


The Impact of the COVID-19 Pandemic on Adolescent Emotional, Social, and Academic Adjustment

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The COVID-19 pandemic has had a strong impact on adolescents worldwide. This special issue aimed to increase our understanding of the factors that explain interindividual differences in how adolescents are affected by the pandemic. The special issue includes 21 empirical articles from four continents on the role of the pandemic in changes in emotional, social, and academic adjustment during adolescence. The studies demonstrate that many adolescents experienced increased depressive symptoms, negative affect, and loneliness, and lower academic adjustment during the pandemic, particularly those that were already at risk before the pandemic. At the same time, many adolescents had individual, family, and community resources that made them resilient and helped them to continue to function well despite the adverse circumstances.

Key words: adolescence – COVID-19 pandemic – adjustment – resilience

Since the end of 2019, the COVID-19 pandemic and the preventive measures to suppress the spread of the virus have had a strong impact on the daily life of young people worldwide. Although teenagers are less likely to get seriously ill from the virus than adults, they might worry about the health of their relatives or the financial impact of the distancing measures. Also, the lockdown and distancing measures have resulted in drastic changes in their daily activities. Many adolescents have not been able to attend school for shorter or longer periods, and many had to transition to online and distance learning during lockdown or had no schooling at all. Structured leisure activities, such as sports or hobbies, were often canceled during lockdown periods, and adolescents had less opportunities to hang out with their peers and friends. Although adolescence provides a window of opportunity for the development of identity, autonomy, and relationships with peers and romantic partners, it is also a period in which some adolescents develop behavioral or mental health problems (Hollenstein & Loughheed, 2013). Pandemics such as COVID-19, which might interfere with the developmental tasks of adolescence, might constitute the “perfect storm” for difficulties to emerge in some adolescents.

Although the pandemic-related changes have indeed led to serious concerns about the well-being

and psychosocial adjustment of young people around the world since early on in the pandemic (e.g., Clemens et al., 2020; Guessoum et al., 2020), research is needed to understand the pandemic’s short- and long-term consequences of the COVID-19 pandemic and lockdown measures on the adjustment of adolescents. Therefore, the current special issue brings together research on the impact of the pandemic on adolescent emotional, social, and academic adjustment. It includes 21 studies using data from four continents, with two contributions from Asia, nine from Europe, nine from North America, and one from South America. Together these contributions cover the entire period of adolescence, with ages ranging from 9 to 22, and examined changes in four key domains of functioning: emotional adjustment and psychopathology, family processes, peer processes, and academic functioning. Table 1 presents an overview of the studies, including information on the study design, main conclusions, and implications.

An important strength of many of the papers in this special issue is that they use longitudinal data to compare the functioning of adolescents during the pandemic to their functioning before the pandemic, and as such go beyond reports of perceived

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TABLE 1
Summary of Contributions of the Special Section

