), $U = 94.78$, $z = 3.88$, $p < 0.001$, $r = 0.14$; or with 2–4 ACEs ($Md = \$1934.21$, $n = 378$), $U = 265.92$, $z = 10.37$, $p < 0.001$, $r = 0.39$. The median household income was also significantly higher for adolescents with 1 ACE than with 2–4 ACEs, $U = 171.13$, $z = 7.29$, $p < 0.001$, $r = 0.25$.

Hostility and monitoring differed depending on experiences of adversity. The median value for hostility was

significantly higher for adolescents with 2–4 ACEs ($Md = 1.75$, $n = 378$) compared to those with 0 ACEs ($Md = 1.50$, $n = 328$), $U = 87.41$, $z = 3.44$, $p = 0.002$, $r = 0.13$. Adolescents with 0 ACEs ($Md = 4.67$, $n = 328$) had significantly higher levels of monitoring than adolescents with 1 ACE ($Md = 4.67$, $n = 471$), $U = 64.52$, $z = 2.73$, $p = 0.019$, $r = 0.10$; or with 2–4 ACEs ($Md = 4.33$, $n = 378$), $U = 111.08$, $z = 4.48$, $p > 0.001$, $r = 0.17$. Although the median monitoring values for adolescents with 0 ACEs and 1 ACE were the same ($Md = 4.67$), the significant Mann-Whitney test result indicates the distribution of the monitoring scores significantly differed for these two groups.

The results of the bivariate analyses indicate that none of the study variables were very strongly associated with one another, and thus do not pose a risk of multicollinearity. The variance shared between the variables supports the need for multivariate analysis, to enable the interrogation of the unique relationships between the key variables. Once the shared variance has been portioned out, the multivariate relationships between the key variables are likely to be smaller than the observed bivariate relationships. A summary of all bivariate associations is presented in Table 3.

Are Adolescents with ACEs at Greater Risk for Low Future Orientation?

Logistic regression was conducted to identify factors that contribute to the odds that an adolescent has low future orientation, rather than high future orientation. To obtain a meaningful distinction and strong discriminatory power between the 'low' and 'high' groups (Correia et al., 2018; Davidson, 2018), one group was comprised of the adolescents in the bottom 25% of future orientation scores, while the other included only the adolescents in the top 25% of future orientation scores. This provided the binary outcome for use in the logistic regression model. Two blocks of predictors were entered into the model. The first block comprised the control demographic variables: language, Indigenous status, area SES, remoteness, mother education, mother employment, mother age, household income, adolescent age, and adolescent gender. The second block included the measure of adversity, dummy coded to compare 0 ACEs to 1 ACE, and 0 ACEs to 2–4 ACEs.

Additional analyses using linear regression were conducted to explore the relationships between the predictors

Table 3 Bivariate Associations Between Future Orientation, Adversity, Parenting and Demographic Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Future orientation	–	10.30**					0.30	18.89***	0.81	2.13	0.08	1.04		10.92	0.20
2. Adversity		–					0.31	3.65	10.15**	5.67	5.60	4.16		42.67**	10.05**
3. Warmth	3.00	2.34	–												
4. Hostility	6.20***	11.98**	–0.36***	–											
5. Communication	15.85***	0.26	0.53***	–0.30***	–										
6. Monitoring	14.78***	20.16***	0.24***	–0.20***	0.25***	–									
7. Age			0.21	5.80*	0.44	0.01	–	1.5	0.65	1.27	1.76			6.37	6.76**
8. Gender			20.92***	19.24***	67.65***	16.06***		–	0.29	1.65	0.59	0.01	0.45	9.32	0.33
9. Indigenous status			3.03	0.10	0.01	0.16			–	5.15	0.81	a		33.37***	4.04*
10. Mother education			0.52	1.24	1.52	2.33				–	25.71***	9.90**		28.1	0.77
11. Mother employment			0.95	6.76**	0.08	1.28					–	0.92		10.53	0.01
12. Household language			2.21	4.98*	0.04	13.23***	0.12					–		10.33	28.51***
13. Household income	0.81	113.02***	0.02	–0.09**	0.03	–0.01	1.37		12.12***	14.66***	45.25***	3.68	–	155.14***	269.41***
14. Area SES			9.29	5.19	12.95	8.38								33.07***	–
15. Area remoteness			2.47	6.56*	4.85*	0.43									–

