Social Support in Unprecedented Times: An Examination of Low-Income Adolescents' Stress, Social Support, and Affect Before and During the Coronavirus Pandemic

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The sudden, unpredictable, and isolative nature of the COVID-19 pandemic is of concern to developmentalists, as it has produced a suboptimal context for adaptive functioning. Social support has been shown to be an effective coping mechanism for buffering the effects of normative stress on adolescent psychological well-being, but what happens when normative stress becomes intertwined with the pervasive economic, health-related, and social stress that accompanies a global pandemic? This study examines the moderating role of minoritized status and social support in the relation between adolescent stress and affect in Fall 2019 and Spring 2020 using a sample of Black and White adolescents from low-income backgrounds. Significant differences were found between Fall 2019 and Spring 2020 stress, affect, and social support among Black and White adolescents. Among the full sample, stress predicted positive and negative affect in both Fall 2019 and Spring 2020. While social support shared a predictive relationship with positive affect in both waves, it did not moderate the relation stress and negative or positive affect. When differences were examined among Black and White adolescents, though, the expected moderation effect was present in 2019 negative affect models for White adolescents only. This study sheds new light on understanding adolescents' stress, coping, and affect before and during the onset of the COVID-19 pandemic in the context of wealth and racial inequality with implications for future research and practice.

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1.0 Introduction

Adolescent stress is a normative developmental phenomenon. In fact, some have described adolescence as a period of 'storm and stress' in which distinct, extensive developmental shifts in social behavior, emotion regulation, and cognitive skills result in prosocial skills that foster adaptive peer and parent relationships (Arnett, 1999; Hall et al., 1904). Others have organized their purview of adolescence to coincide with tenets of the positive psychology movement, instead conceptualizing adolescence as a period of heightened developmental risk in conjunction with opportunities to foment resiliency (Larson, 2008; Rich, 2003; Seligman & Csikszentmihalyi, 2012). Regardless of the overarching view of adolescent development, adolescence represents the final developmental period before adulthood; hence, lessons learned about coping and stress management during this time have significant consequences—both positive and negative—for adaptive functioning and mental health during adulthood.

Developmentally speaking, social networks and the support they offer during periods of adversity not only serve as a forum for testing emergent cognitive, social, and emotional skills (Brown & Klute, 2006), but they can also provide a source of comfort and coping during difficult times. Indeed, the importance of social support, especially that from supportive adults, underscores resilience work dating back to its most nascent stages (Masten & Garmezy, 1985; Resnick et al., 1997). Bronfenbrenner best states the importance of a caring adult himself:

> In order to develop normally, a child requires progressively more complex joint activity with one or more adults who have an irrational emotional relationship with the child. Somebody's got to be crazy about that kid. That's number one. First, last, and always. (National Scientific Council on the Developing Child, 2009, p. 1)

Moreover, Harvard University's Center on the Developing Child extends Bronfenbrenner's emphasis on parental support to include other familial and community resources, espousing that a child's resilience depends on having a committed, supportive relationship with at least one other adult, whether familial (e.g., parent, grandparent) or non-familial (e.g., teachers, neighbors): "The single most common factor for children who develop resilience is at least one stable and committed relationship with a supportive parent, caregiver, or other adult" (Center on the Developing Child, 2021). These parental supports, though, shift over time such that by the time youth reach adolescence, they begin relying more on peer support networks. For adolescents, active coping and recovery efforts rely more on prosocial peer interactions and community activities that parental support, especially in the context of disaster recovery (Masten, 2021).

Due to the developmental necessity of social interactions, adolescents have indicated that social support from parents and peers is one of the most prominent ways to cope with day-to-day stressors (Connor-Smith et al., 2000; Skinner & Zimmer-Gembeck, 2012), whether they be fleeting (e.g., a difficult class project) or more pervasive (e.g., poverty, discrimination). As adolescents learn how to activate their network of social support in response to stress, they are effectively fostering adaptive functioning and resilience (Masten & Motti-Stefanidi, 2020; Skinner & Zimmer-Gembeck, 2016). In doing so, adolescents enhance their immediate psychological well-being by reducing the pernicious effects of stress and establish solid foundations for coping with adversity that will follow them into adulthood (Cicchetti & Rogosch, 2002; Compas, Jaser, et al., 2017; Luthar & Brown, 2007).

Coping and stress management occur when an individual is confronted with external stressors; however, during times of extreme or chronic stress, the individual's internal and external coping resources may not have enough assuaging power to attenuate stress (Connor-Smith et al.,

2000). As such, peer and parent social support may be sufficient for adolescents coping with developmentally normative stressors, but inadequate when confronted with atypically high levels of stress, such as during the U.S. national state of emergency and school closures brought about by the 2019 novel coronavirus pandemic. During the COVID-19 pandemic, adolescents' opportunities to engage in social interactions were curtailed by public health mandates (e.g., social distancing) and stay-at-home orders, thereby altering the terrain of their typical social environments. With shifts to virtual learning and closures of spaces where youth traditionally gather (e.g., parks, malls, restaurants, movie theaters), youth may have encountered barriers to accessing and receiving help and support from their social networks. Although some youth may overcome these barriers by becoming more active in virtual forums and on social media, others (e.g., those from economically disadvantaged backgrounds), may not have access to the necessary resources and technology to do so (Gonzales et al., 2020).

The sudden, unpredictable, and isolative nature of the COVID-19 pandemic is of concern to developmentalists, as it has produced a suboptimal context for adaptive functioning. Indeed, extant literature addressing pandemics and health-related disasters has shown a host of immediate impacts on well-being that preclude cognitive, behavioral, and affective functioning reaching far beyond the confines of adolescence (Douglas et al., 2009; Kar, 2019; Kar & Bastia, 2006; Sprang & Silman, 2013). In other words, the COVID-19 pandemic has put adolescents at a heightened risk for experiencing derailed developmental trajectories and potential short- or long-term deficits in mental health (e.g., depression, anxiety, post-traumatic stress) (Ellis et al., 2020; Hussong et al., 2021; Magson et al., 2021). It may also be the case that certain subsets of adolescents are at a heightened risk for amplified stress during COVID-19, particularly for those enduring heightened

pre-pandemic social and economic stressors (Abedi et al., 2020; Goyal et al., 2020; Rogers et al., 2020).

Social support has been shown to be an effective coping mechanism for buffering the effects of normative stress on adolescent psychological well-being (Cook et al., 2016; Gunnar & Hostinar, 2015; McMahon et al., 2020; Ronen et al., 2016; Skinner & Zimmer-Gembeck, 2016), but what happens when normative stress becomes intertwined with the pervasive economic, health-related, and social stress that accompanies a global pandemic? Considering that social support networks may have been disrupted or become less effective in the context of stay-at-home orders and social distancing, it is critical that we understand the relations between adolescent stress, social support, and psychological well-being during COVID-19. This study examines the relation between adolescent stress and emotional wellbeing in a sample of adolescents from low-income backgrounds in Fall 2019 and during the onset of the COVID-19 pandemic in Spring 2020. Moreover, this study investigates the moderating role of social support in the relation between adolescent stress and emotional wellbeing. Finally, this study examines racial differences in the associations between stress, social support, and affect.

2.0 Review of the Literature

COVID-19 has disrupted adolescents' developmental ecology with unknown implications for current and future socioemotional well-being. In the following sections, a risk and resilience framework will be used to describe the developmental context for American adolescents during the COVID-19 pandemic, with special attention given to the role of economic circumstances and minoritized status. Then, the relation between stress and affect will be explained within the developmental context of adolescents' burgeoning emotion regulation skills. After discussing the consequences associated with emotion regulation and dysregulation, the moderating role of parent and peer social supports in the relation between adolescent stress and affect will be explored, thereby setting up the theoretical and empirical framework for this dissertation.

2.1 The Risk and Resilience Framework

Intuitively, development is a combination of opportunities and challenges that influence the growth and well-being of youth; however, the field of psychology and child development primarily donned a deficit perspective until the humanistic psychology movement of the mid-20th century. Spearheaded by prominent theorists such as Abraham Maslow (1943) and Carl Rogers (1986), the humanistic movement viewed people as inherently good with a driving need to better themselves (i.e., self-actualization). According to humanistic theories, several biopsychosocial supports are necessary for reaching self-actualization, and the presence or absence of these supports helps or hinders one's quest for development. In espousing these principles, the

humanistic psychology movement paved the way for the groundbreaking movement of positive psychology in which traditional deficit-oriented views of development and psychopathology were replaced with an emphasis on resilience, prevention, and recovery (Masten & Garmezy, 1985; Resnick, 2000; Seligman & Csikszentmihalyi, 2012). As traction for the movement grew, researchers began to explore developmental maladjustment as a product of functional and dysfunctional supports in the child's environment (Masten et al., 1990; Resnick, 2000). By the end of the 1990s, the positive psychology movement became recognized by the American Psychological Association and has continued to grow as a discipline, spawning such areas of study as flow/optimal experience (i.e., Nakamura & Csikszentmihalyi, 2020), trauma-informed care (i.e., Bloom, 2013), and strength-based assessments and interventions (Weick et al., 1989).

Perhaps one of the most prominent theories emerging from the positive psychology movement is the theory of risk and resilience. The strength-based ecological framework of risk and resilience identifies ways to promote psychological wellness (Cowen, 1994), maximize resilience (Luthar & Brown, 2007), avoid developmental trajectories associated with developmental psychopathology (Cicchetti & Rogosch, 2002), and recognize the important nuances of shifting contexts within and across individuals over time (Sandler, 2001). According to Kirby and Fraser (1997), an individual's functional adaptation during periods of stress depends on a combination of risk and protective factors. The presence of *risk factors*, such as stress or poverty, are said to increase maladjustment by presenting adolescents with adversities that impede their ability to fulfill needs, meet developmental competencies, and form relationships with others (Sandler, 2001). If they lack the ability to adequately mitigate these risk factors, adolescents are at risk of developing psychopathology or other maladaptive functioning (Cicchetti & Rogosch, 2002). Conversely, *protective factors*—such as positive relationships with competent adults and

supportive peers (Masten et al., 1990; Resnick et al., 1997; Viner et al., 2012)—are individual resources that not only lead to positive wellbeing but also buffer against the nefarious effects of risk factors. It is thought that these protective factors contribute to an individual's *resilience* to endure, persist, and triumph despite stressful circumstances (Corcoran & Nichols-Casebolt, 2004; Luthar & Brown, 2007; Sandler, 2001).

Risk and resilience frameworks also place a heavy emphasis on identifying proximal processes between the person and their environment so as to better promote developmental competencies and create opportunities to foster empowerment and resilience (Cicchetti & Rogosch, 2002; Cowen, 1994; Sandler, 2001). Such theories are inextricably tied with developmental psychology, as the saliency and efficacy of various factors of risk and resilience change over the course of the lifespan (Cicchetti & Rogosch, 2002; Sandler, 2001). In other words, individuals live within ecological systems consisting of external stressors and supports that influence each other in multi-directional ways. By identifying the individual as a part of a larger system, we can better understand how environmental circumstances (e.g., poverty) can influence an individual's ability to cope with change or adversity.

The risk and resilience framework has been used extensively when examining youth in contexts of stress and adversity. In particular, Ann Masten's work has focused on the resilience of children following disasters, including pandemics (Masten, 2021; Masten & Motti-Stefanidi, 2020). Masten's work emphasizes the importance of the resilience of interconnected systems, echoing the Bronfenbrennarian perspective that development is affected by proximal processes within and across cascading spheres of influence (Bronfenbrenner & Morris, 2007). Such frameworks support models of risk and resilience related to the COVID-19 pandemic that focus

on multisystemic support networks (Masten & Motti-Stefanidi, 2020) as well as family adaptive functioning (Prime et al., 2020).

2.2 Context Matters: Understanding the Developmental Context of COVID-19

COVID-19 has thrust adolescents into a global context of pandemic-related stress, and pending individual characteristics (e.g., age, gender, race, socioeconomic status), these youth may be ill-equipped to handle such a major life stressor for an indeterminable amount of time, thereby threatening their future positive developmental trajectories and adjustment. Next, we review the role of economic disadvantage and minoritized status within the context of the COVID-19 pandemic.