		Methods	
Paper	Themes & Constructs	Sample	Design
Deng et al.	Negative and positive affect Emotion regulation strategies	U.S. youth (9–15 at wave 1; <i>n</i> = 115)	<ul style="list-style-type: none"> longitudinal online daily diaries collected multi-week pre-COVID and mean positive and negative affect collected over a 28 day period during the pandemic
Hollenstein et al.	Mental health (mothers and youth) Anxiety symptoms Depression symptoms	Canadian mothers (<i>n</i> = 155) and youth (ages 12–13; <i>n</i> = 146)	<ul style="list-style-type: none"> longitudinal online surveys pre-COVID and during COVID 2–3 months into lockdown
van Loon et al.	Mental Health COVID-related concerns Stress Maladaptive coping Internalizing	Dutch adolescents (ages 13–18; <i>n</i> = 188)	<ul style="list-style-type: none"> longitudinal surveys pre-COVID and twice during COVID during COVID surveys assessed COVID-related concerns
Romm et al.	Mental health Emotion regulation Depressive symptoms Risk and protective factors	U.S. adolescents (ages 14–16; <i>n</i> = 208)	<ul style="list-style-type: none"> longitudinal 3 waves of data collection; surveys in person or online
		Major Findings	Implications
		<ul style="list-style-type: none"> Negative affect increased during the pandemic, while positive affect remained stable Variability in negative affect remained stable, while variability in positive affect decreased Adolescents who used more savoring and less dampening strategies had a greater positive affect Rumination over COVID-related stressors was associated with increased negative affect COVID-related experiences interacted with emotion regulation strategies to predict different patterns of affect 	<ul style="list-style-type: none"> Emotion regulation skills training pre and during a pandemic is a promising intervention and prevention strategy to promote coping and adaptive emotion regulation Findings were strongest for youth who experienced lower levels of COVID stress, suggesting youth with high distress may be less affected by common emotion regulation strategies Changes and regulation of positive affect during a pandemic are important to consider as well as negative affect
		<ul style="list-style-type: none"> Anxiety symptoms decreased for mothers and youth, and this was greatest among youth with higher pre-COVID anxiety Depressive symptoms increased for mothers and youth Changes in depression for youth were driven by females, and changes in anxiety were driven by males Increases in depressive symptoms were associated with more negative COVID-related changes 	<ul style="list-style-type: none"> Mental health effects may differ for males and females, with females potentially being at greater risk Interventions during the pandemic should target preventing depression and COVID-related stress (not seeing friends, worry about illness) Many youth are resilient; particularly youth suffering from anxiety may benefit from less social stressors that are common during non-pandemic times
		<ul style="list-style-type: none"> The most frequent COVID-related concerns were missing social activities and delays in school Adolescents were least concerned with financial problems and getting sick Higher stress, maladaptive coping, and internalizing predicted greater concerns during the pandemic 	<ul style="list-style-type: none"> Youth who experience greater concerns may be more at risk for later negative impacts of the pandemic on mental health Youth with greater adjustment problems had more COVID-related concerns suggesting early intervention for youth at-risk for coping and mental health difficulties
		<ul style="list-style-type: none"> Increases were found in depressive symptoms, negative affect, and isolation during the pandemic Decreases were found in positive affect and friendship 	<ul style="list-style-type: none"> Crises such as the pandemic increase risk for mental health problems, particularly depressive symptoms and negative affect among youth Not all mental health trajectories are the same, and youth may benefit

TABLE 1 (Contd.)
Summary of Contributions of the Special Section

Methods		Themes & Constructs	Major Findings	Implications
Paper	Sample			
Steinhoff et al.	Swiss young adults (age 22; <i>n</i> = 786)	Mental health Self-harm Domestic violence Coping Negative emotion Pandemic-related stressors	<ul style="list-style-type: none"> • Risk factors included dampening emotions • Protective factors were savoring emotions and eudaimonic (purpose, developing skills) and hedonistic (seeking pleasure) motives • Across the pandemic, self-injury did not increase while domestic violence did increase in males • Pre-pandemic self-injury was a predictor of self-injury during the pandemic • Living arrangements, pandemic-related stressors, and lack of adaptive coping were risk factors for self-injury and domestic violence • Negative emotions mediated the relation between accumulated stressors and self-injury/domestic violence 	<p>from encouraging emotion regulation strategies that accept negative emotions, savor positive emotions and encourage both internal (purpose) and external motivations (having fun)</p> <ul style="list-style-type: none"> • Screening during a pandemic should include mental health histories for behaviors such as self-harm as they predict mental health problems during a pandemic • Young adults who lived alone were more at-risk for self-harm, thus living alone may be a risk factor for self-harm during a pandemic • Young adults who transitioned to living with a cohabitating partner rather than peers were more likely to perpetuate domestic violence, increasing risk in this group • Interventions should address coping with negative emotions, pandemic-related stress, and living arrangements for young adults
Miconi et al.	Albanian minority youth (ages 14-20)	Assets/resources Risk/adjustment Discrimination	<ul style="list-style-type: none"> • mixed methods • five focus groups (three Roma, two Egyptian) conducted during the pandemic • developmental assets survey administered to all youth 	<ul style="list-style-type: none"> • A low number of assets and barriers to resources were reported • Mental health and coping concerns were reported, and were linked to lack of resources and discrimination • Family, social competencies, and values emerged as assets • Minority youth experience structural barriers, lack of assets, and information on resources. This is pervasive during non-pandemic times and heightened during a pandemic when isolation and uncertainty increase • Family is a major protective factor among minority youth • Structural and material support are needed during a pandemic, and more broadly among minority youth • Cultural diversity training is needed for community workers, school personnel, and government officials to lessen discrimination and improve outcomes for minority youth
Chang, et al.	Diverse sample of U.S. youth and mothers (<i>n</i> = 141)	Mental health Internalizing Externalizing	<ul style="list-style-type: none"> • longitudinal 	<ul style="list-style-type: none"> • Slow life strategies reduced COVID-related externalizing • Slow life strategies that promote growth and development (e.g., planning, altruism, family/friend