Coefficients above the diagonal are results of χ^2 independence tests, which are not directional. Non-italicised coefficients below the diagonal are results of Kruskal-Wallis H Tests, which are not directional. Italicised coefficients below the diagonal are Spearman's rho coefficients, which are directional

^aAssociation could not be computed due to expected cell sizes < 5

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4 Logistic Regression Results Predicting Low Future Orientation

Predictor	Model 1				Model 2				Model 3			
	OR	95% CI OR		<i>p</i>	OR	95% CI OR		<i>p</i>	OR	95% CI OR		<i>p</i>
		Lower	Upper			Lower	Upper			Lower	Upper	
Constant	0.83	–	–	0.541	0.61	–	–	0.134	2.46	–	–	0.316
Adolescent age [16 years]	0.97	0.77	1.23	0.795	0.97	0.77	1.23	0.804	0.98	0.77	1.25	0.887
Adolescent gender [female]	1.66	1.32	2.10	<0.001	1.64	1.30	2.08	<.001	1.48	1.16	1.88	0.002
Adolescent Indigenous status [not Indigenous]	1.36	0.63	2.94	0.435	1.28	0.59	2.77	0.529	1.39	0.63	3.03	0.412
Mother education - Less than Year 12 [Year 12]	0.77	0.42	1.41	0.404	0.78	0.43	1.43	0.428	0.83	0.45	1.53	0.548
Mother education - More than Year 12 [Year 12]	1.10	0.70	1.73	0.667	1.10	0.70	1.73	0.685	1.11	0.70	1.76	0.646
Mother employment [employed]	0.93	0.65	1.34	0.703	0.93	0.64	1.33	0.685	0.91	0.63	1.32	0.634
Household language [English]	0.79	0.53	1.16	0.222	0.81	0.55	1.20	0.291	0.79	0.53	1.17	0.233
Household income	1.00	1.00	1.00	0.242	1.00	1.00	1.00	0.528	1.00	1.00	1.00	0.662
Area SES	0.97	0.93	1.02	0.311	0.98	0.93	1.02	0.320	0.98	0.93	1.03	0.393
Area remoteness [major city]	0.95	0.72	1.25	0.698	0.94	0.71	1.24	0.652	0.99	0.75	1.32	0.970
Adversity - 1 ACE [0 ACEs]					1.41	1.05	1.89	0.022	1.37	1.02	1.84	0.039
Adversity - 2-4 ACEs [0 ACEs]					1.46	1.06	2.01	0.019	1.34	0.97	1.86	0.075
Warmth									1.19	0.95	1.47	0.126
Hostility									1.32	1.06	1.64	0.012
Communication									0.78	0.63	0.96	0.021
Monitoring									0.71	0.54	0.95	0.022

Note. Reference categories for categorical variables are denoted in [brackets]. *N* = 1177

and overall future orientation (i.e., the full range of future orientation scores). The linear regressions utilised the same blocks of predictors as the logistic regression, and used the original future orientation subscale as its outcome.