2.2.1 COVID-19 and Economic Disadvantage

The COVID-19 pandemic has presented a sudden, unprecedented onslaught of stressors associated with school closures, social distancing, and quarantine measures (for review, see Brooks et al., 2020; Fegert et al., 2020), especially for those living in circumstances of economic disadvantage. Indeed, economic stressors have disproportionately impacted youth living in economically disadvantaged circumstances (Abedi et al., 2020; Goyal et al., 2020), thereby compounding pre-existing poverty-related stress with acute pandemic-related stress. Due to job strain, a dearth of psychosocial resources, and discrepancies in access to quality healthcare (Martin et al., 2020), researchers have shown that economically disadvantaged households experience

higher levels of health-related stress and report more emotional distress in response to adversity (Matthews et al., 2010; Pearlin et al., 2005).

Frankly, adolescents from low-income households have good reason to be stressed over COVID-19. Statistics consistently have shown disparities in infection and mortality rates among the lowest income earners (Abedi et al., 2020; Goyal et al., 2020), and impoverished communities often have higher rates of residents with pre-existing health conditions (Tai et al., 2020) as well as limited, non-existent, or unaffordable access to health-related resources (e.g., masks, hand sanitizer). Models have shown that the lowest income earners will endure the most insidious financial consequences of shelter-in-place policies, as these individuals tend to work essential service-sector jobs that are not amenable to working from home (Kochhar & Barroso, 2020; Martin et al., 2020). A steady paycheck for these families involved potential COVID-19 exposure, concern over transmitting the virus to household members, reduced in-home supervision and support for youth, and increased adolescents' home responsibilities.

Not only has COVID-19 resulted in heightened stress among the lowest income earners, but it has also caused strain on adolescents' relationships with parents and peers (Lawson et al., 2020; Russell et al., 2020). Financial stress is especially debilitating to the parent-adolescent relationship (Acquah et al., 2017; Brooks-Gunn et al., 2013; Neppl et al., 2016), and ongoing parental stress may result in a harsh, authoritarian parenting style characterized by high behavioral and psychological control in conjunction with low levels of support (Smetana & Rote, 2019). This parenting style has been associated with increases in parent-adolescent conflict (Pinquart & Kauser, 2018). In turn, these contentious parent-adolescent relationships have been linked to an elevated risk of depression and misconduct in adolescents (Wang et al., 2013; Yu, 2019). On the other hand, parental warmth and social support have been associated with positive outcomes for

youth (Brown et al., 2020; Khaleque, 2013; Russell et al., 2020; Silva et al., 2020). Moreover, support from parents has been found to attenuate the effect of stress on wellbeing, even in conditions of poverty (Santiago et al., 2011; Wadsworth et al., 2013). The challenge, then, is supporting low-income parents as they attempt to continue providing authoritative, supportive parenting in the face of acute stress and uncertain financial futures.

While parents serve as one source of social support for adolescents, adolescence is a developmental period during which peers usurp parents as the primary socialization agents in their children's lives (Smetana, Campione-Barr, & Metzger, 2006; Benner et al., 2020). A vast body of evidence has indicated that prosocial, secure peer and parent relationships serve as a buffer against stress as well as a source of support during stressful times (Cook et al., 2016; McMahon et al., 2020). For example, McMahon and colleagues (2020) found that the quality of adolescents' peer and parent relationships mediated the link between the experience of stressful life events and psychological well-being. In fact, the ability to function in a prosocial manner with community members, parents, and peers has been linked to high levels of resilience in development (Luthar, 2006); yet, an adolescent's inability to effectively mobilize their social network as a coping mechanism has been associated with both immediate anxiety and long-term psychological distress (Rubin et al., 2005).

Unfortunately, public health mandates and shifts to virtual learning have disrupted adolescents' social support networks during COVID-19. As school is an inherently social context where adolescents engage in peer relationships and receive peer support (Wang & Hofkens, 2019), school closures and shifts to online learning have distanced adolescents from their peer networks. Research has shown that when adolescents are isolated from their peer networks, they are at elevated risk of depression and misconduct (Wang et al., 2013), post-traumatic stress

symptomology (Acquah et al., 2017; Garfin et al., 2018), increases in aggressive behaviors (Yeh, 2011), and poor academic functioning (Weymouth et al., 2016). Although many youth have been able to bridge this gap using technology (e.g., social media, video chatting, online gaming), adolescents from economically disadvantaged backgrounds may lack access to the technology necessary to maintain connectedness with their social network during periods of school closures (Gonzales et al., 2020).

2.2.2 Minoritization, COVID-19, and Black Americans

Much like economic disadvantage, race—specifically, the type of minoritized status afforded to Black individuals living in the United States—is considered a pre-existing vulnerability in models of family risk and resilience during COVID-19 due to the systemic oppression created by institutionalized and societal factors (Prime et al., 2020; Wright & Merritt, 2020). Centuries of racism and institutional bias have created social inequities between Black and White individuals in the United States. For instance, White Americans are more likely to have access to high-quality medical care and employer-provided medical insurance (Chen et al., 2015; Wright & Merritt, 2020). Black Americans—many of whose employment, educational, and financial opportunities have been drastically curtailed by oppression, segregation, and subordinating institutional structures (Goldsmith, 2009; Grove et al., 2018; Quillian, 2014; Wright & Merritt, 2020)—are more likely to work low-wage jobs where affordable medical benefits and sick leave are limited or not provided (Chen et al., 2015). In fact, Black individuals are two times more likely than their White counterparts to have no medical insurance (Artiga & Kendal, 2019; Berchick et al., 2019; Orgera & Artiga, 2018).

These racial inequities in insurance fail to show the full extent of the sizeable differences in the quality of and access to medical care between Black and White Americans. Resources such as preventative health care (Roby et al., 2009), specialist care (Murphy et al., 2009), and medications (Nguyen et al., 2010) are less available to the Black community than the White community as a result of residential segregation (Wright & Merritt, 2020). When care is available, it is often of low quality, hard to access, and lacks support for sustainable healthy living (e.g., information about healthy diets, exercise; Corral et al., 2012; Tai et al., 2020; Taylor, 2019). As a result of these disparities, Black Americans experience higher rates of chronic medical conditions—for example, diabetes, hypertension, obesity, and heart disease—and are less likely to seek medical care than their White counterparts (Center for Disease Control and Prevention, 2020c; Forde et al., 2019; Paradies et al., 2015; Simons et al., 2018). These specific chronic medical conditions have been shown to put Black people at a higher risk for COVID-19-related hospitalization and death (Center for Disease Control and Prevention, 2021).

Racial disparities in health, health care, and health resources (e.g., income, insurance) have been demonstrated over the course of the pandemic by increased hospitalization and mortality rates among Black Americans (Center for Disease Control and Prevention, 2020a, 2020c; Forde et al., 2019; Millett et al., 2020; Price-Haywood et al., 2020). Considering the aforementioned societal barriers between the Black community and access to quality health care in America, it should come as no surprise that Black Americans have been hospitalized for and dying from COVID-19 at a rate that greatly surpasses their White counterparts (CDC et al., 2020; U.S. Census Bureau, 2019). In the early stages of the pandemic, though, only half of testing sites nationwide collected and reported racial demographics; hence, racially disparate infection rates between Black and White individuals were likely masked in national data (U.S. Census Bureau, 2019). In studies where

racial demographics were reported across all participants, the disparity is glaringly apparent. For instance, Bandi and colleagues (2020) found that of children between the ages of 5-17 who tested positive for COVID-19, 6.8% of Black children tested positive whereas only 1.7% of White children tested positive.

With nationwide reports suffering from a dearth of racial demographics, racial disparities in COVID-19 hospitalization reports, which more consistently include racial demographics, may be a suitable proxy by which to investigate infection rates among the Black community. Of all those hospitalized due to COVID-19 in the United States, 44% have been Black versus 16% White (Gold et al., 2020; Hsu et al., 2020; Killerby et al., 2020; Kim et al., 2020; Price-Haywood et al., 2020). Overall, Americans hospitalized for COVID-19 were 3.4 times more likely to be Black than White, and those hospitalized for COVID-19 between the ages of 0-17 years were 3.8 times more likely to be Black than White (Center for Disease Control and Prevention, 2020b). Finally, the Center for Disease Control and Prevention (2020c) has reported significant disparities in COVID-19-related deaths between Black and White Americans. Of those who died from COVID-19 as of Spring 2020, 34% were Black. These statistics represent egregious racial disparities, considering Black individuals only comprise approximately 12% of the total United States population (U.S. Census Bureau, 2019).

Indeed, Black individuals were at a higher risk of COVID-19, which in turn likely elevated the stress levels of Black adolescents and their families. According to the Center for Disease Control and Prevention (2020e), the pandemic has exposed systemic disparities that have contributed to hardships regarding unemployment, loss of health insurance, food insecurity, housing instability, and mental health that disproportionately affect minoritized communities. Reliable access to items such as food, housing, and health resources serve as necessary foundations

for positive youth development, and threatening these needs can increase stress and steer youth toward trajectories of developmental maladjustment (Maslow, 1943; Prime et al., 2020).

However, even these basic needs have been threatened during COVID-19 due to widespread unemployment and financial difficulties. Black American adults are more likely to work lower paid, hourly positions labelled as "essential" throughout the pandemic (e.g., retail, food services). Not only do these positions increase the risk of exposure to the virus (Rogers et al., 2020), but in-person, customer-effacing positions are not amenable to working from home. While some have been able to reduce their risk of exposure by working from home, only 20% of Black American workers had this opportunity, which was significantly lower than seen in White Americans (30%; Bureau of Labor Statistics, 2020). Because these positions cannot be converted to work-from-home arrangements, periods of state-mandated stay-at-home orders resulted in reduced or eliminated paychecks (Martin et al., 2020), thereby threatening Black parents' ability to provide even basic necessities for their families.

In addition to elevated stress levels, Black youth may also be experiencing difficulty in their social relationships during the pandemic, especially considering that stay-at-home orders and other public health mandates have drastically shifted adolescents' social ecology. Adolescents often rely on their social networks—including their parents—to provide support during times of crisis (Cook et al., 2016; Kolak et al., 2018; McMahon et al., 2020). Black youth in particular may be at a heightened risk of experiencing conflict with parents during COVID-19, as the amalgamation of stressors associated with the pandemic has disproportionately affected Black families, especially parents. When parents—regardless of race—are stressed, they tend to exhibit lower warmth and experience heightened conflict with family members, including children (Acquah et al., 2017; Russell et al., 2020). In the situation of COVID-19-related racial disparities,

Black youth may not be receiving as much parental support as they did prior to the pandemic due to new, pressing pandemic-related demands on parents' time (e.g., adapted work/school schedules, food security/housing stability, adherence to public health mandates). While White families do navigate some of the same stressors, they do so *without* the compounded issues of discrimination and minoritization and *with* an army of racially stratified safety nets at their disposal. For instance, White parents have a higher likelihood of being able to work from home during the pandemic (Bureau of Labor Statistics, 2020), thus reducing potential stress over quarantine and employment arrangements, such as transmitting the virus from work to home and child supervision. Therefore, White families may be experiencing less stress during COVID-19, thus allowing White parents to be more socially supportive of children during this time.

COVID-19-related school closures also deprived adolescents of direct daily access to their peer support network. Peer support may be one of the most commonly used social supports during adolescence. Although the literature does not identify racialized differences in the activation of peer support networks, Gaylord-Harden and colleagues (2008) found approximately 60% of Black youth sampled used coping strategies involving peer support; hence, the removal of this network likely reduced many Black adolescents' ability to cope with COVID-19 stress. In fact, it may have actually increased stress. An adolescent's inability to effectively mobilize their social network as a coping mechanism has been associated with both immediate anxiety and long-term psychological distress (Manuell & Cukor, 2011; Rubin et al., 2005). It is also known that emotion dysregulation, or the inability to appropriately manage stress, impacts one's ability to interact prosocially with others due to its links to irritable behavior, problems with perspective-taking, and angry outbursts (Eisenberg, Hofer, Sulik, & Spinrad, 2014; English et al., 2013; Gross, 1998; Gross & John, 2003; Mauss et al., 2011; Riediger & Klipker, 2014; Srivastava et al., 2009). It is a concern, then, that

Black youth who are experiencing disproportionately higher stress while under stay-at-home orders may have less direct access to their peer networks due to school closures and potentially lower levels of social support during COVID-19.