TABLE 1 (Contd.)
Summary of Contributions of the Special Section

Methods		Major Findings		Implications	
Paper	Themes & Constructs	Design	Sample	Major Findings	Implications
	Biobehavioral resource allocation (i.e., slow life strategies, growth and development, vs. fast life strategies, reproduction)	<ul style="list-style-type: none"> interview/survey at T1 and T2, and online surveys at T3 (during COVID, youth age 20) Early adversity T1; slow life strategies T2; COVID-related internalizing & externalizing T3 	<ul style="list-style-type: none"> youth; data collected at age 9, 13, and 20 	<ul style="list-style-type: none"> Slow life strategies mediated the relation between early adversity and COVID-related externalizing Slow life strategies moderated the relation between early life adversity and COVID-related internalizing 	<ul style="list-style-type: none"> support), assessed during early adolescence, were protective against COVID-related mental health problems during early adulthood Early adversity may be a risk factor for COVID-related mental health problems in young adulthood
Campione-Barr et al.	Social support/Relationship quality (mothers, fathers, siblings, peer) Mental health (anxiety, depression, problem behavior) COVID-related stress	<ul style="list-style-type: none"> longitudinal online survey pre and during COVID 	<ul style="list-style-type: none"> U.S. youth (ages 12–20; $n = 170$) 	<ul style="list-style-type: none"> Positive relationships with parents were associated with better adjustment during the pandemic, whereas negative relationships were more detrimental The role of best friends and siblings during the pandemic depended on COVID-related stress Pre-pandemic adjustment and COVID-related stress were related to adjustment 	<ul style="list-style-type: none"> Relationships with best friends may be harmful during a pandemic Adolescents with greater adjustment difficulties prior to an international crisis, such as a pandemic, are more at-risk for adjustment difficulties during a pandemic COVID-related stress is associated with greater adjustment difficulties and mental health problems
Janssens et al.	Parent-child attachment Irritability Loneliness Daily stress	<ul style="list-style-type: none"> longitudinal wave one, pre-COVID, surveys completed in school; wave 2 surveys completed remotely in both waves daily assessments for 6 days, 10 times a day virtually 	<ul style="list-style-type: none"> Belgian youth (ages 11–20; $n = 173$) 	<ul style="list-style-type: none"> Participants reported decreased daily life irritability and increased loneliness Daily stress was unchanged pre and during the pandemic Parental attachment insecurity was related to increased irritability and loneliness 	<ul style="list-style-type: none"> Interventions should include both mothers and fathers, whole family, to increase adjustment during difficult times, such as a pandemic Many adolescents in this study were resilient to the potential negative effects of the pandemic during the first lockdown, but researchers should examine longer term effects
Shi et al.	Emotion socialization (parental reactions to emotions) Coping Mental Health/maladjustment (negative emotions, depression, anxiety)	<ul style="list-style-type: none"> longitudinal online survey 1-year pre-pandemic and during pandemic 	<ul style="list-style-type: none"> Chinese adolescents ($M_{age} = 12.18$; $n = 211$) 	<ul style="list-style-type: none"> Supportive parental reactions to negative emotions were associated with more positive coping (greater approach and less avoidance) and this was associated with less maladjustment Unsupportive parental reactions to negative emotions were associated with greater avoidant coping and more emotional maladjustment 	<ul style="list-style-type: none"> Parental reactions to emotions and emotion socialization prior to the pandemic set the stage for emotional adjustment during the pandemic for youth Interventions targeting parental emotion socialization and adolescent coping may be beneficial for adolescent mental health prior to and during global crises like the COVID-19 pandemic