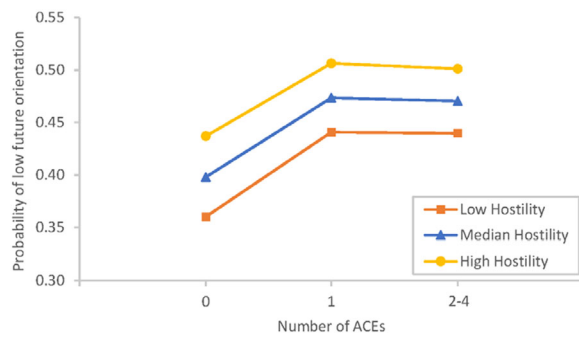
The sequential logistic regression analysis revealed adolescents' future orientation was shaped by their demographic characteristics and experiences of adversity (Table 4). Boys' odds of low future orientation were 1.64 times higher than girls', $p < 0.001$. As predicted, adolescents had significantly higher odds for low future orientation if they had experienced 1 ACE (OR = 1.41, $p = 0.022$) or 2–4 ACEs (OR = 1.46, $p = 0.019$), than if they had experienced 0 ACEs. Contrary to hypotheses, there was no significant difference in odds for low future orientation between adolescents with 1 ACE or 2–4 ACEs, $p = 0.806$. The observed relationships between the predictors and outcome were supported by the results of linear regression analysis of adolescents' future orientation across the range of all possible values. The significance and direction of the predictors were consistent between both sets of analyses (see Supplementary Table 1).

Does Parenting Moderate the Link Between Adversity and Future Orientation?

To determine whether parenting moderated the relationship between adversity and future orientation, two additional blocks of predictors were entered into the logistic regression model.

The third block included the parenting variables (measured as numeric subscale scores): warmth, hostility, communication, and monitoring. The interactions between the parenting variables and the two ACEs dummy variables were entered into the model as the fourth block of variables. This was achieved separately for each parenting variable. This resulted in four separate moderation models, each assessing the moderating effect of one parenting variable, controlling for the other three parenting variables and demographics. As often observed in non-randomised data, the independent variable (adversity) and the moderating variables (parenting) were correlated to some extent ($r = 0.10$ to 0.17 ; Kenny, 2018). Such correlations should not affect the interpretation of results, however, outside of issues of multicollinearity (Kenny, 2018). In addition, emerging evidence indicates that multicollinearity does not statistically affect moderated multiple regression models, and should not be considered a barrier to this analysis type (McClelland et al., 2017). The potential influence of multicollinearity was however reduced by median-centring the variables prior to calculating their interaction terms. As with the previous analysis step, linear regressions were conducted to examine the relationships between parenting, adversity, and overall future orientation, using the same blocks of predictors as used in the logistic regression.

In the expanded logistic regression model (Table 4), boys' odds of low future orientation were 1.47 times higher than girls', $p = 0.002$. As in the previous model, adolescents



Note. Low hostility = 16th Percentile, high hostility = 84th Percentile.

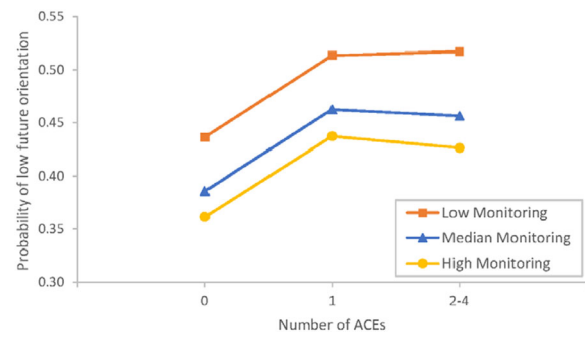
Fig. 3 Probability of Low Future Orientation, Based on Number of ACEs and Level of Hostility

with 1 ACE had significantly higher odds for low future orientation than adolescents with 0 ACEs ($OR = 1.37, p = 0.039$). The increased risk for poor future orientation in adolescents with 2–4 ACEs was, however, no longer significant when parenting was accounted for, $p = 0.075$. Odds for low future orientation were higher for adolescents with higher levels of hostility ($OR = 1.31, p = 0.012$), and lower for adolescents with higher levels of monitoring ($OR = 0.72, p = 0.022$) and communication ($OR = 0.78, p = 0.021$). The absence of significant interactions indicated that the relationship between adversity and future orientation was not moderated by parenting. The significant main effects of parenting (hostility, monitoring, and communication) on future orientation were therefore additive to the main effect of adversity (Figs. 3, 4 and 5, respectively). Adolescents who experienced either adversity or ineffective parenting were at increased risk for poor future orientation, and this risk was greatest for adolescents who experienced both adversity and ineffective parenting.