2.2.3 The Intersection of Poverty and Race during COVID-19

Historic systemic racism and discrimination have long contributed to the marginalization of Black Americans, and American wealth inequality has reached an all-time high. These factors, alongside an inadequate healthcare system and incompetent political leadership, have undoubtedly contributed to disproportionate rates of infection, hospitalization, and deaths of individuals from low-income backgrounds and Black Americans (Abedi et al., 2020; Goyal et al., 2020). It is clear that both families living in economic disadvantage and Black families have unique pre-existing vulnerabilities that have likely contributed to differences in day-to-day stress and levels of social support, yet it may be that the combination of economic disadvantage and race creates a particularly grim picture for coping and adjustment during COVID-19. Indeed, scholars have definitively shown that race-based disparities in access to and quality of health-care are amplified when accounting for economic status (Assari, 2018; Chen et al., 2016; Richardson & Norris, 2010). These problems are further complicated by residential segregation—an issue at the intersection of minoritization, marginalization, and disenfranchisement. Residential segregation has pushed minoritized groups into environmentally distressed locations (Wright & Merritt, 2020); hence, it should come as no surprise that Black neighborhoods have some of the poorest census tracts in America (Duncan et al., 2013). Unfortunately, those living in these low-income, Black communities may be at the highest risk for experiencing elevated stress during COVID-19. While we know there are existing racial differences in infection, hospitalization, and mortality (Abedi et

al., 2020), group differences in perceived stress and social coping during the COVID-19 pandemic are less well understood.

2.3 Adolescent Stress Within Developmental and Ecological Contexts

2.3.1 Normative Adolescent Stress

Although not every adolescent experiences the fabled 'storm and stress', adolescence does tend to be a time in which burgeoning needs for socialization and independence manifest in a proclivity for risky behaviors (Arnett, 1999; Nakkula & Toshalis, 2013; Rogers, 2007). Coinciding with advances in cognitive and emotional development that allow for increased perspective taking and emotional intelligence (Byrnes, 2006; Dahl, 2004; Rosenblum & Lewis, 2008), adolescents are going through the processes of developing stable friendships (Brown & Klute, 2006; Rubin et al., 2007), exploring the challenging world of romantic relationships (Bouchey & Furman, 2006), and procuring an increased sense of identity (Erikson, 1968; Nakkula & Toshalis, 2013; Spencer et al., 2018). Erikson (1968) explained that adolescents are experiencing a psychosocial conflict between identity and role confusion, meaning that they are attempting to figure out their place in the social world.

As adolescents are learning to navigate their newfound cognitive, social, and emotional capacities, they encounter their fair share of developmentally normative stressors. In their quest for autonomy, adolescents often clash with parents or other adults over permissions and guidelines, thus contributing to more contentious adolescent-adult relationships (Silva et al., 2020; Smetana & Rote, 2019). Peer pressure and bullying become increasingly important factors in an

adolescent's ability to make decisions, especially those regarding risk-taking or problem behaviors (Brown & Klute, 2008; Lerner et al., 2018; Rubin et al., 2007). Moreover, the transition between middle and high school poses challenges to adolescents' desire to explore and expand, as high-school settings are often larger, less personal, and more regimented (Eccles et al., 1993). As such, there is no shortage of adolescent stressors that could be considered developmentally normative.

2.3.2 Increased Adolescent Stress in the Context of COVID-19

While stress is a normative part of day-to-day adolescent life, the COVID-19 pandemic has presented a sudden, unprecedented onslaught of stressors associated with school closures, social distancing, and quarantine measures (for review, see Brooks et al., 2020; Fegert et al., 2020; Polizzi et al., 2020; Prime et al. 2020). As such, it is important to remember that none of the aforementioned stressors operate in isolation, and all too often, stress begets more stress. Research has shown that the accumulation of multiple stressors is detrimental for wellbeing (De Matos et al., 2013; Evans & Kim, 2010), with some finding a dosage effect associated with childhood stress and adult functioning. In other words, the more stress or adversity experienced during youth, the higher the likelihood of physical, economic, achievement, and relational maladjustment in adulthood (Evans & Kim, 2010; Felitti, 2009; Felitti et al., 1998). Youth of Color may be especially vulnerable to the impact of the pandemic given their elevated risk of exposure to a broad range of psychosocial stressors (e.g., discrimination, socioeconomic disadvantages; Williams et al., 2016). Indeed, as COVID-19 spread across the country, it disproportionately impacted low-income families and Black c in the United States (Abedi et al., 2020; Kochhar & Barroso, 2020; Martin et al., 2020; Tai et al., 2020).

Table 1 COVID-19 Early Timeline of Events, Infections, and Deaths

Date	Event	Daily U.S. Infections	Daily U.S. Deaths
10/28/19	Pre-pandemic data collection period begins.	-	-
12/22/19	Pre-pandemic data collection period begins.	-	-
12/31/19	Cases of 'viral pneumonia' reported in Wuhan, People's Republic of China.	-	-
1/21/20	First case confirmed in U.S.	-	-
1/31/20	World Health Organization issues global health emergency.	-	-
2/3/20	US declares public health emergency.	-	-
3/6/20	First case confirmed in Pennsylvania.	49	4
3/11/20	World Health Organization declares COVID-19 a pandemic.	199	6
3/12/20	Pennsylvania governor orders 10-day state-wide closure of schools.	268	0
3/13/20	U.S. declares national emergency.	374	0
3/23/20	Pennsylvania governor extends state-wide school closures until April 6.	11,183	101
4/5/20	Pennsylvania governor extends state-wide school closures until April 13.	25,910	1,006
4/10/20	Pennsylvania governor extends state-wide school closures for the remainder of the academic year.	33,287	2,083
4/19/20	Data collection started.	27,516	2,479

Note. Statistics from The COVID Tracking Project (2021).

Accordingly, it is essential to understand how particular stressors interact to influence youth's daily functioning and what factors moderate this link during the pandemic. To do this, we must first understand the rapid manor in which the coronavirus pandemic unfurled globally as well as responses at the national and state levels. Table 1 presents relevant events in concert with early data about daily infection and mortality rates in the United States to illustrate the exponential spread of the virus and government mandated conditions affecting adolescents. What this tables shows in regard to Pennsylvania schools is that once the school systems initially closed on March 12, 2020, they did not reopen for in-person learning for the remainder of the academic calendar year, depriving adolescents of their social networks, the enrichment of the school environment, and the safety and security of daily, developmentally normative routines. It is important to recall, though, that these COVID-19 stressors were also happening within the context of the economic and racial climate highlighted throughout §1.1.

2.3.3 Decreased Adolescent Stress in the Context of COVID-19

Alternatively, some youth may have experienced a decrease in stress with the school closures accompanying COVID-19. In the state of Pennsylvania, mandated school closures began in March of 2020. At this point, there was growing national concern over the pandemic and uncertainty over the future; however, it is less clear when the gravity of the pandemic may have become clear to adolescents, especially among those with less access to reliable health information (e.g., those in socioeconomically disadvantaged neighborhoods; Martin et al., 2020) and with a historical distrust of information coming from government institutions (e.g., minoritized youth; Wright & Merritt, 2020). In addition, school closures were temporally proximal to traditional spring breaks in American schools, with breaks for schools participating in this study happening over the last week of March and first week of April. At the onset of the pandemic, some youth—likely those less informed about current events and the danger inherent to a global pandemic—may have reacted to school closures as if it were an extension of a normative school holiday rather than a crisis response to mitigate a public health emergency.

Furthermore, certain populations of youth may have experienced lowered stress by not having to go to school due to removing aspects of the school environment that cause stress. For example, the dismantled structure and uncertain future of academic deadlines may have caused stress for some students, but others may have experienced a decrease in stress related to schoolwork. Moreover, the social context of school can inculcate anxiety in youth who have contentious relationships with members of their school community. School-based relationships serve as a context for learning, social connectedness, emotional development, and cognitive growth during middle and high school (Allemand et al., 2015; Caprara et al., 2010; Eisenberg & Morris, 2013; Layous et al., 2012; McDonald & Messinger, 2014); however, peer pressure and

bullying become increasingly pressing factors that affect an adolescent's psychosocial well-being (Brown & Klute, 2006; Rubin et al., 2007; Spencer et al., 2018). Youth in these maladaptive social relationships are more likely to exhibit defiance, aggression, poor social competence, academic deficits, difficulty with social problem-solving, substance use/abuse, and symptomology associated with depression or anxiety (Cook et al., 2010; Copeland et al., 2013; Ragatz et al., 2011). Hence, the removal of developmentally maladaptive social influences may have reduced stress for some adolescents at the onset of COVID-19-related school closures.

2.3.4 Adolescent Resilience in the Context of COVID-19

It may also be the case for some adolescents that the onset of the COVID-19 pandemic had no effect on adolescents' overall stress levels, yet that is not to say that school closures did not universally present adolescents with upheaval of traditional school and social ecologies. Some adolescents may have been better able to adapt to their changing circumstances so as to protect and promote healthy, positive emotional experiences while weakening the relation between stress and negative affect due to their pre-pandemic stress management capabilities. When schools closed in response to COVID-19, those who were better at regulating their emotional response to stressful events may have experienced no change in their average level of daily stress. This ability to adapt to shifting developmental contexts and circumstances would be indicative of psychological resilience in adolescents (Corcoran & Nichols-Casebolt, 2004; Luthar & Brown, 2007; Sandler, 2001). What specific processes and supports, though, serve as the protective factors that promote positive affect while diminishing negative affect in the face of adverse experiences? To better understand risk and resilience in the context of COVID-19, we must first gain a better understanding of the processes that translate stressful experiences into positive and negative affect.

2.4 The Relation Between Stress and Affect: The Importance of Emotion Regulation

Stress, defined by the American Psychological Association as "the physiological or psychological response to internal or external stressors" (2020), has been connected to a host of adverse cognitive, emotional, and social outcomes during adolescence. Of paramount importance to the current inquiry is the impact that stress has on adolescents' psychological well-being through its positive relation with negative affect and negative relation with positive affect. Simply stated, stress tends to result in reduced experiences of positive emotions and increased experiences of negative emotions (Compas, Gruhn, et al., 2017; McRae & Mauss, 2016; Skinner & Zimmer-Gembeck, 2016). When an individual counters stress in a manner that buttresses positive affect and reduces negative affect, they are said to engage in emotion regulation (Compas et al., 2001; Gross, 1999, 2014; Riediger & Klipker, 2014).

2.4.1 Emotion Regulation in School-Aged Youth

Although emotion regulation processes begin in infancy, it is during adolescence that youth develop the ability to control and regulate emotions independently (Rosenblum & Lewis, 2008; Saarni et al., 2007). As a result of emotion socialization processes throughout early childhood, school-aged youth have a broad emotional vocabulary, wide range of emotional expression, and repertoire of co- and self-regulatory strategies that allow them to differentiate their emotional expression and regulation based on their social context (Eisenberg et al., 2014; Gross, 2014; Riediger & Klipker, 2014; Saarni et al., 2007; Zeman et al., 2006). Cognitive development during early and middle childhood allows for non-egocentric thought and an increased understanding of emotional display rules, as the child recognizes (a) their emotional expressions and emotional

experiences need not always align, which can at times be socially advantageous (Riediger & Klipker, 2014; Zeman et al., 2006); (b) shifts in attention or thinking can narrow the dissonance between experienced and expressed emotions (Eisenberg, Hofer, Sulik, & Liew, 2014; Gross, 2015); (c) others' emotional reactions may differ from their own (Piaget, 1952; Saarni et al., 2007; Zeman et al., 2006); and (d) other people may engage in emotion regulation strategies similar to their own to produce a socially accepted emotional display (Saarni et al., 2007; Zeman et al., 2006).