TABLE 1 (Contd.)
Summary of Contributions of the Special Section

		Methods			
Paper	Themes & Constructs	Sample	Design	Major Findings	Implications
Di Giunta et al.	Emotion socialization (parental reactions to emotions) Mental health (internalizing & externalizing) Emotion dysregulation	Italian mothers and fathers reported on their adolescents Study 1 youth ($M_{age} = 12.6; n = 531$) Study 2 youth ($M_{age} = 14.97; n = 80$)	<ul style="list-style-type: none"> cross-sectional (Study 1; two cohorts) longitudinal (Study 2, pre and during pandemic data, clinical sample) online surveys for both studies 	<ul style="list-style-type: none"> Findings were similar for perceived maternal and paternal reactions to emotions In the normative sample, emotion dysregulation and maladjustment were higher during the pandemic, but data were cross-sectional and retrospective In the clinical, longitudinal sample, maladjustment improved during the pandemic In both samples, unsupportive emotion socialization was associated with youth maladjustment and emotion dysregulation 	<ul style="list-style-type: none"> For some youth with mental health difficulties, maladjustment may actually improve during the pandemic, possibly due to less academic and socially related stress Among youth not in treatment for mental health problems, maladjustment and emotion dysregulation increased, indicating possible different mental health trajectories during the pandemic Parental emotion socialization was an important predictor of emotion regulation and mental health
Alt et al.	Mental health Loneliness Depression Extraversion	German adolescents (ages 14-17; $n = 843$)	<ul style="list-style-type: none"> longitudinal online survey pre and during COVID 	<ul style="list-style-type: none"> Extraverted adolescents experienced a greater increase in depressive symptoms The relation between extraversion and depression was mediated by loneliness 	<ul style="list-style-type: none"> In cases of restricted social interaction, like a pandemic lockdown, extraversion is a risk factor for depression Interventions minimizing loneliness through virtual and safe social interactions may be particularly helpful for more extraverted youth during a pandemic
Bernasco et al.	Mental health Friend support Time spent with friends COVID-related stress Internalizing	Dutch youth and mothers ($M_{age} = 11.60; n = 247$)	<ul style="list-style-type: none"> longitudinal online survey pre and during COVID 	<ul style="list-style-type: none"> Pre-COVID friend support was related to less internalizing (parent and self-reported) during the pandemic Friend support declined during COVID; internalizing was stable Time spent with friends during COVID (online and in person) and COVID-related stress did NOT moderate the link between friend support and internalizing symptoms 	<ul style="list-style-type: none"> Friend support may protect against internalizing problems during a crisis, like the pandemic Internalizing symptoms pre-COVID predicted less friend support during COVID, suggesting that mental health difficulties may impede friendship during a pandemic

TABLE 1 (Contd.)
Summary of Contributions of the Special Section

Methods		Major Findings		Implications	
Paper	Themes & Constructs	Sample	Design	Major Findings	Implications
Hutchinson et al.	Mental health Suicidal ideation Peer connectedness Social reward neural processing	U.S. adolescent girls ($M_{age} = 15.06$; $n = 93$)	<ul style="list-style-type: none"> longitudinal fMRI pre-COVID (Peer social incentive delay task), 10 day online diaries and surveys during COVID 	<ul style="list-style-type: none"> Suicidal ideation during the pandemic was endorsed by 40% of girls Greater peer connectedness during the pandemic and neural response to anticipated social reward pre-pandemic were associated with reduced odds of suicidal ideation 	<ul style="list-style-type: none"> Risk factors for suicide ideation should be assessed and considered when monitoring youth during a crisis like the pandemic Policy makers should weigh the risks and benefits of in-person interactions during a pandemic, as low peer-connectedness was found to be a risk factor for suicidal ideation
Magis-Weinberg et al.	Social media (positive and negative) Loneliness Social support	Peruvian youth (ages 11–17; $n = 735$)	<ul style="list-style-type: none"> longitudinal online surveys collected during COVID 	<ul style="list-style-type: none"> Loneliness was higher among females and females had more negative online experiences Positive online experiences were more common than negative ones, and were related to less loneliness; and negative online experiences were related to more loneliness, controlling for social support from family and friends 	<ul style="list-style-type: none"> Not all online experiences are the same or have similar effects, and researchers should distinguish between types Females may be at greater risk compared to males for loneliness Positive online experiences may mitigate social isolation and loneliness during a pandemic Caregivers should discuss online experiences and encourage positive vs. negative online interactions
Mayeux et al.	Social media – frequency and importance Gratitude	U.S. adolescents (ages 13–18; $n = 704$)	<ul style="list-style-type: none"> longitudinal Two online surveys administered pre-pandemic and two during the pandemic 	<ul style="list-style-type: none"> Gratitude and the importance of social media (not mere usage) were positively associated over time Gratitude predicted the importance of social media for meaningful conversations 	<ul style="list-style-type: none"> Gratitude may motivate and foster social media usage for maintaining and building social connections during a pandemic, but not overall social media usage When examining social media usage, researchers should include motivations for usage as well as types of usage
Parent et al.	Attachment (peer, family) Smartphone usage Fear of missing out (FoMO)	Canadian youth from one urban and one rural school (ages 11–18; $n = 682$)	<ul style="list-style-type: none"> mixed methods Online survey administered during COVID with closed and open-ended questions 	<ul style="list-style-type: none"> Three groups of youth emerged: socially connected; socially disconnected; socially indifferent A majority (64%) of youth felt connected, while 28% felt disconnected Relationship quality with peers was related to less social disconnection; FoMO was related to more social disconnection 	<ul style="list-style-type: none"> A subset of youth who feel disconnected may be at greater risk for adjustment difficulties during a pandemic Interventions should target increasing secure peer attachment by addressing FoMO and addressing feelings of social connections with peers during a pandemic

