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Adolescent Positivity and Future Orientation, Parental Psychological Control, and Young Adult Internalising Behaviours during COVID-19 in Nine Countries

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Abstract: The COVID-19 pandemic disrupted many young adults' lives educationally, economically, and personally. This study investigated associations between COVID-19-related disruption and perception of increases in internalising symptoms among young adults and whether these associations were moderated by earlier measures of adolescent positivity and future orientation and parental psychological control. Participants included 1329 adolescents at Time 1, and 810 of those participants as young adults (*M* age = 20, 50.4% female) at Time 2 from 9 countries (China, Colombia, Italy, Jordan, Kenya, the Philippines, Sweden, Thailand, and the United States). Drawing from a larger longitudinal study of adolescent risk taking and young adult competence, this study controlled for earlier levels of internalising symptoms during adolescence in examining these associations.

Higher levels of adolescent positivity and future orientation as well as parent psychological control during late adolescence helped protect young adults from sharper perceived increases in anxiety and depression during the first nine months of widespread pandemic lockdowns in all nine countries. Findings are discussed in terms of how families in the 21st century can foster greater resilience during and after adolescence when faced with community-wide stressors, and the results provide new information about how psychological control may play a protective role during times of significant community-wide threats to personal health and welfare.

Keywords: parenting; COVID-19; 21st century; adolescence; internalising

1. Introduction

The COVID-19 pandemic disrupted the lives of families around the world, presenting specific challenges to young adults. Following the widespread and rapid outbreak of the SARS-CoV-2 infection, young adults were confronted with swift and severe changes in daily routines. For many young adults, the pandemic meant pauses in education or cessation of in-person interactions during learning, changes in residence (e.g., moving back home with parents) and reduced access to health care, leisure activities, mental health services, as well as other social supports. The role of thinking about the future in a positive way is vital to adaptive adjustment in the transition from adolescence to young adulthood and greater independence (Steinberg et al. 2009). Because the pandemic disrupted the important transition for many late adolescents into young adulthood, understanding adolescents' thoughts about the future may be a window to understanding how young adults will adapt to major negative life events, and may inform parenting practices that may mitigate long-term negative psychological effects of future community-wide stressors or public health crises.

Parenting research and practice in the 20th century progressed from a focus on physical health, which dominated the 19th and early part of the 20th centuries, to emphases that included attachment and family relationships by the end of the 1940s (see Kaplan and Owens 2004 for overview). As decades passed, research stressed the importance of child temperament, parenting styles, cognition—including a focus on parenting involvement in education—agency, self-regulation, and prosocial behaviour. The COVID-19 pandemic has already had a profound influence on the direction of parenting and child development research. A large body of literature has emerged focusing on parent–child relationships, family functioning, and regional differences among how families are adjusting during the pandemic (Weeland et al. 2021). However, the pandemic is not the only influence on parenting and family functioning; economic uncertainty, climate change, increased globalisation, and modernisation of and access to technology all compete as stressors as children progress through adolescence into adulthood. Disruptions in what were once assumed to be typical developmental pathways may become even more difficult to predict. In addition to concerns about how young adults now view their future, the unpredictability of the current pandemic and the influences listed above lead us to re-examine aspects of the parent–child relationship that may influence adjustment as adolescents enter adulthood in an uncertain world.

2. COVID-19 and Mental Health

Evidence from the first months of the pandemic indicates increased rates of internalising symptoms among people from various countries and age groups (Islam et al. 2021; Ravens-Sieberer et al. 2020). A longitudinal study of internalising symptoms in adults showed increased rates of anxiety and depression during the COVID-19 pandemic lockdown; these increases were observed continually throughout the course of the pandemic (Andersen et al. 2021).

The pandemic also affected whole families and communities. At the family level, the pandemic caused reorganisation of daily routines, cuts in external support by other family members and social support systems, fear of losing family members and in the case of deaths, normal bereavement and grief processes were disrupted if not completely absent (Fegert et al. 2020). As such, stressors during the pandemic increased, whereas the opportunities to regulate stress through outside or social activities fell apart or were completely lost.

A meta-analysis of 29 studies assessing more than 80,000 youth globally showed a higher prevalence of clinically significant symptoms of depression and anxiety after the onset of the COVID-19 pandemic compared to prior estimates (Racine et al. 2021). For example, the global estimates of depression (12.9%) and anxiety (11.6%) prior to the pandemic were much lower compared to during the pandemic (depression, 25.2%; anxiety, 20.5%). Although most of the studies in this analysis were specific to China, some included participants from North America, Europe, and other Asian countries. Similar increases have been observed in other countries. For instance, a study from Italy indicated high rates of depressive (47.5%) and anxious (14.1%) symptoms among 326 adolescents aged 14–19 years (Pisano et al. 2021). These rates are considerably higher than evidence from previous Italian epidemiological studies, which indicate the prevalence of internalising symptoms to be much lower before the pandemic (e.g., Frigerio et al. 2009; Gritti et al. 2014).

Several studies indicate that young people are at higher risk of having increased internalising symptoms compared to adults and older age groups. For example, Smith et al. (2020) identified several risk factors associated with poor mental health during the pandemic, namely younger age, female gender, lower annual income, current smoking, and the presence of physical multimorbidity. Further, a cross-sectional study in UAE found that the highest levels of generalised anxiety disorder (GAD) were among young people (71%) and females (51.7%) (Saddik et al. 2021). Higher levels of anxiety symptoms were found among those who worried about their parents or children contracting COVID-19 and transmitting COVID-19 to someone else if they contracted the virus. Other research highlights adjustment difficulties related to COVID-19 specific to young adults. In a study of 450 college students in the mid-Atlantic United States, an area hard-hit by the pandemic during 2020, results revealed that young adults reported increases in their inability to focus, increased anxiety and depression, and excess time spent searching for information about COVID-19 (Kecojevic et al. 2020). A study with college students in China noted that family economic difficulties related to COVID-19 were related to parent–child relationship difficulties, which in turn were related to increases in self-reported anxiety and depression (Cui and Hong 2021).

3. COVID-19, Positivity, and Future Orientation

The COVID-19 pandemic challenges future thinking and behaviour in part because conditions during the pandemic present young adults with a high degree of uncertainty and challenge their optimism and future outlook. Positivity is defined as the degree to which an individual has an affirming regard for their own abilities and qualities, confidence that others will support them in their goals, and a general outlook on life that is hopeful and optimistic (Caprara et al. 2012). Future orientation has many additional components, including cognitive (How much do I think about the future?), attitudinal (How much am I willing to give up now to wait for a better outcome later?), and motivational goals (How much time do I spend planning to achieve long-term goals?) (Steinberg et al. 2009). Further, the development of future orientation is influenced by several factors, including adolescents' social and family environment (Seginer 2009). Future-oriented thinking and behaviour are associated with less maladjustment during childhood and adolescence (Hamilton et al. 2015; Holman and Silver 2005). In the sections that follow, we review the literature on positivity and future orientation and their application to the COVID-19 pandemic.