Moving into adolescence, youth continue to expand their emotional vocabularies and develop increasingly sophisticated means by which to effectively regulate emotions in a wide variety of social contexts (Gross, 2015; Riediger & Klipker, 2014; Saarni et al., 2007; Zeman et al., 2006). In fact, Rosenblum and Lewis (2006) identified three key emotion-related tasks that are central to adolescence: handling mixed emotions, increasing proficiency in recognizing and adapting to culturally situated emotional display rules, and becoming more adept at recognizing emotions felt by others (i.e., the development of empathy). The rapid neurobiological, cognitive, and social development associated with puberty and adolescence results in increased capabilities for perspective-taking and emotional intelligence (Byrnes, 2006; Dahl, 2004; Riediger & Klipker, 2014; Rosenblum & Lewis, 2008). As social influences are shifting so that peer relationships begin to hold more weight than relationships with caregivers (Brown & Klute, 2008; Collins et al., 2009), emotion regulation becomes increasingly influenced by ecological contexts and expectations for interpersonal outcomes (Gross, 2014; Riediger & Klipker, 2014; Saarni et al., 2007; Zeman et al., 2006).

2.4.2 Core Features of Emotion Regulation

Emotion regulation is defined as "the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions" (Gross, 1998, p. 275). According to Gross (2014), there are three core features of emotion regulation: the activation of an emotion-specific goal, implicit or explicit attempts to alter one's emotional state, and the impact of these processes on affective, behavioral, and physiological emotional response tendencies. First, emotion regulation requires goal-oriented behavior to increase or decrease the intensity, duration, or frequency of one or more elements of an emotional response (Gross, 1998, 2015). After determining an emotion-specific goal, an individual can then activate a "continuum of emotion regulation possibilities that range from explicit, conscious, effortful, and controlled regulation to implicit, unconscious, effortless, and automatic regulation" (Gross, 2014, p. 7). It is also important to note that these processes can happen independently (i.e., emotion self-regulation) or with the assistance of others (i.e., emotion co-regulation) (Gross, 2015; Skinner & Zimmer-Gembeck, 2016). The final component of emotion regulation is the actual impact of how attempts to regulate emotions influence an individual's experiential, behavioral, or physiological responses to emotion-evoking situations (Gross, 2014).

In the available body of literature, emotion regulation is frequently conflated with coping (Compas et al., 2001; Connor-Smith et al., 2000; Gross, 2014; Skinner & Zimmer-Gembeck, 2016). To be clear, though, emotion regulation and coping are two distinct processes. Defined as responses to stress that are "experienced as voluntary, under the individual's control, and involving conscious effort" (Connor-Smith et al., 2000, p. 977), coping falls under the umbrella of executive function and emotion regulation. However, extant literature addressing coping tends to focus on the use of skills and techniques to reduce negative emotional experiences (Gross, 2013). In other

words, those studying coping often apply a compensatory model to stress management to decrease negative affect associated with adverse events or specific emotional states (Gross, 2014; Zimmerman et al., 2013). This conceptualization situates coping as a promotive factor within the risk and resilience framework. In contrast, emotion regulation serves as a promotive *and* protective factor for youth's psychological well-being by reducing negative affect while also bolstering positive affect (Gross, 2014). Despite this seemingly clear distinction, researchers frequently use these terms interchangeably; however, our interest in understanding the effect of stress on both positive and negative affect preclude that it is emotion regulation, and not coping, that operates as a protective factor within the risk and resilience framework (Gross, 2014; Masten, 2018; Zimmerman et al., 2013). As such, it is important to understand the embedded processes through which emotion regulation may function in this capacity.

In its most basic form, Gross's model (1998, 2015) asserts that emotion regulation occurs as an individual is generating a physiological, experiential, and behavioral emotional response, with the goal of aligning these responses with culturally accepted rules for the expression and management of emotions (Gross, 2015; Mesquita et al., 2014). Gross's process model of emotion regulation establishes an information processing approach that builds on the modal model of emotion (i.e., the situation-attention-appraisal-response sequence) to highlight two distinct types of emotion regulation processes: antecedent-focused and response-focused emotion regulation (Gross, 1998, 1999). *Antecedent-focused emotion regulation* occurs when a person engages in one of four emotion regulation strategies prior to displaying an emotional response (Gross, 1998). These processes include making conscious decisions to avoid or alter an emotion-evoking situation (i.e., situation selection and situation modification, respectively), redirecting attention away from emotional stimuli (i.e., attentional deployment), or adjusting the way one thinks about or perceives

a situation (i.e., cognitive reappraisal). Conversely, *response-focused emotion regulation* involves influencing experiential, behavioral, or physiological emotional responses in such a way that suppresses or dampens that response (Gross 1998). Although it is beyond the purview of this dissertation to divulge into a full review of emotion regulatory processes, it is important to keep this distinction in mind due to well-documented affective, cognitive, and social ramifications of certain forms of emotion regulation.

2.4.3 Consequences of Emotion Regulation

According to Gross's (1998, 1999) seminal work, successful emotion regulation is said to occur when it allows an individual to align their emotional expressions with the socially accepted emotional display rules of a given culture. In the case of adolescent stress, this process frequently involves down-regulating negative and up-regulating positive emotional responses (Gross, 2015; Riediger & Klipker, 2014; Skinner & Zimmer-Gembeck, 2016). Because antecedent-focused emotion regulation primarily focuses on behavioral and cognitive approaches during the emotion generative process whereas response-focused emotion regulation involves willful suppression of an emotional response (Gross, 1998), each of these approaches have been found to have unique influences on an individual's emotional well-being, cognitive abilities, and social interactions.

First and foremost, emotion regulation has consequences for an individual's experience of positive and negative emotions. As previously discussed, successful emotion regulation serves a hedonic purpose in that it works to reduce undesirable emotions (i.e., negative affect such as anger, depression, or anxiety) while also reducing the impact of adverse conditions on desirable emotions (i.e., happiness, vitality) (Gross, 2014). It has been well-established in the academic literature that those who engage in antecedent-focused emotion regulation tend to experience and express more

positive affect and less negative affect than those who rely primarily on response-focused emotion regulation (Feinberg et al., 2012; Gross, 1998; Gross & John, 2003; Lieberman et al., 2011; Nezlek & Kuppens, 2008; Szasz et al., 2011; Wolgast et al., 2011). Specifically, adolescents who engage in more antecedent- as opposed to response-focused emotion regulation have been shown to report lower levels of depression (Betts et al., 2009) as well as lower levels of anxiety (Hughes et al., 2010).

Antecedent- and response-focused emotion regulation have also been shown to influence an individual's cognitive processes and executive functioning. Whereas antecedent-focused emotion regulation involves active cognitive processes shown to buttress psychological well-being, response-focused emotion regulation relies upon suppressing physiological, behavioral, or experiential responses to emotion-evoking situations or events (Gross, 1998). Due to the cognitive effort it takes to suppress emotion, response-focused emotion regulation has been linked to decreased memory and recall ability (Richards et al., 2003; Richards & Gross, 1999, 2000, 2006). On the contrary, antecedent-focused emotion regulation has been found to contribute to the accurate recall of information under stress (Hayes et al., 2010; Richards et al., 2003), an increased ability to delay gratification (Eisenberg, Hofer, Sulik, & Spinrad, 2014; Luerssen & Ayduk, 2014), and better decision-making capabilities (Grecucci & Sanfey, 2013). In fact, older adolescents who use antecedent-focused emotion regulation to contend with stress during standardized exams have been found to score higher than those using response-focused strategies (Jamieson et al., 2010).

Finally, antecedent- and response-focused emotion regulation influence social interactions and relational dynamics. Continuing the pattern of negative consequences associated with suppressing emotions, individuals who rely more on response-focused emotion regulation tend to have social difficulties, including being liked less by social partners (Butler et al., 2003) and

experiencing a lack of emotional closeness in interpersonal relationships (English et al., 2013; Gross & John, 2003; Srivastava et al., 2009). Those who use antecedent-focused emotion regulation, though, demonstrate a higher likelihood of sharing their emotions with social partners, report closer relationships with friends, and tend to be rated as more socially desirable than those relying primarily on response-focused emotion regulation (Gross & John, 2003; Mauss et al., 2011). For adolescents, these differential impacts on social relationships are especially critical due to the developmental saliency of connectedness, belonging, and interpersonal dynamics (Brown & Klute, 2006; Rubin et al., 2007). In fact, social support may be one of the most prominent emotion regulation strategies used during adolescence.

2.5 Emotion Regulation as Social Support: Moderating the Effect of Adolescent Stress on Affect

Social support from parents and peers represent one of many emotion regulation strategies frequently used by adolescents when regulating stress (Compas, Jaser, et al., 2017; Connor-Smith et al., 2000; Skinner & Zimmer-Gembeck, 2016). A large body of evidence has indicated that prosocial peer and secure parent relationships serve as an emotion regulation strategy that buffers against stress as well as a source of support during stressful times (Cook et al., 2016; Gunnar & Hostinar, 2015; McMahon et al., 2020; Ronen et al., 2016; Skinner & Zimmer-Gembeck, 2016). For example, McMahon and colleagues (2020) found that the quality of adolescents' peer and parent relationships moderates the link between the experience of stressful life events and psychological well-being. In light of this finding, adolescent social relationships—both peer and parental—serve as a source of social support that can buffer against the short- and long-term

consequences of stress; or, in other words, social support is a type of emotion regulation. Specifically, social support can be classified as antecedent-focused emotion regulation in the modal model as a form of distraction or emotion reprieve as well as through co-regulation processes in which one individual helps another cognitively reappraise or modify a situation (Gross, 2015; Skinner & Zimmer-Gembeck, 2016).

Social support emerges as a developmentally salient form of emotion regulation during adolescence due to the centrality of social relationships during this period. Due to the cognitive, social, and emotional maturation that allows for increased reciprocity and trust, adolescents' relationships with peers and parents start to mature (Brown & Klute, 2006). Although parental support is a commonly used strategy early in life, youth's reliance on parental social support decreases between the ages of 3-12 years, then dramatically increases during puberty, followed by a slow decline over the teenage years (Skinner & Zimmer-Gembeck, 2016). As reliance on parental support decreases, the importance and quality of peer support simultaneously increases such that it slowly overtakes parental support as the youth's primary source of social support for contending with stress (Gunnar & Hostinar, 2015; Skinner & Zimmer-Gembeck, 2016). Hence, social support from both parents and peers plays a critical role in adolescents' ability to contend with stress.

2.5.1 Parental Social Support

Parental social support—often examined under the nomenclature of 'parental warmth'—has been positively associated with psychological and behavioral adjustment (Khaleque, 2013; Silva et al., 2020). In Khaleque's (2013) meta-analysis, parental support was found to be positively linked with youth's emotional stability and ability to modulate emotional responses and negatively correlated with hostility and aggression. According to Allen and Tan (2016), parental support helps

parents to navigate the adolescent-parent relationship and encourage their children to engage in desired or expected behaviors. Indeed, researchers have touted high, stable parental warmth as an evidence-based protective factor against the negative affect arising from normative adolescent stressors, such as parent-adolescent conflicts and chaotic family environments (Freeman et al., 2017; Silva et al., 2020).

For many, though, the pandemic has displaced normalcy with chaos and uncertainty in the form of disrupted routines and relationships (Prime et al., 2020). As such, parental support may be an especially efficacious protective factor for youth during COVID-19. In fact, researchers have found that parental support is one of the most effective protective factors during periods of uncontrollably high stress (e.g., natural disasters; Rodriguez-Llanes et al., 2013; Skinner & Zimmer-Gembeck, 2016). With public health measures limiting adolescents' abilities to congregate in person with peers, parents may capitalize on the increased access and proximity to their children so as to protect these youth from the pernicious effects of stress during the pandemic (Pfefferbaum et al., 2014). Indeed, parental support has been connected to adolescent well-being, and secure parent-child relationships have been found to reduce the negative effects of stress during challenging times (S. H. Cook et al., 2016; Kolak et al., 2018; McMahon et al., 2020). Furthermore, supportive parent-adolescent relationships have been found to bolster resilience in the face of hardships (Luthar, 2006) and foster well-being following exposure to mass trauma (Dimitry, 2012; Kolak et al., 2018; Kronenberg et al., 2010).

2.5.2 Peer Social Support

In addition to support from parents, adolescents also receive social support from their network of peers. During adolescence, peers begin to usurp parents as the primary socialization

agents in their children's lives (Smetana & Rote, 2019). Adolescents experience cognitive and emotional changes that contribute to their burgeoning abilities to develop stable friendships (Brown & Klute, 2006; Rubin et al., 2007), explore romantic relationships (Bouchey & Furman, 2006), and experiment with their identity (Erikson, 1968; Nakkula & Toshalis, 2013; Spencer et al., 2018). As adolescents continue to mature socially, peer relationships become characterized by reciprocity, equality, and trust (Brown & Klute, 2006; Collins et al., 2009).