The direction and significance of relationships between the predictors and future orientation were largely consistent across logistic and linear analyses (see Supplementary Table 1). One difference indicated that hostility was not significantly associated with adolescents' overall level of future orientation ($B = -0.31, p = 0.085$). Conversely, having 2–4 ACEs (rather than 0 ACEs) was significantly associated with lower future orientation in the linear analysis ($B = -0.68, p = 0.010$). These results demonstrate that the factors that influence the odds of an adolescent being in the bottom 25% on future orientation are largely similar, but not identical to, the factors that influence their overall level of future orientation.

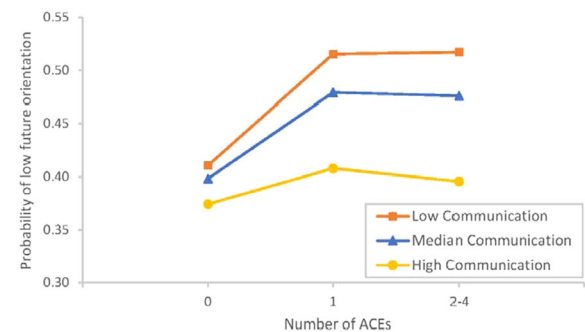
Discussion

This study aimed to investigate the relationships between singular and multiple experiences of childhood adversity and adolescents' future orientation, and whether parenting



Note. Low monitoring = 16th Percentile, high monitoring = 84th Percentile.

Fig. 4 Probability of Low Future Orientation, Based on Number of ACEs and Level of Monitoring



Note. Low communication = 16th Percentile, high communication = 84th Percentile.

Fig. 5 Probability of Low Future Orientation, based on Number of ACEs and Level of Communication

may moderate these relationships. Overall, the results indicate that experiencing household dysfunction-type adversity (parental separation or divorce, domestic violence, household mental health conditions or household problematic substance use) may increase adolescents' risk for low levels of future orientation (i.e., their tendency to think about the future, anticipate consequences and make plans). Young people are at risk whether they have experienced one or multiple types of ACEs. Regardless of their past experiences of adversity, however, adolescents are more likely to have a strong future orientation if they received effective parenting that was non-hostile and high in communication and monitoring.

This provides empirical support for the model developed by Lindstrom Johnson et al. (2014), which positions early experiences as a key predictor of adolescents' future orientation. Previous research has linked early adversity with adolescents being more impulsive (Mair et al., 2012), feeling less of a sense of purpose, and being less committed to achieving a better life for themselves (Craig, 2019). The current findings add to this, indicating that adversity may also be related to their tendency to think about the future, make plans and anticipate consequences. Adolescents who

experience adversity may therefore be at increased risk for having a poor future orientation; which may subsequently impact their wellbeing and transition into adulthood by increasing the chances that they will make risky and present-focused decisions (Fischhoff, 2008; Steinberg, 2008). Reducing the exposure of children and adolescents to adversity may therefore support them to make decisions and take actions that benefit their future, subsequently influencing other aspects of positive development such as self-efficacy (Polgar & Auslander, 2009), and progression through educational and employment pathways (Guthrie et al., 2009). Supporting young people's future orientation through adversity prevention may also help to reduce their vulnerability to risk factors that can have long-term consequences on wellbeing, such as antisocial behaviour (Craig, 2019), substance use, and mental health problems (Polgar & Auslander, 2009).