3.1. Positivity

Positivity is generally understood to be protective against psychosocial maladaptation, especially when faced with stressful events (Caprara et al. 2019; Milioni et al. 2016). It is a relatively stable trait across developmental periods (Alessandri et al. 2012), and is linked to better physical health (Caprara et al. 2017). In contrast to future orientation, which identifies specific behaviours, positivity is a basic attitude needed to face major challenges (Caprara et al. 2019) and includes both self-esteem and optimism.

The COVID-19 pandemic presents young adults with ongoing and serious threats to predictability and safety. In the face of uncertainty, adaptive coping skills are important predictors of positive adjustment, and positive reappraisal of negative experiences can aid this coping (Shing et al. 2016). Positivity, however, is not simply the absence of negative thought or negative emotion, and positivity does not signal the absence of depression, much in the same way well-being is not defined only by the absence of illness (World Health Organization 2004). Rather, the presence of positive emotions that outweigh negative ones, optimistic thoughts, and general life satisfaction can be protective against depression, as shown in both longitudinal and daily diary studies (Alessandri et al. 2014; Caprara et al. 2019; Fredrickson et al. 2003). For example, following the terrorist attacks in the United States on 9/11, the difference between resilient and non-resilient individuals was that resiliency was characterised by more positive emotions than negative ones, not just the complete absence of any negative thoughts (Fredrickson et al. 2003). In a study of middle school students over three years, optimism about the future was associated with decreased internalising symptoms (Smokowski et al. 2017). In 475 undergraduate students in Turkey during the COVID-19 pandemic, optimism mediated the relation between pandemic stress and depressive symptoms (Arslan and Yildirim 2021). Not all associations between positivity and mental health are encouraging, however. Research examining positive future fantasies about daily life and academic achievement, among other things, concludes that when such fantasies lower effort and success, they can have an exacerbating impact on depression (Oettingen et al. 2016). Thus, it appears that positivity is linked with lower internalising symptoms overall, but the effect is more nuanced if the optimism creates unrealistic visions of success that lower effort and undermine goal achievement.

3.2. Future Orientation

Future orientation has long been studied in both developmental and cultural contexts (see Mönks 1968; Seginer 1986, among others). Development throughout late adolescence and young adulthood includes several future-oriented decisions and milestones related to family life, education, and work (Nurmi 1991). The COVID-19 pandemic disrupted all aspects of life related to typical developmental milestones and presented challenges to thinking about life beyond the immediate present; young adulthood is thus an ideal time to examine the impact on well-being during the pandemic via potential disruptions in typical developmental processes (Steinberg et al. 2009). A sense of hopelessness and feelings of lack of control can set in during community-wide stressors (So et al. 2018) and lead young adults to have diminished beliefs about a positive future.

However, future-oriented thinking can be a protective factor in the face of difficulties. For example, with no clear timeline and widespread uncertainty about pandemic-related restrictions and infection spread, young adults may need to reframe their thoughts about the challenges: Present restrictions can be better accepted if they are seen as a means of securing a more positive future outcome (Lalot et al. 2021). People who think a lot about their future may be better prepared when obstacles get in their way and may be less vulnerable to depression following high levels of stress (Johnson et al. 2014). Empirical findings support this hypothesis. Cross-sectionally, higher future orientation moderated the association between daily stress and symptoms of depression in college students (Zheng et al. 2019). Over time, future-oriented thinking and feelings of agency in both youth-at-risk (Stoddard et al. 2011) and the general population during COVID-19 (Lalot et al. 2021) were associated with better well-being and fewer externalising behaviours. One explanation may be that anticipating

future consequences may allow individuals to focus on goals and thus avoid behaviours that reduce the likelihood of attaining them (Zheng et al. 2019). Future-oriented thinking may also be helpful during the pandemic because it allows individuals to shift their focus from present stress to anticipation of future happiness, and thus improves emotion regulation (MacLeod and Conway 2005). Much of the literature on the impact of future orientation during periods of stress is cross-sectional, however, and limited in cross-national range. Further, little is known about the long-term associations between future orientation and coping with major stressors later in life.

4. Parental Psychological Control

Parental psychological control (e.g., intrusion, love withdrawal, and guilt induction) plays a key role during the adolescent years on the child's psychological and emotional development (Barber 1996; Barber et al. 1994; Smetana 2017). Parental control can be distinguished into behavioural control, which refers to monitoring and limit setting, and psychological control, which refers to the degree of emotional autonomy that parents grant to the child (Gray and Steinberg 1999). In this paper, we focus on psychological control, which includes any emotionally and psychologically manipulative strategies or behaviours of parents that disregard the child's autonomy and disrupt the child's volitional functioning (Barber and Xia 2013; Soenens and Vansteenkiste 2010). Such parenting techniques have a detrimental effect on children's development, future adjustment, and internalising and externalising symptoms (Arredondo et al. 2006; Chao and Aque 2009; Mandara and Pikes 2008; Silk et al. 2003). For instance, Rogers et al. (2003) found that disrupted adjustment and elevated levels of internalising are mostly reported in situations when both parents are high in psychological control. Moreover, it seems that parental psychological control is directly connected to development of depressive symptoms rather than children's resilience. Although parental psychological control has been widely studied among children and adolescents, it is important to understand the impact of psychological control during later developmental stages, such as emerging adulthood. Parental psychological control continues to be relevant during young adulthood because it can be expressed from a distance and affect the individual's self-sufficiency, emotional regulation, life satisfaction, and endorsement of adulthood status (Faherty et al. 2020; Manzeske and Stright 2009; Sholomskas and Axelrod 1986).

The COVID-19 pandemic exposed families and young adults to additional stressors and adversity, due to increased family demands, heightened levels of uncertainty, and drastic change of family routines that all impede the families' adaptive capacity (Masten and Motti-Stefanidi 2020). Indeed, emerging adults, aged 18 to 30 years, who reported higher parental psychological control, showed negative reactivity to the pandemic (Ma and Wang 2021). Despite the current cross-sectional evidence, it is not yet clear whether the effects of parental psychological control last over time. Thus, in the current study, we investigate whether higher levels of psychological control during adolescence interfere later in life with a young adult's adjustment to the COVID-19 pandemic.

5. COVID-19 in Context

Together, the literature about positivity, future orientation, and coping during community-wide stressors supports the idea that future-oriented thinking and behaviour can be protective against symptoms of anxiety and depression. The literature is less clear about how parental psychological control may impact young adult adjustment. Although the extant literature on control is clear that higher levels of parental psychological control are most often associated with maladjustment in youth, the impact of a community-wide stressor remains to be examined across a diverse sample. To examine these findings in relation to the COVID-19 pandemic across a range of countries, we utilised data from a cross-national study of parenting, adolescent risk taking, and young adult competence that included pre-pandemic data about positivity, future orientation, parental psychological control, and prior levels of adolescent internalising behaviours. The countries included in

this study—China, Colombia, Italy, Jordan, Kenya, the Philippines, Sweden, Thailand, and the United States—have had varied experiences with infection rates, government response in the form of restrictions, school closures, community lockdowns, and vaccine distribution since the onset of the pandemic. We recognise that the pandemic situation in each country continues to evolve as new variants, access to vaccines, and other parameters contribute to change over time. The information below reflects the situation in each region earlier in the pandemic closer to the time of data collection.