As previously established, relationships with peers serve as a context for learning, social connectedness, emotional development, and cognitive growth during adolescence (Allemand et al., 2015; Caprara et al., 2010; Eisenberg et al., 2016; Layous et al., 2017). As such, researchers have found that adolescents who have positive, stable, and reciprocal peer relationships tend to be more helpful, independent, cooperative, sociable, emotionally supportive, and self-confident (Eisenberg et al., 2016; Wentzel, 1998). Having positive peer relationships and prosocial interactions during adolescence also correlates with elements of adaptive functioning and health in adulthood, such as agreeableness, empathy, and self-efficacy (Allemand et al., 2015); larger support networks and less conflict in romantic relationships (Luecken et al., 2013); a lower likelihood of experiencing issues with depression, anxiety, and substance abuse (Almquist & Brännström, 2014; Flynn et al., 2015; Kawachi & Berkman, 2001); and better physical health (Landstedt et al., 2015) than those with few or no positive peer relationships during this developmental period. Researchers have found that support from positive, prosocial peers has also been associated with lower likelihood of experiencing issues with depression and anxiety (Rueger et al., 2016) and a higher likelihood of experiencing positive emotion (Ronen et al., 2016).

As school is an inherently social context where adolescents interact with peers and receive peer support (Wang & Hofkens, 2019), the closing of schools during COVID-19 poses a particular

developmental risk for adolescents. McMahon and colleagues (2020) even suggested a dosage effect regarding stressful life events, such that adolescents who experience more stress have lower quality relationships with peers, which has diminishing effects on their wellbeing. In other words, youth with higher levels of stress in their lives also tend to have lower quality peer relationships; therefore, adolescents contending with economic disadvantage or systemic racism may be at a higher risk of psychological distress due to their lack of high-quality support from peers. Indeed, COVID-19-related school closures have been shown to threaten youth's psychological and behavioral adjustment by impeding their ability to receive support from their peers (Young Minds, 2020).

2.5.3 Challenges to Obtaining Social Support During COVID-19

COVID-19 public health mandates have posed atypical challenges to adolescents' ability to obtain social support. School closures, quarantine, and social distancing may present novel barriers for adolescents attempting to activate their peer social support network as a means of coping (Sprang & Silman, 2013), and literature has shown that pandemic-related stress has put significant strain on the parent-adolescent relationship (Russell et al., 2020). In turn, this parent-adolescent conflict may decrease an adolescent's ability to use their parents as social supports in times of crisis, ultimately deteriorating relationship quality and posing consequences for both parent and child psychosocial wellbeing (Brooks-Gunn et al., 2013; Neppl et al., 2016). Moreover, COVID-19 may have contributed to economic and racial differences in social support, as the pandemic has differentially impacted these communities (Abedi et al., 2020; Martin et al., 2020).

2.6 Social Support in the Context COVID-19: Interactions with Economic and Minoritized Statuses

Models of risk and resilience in families have acknowledged that family vulnerabilities (e.g., economic hardship, minoritization) underscore family processes during COVID-19 (Prime et al., 2020). These vulnerabilities have unfortunately become more substantial in the advent of COVID-19 due to systemic issues surrounding wealth and racial inequality (see §1.1 for review) and may impact the efficacy of social support as a moderator.

2.6.1 Social Support and Economic Status During COVID-19

COVID-19-related economic disruption has likely led to increased stress within the family due to disrupted work, school, and household routines, especially for families experiencing pre-pandemic financial hardships (Prime et al., 2020). As previously discussed, these economic hardships may limit parents' ability to provide warmth and support to their children (Acquah et al., 2017; Camacho-Thompson et al., 2016; Perzow et al., 2018). Although the provision and quality of parental social support may be jeopardized by the stress of poverty, there is hope in that parental support has been found to foster youth well-being regardless of socioeconomic context (Reife et al., 2019; Wadsworth et al., 2013). Unfortunately, adolescents from low-income backgrounds often experience lower parental support due to the demands of poverty on these parents' time and personal resources (as outlined in §1.1.1.1).

Economic circumstances may also contribute to lower levels of peer social support. In the wake of COVID-19 physical distancing guidelines, many adolescents have turned to technology and the Internet to find a way to remain socially connected with their peers (e.g., through

technology such as cell phones, computers) while remaining physically distant. Indeed, parents participating in Drouin and colleagues' (2020) study reported significant increases in their adolescent child(ren)'s technology and social media use. Although social media use has been associated with several maladaptive outcomes (i.e., depression, anxiety), it has also been associated with increases in self-esteem and perceived social support (for review, see Best et al., 2014). Yet, to receive these benefits, one must have the technology (i.e., cell phone, computer, tablet) as well as reliable Internet access, posing a serious barrier to youth living in socioeconomically disadvantaged households or neighborhoods (Gonzales et al., 2020). As such, economically disadvantaged adolescents may face an additional hurdle to accessing peer social support—a developmentally salient, effective protective factor against stress and developmental maladjustment—during times of physical isolation due to limited resources, including access to hardware, software, and stable internet services. It is possible, then, that adolescents from low-income households may be at a heightened risk for experiencing lower levels of social support from parents and peers, and these lower levels of support may not be strong enough to buffer the negative effects of stress on affect.

2.6.2 Social Support and Minoritized Status During COVID-19

In addition to economic disadvantage, minoritized status—such as that experienced by Black Americans—serves as a pre-existing vulnerability that contributes to family and individual stress (Prime et al., 2020); yet, it is unclear whether this status has a unique impact on social support. It is suspected that due to the entrenched relation between minoritized status and economic circumstance in the United States in conjunction with the escalated stressors specific to these groups during COVID-19 (see §1.1.1.2 for review), minoritized status may impact social support

in such a way that navigating both of these stressors would contribute to lower levels of social support than for those contending solely with economic disadvantage.

Indeed, those who study children's post-disaster recovery have long underscored dose gradients and cumulative effects of trauma (Evans, 2004; Evans & Kim, 2012; Larson, 2006). Children who are exposed to more adverse events; more intense devastation, loss, or disruption; or who have chronic histories of adversity show increased susceptibility to additional stressors (Masten et al., 2015; Pfefferbaum et al., 2014). In the United States, racial disadvantage and discrimination compound the stress felt by Black children living in low-income or impoverished families. Moreover, Black Americans have been at higher risk for illness, death, and financial decline during the pandemic as a result of years of systemic disadvantage and oppression. Because of these additional stressors, it is expected that the compounded stress of economic and racial disadvantage may contribute to the strength of the relation between stress and negative affect, potentially making social support less effective at buffering against negative affect for Black youth than for White youth both before and during the onset of the COVID-19 pandemic. Due to a lack of supporting literature, though, this hypothesis is speculative.

There is also limited evidence showing differential effects of social support as a protective factor for positive affect during times of stress. Social support has been identified by the American Psychiatric Association (2013) as one of the most prominent protective factors against the development of stress-related mental health difficulties, and ample literature shows that peer and parental social support are particularly efficacious for adolescents due to its alignment with their developmentally salient needs for relatedness. There is no clear rationale to support a hypothesis regarding racial differences in how social support moderates the relation between stress and positive affect. However, social support may have operated differentially for Black and White

youth during school closures in Spring 2020 due to differences between the home and school environment. Black youth's ability to cope during tumultuous times has been tightly tied to racial socialization messages regarding cultural pride and preparation for bias (Anderson et al., 2018), and these processes are driven through parental socialization processes in the home. It may be the case that Black youth felt more socially supported in their home environments, especially if their schools had racially subordinating policies, biases among school adults, and race-based tensions between students. This rise in social support from family and socially distanced friends in conjunction with reduction of school-based racial threats may been a stronger up-regulating force on positive emotion for Black youth than White youth. Largely, though, these hypotheses are speculative and will be explored as a three-way interaction between stress, social support, and race.

3.0 Research Questions and Hypotheses

This study will investigate relations between adolescent stress, affect, and social support as well as whether these relations vary among Black and White low-income adolescents. The inquiry will be guided by three research questions.

3.1 Research Question 1

First, this study investigates mean level differences in stress, affect, and social support between Fall 2019 and Spring 2020. It is expected that Spring 2020 stress levels will be higher than those in Fall 2019 due to the coronavirus pandemic. Although stress is a normal part of adolescent development, COVID-19 has placed youth into a global context of uncertainty, and in such a chaotic environment, heightened stress can be expected to lead to heightened negative affect. It is less clear, though, how social support or positive affect may differ between Fall 2019 and Spring 2020. For instance, youth may report feeling less social support in Spring 2020 due to social distancing measures and school closures, whereas others may experience higher social support due to being at home with family. Finally, within- and between-wave differences were examined among Black and White adolescents.

3.2 Research Question 2

The second research question investigates the moderating role of social support in the relation between average stress and average affect for Fall 2019 and Spring 2020, respectively, in a low-income sample of Black and White adolescents. It is expected that social support will weaken the positive relation between stress and negative affect and dampen the negative impact of stress on positive affect.

3.3 Research Question 3

Lastly, the third research question examines the role of race in the regression model created for Research Question 2. That is, race will be added as a moderator alongside social support in models predicting the relation between stress and affect in Fall 2019 and Spring 2020, respectively, to test the three-way interaction. Both the moderating role of social support in the relation between stress and affect as well as the potential three-way interaction between stress, social support, and race are discussed in the following sections.

3.3.1 Anticipated Moderating Role of Social Support

Both parent and peer supports operate in a manner that may protect adolescents from the pernicious effects of stress during the COVID-19 pandemic. Researchers have consistently indicated that youth who have higher levels of parental and peer social support tend to experience less negative affect in response to stress than those with lower levels of social support (Skinner &

Zimmer-Gembeck, 2016). Therefore, it is expected that social support will moderate the relation between adolescents' stress and negative affect both before and during COVID-19, Specifically, higher social support is expected to (a) weaken the positive relation between stress and negative affect and (b) weaken the negative relation between stress and positive affect, while lower social support is expected to strengthen these relations.

3.3.2 Anticipated Three-Way Interaction Between Stress, Social Support, and Race

Although social support is still expected to weaken the positive relation between stress and negative affect as well as the negative relation between stress and positive affect, it is expected that the moderating effect of social support in the relation between stress and affect may differ among Black and White low-income adolescents. It is expected that the effect of social support in the relation between stress and positive affect may be stronger for Black as opposed to White adolescents, and it is hypothesized that the effect of social support in the relation between stress and negative affect may be stronger for White as opposed to Black adolescents.

4.0 Methods

4.1 Participants

This study used data from an ongoing intensive longitudinal inquiry examining school experiences, family functioning, and adolescent well-being in America. In Fall 2019, adolescents from seven urban schools in Western Pennsylvania were invited to participate in a 21-day daily-diary study. The original sample included 285 adolescents aged 13 to 18 (7^{th} grade = 26.0%, 9th grade = 43.9%, 10^{th} grade = 10.5%, 11^{th} grade = 19.6%; M_{age} = 14.86; 57.9% female; 86.3% qualified for free lunch). The sample was ethnically and racially diverse with participants identifying as American Indian or Alaskan Native (1.1%), Asian or Asian American (0.7%), Black or African American (41.4%), Hispanic or Latinx (1.4%), White or European American (39.6%), Biracial (10.2%), Multiracial (3.5%), or Other Race (2.1%). After reducing the sample to include only Black and White students, the final analytic sample for Fall 2019 consisted of 231 total students (7^{th} grade = 25.1%, 9th grade = 44.2%, 10^{th} grade = 10.8%, 11^{th} grade = 19.9%; M_{age} = 14.9; 57.1% female; Black = 51.1%; 82.7% qualified for free lunch).