TABLE 1 (Contd.)
Summary of Contributions of the Special Section

Methods			
Paper	Themes & Constructs	Design	Major Findings
Sabato et al.	Loneliness Emotional state Social connections Prosocial behavior (willingness to help a lonely peer)	Sample	Implications
		Sample	Implications
Klootwijk et al.	Academic motivation Daily mood Social support Conflict	Design	Major Findings
		Sample	Major Findings
Salmela-Aro et al.	School engagement School burnout Socio-emotional competencies and outcomes (e.g., grit, belongingness, loneliness, academic buoyancy)	Design	Major Findings
		Sample	Major Findings

TABLE 1 (Contd.)
Summary of Contributions of the Special Section

Methods	
Paper	Themes & Constructs
Maiya et al.	School bonding Stress Coping Parental involvement in education Parent-reported pandemic-related financial need
Sample	U.S. families across five mid-western states (2 adolescent siblings and one parent per family) N = 1045 adolescents (M _{age} = 14.45)
Design	<ul style="list-style-type: none"> longitudinal online surveys collected pre and during COVID
Major Findings	<ul style="list-style-type: none"> School bonding decreased due to pandemic-related stress Pandemic-related financial stress was a risk factor for decreases in school bonding, whereas coping and parental involvement in education were protective against decreases in school bonding
Implications	<ul style="list-style-type: none"> Academic and school adjustment involves individual (e.g., coping), parental (e.g., involvement), and family (e.g., financial stress) level influences during a pandemic Interventions may benefit from targeting school bonding and academic adjustment through malleable factors such as increasing coping and parental involvement in education to help offset potential declines in academic adjustment due to a pandemic

Note. Information in the table is drawn from the editors' interpretation of the articles, not necessarily the authors. Readers are encouraged to examine the articles for greater detail and nuances in findings and interpretation.

change in well-being, to focus on pandemic-related factors and processes that might account for these changes. In addition, several papers focus on changes in functioning during different phases of the pandemic (e.g., Deng, Gadassi Polack, Creighton, Kober, & Joormann, 2021; Klootwijk, Koele, van Hoorn, Güroğlu, & van Duijvenoorde, 2021; Magis-Weinberg, Gys, Berger, Domoff, & Dahl, 2021). These studies allow us to examine how the changing circumstances during the pandemic relate to adolescent adjustment and well-being and examine the effects of changes in pandemic-related experiences across time.

HETEROGENEITY OF THE IMPACT OF THE PANDEMIC ON ADOLESCENT ADJUSTMENT

In terms of emotional adjustment and psychopathology, the impact of the pandemic was found to differ across the type of problems: From before to during the first 6 months of the pandemic, adolescent depression and negative affect increased (Hollenstein, Colasante, & Lougheed, 2021; Romm, Park, Hughes, & Gentzler, 2021), but anxiety symptoms (Hollenstein et al., 2021), daily-life irritability (Janssens et al., 2021), and self-reported internalizing problems decreased (Bernasco, Nelemans, van der Graaff, & Branje, 2021). Among Swiss young adults, the prevalence of self-injury did not change between the first lockdown and post-lockdown, yet domestic violence increased in males (Steinhoff et al., 2021). Also, in a clinical group, maladjustment decreased since the pandemic started (Di Giunta et al., 2021). These findings might show that for some adolescents, the sudden lockdown-induced changes went together with a reduction of daily stress and social pressure that might play a role in the development and persistence of their mental health symptoms (Bruining et al., 2021).

The papers in this special issue also focused on the factors that explain heterogeneity in the effects of the pandemic on adjustment. Some of this heterogeneity can be explained by differences in the impact of the pandemic on emotional, social, and academic adjustment during adolescence across countries, regions, and individuals. Although the pandemic is thought to affect the mental health and well-being of adolescents, large individual differences exist in how adolescents are affected. Many adolescents could continue to do their school work online from home and could reach out and connect to friends through virtual platforms. Those adolescents might show resilience

or might even experience positive effects of the COVID-19 pandemic. However, adolescents from more disadvantaged and lower-income environments particularly experienced a negative impact of the pandemic—they experienced the loss of family income, higher rates of illness and death among community members, and problems in virtual connectivity. The levels of stress and trauma in those adolescents are likely to be higher, and this has been consistently linked to adverse development, academic achievement, health outcomes, and risk for exposure to violence (Sapienza & Masten, 2011). Indeed, adolescents who reported more negative changes reported stronger increases in depressive symptoms (Hollenstein et al., 2021), and specific living arrangements, pandemic-related stressor accumulation, and a lack of adaptive coping strategies were associated with during-pandemic self-injury and domestic violence (Steinhoff et al., 2021). Also, experiences of discrimination and marginalization and lack of resources were related to mental health problems during the pandemic (Miconi et al., 2021).