Southeast Asian countries that were able to limit widespread infection in 2020 were in the third quarter of 2021 dealing with overburdened health-care systems, a lack of hospital beds, equipment, and oxygen (Regan 2021). Many countries also reinstated rigorous lockdowns to slow the spread of the Delta variant of the virus. Thailand and the Philippines were able to relax tight lockdown requirements after keeping infection counts low in 2020, but by August 2021 the Philippines had the highest number of COVID-19 cases in Southeast Asia. In Eastern Asia, China tried to avoid full city lockdowns, but reimposed considerably tighter social distancing measures and COVID guidelines as the Delta variant spread throughout more than half of its provinces (Gan 2021).

In Europe, Italy was the first country to experience widespread infection and death after the initial coronavirus outbreak in China. Italy imposed containment procedures quickly after the initial 2020 outbreak that helped mitigate the spread of COVID-19 (McCann et al. 2020). Sweden closed secondary—but not primary—schools and universities, and businesses overall did not experience widespread initial closures (Goodman 2020). By August 2021, both countries have eased pandemic restrictions greatly despite their differing initial responses to the pandemic. Sweden continued to ease pandemic restrictions in August 2021, which has included continually lifting mask recommendations (Fulton 2021). To date, there has been no community-wide mask mandate. Similarly, Italy has continued to ease restrictions on mandates and instead of forcing shutdowns is implementing new measures to try to curb the spread of infection. These measures include a digital COVID-19 vaccination certificate that will be mandatory in Italy's restaurants and other public spaces (Bubola 2021).

Countries in the Middle East and Africa that were relatively successful in containing the spread of COVID-19 by responding strictly and promptly are now repeating their efforts as cases are on the rise again. In comparison to neighbouring countries, Jordan initially mostly evaded the COVID-19 pandemic. The Jordanian government enforced strict restrictions, including mandatory curfews, suspension of international travel, and the closure of schools and businesses (Santucci 2020). As of August 2021, Jordan's COVID-19 infection and death rates were increasing (Best 2021). Recommendations to close schools and workplaces and stay-at-home orders were on the rise (Reuters 2021). In response to the Delta variant, the Western region of Kenya was under lockdown by August of 2021. The Kenyan government reacted quickly in the previous waves of COVID and continued to do so while also providing consistent messaging and updates to residents (Mohiddin et al. 2020). As of August 2021, public gatherings and in-person meetings were suspended countrywide, and Kenya extended its national curfew (Al Jazeera 2021).

The Americas, specifically Colombia and the United States, have been feeling the devastating effects of COVID-19 and are still battling the disease outbreak. The Colombian government imposed a strict national quarantine and lockdown in response to the COVID-19 crisis in 2020. Businesses ceased operations, a public mask mandate was issued, and the state of emergency was extended (Rueda 2021). In August 2021, Colombia was dealing with the longest COVID-19 wave to date, with intensive care units (ICUs) at 95% capacity. Despite this, Colombia and other South American countries began to reopen their economies, though vaccine access remained limited (Lopez-Carr 2021). During August 2021, the COVID-19 outbreak in the United States reached 100,000 new confirmed daily infections, a record set during the winter surge fuelled by the highly transmissible Delta variant and low vaccination rates in the southern U.S. states (Spencer and Kennedy 2021).

6. Present Study

This study utilises self-report data from adolescents and young adults and their mothers and fathers over a three-year period in a diverse group of nine countries to assess associations among COVID-19 personal disruption and perceived increases in internalising symptoms in young adulthood, and whether positivity, future-oriented thoughts and behaviour, or parental psychological control during adolescence moderate those relations. In line with prior research during experiences with community-wide stressors, including natural disasters (Bermudez et al. 2019; Hafstad et al. 2012), 9/11 (Calderoni et al. 2006; Hendricks and Bornstein 2007), and the SARS outbreak (Hawryluck et al. 2004), we hypothesised that high levels of pandemic-related disruption during young adulthood would be related to perceived increases in internalising symptoms. Because the literature identified a gap in our cross-national understanding of how positivity and future orientation are associated with internalising behaviours during the pandemic, we also examined whether positivity and future orientation during late adolescence moderated the disruption–internalising link. We predicted that, across countries, the association between pandemic-related disruption and increases in internalising behaviour during young adulthood would be moderated by prior levels of both positivity and future orientation during adolescence, even when controlling for adolescents' prior pre-pandemic levels of internalising symptoms, such that more positivity and higher levels of future orientation during adolescence would buffer the association between pandemic-related disruption and increases in internalising symptoms. Further, we predicted that psychological control imposed by parents during adolescence could impair young adults' response to the COVID-19 pandemic and its stressors and would moderate the relation between disruption and perceived increases in internalising such that higher levels of parental psychological control during adolescence would be related to a greater perceived increase in internalising during the pandemic for young adults.

7. Method

7.1. Participants

Participants for this study were 1329 youth at Time 1 (50.4% female) and their mothers and fathers who were drawn from a larger study (see Lansford et al. 2016 for more information). Time 1 data collection occurred over approximately a 13 month period when youth were, on average, between 16.67 ($SD = 0.96$) and 17.75 ($SD = 1.02$) years old. To reduce the time burden on participants, psychological control, prior level of internalising behaviour and positivity were collected at age 16, and future orientation was collected at age 17. At Time 2, which occurred during the COVID-19 pandemic, young adults were on average 20.00 years old ($SD = 1.16$). Participants were recruited from the following sites: Chongqing, China ($n = 114$), Medellín, Colombia ($n = 108$), Rome and Naples, Italy ($n = 213$), Zarqa, Jordan ($n = 114$), Kisumu, Kenya ($n = 100$), Manila, Philippines ($n = 120$), Trollhättan/Vänersborg, Sweden ($n = 129$), Chiang Mai, Thailand ($n = 120$), and Durham, North Carolina, United States ($n = 311$). On average, parents had 13.71 years of education ($SD = 4.18$). Across countries, schools had been closed for an average of 20.41 weeks ($SD = 12.07$) due to pandemic-related lockdowns when young adults completed the COVID measure. Figure 1 shows a timeline of lockdowns and data collection dates for each country.