In Spring 2020, adolescents were invited by email to participate in a nationwide longitudinal study about stress and adjustment during the COVID-19 pandemic. Of the original 285 adolescents, 133 opted to participate. The sample was ethnically and racially diverse with participants identifying as American Indian or Alaskan Native (1.1%), Asian or Asian American (0.7%), Black or African American (41.4%), Hispanic or Latinx (1.4%), White or European American (39.6%), Biracial (9.5%), Multiracial (3.2%), or Other Race (6.4%). The final longitudinal analytic sample included 133 adolescents aged 13 to 18 (7^{th} grade = 26.3%, 9th grade

= 45.1%, 10th grade = 7.5%, 11th grade = 21.1%; 64.7% female; 70.7% qualified for free lunch). After reducing the sample to include only Black and White, the final analytic sample for Spring 2020 consisted of 111 total students (7th grade = 26.1%, 9th grade = 44.1%, 10th grade = 8.1%, 11th grade = 21.1%; M_{age} = 14.85; 64.9% female; Black = 42.3%; 83.8% qualified for free lunch). Tables 2, 3, and 4 represent demographics for the full sample, demographics for the analytic sample, and bivariate correlations with descriptive statistics, respectively.

Table 2 Full Sample Demographics

	Wave 1 (*N* = 285)	Wave 2 (*N* = 133)
Grade		
7th Grade	74 (26.0%)	35 (26.3%)
9th Grade	125 (43.9%)	60 (45.1%)
10th Grade	30 (10.5%)	10 (7.5%)
11th Grade	56 (19.6%)	28 (21.1%)
Gender		
Female	165 (57.9%)	86 (64.7%)
Male	119 (41.8%)	47 (35.3%)
Other	1 (0.4%)	0 (0.0%)
Race		
Black or African American	118 (41.4%)	47 (35.3%)
Hispanic or Latinx	4 (1.4%)	0 (0.0%)
White or European American	113 (39.6%)	64 (48.1%)
Biracial	29 (10.2%)	16 (12.0%)
Multiracial	10 (3.5%)	2 (1.5%)
Other	11 (3.9%)	4 (3.1%)
School		
School A (District 1)	32 (11.2%)	19 (14.3%)
School B (District 1)	54 (18.9%)	22 (16.5%)
School C (District 2)	9 (3.2%)	1 (0.8%)
School D (District 2)	26 (9.1%)	14 (10.5%)
School E (District 3)	41 (14.4%)	16 (12.0%)
School F (District 3)	51 (17.9%)	19 (14.3%)
School G (District 4)	72 (25.3%)	42 (31.6%)
Socioeconomic Status		
Pay Lunch	37 (10.9%)	19 (14.3%)
Qualified for Free Lunch	243 (86.3%)	114 (85.7%)
Missing	5 (1.8%)	0 (0.0%)

Table 3 Analytic Sample Demographics

	Wave 1 (*N* = 231)	Wave 2 (*N* = 111)
Grade		
7th Grade	58 (25.1%)	29 (26.1%)
9th Grade	102 (44.2%)	49 (44.1%)
10th Grade	25 (10.8%)	9 (8.1%)
11th Grade	46 (19.9%)	24 (21.6%)
Gender		
Female	132 (57.1%)	72 (64.9%)
Male	98 (42.4%)	39 (35.1%)
Other	1 (0.4%)	0 (0.0%)
Race		
Black or African American	118 (51.1%)	47 (42.3%)
White or European American	113 (48.9%)	64 (57.7%)
School		
School A (District 1)	25 (10.8%)	16 (14.4%)
School B (District 1)	45 (19.5%)	20 (18.0%)
School C (District 2)	8 (3.5%)	0 (0.0%)
School D (District 2)	20 (8.7%)	13 (11.7%)
School E (District 3)	32 (13.9%)	13 (11.7%)
School F (District 3)	46 (19.9%)	17 (15.3%)
School G (District 4)	55 (23.8%)	32 (28.8%)
Socioeconomic Status		
Pay Lunch	25 (15.2%)	18 (16.2%)
Qualified for Free Lunch	191 (82.7%)	93 (83.8%)
Missing	5 (2.2%)	0 (0.0%)

4.2 Procedures

In Fall 2019, research staff recruited eligible participants by explaining and distributing information about the study during students' scheduled class time. Adolescents were given a permission form to return to their parents, who provided consent for their child's participation. Adolescents then assented to the study, completed baseline demographic measures, and engaged in 21 consecutive days of daily-diary assessments. These assessments were completed between 5:00 p.m. and 12:00 a.m. using internet-capable devices (e.g., cellphones, tablets, or computers) during staggered three-week collection periods between October 28, 2019 and December 22, 2019.

Spring 2020 data collection followed the same procedures and occurred in the period between April 8, 2020 and April 22, 2020, except recruitment was done via email due to COVID-19-related school closures and the data collection period was shortened to 14 days to reduce participant burden and fatigue. Participants received two to four reminders to complete the daily survey via email or text message each day. For participants who missed a survey on any given day, text messages were sent the following morning to troubleshoot any issues with the survey or log-in information. Adolescents participating in the Fall 2019 data collection received up to $60 for their participation, and Spring 2020 participants received up to $30. All materials and procedures were approved by the authors' university institutional review board.

4.3 Measures

4.3.1 Daily Stress

Adolescents' daily stress was measured using a single item: "Overall, how stressful was your day?" Adolescents reported their stress during the past 24 hours on a 4-point scale from 1 (*not at all stressful*) to 4 (*very stressful*), such that higher scores reflected higher stress. Daily scores were averaged within waves to obtain mean stress score for each individual.

4.3.2 Daily Affect

Adolescents' positive and negative affect were measured daily using the Profile of Mood States, a well-validated psychological scale (Heuchert & McNair, 2012). We assessed positive

affect with two items (e.g., cheerful, energetic; $\alpha_{Fall2019}$ = .79; $\alpha_{Spring2020}$ = .77) and negative affect with five items (e.g., nervous, angry, anxious, lonely, sad; $\alpha_{Fall2019}$ = .99; $\alpha_{Spring2020}$ = .85). Adolescents reported their mood during the past 24 hours on a 5-point scale from 1 (*not at all*) to 5 (*a lot*), such that higher scores reflected more positive or negative affect. Item scores were averaged to create daily positive and negative scores for each individual. Daily scores were then averaged within each wave to obtain mean positive and negative affect scores for each individual.

4.3.3 Daily Social Support

Daily social support was assessed each day via two items (e.g., "*Today, I felt supported by my parent(s) or family*"; "*Today, I felt supported by my peers*."; $\alpha_{Fall2019}$ = .99; $\alpha_{Spring2020}$ = .71; Furman & Buhrmester, 2009). Items had a 5-point response scale ranging from 1 (*not at all*) to 5 (*a lot*), such that higher scores reflected more social support. Item scores were averaged to create daily social support scores for each individual. Daily scores were then averaged within waves to obtain mean positive and negative affect scores for each individual.

4.3.4 Covariates

Several child-level covariates were included in our analysis. Children reported their race (0 = *White*, 1 = *Black)* and the name of their school. Participant's school was designated so as to be able to conduct a cluster adjustment to ensure data independence and control for any potential neighborhood effects. Parents provided information regarding adolescents' age (in years) and family qualification for free/reduced-price lunch status (0 = *free lunch*, 1 = *pay lunch*) as a proxy

of socioeconomic status per recommendations from APA (Status APA Task Force on Socioeconomic, 1990).

4.4 Analytic Strategy

To create the necessary composites, person-level means for each study variable (i.e., daily stress, affect, and social support) will be derived from the daily-diary data by averaging scores across the 21 days of data in Fall 2019 and 14 days of data in Spring 2020. Prior to running analysis, *G*Power* was used to determine whether the sample was large enough to simultaneously consider stress, social support, and racial differences within a single regression model. The minimum required sample size to detect a medium effect in a multiple linear regression model is 85; hence, the sample size for this study is adequate.

4.4.1 Attrition Analysis and Missing Data

Of the initial 231 participants in Fall 2019, only 111 elected to participate in data collection in Spring 2020. An independent samples *t*-test was used to determine whether any systematic differences existed between those who participated in Fall 2019 and those who participated in both Fall 2019 and Spring 2020 studies. There were no significant differences in any key demographic variables, predictors, or outcomes of interest among participants who completed one versus both waves of data collection. Within waves, the amount of missing data at the person level is extremely low. In fact, there is no missing data on any independent or dependent variable of interest in the model. In the analytic sample for Fall 2019, five participants (2.2%) had missing data regarding

whether they were enrolled in a free or reduced-price lunch program. Two participants were missing scores on positive affect for both waves.

4.4.2 Assumptions Testing for Multiple Linear Regression

Next, the assumptions for multiple linear regression were addressed, including linearity, normality, homoscedasticity, independence of errors, outliers, influential data points, and multicollinearity (Cohen et al., 1983). All variables identified by the theory were included in the model. To test linearity, standardized residuals were plotted against the predicted values and each independent variable (Cohen et al., 1983). The assumption for linearity was met for all models. Next, histograms and Q-Q plots of standardized residuals were examined, and the Shapiro-Wilk test (Shapiro & Wilk, 1965) was consulted to assess normality. Data were moderately skewed, but the analyses were robust to non-normality given the sample size (Cohen et al., 1983). Standardized residuals were plotted against the predicted values and each independent variable using the Breusch-Pagan test (Breusch & Pagan, 1979). Data was heteroscedastic in most analyses; however, all conducted analyses (in conjunction with adequate sample size) were robust to these violations; hence, no adjustment was made. Univariate plots (i.e., histograms, boxplots, and detrended Q-Q plots) and bivariate scatterplots were examined to identify potential outliers. No outliers were identified in any of the models. Both global (Cook's *d*) and specific (DFBETAS) measures of influence were examined to rule out influential data points. No influential data points were identified in any of the models. Multicollinearity was not an issue for any model, with all variance inflation factors (VIFs) less than 10.

Intraclass correlations were conducted using SAS to determine whether a cluster adjustment is needed to address the nested data structure (i.e., students nested within schools). All

intraclass correlations were small (ICC_{Range}: .028 - .053); hence, there was not enough variation between schools to justify a nested approach. After evaluating the ICC for school type and running full models with all variables, non-significant covariates (gender, caregiver status, and school type) were dropped from the final models to increase model parsimony. All remaining analyses were conducted using *IBM SPSS Statistics 27* (IBM Corp., 2019).

5.0 Results

5.1 Research Question 1

For the first research question, paired samples *t*-tests were used to evaluate the impact of COVID-19-mandated school closures on low-income adolescents' positive affect, negative affect, social support, and stress between Fall 2019 and Spring 2020. Table 4 presents mean-level differences for key constructs between Fall 2019 and April 2020. Stress, positive affect, and social support significantly decreased between Fall 2019 and Spring 2020, while negative affect significantly increased. All effect sizes were small (Cohen's d_{range} = .19-.30).

Table 4 Paired Samples *t*-Tests Between Fall 2019 and Spring 2020 Positive Affect, Negative Affect, Social Support, and Stress

		Fall 2019 *M* (SD)	Spring 2020 *M* (SD)	*M* (SD) of the Difference	95% CI of the Difference	*t*(df)	Cohen's *d*
Full	Stress	1.89 (0.59)	1.74 (0.67)	-.15 (0.58)	[.04, .26]	-2.79 (110)**	.27
	Negative Affect	1.63 (0.67)	1.78 (0.81)	.15 (0.51)	[-.25, -.06]	3.12 (110)***	.30
	Positive Affect	2.96 (0.93)	2.80 (1.06)	-.16 (0.82)	[.00, .31]	-2.02 (108)*	.19
	Social Support	3.44 (1.08)	3.21 (1.13)	-.23 (0.81)	[.07, .38]	-2.93 (110)***	.28

Note. *p<.05, **p<.01, ***p<.001

Data was also examined to determine whether there were within- and between-wave mean level differences among stress, affect, and social support among White and Black adolescents. Table 5 displays within-wave differences in key variables among Black and White adolescents in Fall 2019 and Spring 2020. In Fall 2019 and Spring 2020, White students reported significantly higher positive affect and social support than Black students. Effect sizes indicated a small-to-medium effect (η^2_{range}= .02 - .07).