Unfortunately, it is not always possible to prevent adversity in the lives of children and adolescents (Asmussen et al., 2020). It is therefore critical to bolster the development and sustainment of future orientation through other means. Adolescents' families may be effective targets for this support, as they are a key context in which adolescents may be supported to develop future-focused thoughts and behaviours (Lindstrom Johnson et al., 2014). Parenting is a central component of the family context, and consistent with previous research (Seginer et al., 2002; Tucker et al., 2017; Yeung et al., 2019), results from this study demonstrate that adolescents benefit from having a mother who regularly communicates with them about their lives and friends, is generally aware of their whereabouts and companions, and develops a relationship with them that is low in disapproval, anger, and conflict. These associations between parenting and future orientation exist independently of adversity, indicating that all adolescents may benefit from effective parenting, regardless of their past experiences of adversity. However, in contrast to previous research, the previously identified supportive effect of warmth (Seginer et al., 2002) was not observed. This may be due to warmth having differential associations with various elements of positive development. While positive parent-adolescent relationships have been found to support young people's perseverance (Neppl et al., 2015) and forward planning (Price-Robertson et al., 2010), warmth has also been found to negatively influence young peoples' civic engagement (Pavlova et al., 2016), and to be ineffective in supporting self-esteem in the presence of parental strictness (Garcia & Serra, 2019). It may be that where high levels of parental warmth feature alongside high levels of parental control, young people may be coddled or over-indulged, and may not have the opportunity to test out independence or think deeply about their future (Horton et al., 2006; Thomassin et al., 2020). Further research may

help to clarify whether parental warmth can help support adolescents' future orientation, and if so, in what family contexts.

Also contrary to predictions, the relationship between adversity and future orientation did not change depending on whether parenting was effective or ineffective. Previous research has indicated that elements of parenting such as parental support and parental sensitivity can protect adolescents from some of the effects of adversity. For example, parental support has been found to reduce the link between adolescents' number of ACEs and substance abuse (Brown & Shillington, 2017), and parental sensitivity has been found to protect adolescents' prosocial behaviour from the impact of witnessing inter-parental violence (Manning et al., 2014). The current study builds on this literature, exploring different elements of parenting, adversity, and outcomes to these previous studies; and indicate that the buffering effect of parenting may not apply to future orientation after household dysfunction-type adversities. Taken together, it is likely that the relationship between adversity and parenting is nuanced and influenced by the specific elements of these interrelated and complex factors.

Instead, it was found that adversity and parenting independently influence young people's propensity for future-related thoughts and actions. Low future orientation may therefore be seen in adolescents who have experienced adversity, regardless of the parenting they experienced; and in adolescents who have experienced ineffective parenting, regardless of their experiences of adversity. Adolescents who experience ineffective parenting in the context of adversity – particularly multiple adversity – may, however, be at especially heightened risk. The dual effects of adversity and parenting indicate that although parenting may not undo the effects of ACEs, it is critical in supporting ACEs-affected adolescents to develop an appreciation for the importance of planning and working towards their future. Practitioners aiming to support adolescents to develop goals and imagine a brighter future for themselves may therefore find it useful to consider the adolescents' experiences of both adversity and parenting, as potential risk and protective factors that can be targeted within intervention efforts.

Consistent with previous literature (Bellis et al., 2014; Burrus et al., 2012; Lindstrom Johnson et al., 2014), this study indicates that the associations between adversity, parenting and future orientation hold true when controlling for a range of demographic factors at the level of the area, household, family, and individual. The current results suggest that although some demographic characteristics may be associated with increased risk, support around adversity prevention and parenting is needed across a wide range of demographic, geographic and socioeconomic contexts. Similarly, although males may be at greater risk for poor

future orientation, males and females can both experience high and low future orientation. As such, it is important that practitioners support all adolescents to develop their future-related thoughts and actions, particularly in the context of adversity or ineffective parenting. Initiatives aiming to prevent ACEs, support effective parenting, and foster the development of adolescents' future orientation should therefore have a universal scope, supporting families and young people across all demographic groups, and providing varying levels of support according to level of need. This blend of universal and targeted support is often referred to as proportionate universalism (Marmot, 2013; Prinz, 2015) or targeted universalism (Powell et al., 2019). This multi-level approach has been used to address a wide range of priorities, such as promoting public mental health (Barry, 2019), and supporting parenting and family functioning (Barry, 2019; Frost et al., 2015). Proportionate universal initiatives may take the form of cross-sectoral coordination of reforming policy, reshaping cultural norms, changing organisational structures, and implementing targeted programs (Barry, 2019). Other initiatives may be comprised of multiple tiers of a single system. For example, population-based dissemination of the Triple P Positive Parenting Program (Triple P) includes public marketing campaigns, together with seminars, group sessions, and individual sessions to suit parents' varying levels of need (Prinz, 2019). Trials of the multi-level Triple P system revealed it contributed to significant reductions in child maltreatment across 18 counties in the USA (Prinz et al., 2009), and in child social, emotional, and behavioural problems across two regions of Northern Ireland (Doyle et al., 2018). Developing, applying, and testing a proportionate universal approach to preventing ACEs, supporting parenting, and fostering future orientation may therefore be a worthwhile endeavour for future research and practice.