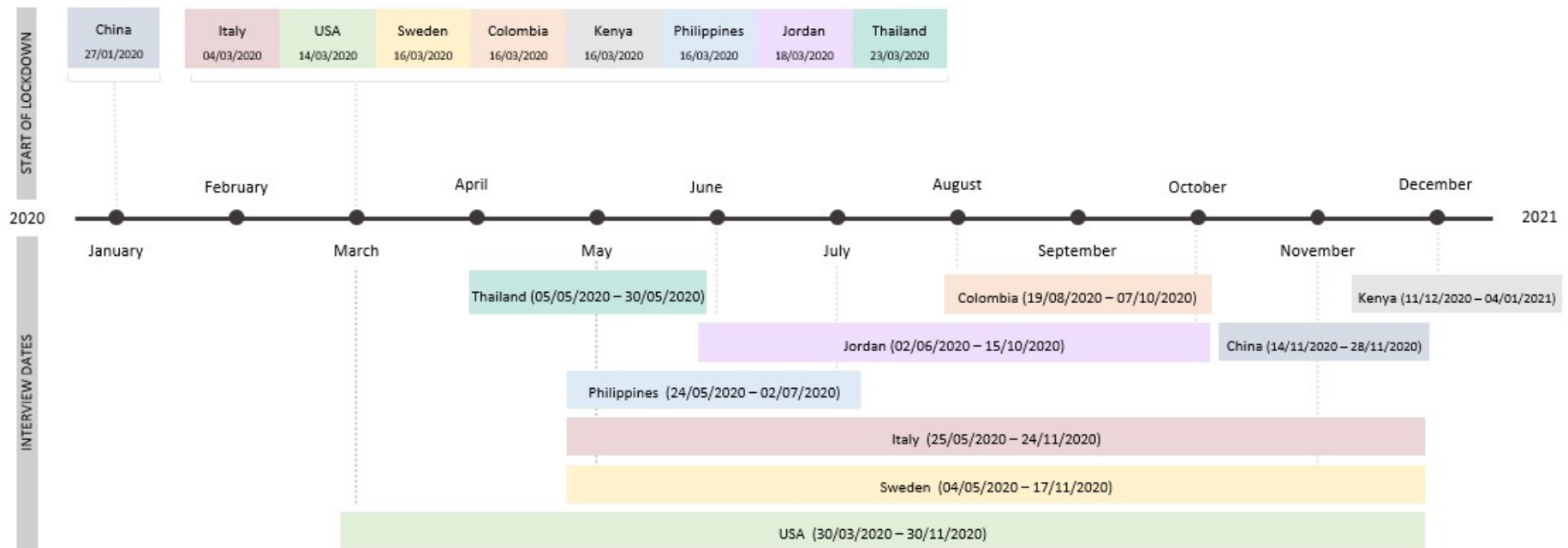


Figure 1. Timeline of COVID Lockdowns and Data Collection Dates.

Due to rapid data collection endeavours and difficulties with interviewing in person during the pandemic, data were collected from 810 young adults (60.9%) at age 20 between late March 2020 and early January 2021. Young adults who participated at age 20 did not significantly differ from adolescents who participated at age 16 with regard to their prior levels of internalising behaviours, $t(1040) = -1.91, p = 0.055$, or their parents' years of education, $t(1316) = -0.436, p = 0.66$. However, participants at age 20 were more likely to be female than participants who did not provide age 20 data, $\chi^2(1) = 16.99, p < 0.001$.

7.2. Procedures

Prior to beginning interviews in all countries, ethics board review was obtained through each participating university. To ensure linguistic and construct equivalence of each measure, translators fluent in English and the target language provided forward- and backward-translation of items (Erkut 2010). When youth were adolescents, trained interviewers in each site contacted families to conduct individual interviews in person, by telephone, by mail, in writing, or via a web-based interview, according to participant preference. Informed consent was provided by parents until young people reached majority age and could provide their own consent. Adolescent and parent interviews at Time 1 lasted approximately 60–90 min. At age 20, all sites were experiencing varying restrictions due to pandemic-related lockdowns, and no in-person interviews could be conducted. Instead, using telephone, written, or web-based surveys according to participant preference, interviewers captured a brief assessment of COVID-19-related experiences with a 19-item questionnaire lasting no more than 5 min. Participants were provided small stipends in appreciation for their time.

7.3. Measures

7.3.1. Positivity

During adolescence, youth responded to an 8-item Positivity Scale (Caprara et al. 2012). Each item was scaled from 1 = strongly disagree to 5 = strongly agree to measure how positively the adolescents felt about themselves and the future. Sample items included, "I have great faith in the future", "I feel I have many things to be proud of", and "I am satisfied with my life". A mean score was derived from 8 items, with one item reverse-scored. The scale had good reliability in our sample ($\alpha = 0.84$). Previous work established internal and construct validity, test-retest reliability, and measurement invariance across cultures (Caprara et al. 2012).

7.3.2. Future Orientation

Adolescent future orientation was measured using 15 items from the Future Orientation Scale (see Steinberg et al. 2009 for psychometrics and full scale). To reduce socially desirable responding, the measures used formatting originally designed by Harter (1982). Questions were asked in two parts; first, adolescents chose which statement best described them, with opposing statements separated by "BUT", i.e., "Some people like to plan things out one step at a time, BUT other people like to jump right into things without planning them out beforehand". Next, the respondent indicated if the statement they chose was sort of true for them or really true for them. The result was a 4-point scale ranging from really true on one side of the statement to really true on the other side of the statement. The full scaled score was a mean of all 15 items covering time perspective, planning ahead, and anticipation of future consequences. Reliability in our sample was good ($\alpha = 0.78$).

7.3.3. Psychological Control

Mothers and fathers reported about the degree to which parents utilised non-coercive discipline techniques and encouraged adolescents to express autonomy. Eleven items were adapted from earlier work (Barber 1996; Dornbusch et al. 1985; Patterson and Stouthamer-Loeber 1984; Rodgers 1966; Silk et al. 2003). Mothers and fathers were asked to respond separately about the target child; items were scored from 1 = strongly disagree to 4 = strongly

agree. Items included “I say that my child should give in on arguments rather than make people angry”, and “I tell my child that my ideas are correct and that he/she should not question them”. Higher scores indicated higher levels of parental psychological control and lower levels of adolescent autonomy. To reduce the number of models, and because parent–child dyadic differences were not of primary interest in this study, a mean of mother and father responses ($\alpha = 0.77$) was created. Psychometrics of the original factor structure across multiple contexts are reported elsewhere (Steinberg et al. 1991).

7.3.4. Experiences during COVID-19

At age 20, young adults completed *Experiences with COVID-19*, a measure designed to provide a quick assessment of perceived changes in psychosocial functioning, interpersonal relationships, attitudes, and behaviours related to pandemic restrictions, and other personal experiences with the pandemic; the development of this measure based on other community-wide disasters and stressors is described elsewhere (Skinner et al. 2021). Depending on the site, young adults completed this measure between late March of 2020 and early January of 2021.

COVID-19 disruption. Young adults were asked to rate their own personal experience with disruption due to the pandemic on a scale of 1 to 10, with 1 = not at all disruptive and 10 = extremely disruptive. Respondents were asked to consider changes in schooling, family, work, and other routines within a single item, to capture a generalised feeling of overall disruption. More detail about the source of the stressor (e.g., work vs. school) may be useful in other studies, but our main area of concern was overall disruption and its possible association with adjustment. Thus, brevity in survey administration time was prioritised in keeping to a single item.