Table 5 Means, Standard Deviations, and One-Way Analyses of Variance for Fall 2019 and Spring 2020 Variables Between Black and White Participants

	Black	White	One-way, between-group ANOVA	
Variable	*M* (SD)	*M* (SD)	*F* ratio	*Df*
2019 Stress	1.91 (0.63)	1.93 (0.61)	0.03	229
2020 Stress	1.71 (0.64)	1.77 (0.70)	0.18	109
2019 Negative Affect	1.59 (0.57)	1.72 (0.73)	2.42	210.87[a]
2020 Negative Affect	1.62 (0.72)	1.90 (0.85)	3.26	107
2019 Positive Affect	2.80 (0.96)	3.09 (0.96)	5.21*	229
2020 Positive Affect	2.54 (1.10)	2.98 (1.00)	4.79*	109
2019 Social Support	3.17 (1.01)	3.72 (1.00)	17.26***	229
2020 Social Support	2.93 (1.09)	3.42 (1.12)	5.36*	109

[a]Due to violation of homogeneity of variance assumption, Welch's statistic is presented for 2019 negative affect.
*p<.05, **p<.01, ***p<.001

Table 6 shows mean level differences across waves by race. For White adolescents only, stress and social support 2020 significantly decreased, while negative affect significantly increased. Cohen's d indicated small-to-medium effect sizes (range: .35-.39). That is, there were no significant mean-level differences between 2019 and 2020 variables for the Black sample.

Table 6 Paired Samples *t*-Tests Between Fall 2019 and Spring 2020 Positive Affect, Negative Affect, Social Support, and Stress by Race

		Fall 2019 *M* (SD)	Spring 2020 *M* (SD)	*M* (SD) of the Difference	95% CI of the Difference	*t*(df)	Cohen's *d*
Black	Stress	1.81 (0.61)	1.71 (0.64)	-.10 (0.62)	[-.09, .28]	-1.07 (46)	.16
	Negative Affect	1.54 (0.53)	1.62 (0.72)	.09 (0.43)	[-.21, .04]	1.38 (46)	.20
	Positive Affect	2.76 (0.89)	2.54 (1.10)	-.22 (0.83)	[-.02, .47]	-1.83 (45)	.27
	Social Support	2.99 (1.02)	2.93 (1.09)	-.06 (0.64)	[-.13, .24]	-0.62 (46)	.09
White	Stress	1.96 (0.56)	1.77 (0.70)	-.19 (0.54)	[.06, .33]	-2.86 (63)**	.36
	Negative Affect	1.70 (0.75)	1.90 (0.85)	.20 (0.56)	[-.34, -.06]	2.84 (63)**	.35
	Positive Affect	3.10 (0.94)	2.98 (1.00)	-.11 (0.82)	[-.09, .32]	-1.08 (62)	.14
	Social Support	3.77 (1.00)	3.42 (1.12)	-.35 (0.91)	[.12, .58]	-3.09 (63)***	.39

Note. *p<.05, **p<.01, ***p<.001

5.2 Research Question 2

Six multiple regression models were conducted to examine the main effects of stress and social support on positive and negative affect as well as the moderating role of social support in

the relation between stress and affect: (a) 2019 stress and negative affect, (b) 2019 stress and positive affect, (c) 2020 stress and negative affect, (d) 2020 stress and positive affect, (e) lagged model of 2020 stress and negative affect, and (f) lagged model of 2020 stress and positive affect. Grade and race were included as covariates in these models. Lagged 2020 models included values for 2019 fall positive and negative affect. All independent variables were centered around the mean to aid in the interpretation of results. Table 7 presents the means, standard deviations, and correlations between all study variables.

Table 7 Descriptive Statistics and Bivariate Correlations for Key Variables and Demographics in Fall 2019 and Spring 2020 Datasets

	Mean (SD)	1	2	3	4	5	6	7	8	9
1. 2019 Stress	1.92 (0.62)	-								
2. 2019 Negative	1.65 (0.66)	.63**	-							
3. 2019 Positive	2.95 (0.97)	-.23**	.00	-						
4. 2019 Social	3.44 (1.04)	-.16*	-.12	.51**	-					
5. 2020 Stress	1.74 (0.67)	.59**	.60**	-.10	-.17	-				
6. 2020 Negative	1.78 (0.81)	.61**	.78**	-.09	-.15	.70**	-			
7. 2020 Positive	2.80 (1.06)	-.13	-.01	.67**	.48**	-.14	-.05	-		
8. 2020 Social	3.21 (1.13)	-.10	-.11	.45**	.73**	-.18	-.14	.59**	-	
9. Race (1=*Black*)	---	-.01	-.10	-.15*	-.26**	-.04	-.17	-.21*	-.22*	
10. Grade	9.00 (1.39)	.08	.02	-.19**	-.02	.22*	.31**	-.10	.05	.01

Note: * = $p<.05$; ** = $p<.01$

Table 8 presents all regression models run among the full sample. There was a significant prediction of Fall 2019 negative affect by 2019 stress, social support, and covariates ($F(4,226) = 38.91$, $R^2 = .41$, $R^2_{Adj} = .40$, $p<.001$). Stress was significantly and positively related with negative affect, explaining 37.2% of the variance in negative affect. Race also shared a significant relation with negative affect, explaining 1.0% of the variance. The model operated similarly in Spring 2020 ($F(4,106) = 31.20$, $R^2 = .54$, $R^2_{Adj} = .52$, $p<.001$), with grade level, race, and 2020 stress explaining 3.2%, 2.9%, and 37.2% of the variance in 2020 negative affect, respectively. In the lagged 2020 model, 2020 stress, race, and grade level explained 6.3%, 1.2%, and 2.9% of the variance in

Table 8 Fall 2019, Spring 2020, and Lagged Spring 2020 Regression Models Predicting Negative and Positive Affect

Negative Affect Models

Fall 2019				Spring 2020				Lagged Spring 2020			
Variable	B (SEB)	95% CI	*β*	Variable	B (SEB)	95% CI	*β*	Variable	B (SEB)	95% CI	*β*
2019 Stress	.66*** (.06)	[.55, .77]	.62	2020 Stress	.77*** (.08)	[.60, .93]	.64	2020 Stress	.38*** (.08)	[.23, .54]	.32
2019 Social Support	-.03 (.03)	[-.10, .04]	-.05	2020 Social Support	-.05 (.05)	[-.15, .05]	-.07	2020 Social Support	-.04 (.04)	[-.11, .04]	-.05
Grade	-.02 (.02)	[-.06, .03]	-.03	Grade	.10** (.04)	[.03, .18]	.18	Grade	.10*** (.03)	[.04, .16]	.18
Race	-.14* (.07)	[-.28, .00]	-.11	Race	-.28** (.11)	[-.50, -.06]	-.17	Race	-.19* (.09)	[-.36, -.01]	-.11
								2019 Negative Affect	.66*** (.08)	[.50, .81]	.54

Positive Affect Models

Fall 2019				Spring 2020				Lagged Spring 2020			
Variable	B (SEB)	95% CI	*β*	Variable	B (SEB)	95% CI	*β*	Variable	B (SEB)	95% CI	*β*
2019 Stress	-.22** (.09)	[-.40, -.05]	-.14	2020 Stress	-.03 (.13)	[-.28, .23]	-.02	2020 Stress	-.04 (.11)	[-.25, .17]	-.02
2019 Social Support	.45*** (.05)	[.34, .55]	.48	2020 Social Support	.54*** (.07)	[.41, .70]	.57	2020 Social Support	.34*** (.07)	[.20, .48]	.36
Grade	-.12** (.04)	[-.20, -.04]	-.17	Grade	-.13 (.06)	[-.21, .02]	-.12	Grade	-.05 (.05)	[-.15, .05]	-.06
Race	-.04 (.11)	[-.26, .18]	-.02	Race	-.14 (.17)	[-.48, .21]	-.06	Race	-.07 (.15)	[-.36, .22]	-.03
								2019 Positive Affect	.57*** (.74)	[.67, .55]	.50

Note. *$p < .05$, **$p < .01$, ***$p < .001$

negative affect, respectively, $F(5,105) = 56.47$, $R^2 = .73$, $R^2_{Adj} = .72$, $p<.001$. In this model, 2019 negative affect explained 18.5% of the variation in 2020 negative affect, such that people with higher negative affect in 2019 experienced the largest increases in negative affect between Fall 2019 and Spring 2020.

For the models predicting positive affect, there was a significant association between 2019 positive affect and 2019 stress, social support, and covariates, $F(4,226) = 26.13$, $R^2 = .32$, $R^2_{Adj} = .30$, $p<.001$. 2019 stress (2.0%), social support (21.1%) and grade level (2.9%) contributed significantly to 2019 positive affect. However, stress and grade level did not share significant relations with the variation in positive affect in 2020, $F(4,104) = 15.02$, $R^2 = .37$, $R^2_{Adj} = .34$, $p<.001$. Instead, 2020 social support was the only variable significantly associated with 2020 positive affect, explaining 29.2% of the variation in the dependent variable. When 2019 positive affect was added to create the 2020 lagged positive affect model, 2020 social support explained less variance in 2020 positive affect (10.2%), $F(5,103) = 26.11$, $R^2 = .56$, $R^2_{Adj} = .54$, $p<.001$. In this model, 2019 positive affect explained 19.4% of the variance in 2020 positive affect, such that those with higher 2019 positive affect experienced the largest increases in positive affect between Fall 2019 and Spring 2020. The anticipated stress by social support interaction terms were tested in each of the six models presented above, but this interaction was not significant in any model run using the full sample.

5.3 Research Question 3

For the third research question, the six multiple regression models from Research Question 2 were performed separately for Black and White youth. Means, standard deviations, and intercorrelations for 2019 and 2020 variables for Black and White adolescents are provided in Table 9.

Table 9 Descriptive Statistics and Bivariate Correlations for Key Variables and Demographics in Fall 2019 and Spring 2020 among Black and White Adolescents

	Black M (SD)	White M (SD)	1	2	3	4	5	6	7	8	9
1. 2019 Stress	1.91 (0.63)	*1.93 (0.61)*		*.69***	*-.18*	*-.22***	*.65***	*.71***	*-.13*	*-.12*	*.17*
2. 2019 Negative	1.59 (0.57)	*1.72 (0.73)*	.57**		*-.04*	*-.22***	*.65***	*.77***	*-.08*	*-.17*	*.06*
3. 2019 Positive	2.80 (0.96)	*3.09 (0.96)*	-.29**	.02		*.51***	*-.05*	*-.07*	*.65***	*.41***	*-.17*
4. 2019 Social	3.17 (1.01)	*3.72 (1.00)*	-.12	-.07	.48		*-.17*	*-.24*	*.41***	*.64***	*-.01*
5. 2020 Stress	1.71 (0.64)	*1.77 (0.70)*	.50**	.50**	-.19	-.23		*.74***	*-.05*	*-.15*	*.28**
6. 2020 Negative	1.62 (0.72)	*1.90 (0.85)*	.46**	.80**	-.20	-.22	.64**		*-.10*	*-.22*	*.31**
7. 2020 Positive	2.54 (1.10)	*2.98 (1.00)*	-.20	.04	.67**	.49**	-.30*	-.06		*.57***	*-.15*
8. 2020 Social	2.93 (1.09)	*3.42 (1.12)*	-.16	-.08	.46**	.82**	-.26	-.12	.57**		.07
9. Grade	9.0 (1.35)	*9.0 (1.42)*	-.01	-.04	-.22*	-.03	.12	.35*	.00	.07	

Note: * = p<.05; ** = p<.01; Italicized numbers (top triangle) represent correlation coefficients for White adolescents; Black adolescents: $n_{Fall2019} = 118$ $n_{Spring2020} = 47$; White adolescents: $n_{Fall2019} = 113$ $n_{Spring2020} = 64$

5.3.1 Stress, Social Support, and Affect Among Black Youth

Table 10 reports regression models for Black adolescents. For Black adolescents, there was a significant prediction of 2019 negative affect by 2019 stress, social support, and covariates, $F(4,113) = 14.19$, $R^2 = .33$, $R^2_{Adj} = .31$, $p<.001$. 2019 stress explained 31.4% of the variance in 2019 negative affect. The Spring 2020 regression model similarly predicted negative affect for

Table 10 Fall 2019, Spring 2020, and Lagged Spring 2020 Regression Models for Black Adolescents