Strengths and Limitations

Although attrition and missing data had the potential to limit the representativeness of the results (Silva et al., 2015), the sample used in this paper is fairly representative of the general population of Australian 16- to 17-year-olds across a range of measures. The results of this paper may thus be considered as broadly generalisable to the Australian population, however the sample had parents with a higher level of education and employment than the general population. This is important to note, as low levels of parental education and employment have previously been associated with increased risk for adversity (O'Connor et al., 2020), and with low future orientation (Khampirat, 2020; McLoyd et al., 2011). Future studies conducted with a more representative sample may therefore have a higher prevalence of adversity and low future orientation than is seen in this

paper; and the observed relationships between these factors may be stronger (Carlin, 2020).

Additional studies may also investigate whether differing results are obtained when examining a broader range of adversities than was afforded by the LSAC dataset. Although the LSAC dataset includes data on five adversities, one of these (household incarceration) was not reported by any respondent, and was thus not able to be included in analysis. The lack of data on household incarceration may be due to a range of factors such as attrition of families who have been affected by this adversity, non-reporting of incarceration due to social desirability bias, and the relatively low prevalence of incarceration in Australia (i.e., affecting approximately 0.2% of the adult population in 2019; Australian Institute of Health and Welfare, 2019). As the current analysis only utilised household dysfunction-type adversities, it was not possible to explore how maltreatment-type adversities, or the full range of ACEs, may be related to parenting and future orientation. As maltreatment may have stronger effects than household dysfunction on adolescent mental health (Herrenkohl & Herrenkohl, 2007; Schilling et al., 2008), and may be closely related to parenting (Bentovim & Elliott, 2014), it may be that parenting and future orientation have stronger associations with maltreatment than with household dysfunction. By design, the LSAC data can also only capture events that occurred in the years in which data was collected, and thus misses ACEs that occurred before data collection commenced (e.g., before age 4/5), and between the bi-annual data collection waves. While little is known about the importance of the timing of ACEs, preliminary research has not found a consistent trend regarding the relative impact of early versus late adversity; rather, it is the repeated exposure to adversity that appears to be the more important factor in harms to health and wellbeing (Friedman et al., 2015; Romero-Martínez et al., 2014). It is therefore important that further exploration be conducted into the influence of the timing of adversity, including experiences prior to age 4/5. Such research may utilise the LSAC B Cohort, as it includes data on children from age 0/1, however, the issue of gaps between data collection waves is likely to affect most longitudinal studies. Similarly, the use of identifiable self-report survey and interview data may suppress the observed incidence of adversities, and lead to inaccurate depictions of parenting and future orientation due to social desirability biases. Future research may use data that does not have these limitations to more comprehensively and accurately explore the relationships between adversity, parenting, and future orientation. All research methods have methodological constraints, however, which should inform readers' interpretations of results.

The longitudinal, multi-informant survey data used in this study to prospectively identify ACEs does however

provide this study with significant methodological strengths. Firstly, adversities that may be missed with conventional retrospective data collection were able to be captured. For example, where respondents may have been too young to recognise or remember an adversity, the use of multiple informants provides a way to capture this experience. Secondly, the use of proxy variables removed some of the inter-respondent differences in interpretation that may be seen in retrospective self-report. For example, by using objective measures of alcohol drinking frequency to identify problematic drinking behaviours as defined by official government health guidelines, this study does not rely on respondents' perceptions of what is 'problematic'. Proxy variables do however have potential drawbacks related to their specificity. Where proxy items are not specific enough, respondents may be incorrectly classified as experiencing adversity (e.g., respondents classified as experiencing parental separation, where their parent was living away due to reasons other than relationship breakdown, such as living away for work). In contrast, where proxy items are too specific, analyses may exclude some actual experiences of adversity. This can be somewhat remedied by using multiple proxy items for each adversity. For example, in the current paper, although some cases of household mental health conditions may have been missed with the item that specifies that the condition had been treated in the past year, these cases may have been picked up with the Kessler-6, which is a more objective and less specific measure of mental health.