Preexisting risk and vulnerability factors might also explain the heterogeneity in effects of the pandemic. Teenagers living in lower-income families might experience the most serious effects. Indeed, several studies in the special issue showed that those adolescents who were more vulnerable before the pandemic reported the largest negative changes during the pandemic. For example, adolescents that had specific vulnerabilities such as higher stress, maladaptive coping, or internalizing problems before the pandemic, experienced more COVID-19-related concerns during the pandemic (van Loon et al., 2021). Comparably, adolescents who used more pre-existing savoring and less dampening emotion regulation strategies reported higher positive affect while adolescents who used more rumination reported increased negative affect during the pandemic, although these effects tended to be stronger for adolescents experiencing less COVID-19-related worries and more COVID-19 isolation (Deng et al., 2021). Also, pre-pandemic self-injury was a major risk factor for during-pandemic self-injury (Steinhoff et al., 2021), and pre-pandemic neural response to anticipated social reward was associated with reduced odds of suicidal ideation (Hutchinson et al., 2021). Interestingly, how adolescents deal with the pandemic might depend on their life-history strategy: Adolescents with a slow life-history strategy, characterized by effortful control, parent-child relationship quality, family and friends' social contact and support, and

altruism, revealed reduced COVID-related increases in externalizing problems, and slow life strategies buffered the relation between early life adversity and COVID-related increases in internalizing problems (Chang et al., 2021).

Family relationships played a particularly important role in the adjustment of adolescents during the pandemic (e.g., Miconi et al., 2021). Positive relationships with parents were associated with better adjustment during the pandemic (Campione-Barr, Rote, Killoren, & Rose, 2021), and paternal attachment insecurity strengthened the increase in loneliness during the pandemic (Janssens et al., 2021). Emotion socialization was particularly found to be important for adolescent adjustment: Unsupportive parental emotion socialization predicted youths' maladjustment and emotion dysregulation (Di Giunta et al., 2021; Shi & Wang, 2021), and this effect was mediated by greater use of avoidance coping (Shi & Wang, 2021). These findings confirm that family relationships can offer comfort and support that might buffer the effects of the pandemic (see also Weeland et al., 2021). However, the pandemic may disrupt the family system as well, and these disrupted family processes might strengthen the effects of the pandemic and related lockdown measures on adolescent adjustment and well-being (Masten & Motti-Stefanidi, 2020; Prime, Wade, & Browne, 2020).

SOCIAL CONNECTION DURING THE PANDEMIC

The peer context is another crucial domain to consider in understanding the effects of the pandemic on youth adjustment and well-being. Adolescents, unlike any other age group, rely heavily on friendships and social contacts, and peer interactions play an important role in the development of their identity, personality, and perspective taking (Berndt, 2002; Brechwald & Prinstein, 2011). As the lockdown and distancing measures have resulted in a drastic reduction of possibilities for adolescents to meet and hang out with friends at school, at organized activities, and at home and in the neighborhood, important functions of friends and peers in terms of affiliation and support might have considerably declined. Indeed, several studies in the special issue documented that a subgroup of adolescents felt more lonely during the pandemic (e.g., Romm et al., 2021) and that loneliness explained the decline in early adolescents' emotional adjustment during the pandemic (Sabato,

Abraham, & Kogut, 2021). During the early period of the lockdown, levels of loneliness remained constant (Magis-Weinberg et al., 2021). Particularly highly extraverted adolescents reported increases in loneliness, which subsequently were related to increased levels of depressive symptoms (Alt, Reim, & Walper, 2021), showing that whereas extraversion might help to establish and maintain social connection in normal circumstances, under conditions of restricted access to others, extraversion might put youth at risk for developing problems and lower well-being.