Perceived increases in internalising behaviour. Young adults responded to two items assessing their perceptions about increases in their own feelings of anxiety and depression “now as compared to before the outbreak of COVID-19 in your community”. Self-reported perceptions of changes in internalising symptoms have been shown to be correlated with more objective measures of anxiety and depression (Zimmerman et al. 2004). An average score between two items ($r = 0.53, p < 0.01$) was created from “I feel more anxious now than I did before the outbreak” and “I feel more depressed now than I did before the outbreak”. Respondents reported on a four-point scale ranging from 1 = strongly disagree to 4 = strongly agree. Higher means indicated self-reported perceived increases in internalising behaviour at the time of interview compared to before pandemic onset. These 2 perceived changes in internalising items have been utilised by other research teams examining mental health during the pandemic (e.g., Davidson et al. 2020; Kapetanovic et al. 2021).

7.3.5. Covariates

Using the Achenbach Youth Self-Report of the Child Behaviour Checklist (Achenbach 1991), we controlled for prior levels of internalising behaviour measured at age 16 using the 29 internalising items. Additionally, we controlled for the number of weeks that had elapsed since the onset of the pandemic in each site, which ranged from 1 to 40 weeks across all respondents, as this may impact perceptions of disruption in each location. We also controlled for highest level of education reached by either parent (as a proxy for SES) and adolescent gender.

7.4. Statistical Analysis

All preliminary analyses, including descriptive statistics and Pearson’s correlations, were conducted in SPSS Version 23.0. MPlus Version 8.4 (Muthén and Muthén 2017) was used for all further analyses. Missing data were handled via full information maximum likelihood estimation because it uses all available information to estimate each model parameter, thus making it an appropriate choice if the data are either MAR or MCAR (Kelloway 2014; Schafer and Graham 2002). All variables were standardised before further analyses. Figure 2 displays the statistical model. A multigroup structural equation model,

with countries presenting nine different groups, was conducted to examine our research questions. Because the groups are not nationally representative, we do not have specific hypotheses about how each country may differ in response to the pandemic, but we are able to identify those countries whose slopes and intercepts differed from the others. The model included the association between pandemic-related disruption and changes in youth internalising behaviours as well as all control variables (parents' level of education, weeks since the pandemic began, adolescent gender, and prior levels of internalising behaviours), and the moderators positivity, future orientation, and psychological control. To test the interaction between disruption and positivity, future orientation, or psychological control, three subsequent analytical models were run that included the respective interaction term and the other potential moderators as predictors. The model constrained the path coefficients to be equal across countries but allowed the intercepts, covariances, and residual variances to vary by country. Sample sizes, means, and correlations of all study variables are presented in Table 1.

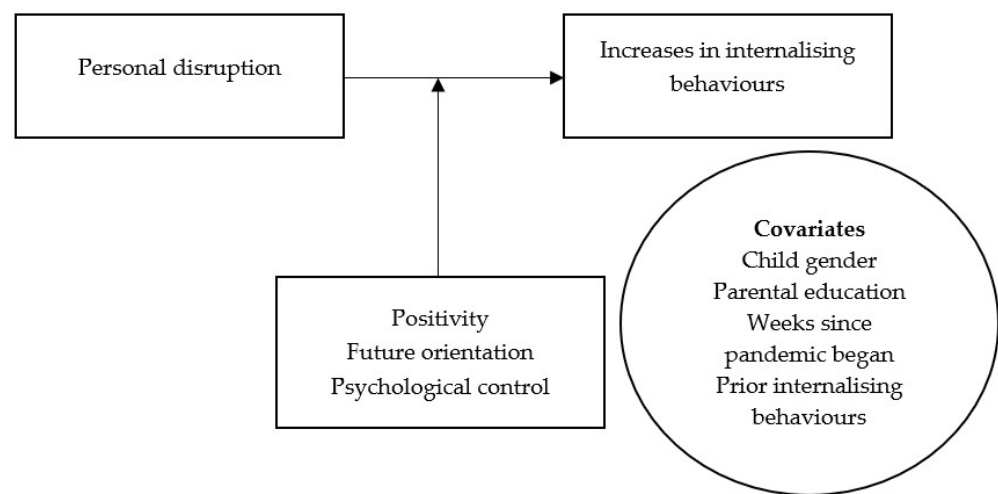


Figure 2. Statistical Model.

Model fit was assessed with four fit indices: (1) the comparative fit index (CFI), (2) the Tucker–Lewis index (TLI), (3) the root mean square error of approximation (RMSEA), and (4) the standardised root mean square residual (SRMR). These multiple fit indices were used because they examine different types of model fit and, when used together, provide a more reliable assessment (Brown 2006). Recommended guidelines for each model fit index were used: CFI/TLI > 0.95, RMSEA < 0.06, and SRMR < 0.08 represented good fit (Kline 2005). When the model did not fit the data well, country-specific coefficients were released based on modification indices and theoretical meaningfulness until good model fit was achieved. A p -value ≤ 0.05 was used to make inferences about statistical significance. To interpret effect sizes of all estimates, guidelines by Cohen (1992) were used. Values of 0.10 are considered a small effect, values of 0.30 are considered a medium effect, and values of 0.50 or more are considered a large effect. We created the interaction plots by graphing 1 SD above the mean of the moderator and 1 SD below the mean.

Table 1. Sample Sizes (*n*), Means (*M*), Standard Deviations (*SD*), and Correlations of Main Study Variables.

Variables	<i>n</i>	<i>M</i>	<i>SD</i>	Pearson Correlations										
				1	2	3	4	5	6	7	8	9		
1. Child gender	1329	-	-	-										
2. Parents' education	1318	13.71	4.18	0.00	-									
3. Weeks since pandemic began	810	20.41	12.1	0.00	-0.28 **	-								
4. Pandemic disruption	802	6.21	2.48	-0.13 **	0.05	-0.13 **	-							
5. Adolescent internalising	1042	14.1	8.97	-0.23 **	-0.02	-0.001	0.08 *	-						
6. Perceived internalising increases during pandemic	810	4.51	1.71	-0.27 **	0.10 **	-0.06	0.30 **	0.26 **	-					
7. Positivity	1039	3.92	0.65	0.01	0.03	-0.01	0.11 **	-0.47 **	-0.05	-				
8. Future orientation	998	2.98	0.51	-0.07 *	0.02	0.13 **	0.10 **	0.01	0.03	0.10 **	-			
9. Psychological control	1065	2.09	0.39	0.06	-0.34 **	0.14 **	0.09 *	0.00	-0.06	0.07 *	-0.03	-		

* $p < 0.05$. ** $p < 0.01$.

8. Results

8.1. Main and Moderation Effects

On average, positivity and future orientation were high across all participants. Internalising behaviours during adolescence were strongly negatively correlated with positivity during adolescence, and moderately correlated with perceived increases in internalising behaviours during young adulthood. Positivity and future orientation during adolescence showed a small correlation. Both positivity and future orientation showed small correlations with personal disruption during young adulthood. Parental psychological control and positivity were weakly correlated.

Model fit statistics suggested good fit of all models (Table 2). Parameter estimates of both models can be found in Table 2.