A third strength of the LSAC dataset is its use of multiple informants, time points and data collection methods (i.e., self-complete surveys and computer-assisted personal interviews). These varied methods help to reduce the likelihood that the observed relationships between constructs are due to their shared method of data collection (Rodríguez-Ardura & Meseguer-Artola, 2020). Confidence in the observed results may be further boosted through the use of pre-validated measures of parenting and future orientation, which also serve to tie this paper's findings into larger bodies of work utilising these measures and the LSAC dataset. Future research may incorporate later waves of the LSAC data to investigate whether future orientation acts as a mechanism for adversity's effects on lifetime outcomes, as theorised by the model from Lindstrom Johnson et al. (2014) and supported by the Mair et al. (2012) study of ACEs, impulsivity, and inter-partner victimisation. Future research may additionally use the LSAC or other datasets to explore how adversity and parenting relate to other aspects of positive development beyond future orientation, to influence the lifetime outcomes of young people. Longitudinal trajectories may also be used to identify how adversity, parenting and future orientation develop alongside each other, and assess

whether the timing of adversity affects how much those experiences influence future orientation.

Conclusion

Adolescents who develop healthy habits around planning, anticipating consequences, and working towards their future may be more likely to have good outcomes in the present and successfully transition into adulthood. The development of this future orientation may however be hindered by adverse experiences such as parental separation, domestic violence, and household mental health and substance use problems. Helping families to avoid these adversities may therefore support adolescents to engage in thoughts and actions that will benefit their future. Effective parenting may also support adolescents' future orientation, and may be particularly important for adolescents who have experienced adversity. Parents who communicate, monitor, and foster a non-hostile relationship with their adolescents may support their young people to develop a strong orientation towards their future. To best support young people to thrive in their present lives and develop into successful adults, it is therefore important that we assist families to avoid adversity, support parents to use effective parenting, and help adolescents to develop positive future-oriented thoughts and actions. Targeting supports towards families and young people who are at risk for adversity, as well as implementing universal and population-level interventions, may therefore lessen the impact of adversity on the life course of young people, and support all adolescents to live their best lives both now and in the future.

Acknowledgements This research was supported by the Australian Research Council Centre of Excellence for Children and Families over the Life Course (CE140100027).

Author contributions C.C. designed, executed, and wrote the paper. K.B. and M.H. provided feedback on the design and writing of the paper.

Funding Open Access funding enabled and organized by CAUL and its Member Institutions.

Compliance with Ethical Standards

Conflict of Interest The Parenting and Family Support Centre is partly funded by royalties stemming from published resources of the Triple P – Positive Parenting Program, which is developed and owned by The University of Queensland (UQ). Royalties are also distributed to the Faculty of Health and Behavioural Sciences at UQ and contributory authors of published Triple P resources. Triple P International (TPI) Pty Ltd is a private company licensed by UniQuest Pty Ltd on behalf of UQ, to publish and disseminate Triple P worldwide. The authors of this report have no share or ownership of TPI. At the time of publishing, Author Chainey is currently employed and Author Burke was previously employed by The University of Queensland in the Parenting and Family Support Centre.

Ethical Approval This research study was conducted retrospectively from data obtained for the Longitudinal Study of Australian Children. We consulted extensively with the ethics committee of The University of Queensland, who granted an official waiver of ethical approval as the study uses non-identifiable secondary data and is of negligible risk (Clearance number 2017001553). All procedures performed in studies involving human participants were in accordance the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study, by the administrators of the Longitudinal Study of Australian Children.

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