A number of studies in the special issue also showed that high-quality peer relations—both before and during the pandemic—might buffer the negative effects of the pandemic on adolescents' functioning. Greater peer connectedness during the pandemic was associated with a reduced odds of suicidal ideation during the pandemic among girls (Hutchinson et al., 2021), and while the higher quality of peer relationships, but not parent-child relationships, were related to lower levels of social disconnection during the pandemic, fear of missing out was related to higher levels of social disconnection (Parent, Dadgar, Xiao, Hesse, & Shapka, 2021). Also, higher pre-pandemic friend support predicted less self-reported and parent-reported internalizing problems during the pandemic, regardless of time spent with friends during the pandemic (Bernasco et al., 2021). Supportive friendships may thus protect against developing internalizing symptoms in times of crisis. Importantly, internalizing problems before the pandemic were also found to be predictive of less friend support during the pandemic (Bernasco et al., 2021), suggesting that it is easier for adolescents with higher levels of adjustment to maintain their friendships when this is challenged by circumstances. Moreover, friendships can also increase the negative impact of the pandemic: For best friends, higher relationship positivity in the context of high levels of COVID-related stress was associated with greater adolescent problem behavior (Campioni-Barr et al., 2021), which might be attributed to peer deviancy training processes.

As many adolescents meet their peers online through social media, some of the negative effects of the pandemic might have been alleviated by the possibility to stay connected with peers and friends online. Indeed, adolescents with higher levels of loneliness reported fewer virtual and face to face social connections, and adolescents with fewer social connections were less willing to help lonely peers (Sabato et al., 2021). Particularly positive

online experiences might reduce loneliness during physical isolation, as more positive online experiences were related to less loneliness, and more negative online experiences were related to more loneliness (Magis-Weinberg et al., 2021). Some adolescents seem to be better able to profit from online interactions than others, as adolescents with higher levels of gratitude had increased importance of social media for meaningful conversations, but not the frequency of social media use (Maheux, Nesi, Galla, Roberts, & Choukas-Bradley, 2021). Thus, gratitude might motivate adolescents to use social media to foster social connections. It is important to realize that particularly adolescents from more disadvantaged and lower-income environments, who might have problems in virtual connectivity, might not have the opportunity to maintain social connectedness during the pandemic. As such, the pandemic might increase the effects of the digital divide (Hassan & Daniel, 2020).

ACADEMIC FUNCTIONING DURING THE PANDEMIC

One of the main concerns has been the impact of the pandemic on youth's academic progress (Mahapatra, & Sharma, 2020). The lockdowns and movement restrictions required schools around the world to close their doors for prolonged periods of time, and schools had to revert to remote teaching and home-schooling. The implications of these changes for adolescent academic functioning and motivation were high on the political agenda in many countries. Findings from this special issue indicate that adolescents' school bonding decreased from before to during the pandemic (Maiya, Dotterer, & Whiteman, 2021), and a substantial group of about 15% of adolescents reported a steeper decrease in academic well-being, characterized by lower school engagement and higher burnout, than would be developmentally expected (Salmela-Aro, Upadyaya, Vinni-Laakso, & Hietajärvi, 2021). Moreover, adolescents' academic motivation was lower on online compared to physical school days during the pandemic (Klootwijk et al., 2021), suggesting that the effects could be attributed to the restrictive measures rather than the pandemic more broadly.

Again, results showed that not all adolescents were affected equally by the pandemic (Salmela-Aro et al., 2021). Adolescents who experienced more stress or whose family experienced more pandemic-related financial need were at higher risk for declined school bonding, whereas adolescents

with better coping or whose parents were more involved in education reported weaker declines in school bonding (Maiya et al., 2021). Comparably, parental support and positive mood buffered the effect of online education on adolescents' academic motivation during the pandemic (Klootwijk et al., 2021). Surprisingly, there were also adolescents with increasing academic well-being (Salmela-Aro et al., 2021). The groups with increasing academic wellbeing showed simultaneous increases in intrapersonal socio-emotional competencies such as grit, curiosity, and academic buoyancy as well as an increase in social engagement. The groups with decreasing study wellbeing reported decreases in intrapersonal socioemotional competencies, combined with increased loneliness and decreased belongingness. These findings further confirm the need for tailored interventions targeting those adolescents most at risk, as well as the need to also consider the potential positive effects of the pandemic on some youth and the way we could implement the lessons learned in an after-pandemic world.

CONCLUSIONS AND IMPLICATIONS

The findings of the studies in this special issue show the wide-reaching implications of the pandemic for adolescent emotional, social, and academic adjustment. Many adolescents experienced more depressive symptoms and negative affect, increased loneliness, and higher levels of burnout and lower school bonding and engagement during the pandemic. These findings confirm the perspective that pandemics like the COVID-19 pandemic confront youth with multisystem challenges and threats that often have cascading effects (Masten & Motti-Stefanidi, 2020). Adolescents experiencing the negative effects of the pandemic often were already more at risk before the pandemic, because of individual characteristics such as ineffective coping or emotion regulation strategies, relational factors such as low family or peer support, or contextual factors such as low SES or minority status. Of concern is that for a substantial group of adolescents, risk factors might cluster (Fegert, Vitiello, Plener, & Clemens, 2020), resulting in cumulating and cascading effects of the pandemic across multiple interrelated aspects of adolescents' lives (Miconi et al., 2021). As these adolescents are also less likely to have individual, family, or community resources to deal with these negative consequences, they might be more likely to experience negative outcomes across multiple domains of functioning.