Table 2. FIML Multiple Group Model Results.

Variables	Main Model	Moderation by Positivity	Moderation by Future Orientation	Moderation by Parental Psychological Control
	Increases in Internalising Behaviours <i>b</i> (SE)			
Child gender	−0.48 (0.07) **	−0.50 (0.07) **	−0.44 (0.07) **	−0.49 (0.07) **
Parents' education	0.07 (0.034) *	0.07 (0.03) *	0.07 (0.03) *	0.07 (0.03) **
Weeks since pandemic began	−0.01 (0.06)	−0.01 (0.06)	−0.01 (0.06)	−0.01 (0.06)
Pandemic disruption	0.27 (0.03) **	0.28 (0.03) **	0.26 (0.03) **	0.27 (0.03) **
Adolescent internalising	0.16 (0.04) **	0.15 (0.04) **	0.16 (0.04) **	0.16 (0.04) **
Positivity	0.12 (0.046) *	0.10 (0.47) *	0.12 (0.05) *	0.13 (0.05) *
Future orientation	0.01 (0.04)	−0.01 (0.03)	−0.02 (0.03)	−0.01 (0.03)
Psychological control	−0.02 (0.04)	0.00 (0.04)	−0.01 (0.04)	−0.02 (0.04)
Positivity × pandemic disruption	-	−0.09 (0.03) *	-	-
Future orientation × pandemic disruption	-	-	−0.07 (0.03) *	-
Psychological control × pandemic disruption	-	-	-	−0.07 (0.03) *
<i>Country-Specific Coefficients</i>				
Kenya—child gender	0.17 (0.20)	0.14 (0.20)	0.13 (0.20)	0.16 (0.20)
Thailand—child gender	−0.02 (0.18)	−0.03 (0.18)	-	−0.02 (0.18)
Italy—positivity	−0.17 (0.07) *	−0.19 (0.07) *	−0.17 (0.08) *	−0.17 (0.07) *
Kenya—positivity	0.12 (0.05) *	-	-	-
US—positivity	−0.12 (0.07)	−0.10 (0.07)	−0.12 (0.07)	−0.11 (0.07)
Colombia—future orientation	−0.25 (0.10) *	-	-	-
Jordan—weeks since pandemic began	0.72 (0.23) *	0.71 (0.23) *	0.72 (0.23) *	0.71 (0.23) *
<i>Model Fit Statistics</i>				
Chi-square test (degrees of freedom), <i>p</i> -value	66.59 (58), 0.2	75.71 (67), 0.22	79.27 (68), 0.16	78.48 (67), 0.15
CFI/TLI	0.96/0.95	0.96/0.95	0.96/0.94	0.95/0.93
RMSEA	0.03	0.03	0.03	0.03
SRMR	0.03	0.03	0.03	0.03

Note. B = Standardised coefficient. CFI = the comparative fit index; TLI = the Tucker–Lewis index; RMSEA = the root mean square error of approximation; SRMR = standardised root mean square residual. * $p < 0.05$. ** $p < 0.01$.

8.1.1. Perceived Increases in Internalising Behaviours

Significant positive associations were found between the experience of disruption due to COVID-19 and perceived increases in internalising behaviours for adolescents across all countries. Higher levels of experienced disruption due to COVID-19 were thus related to higher perceived increases in internalising behaviours in young adults ($b = 0.27$; $SE = 0.03$, $p < 0.01$).

8.1.2. Positivity

Positivity during adolescence was significantly related to perceived increases in internalising behaviours in young adults across all countries except Italy ($b = 0.12$; $SE = 0.046$,

$p < 0.05$). For adolescents in Italy, more positive views about life were negatively associated with perceived increases in internalising behaviours ($b = -0.17$, $SE = 0.07$, $p < 0.05$).

There was consistent evidence across countries that the relation between experienced disruption due to COVID-19 and perceived increases in internalising behaviours in young adults was moderated by adolescents' positivity (see Figure 3). Higher levels of personal disruption due to the pandemic were associated with greater perceived increases in internalising behaviours among adolescents who had less positive views about life ($b = -0.09$, $SE = 0.03$, $p < 0.05$). This association had a small effect size (Cohen 1992). High levels of positivity during late adolescence may thus have a protective role in the association between disruption due to COVID-19 and perceived increases in internalising behaviours in young adults.

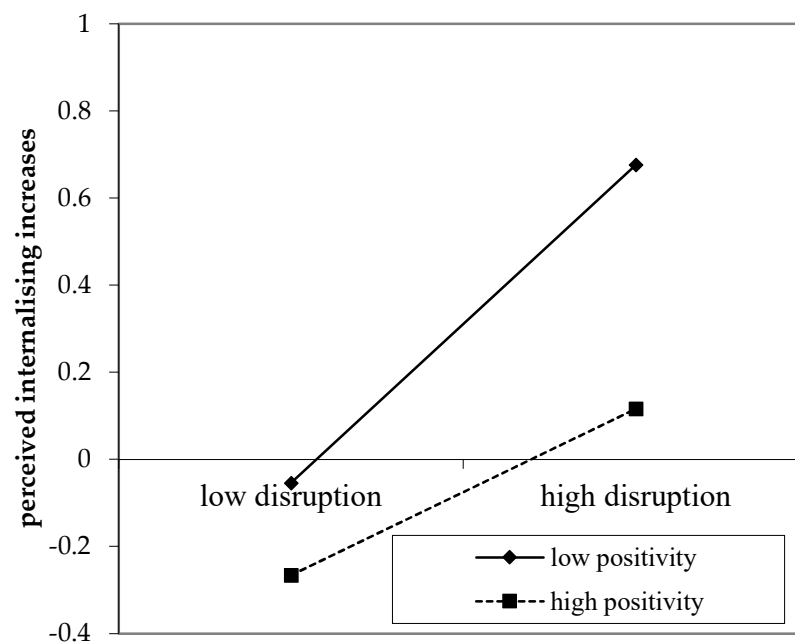


Figure 3. Moderation by Positivity.

8.1.3. Future Orientation

Across all countries, adolescent future orientation during adolescence was not significantly related to perceived increases in internalising behaviours in young adults at age 20. However, there was consistent evidence across countries that the relation between experienced disruption due to COVID-19 and perceived increases in internalising behaviours in young adults was moderated by adolescents' future orientation (see Figure 4). Greater personal disruption was associated with greater perceived increases in internalising behaviours among young adults who reported lower levels of future orientation ($b = 0.07$, $SE = 0.03$, $p < 0.05$). Use of more future-oriented thoughts and behaviours such as planning ahead during adolescence may thus have a protective role in the association between disruption due to COVID-19 and perceived increases in internalising behaviours in young adults. This association had a small effect size (Cohen 1992).

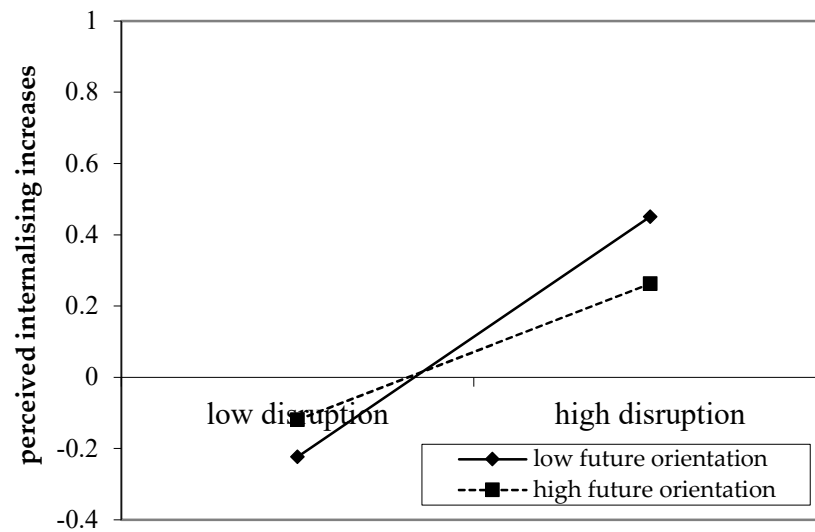


Figure 4. Moderation by Future Orientation.

8.1.4. Parental Psychological Control

Across all countries, parental psychological control was not significantly related to perceived increases in internalising behaviours in young adults at age 20. However, across all countries, the relation between experienced disruption due to COVID-19 and perceived increases in internalising behaviours in young adults was moderated by parental psychological control during adolescence (see Figure 5). Greater personal disruption was associated with greater perceived increases in internalising behaviours among young adults who had lower levels of parental psychological control during adolescence ($b = 0.07, SE = 0.03, p < 0.05$). Higher levels of parental psychological control during adolescence may thus have a protective role in the association between disruption due to COVID-19 and perceived increases in internalising behaviours in young adults. This association also had a small effect size (Cohen 1992).

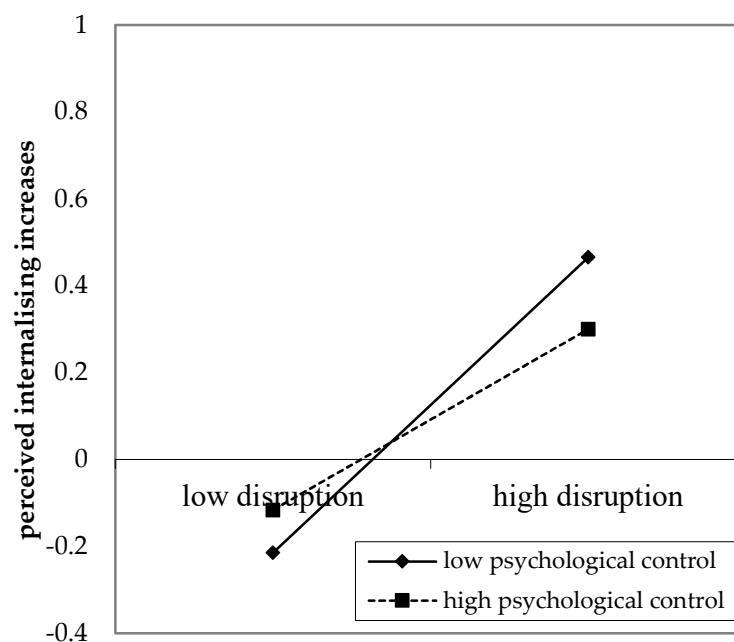


Figure 5. Moderation by Parental Psychological Control.

9. Discussion

This study examined the relation between COVID-19 personal disruption during the pandemic and perceived increases in young adults' internalising symptoms, capitalising on a nine-country study in which pre-pandemic levels of internalising symptoms, positivity, future orientation, and parental psychological control during adolescence could be studied. Because the pandemic disrupted major developmental opportunities for growth, the young adult population is particularly compelling to study. In our sample, 52% of young adults reported their anxiety had increased as compared to before the pandemic, and 35% reported increases in depression, further highlighting the need to learn more about ways to dampen such impacts in future crises. This finding is in line with prior research during the COVID-19 pandemic showing the young adult population is especially vulnerable; although clinical levels of internalising symptoms were higher than national averages among young adults even before the pandemic began, significant increases were reported by young adults as early as 1–2 months after the pandemic began (Lee et al. 2020).

Our first hypothesis, that higher levels of self-reported disruption would be associated with perceived increases in internalising behaviour as compared to before the pandemic, was supported, with a 1 *SD* increase in the level of disruption associated with a 0.27 *SD* perceived increase in internalising symptoms. Increases in anxiety and depression among the young adult population, especially during times where access to leisure activities, social support, and medical and mental health services are reduced, are of concern because of their potential to impact future well-being, engagement in work and leisure activities, and physical health (Masten 2021; Masten and Motti-Stefanidi 2020).

With one exception in one country (Italy), adolescent positivity was associated with perceived increases in internalising behaviours during the pandemic, but no significant direct relations were found between adolescent future-orientation or parental psychological control and perceived increases in young adult internalising. Consistent with our hypotheses, positivity and future orientation during adolescence moderated the relation between pandemic disruption and perceived increases in internalising behaviour, suggesting a protective effect of future-oriented thinking and behaviour. McElroy et al. (2020) distinguished between two types of anxiety that arose due to the pandemic: disease anxiety and consequence anxiety. They found that, while some people (e.g., at-risk groups with physical health conditions) were worried about the disease itself, older adolescents and young adults were most concerned about the consequences of the pandemic. As such, this study shows that increases in internalising symptoms among young adults may be associated with pandemic-related factors related to long-term consequences for their future, such as educational and economic disruptions (Ahmed et al. 2020; McElroy et al. 2020).

Surprisingly, and contrary to our hypothesis, higher levels of psychological control during adolescence also served a buffering role between pandemic-related disruption and perceived increases in internalising behaviours. Although parental psychological control is consistently linked to higher levels of maladjustment for children, we speculate that the nature of the pandemic played a role in this unusual finding. The literature on community-wide stressors such as natural disasters and long-standing political violence provides some clues to why control may serve a protective role in its possible provisions of emotional security (see Cummings et al. 2010). During circumstances where multiple ecosystem levels are disrupted, and where physical and emotional health and well-being are threatened, young adults who might otherwise be disempowered by high levels of parental psychological control may instead—in these unusual circumstances—find predictability and consistency in a more controlling parent–child relationship.

The development of resiliency among young adults during the pandemic may come via several pathways. Parents can play a key role during childhood and adolescence to help buffer the negative impact of future community-wide stressors or other disruptive events in young adult lives. Through parent–child interaction, modelling interests and goals, and verbalising future-oriented thinking and optimism about personal goals and education (Kerpelman et al. 2008), parents set normative standards that can be adopted by adolescents

in their thoughts and behaviours (Nurmi 1991). Some aspects of parental control may also serve a protective role during the pandemic. In one study with Dutch adolescents and their parents, the authors found that although youth reported an increase in rules set by parents during the pandemic and a temporary decrease in autonomy, most youth reported they felt these additional restrictions were legitimate and warranted (Bülow et al. 2021). Thus, if parents and young adults resided together during the pandemic and similar or even higher levels of control compared to before the pandemic were present, young adults may have understood these parenting behaviours to be protective. Further, given that the relation between psychological control and depressive symptoms is stronger for those with poor sadness regulation (Cui et al. 2014), it is possible the pandemic may have provided an opportunity for families to engage in more positive family interactions during the pandemic (see Bülow et al. 2021). If positive family interactions provided a way to increase emotion regulation skills among young adults, this could account for the diminished impact of psychological control on adjustment, which is typically maladaptive.