It is therefore crucial to increase policy efforts to identify and support those youth, to prevent further and long-lasting negative consequences resulting in increasing inequalities (Hussong et al., 2021).

At the same time, the findings reveal a tremendous heterogeneity in effects. Although a select group of adolescents is at risk for negative consequences, many adolescents show resilience and continued to function well or even showed increases in emotional, social, or academic adjustment despite the many changes in their personal lives. Those adolescents often had individual, family, and community resources that made them resilient and helped them to deal with the adverse circumstances. These findings might also suggest that the circumstances of the pandemic alleviate some of the factors that contribute to lower wellbeing and mental health issues under normal circumstances. Some adolescents might experience a reduction of stress, improved sleep and relaxation, less academic and social pressure, and more (online) time with friends, changes that might produce developmental benefits (Bruining et al., 2021). Understanding why some adolescents do better during the pandemic offers a unique opportunity to increase our knowledge of factors in current day society that impact youth adjustment and wellbeing.

The results of the studies in this special issue point toward three important avenues for prevention and intervention of maladjustment during crises such as the current pandemic (see also Table 1). First, interventions should target youth with higher mental health problems such as depression and self-harm before the pandemic, as these youth are consistently found to be at increased risk for mental health problems during a pandemic. Second, policy makers should be aware of the risks of social isolation and the benefits of in-person interactions for youth during a pandemic, as low peer-connectedness and loneliness were crucial factors in youth mental health problems during the pandemic. Caregivers should promote virtual and safe social interactions to maintain and build social connections and to mitigate social isolation and loneliness during a pandemic. Interventions could also strengthen youth's pre-pandemic social skills, by increasing secure peer attachment and addressing feelings of social connections, as positive peer relations can buffer against the effects of the pandemic. Third, training of emotion regulation skills pre- and during a pandemic is a promising intervention and prevention strategy to promote coping and adaptive emotion

regulation and to buffer some of the negative effects of global crises on mental health and academic engagement. As parental emotion socialization is an important predictor of emotion regulation and mental health during the pandemic, prevention and intervention programs targeting parental emotion socialization are also warranted.

Notwithstanding the importance of the results for our understanding of the impact of large pandemics on adolescent development, there are a number of directions for future research. First, research should continue following adolescents into later phases of the pandemic as well as after the pandemic. Many of the studies so far focused on the pandemic's first months, yet the prolonged duration of the pandemic might result in chronic stress, which might change the impact of the pandemic on adolescent development. Preferably these studies started before the pandemic so that they can compare development before, during and after the pandemic. Given the particular long-term nature of the COVID-19 pandemic and the extended lockdown measures, we need to understand changes in adolescent functioning across different phases of the pandemic. Individuals may show different responses to chronic stress in different phases, developing from alarm, resistance, and adaptation to exhaustion (Butto, 2019). It would be important for future research to understand which adolescents experience chronic negative consequences and which adolescents are able to bounce back to normal again, or even have learned and benefitted from the pandemic, once the pandemic is over or people get used to the "new normal" (see also Hussong et al., 2021). Also, studies need to include different age cohorts to disentangle "normative" developmental changes from changes due to the pandemic. Moreover, although the special issue included studies from four continents, low-SES and other minority groups were relatively underrepresented. As the pandemic disproportionately affects minority groups (Patel et al., 2020) and people in developing countries (Shadmi et al., 2020), the current findings need to be complimented by findings from other regions and populations. Also, studies on other outcomes such as substance use are needed. Although findings so far suggest that e-cigarette use declined and use of other tobacco, cannabis, and alcohol and alcohol intoxication declined or remained stable among 15- to 18-year-olds during COVID-19 (Chaffee, Cheng, Couch, Hoeft, & Halpern-Felsher, 2021; Thorisdottir et al., 2021), there are concerns regarding increases particularly for young adults. Together, these kind of studies will increase our understanding of the impact of the

COVID-19 pandemic on adolescent development, and will shed light on which adolescents are in most need of intervention and how policy and practice can best support them.

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