The literature on adverse childhood experiences (ACEs) also informs our understanding of other ways in which resilience may be developed as the impact of ACEs on biological, epigenetic, and psychosocial outcomes is realised (Anda et al. 2006; Merrick et al. 2017). The literature on ACEs suggests an ecological systems approach, as families and communities must be provided the skills, resources and support to overcome adversity (Rosanbalm et al. 2020). Empirically informed approaches to public policy and treatment practices (see, e.g., Blair et al. 2019) can improve outcomes for families and conserve limited resources.

9.1. Strengths and Limitations

The findings from this study should be interpreted in the context of several strengths and limitations to guide future research. Although this study included only self-report data, which is somewhat limiting in scope due to possible reporter bias, both pre-pandemic and pandemic data were utilised, and prior levels of internalising behaviours were controlled to rule out the possibility that increases in internalising behaviours were experienced only by those who were already experiencing symptoms of anxiety and depression before pandemic onset. Reporting about positivity is also best performed by adolescents themselves, as outside observers are not reliable reporters of thoughts and experiences of optimism (Caprara et al. 2019). Second, this study also included a measure not just of optimism and positive thinking (positivity), but of behaviours associated with planning, time perspective, and anticipation of future consequences (future orientation), which signals behavioural changes that can accompany positive thoughts and views about the future. Parents' reports about their own positivity and future orientation or child reports about their perceptions of their parents' behaviour would strengthen the argument that parents are able to influence their adolescents' experiences with future-oriented thoughts and behaviour, especially during times of stress. Because our measure of disruption included a single item, we are only able to base our conclusions on how well an overall feeling of disruption predicts perceived changes in internalising behaviour and are not able to distinguish if these relations were due to disruptions in different areas, such as school, home, work, or social interaction. It is also possible that the time elapsed between community school closures and data collection may impact individual perceptions of disruption. For example, individuals who responded to the survey shortly into lockdowns may perceive disruption and increases in internalising to a lesser degree than those who completed the survey after a few months of closures. However, we included a control variable of "weeks since the pandemic began" to minimise the possibility of spurious relations between the predictor and outcome. Because parental psychological control was measured during adolescence rather than concurrently with measures of pandemic disruption and perceived increases in internalising behaviours, we cannot be sure that psychological control has the same protective association were it to occur within the time period of the community-wide stressor. Indeed, psychological control typically has a negative impact on adjustment. Thus, a concurrent measure of all

three moderators would inform our understanding not only of how parenting behaviours and youth perceptions change over time, but also whether the associations among the moderators we measured and the disruption–internalising link persist within a single time point during young adulthood. Finally, future work that pairs self-report measures of future orientation with observable behavioural measures of planning would add to the richness of the data.

9.2. Relevance for Parenting and Parent–Child Relationships in the 21st Century

Parents and children in the 21st century face a range of community-wide stressors with unclear solutions. Climate change, sectarian violence, and economic volatility, to name a few, promise to influence development around the world. Although uncertainty about the security of future events can increase parental stress and negatively impact parenting, exposure to some stressors can also contribute to resilience in children as parents try to restore a sense of “normality” (Prime et al. 2020) and emotional security. Resilience literature (see Masten 2015) emphasises several important applicable concepts. First, co-occurring stressors will disproportionately impact low-income countries and families. Thus, family and organisational supports are especially needed in already at-risk communities in order to shore up resources for additional community-wide stressors. Second, part of the distinction between maladjustment and resilience when facing stressors may lie in parents’ ability to engage youth in recovery planning, foster feelings of self-efficacy, and establish hope for the future (Masten and Motti-Stefanidi 2020). Recent research supports the idea that parental focus on future orientation can help buffer the impact of negative life events across a variety of settings. In a longitudinal study with adolescents in the United States, for example, parental involvement in activities of middle adolescence and parental advice about the future predicted adolescent positive adjustment and occupational goals two years later (Lee and Yu 2017).

Child development theories offer several explanations for how parenting may impact children’s future-oriented thinking and behaviour. For example, Seginer’s (2008) work with children exposed to political violence showed that children need exposure to challenges to develop resilience and that the development of hope is an important mediator in the link between challenge/resilience and future orientation (see also Zoellner and Maercker 2006). Further, research with youth exposed to community and political violence highlights that adolescents may be more vulnerable to psychological effects of stress exposure than younger children (Shaw 2003). Parenting is one resource for reducing adverse impacts on children’s social-emotional development (Perrin et al. 2016), and although the similarities between the COVID-19 pandemic and exposure to other community-wide stressors are yet to be confirmed, this study suggests that, if future orientation and positivity can be shaped by parents, parent–child relationships during adolescence could play a role in buffering the impact of life disruption into young adulthood. The resilience literature on ACEs (see Section 9, above) also supports the idea that efforts to improve outcomes for families facing threats to psychological and psychosocial health are best implemented from an empirically driven, community focused (e.g., schools, health service providers, and government) coordinated effort.

This study also provided new information about the role that parental psychological control may play in adjustment of young adults during a community-wide stressor. Though more research is needed to unpack which aspects and to what degree psychological control may serve a protective role during exposure to widespread threats to health and safety, the 21st century is ripe with opportunities for study. Researchers can use technology to gather more detailed information about daily fluctuations in the parent–child relationship and in youth responses to stressors, by using ecological momentary assessment or conducting studies of social media use.

10. Conclusions

This study demonstrated that across a wide range of sites in nine countries, with varying experiences and responses to the pandemic, adolescent positivity, future orientation, and parental psychological control during adolescence moderated the relation between disruption due to the COVID-19 pandemic and perceived increases in internalising symptoms several years later. Consistently across sites, we found that higher levels of adolescent positivity and future orientation may protect young adults from stronger relations between disruption and symptoms of depression and anxiety compared to young adults with comparatively lower adolescent levels of positivity and future orientation. Similarly, in contrast with prior research, we also found evidence that parental psychological control during adolescence may have provided some stability and predictability necessary to buffer the relation between pandemic disruption and young adults' perceived increases in internalising symptoms. As the third and fourth decades of the 21st century may include continued disruptions to typical developmental trajectories, these findings inform our understanding of associations among long-studied psychological constructs during community-wide stressful experiences.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Institutional Review Board of Duke University (protocol 2017-1191, approved 7 July 2021) and review boards in all participating countries.

Informed Consent Statement: Informed Consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy and ethics restrictions.

Conflicts of Interest: The authors declare no conflict of interest.

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