Negative Affect Models

Fall 2019				Spring 2020				Lagged Spring 2020			
Variable	B (SEB)	95% CI	*β*	Variable	B (SEB)	95% CI	*β*	Variable	B (SEB)	95% CI	*β*
2019 Stress	.54*** (.07)	[.39, .69]	.60	2020 Stress	.71*** (.13)	[.44, .98]	.62	2020 Stress	.37** (.11)	[.15, .60]	.33
2019 Social Support	.01 (.04)	[-.08, .09]	.01	2020 Social Support	.02 (.08)	[-.14, .19]	.04	2020 Social Support	.01 (.06)	[-.11, .13]	.02
2019 Stress x Social Support	.06 (.07)	[-.07, .20]	.08	2020 Stress x Social Support	.04 (.13)	[-.22, .29]	.03	2020 Stress x Social Support	.00 (.09)	[-.18, .19]	.00
Grade	-.02 (.03)	[-.08, .05]	-.04	Grade	.15* (.06)	[.02, .27]	.27	Grade	.05 (.05)	[-.05, .15]	.09
								2019 Negative Affect	.83*** (.14)	[.55, 1.11]	.61

Positive Affect Models

Fall 2019				Spring 2020				Lagged Spring 2020			
Variable	B (SEB)	95% CI	*β*	Variable	B (SEB)	95% CI	*β*	Variable	B (SEB)	95% CI	*β*
2019 Stress	-.10 (.14)	[-.37, .17]	-.06	2020 Stress	-.28 (.23)	[-.74, .18]	-.16	2020 Stress	-.22 (.19)	[-.61, .16]	-.13
2019 Social Support	.50*** (.08)	[.34, .66]	.52	2020 Social Support	.54*** (.14)	[.26, .82]	.53	2020 Social Support	.32** (.13)	[.07, .58]	.32
Grade	-.10 (.06)	[-.21, .01]	-.15	Grade	-.02 (.11)	[-.23, .20]	-.02	Grade	.00 (.09)	[-.18, .17]	.00
								2019 Positive Affect	.64*** (.64)	[.35, .93]	.52

Note. *$p < .05$, $p < .01$, $p < .001$

Black adolescents, $F(4,42) = 10.00$, $R^2 = .49$, $R^2_{Adj} = .44$, $p<.001$. Stress remained a significant predictor, explaining 33.6% of the variance in negative affect; however, grade level emerged as a significant predictor in the 2020 model for Black adolescents, accounting for 7.3% of the variance. When 2019 negative affect was added to create the 2020 lagged positive affect model, the influence of grade level became non-significant. In the 2020 lagged model, 2020 stress and 2019 negative affect predicted 7.3% and 24.0% of the variance in negative affect, respectively ($F(5,40) = 10.47$, $R^2 = .57$, $R^2_{Adj} = .51$, $p<.001$).

Regarding positive affect, there was a significant prediction of 2020 positive affect by 2020 stress, social support, and covariates for Black adolescents (see Table 10; $F(3,114) = 18.89$, $R^2 = .33$, $R^2_{Adj} = .31$, $p<.001$). While 2019 stress did not significantly predict 2019 positive affect, 2019 social support explained 25.0% of the variation in positive affect. Similarly, 2020 social support predicted 24.0% of the variability within 2020 positive affect, with no other significant predictors emerging within the model ($F(3,42) = 7.57$, $R^2 = .35$, $R^2_{Adj} = .31$, $p = .001$). In the 2020 lagged positive affect model, social support dropped to only predicting 7.3% of the variance in 2020 positive affect, and 2019 positive affect accounted for 21.2% of the variation in 2020 positive affect ($F(4, 41) = 13.41$, $R^2 = .57$, $R^2_{Adj} = .53$, $p<.001$).

5.3.1 Stress, Social Support, and Affect Among White Youth

Table 11 reports regression model findings for White youth only. For White adolescents, the regression model for 2019 negative affect was statistically significant ($F(4,108) = 27.62$, $R^2 = .30$, $R^2_{Adj} = .27$, $p<.001$). Stress explained 44.9% of the variance in 2019 negative affect. There was also an interaction between stress and social support in the Fall 2019 negative affect model for White adolescents, such that those with higher levels of social support experienced a weaker

Table 11 Fall 2019, Spring 2020, and Lagged Spring 2020 Regression Models for White Adolescents

Negative Affect Models

Fall 2019				Spring 2020				Lagged Spring 2020			
Variable	B (SEB)	95% CI	*β*	Variable	B (SEB)	95% CI	*β*	Variable	B (SEB)	95% CI	*β*
2019 Stress	.87*** (.09)	[.70, 1.04]	.73	2020 Stress	.83*** (.11)	[.61, 1.05]	.68	2020 Stress	.39*** (.11)	[.16, .62]	.32
2019 Social Support	-.07 (.05)	[-.17, .03]	-.09	2020 Social Support	-.10 (.07)	[-.23, .03]	-.13	2020 Social Support	-.07 (.05)	[-.18, .03]	-.10
2019 Stress x Social Support	-.18* (.09)	[-.35, -.01]	-.15	2020 Stress x Social Support	-.01 (.08)	[-.17, .15]	-.01	2020 Stress x Social Support	-.06 (0.6)	[-.19, .07]	-.07
Grade	-.04 (.04)	[-.11, .03]	-.07	Grade	.07 (.05)	[-.03, .17]	.12	Grade	.11** .04)	[.03, .20]	.20
								2019 Negative Affect	.62*** (.10)	[.41, .82]	.55

Positive Affect Models

Fall 2019				Spring 2020				Lagged Spring 2020			
Variable	B (SEB)	95% CI	*β*	Variable	B (SEB)	95% CI	*β*	Variable	B (SEB)	95% CI	*β*
2019 Stress	-.44*** (.12)	[-.69, -.19]	-.29	2020 Stress	.14 (.23)	[-.18, .45]	.10	2020 Stress	.10 (.13)	[-.16, .37]	.07
2019 Social Support	.40*** (.07)	[.26, .55]	.43	2020 Social Support	.53*** (.14)	[.34, .71]	.59	2020 Social Support	.34*** (.09)	[.16, .52]	.38
Grade	-.14** (.05)	[-.25, -.03]	-.20	Grade	-.15* (.11)	[-.29, .00]	-.22	Grade	-.09 (.06)	[-.22, .03]	-.14
								2019 Positive Affect	.51*** (.14)	[.29, .72]	.48

Note. *$p < .05$, $p < .01$, $p < .001$

Figure 1a. Black Students' 2019 Negative Affect

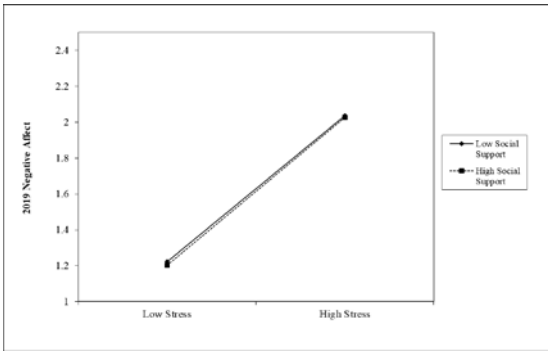

Figure 1b. White Students' 2019 Negative Affect

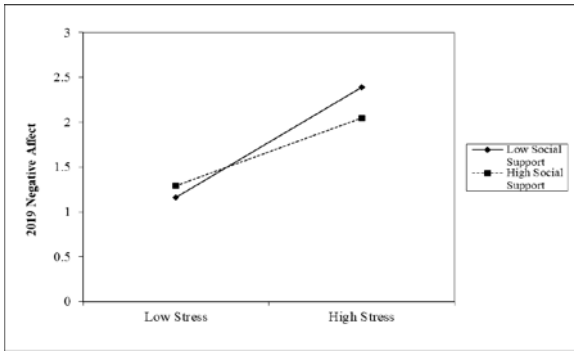

Figure 1c. Black Students' 2019 Positive Affect

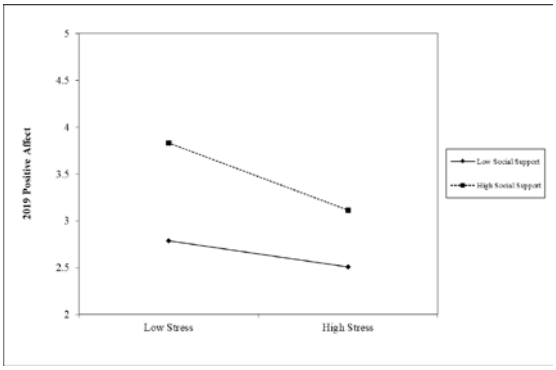

Figure 1d. White Students' 2019 Positive Affect

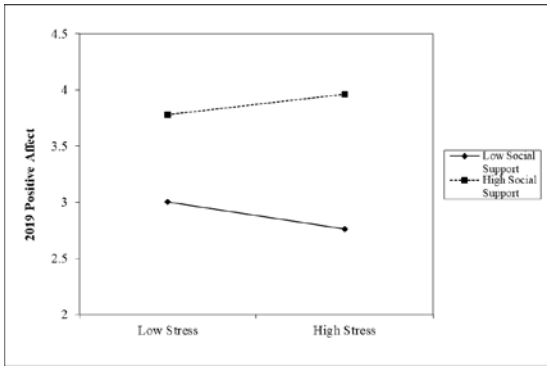

Figure 1 Interaction Plots for 2019 Regression Models

connection between 2019 stress and negative affect. It is noteworthy that this interaction appeared in models for White, but not Black adolescents, thus indicating a three-way interaction between stress, social support, and race (see Figure 1). This interaction effect did not emerge within either 2020 negative affect model for White adolescents. In the Spring 2020 model for negative affect among White adolescents, 2020 stress, social support, and covariates predicted negative affect ($F(4,59) = 19.61$, $R^2 = .57$, $R^2_{Adj} = .54$, $p<.001$). 2020 stress explained 41.0% of the variability in 2020 negative affect. In the lagged model for 2020 negative affect, 2020 stress, grade level, and 2019 negative affect predicted 5.4%, 3.2%, and 16.0% of the variation in 2020 negative affect, respectively ($F(5,58) = 32.06$, $R^2 = .73$, $R^2_{Adj} = .71$, $p<.001$).

There was a significant prediction of 2019 positive affect by 2019 stress, social support, and covariates, $F(3,109) = 14.89$, $R^2 = .29$, $R^2_{Adj} = .27$, $p<.001$). Social support and grade level explained 23.9% and 2.5%, respectively, of the variance in White adolescents' 2019 positive affect. In both the cross-sectional spring 2020 model ($F(3,59) = 11.34$, $R^2 = .37$, $R^2_{Adj} = .33$, $p<.001$) and lagged Spring 2020 model ($F(4,58) = 17.16$, $R^2 = .54$, $R^2_{Adj} = .51$, $p<.001$), stress no longer predicted positive affect. In the Spring 2020 model, 2020 social support and grade level accounted for 24.0% and 4.4% of the variation in positive affect, respectively. In the lagged model for 2020 positive affect, social support continued to explain 11.7% of the variation in positive affect, but 2019 positive affect accounted for a higher percentage of this variance, explaining 17.6%.

5.4 Post Hoc Analyses

The social support variable for this study combined adolescents' reports on parent and peer social support so as to examine youth's support networks holistically, but due to shifting parent and peer influences during adolescence, it seemed prudent to examine these variables separately in post hoc analysis. To determine what type of social support may have been driving significant associations, all analyses conducted in the original three research questions were conducted examining parent and peer social support separately. That is, within- and between-person differences were investigated in parent and peer social support over time, and these differences were examined by race as well. Four cross-sectional regression models and two lagged regression models were run to examine the role of parent support in the relation between stress and affect (both positive and negative) in Fall 2019 and Fall 2020. These models were then examined by race to determine any significant differences between Black and White adolescents.

In Fall 2019 White adolescents reported more peer social support than Black adolescents. In Spring 2020, White students reported higher levels of peer social support than Black adolescents; however, there were no significant differences in parental social support. Among the full sample, peer social support significantly decreased between Fall 2019 and Spring 2020, while there was no significant difference in parent social support between waves. For White adolescents only, parent and peer social support significantly decreased between Fall 2019 and Spring 2020. There were no significant mean-level differences between 2019 and 2020 variables for the Black sample.

Results for Fall 2019, Spring 2020, and lagged Spring 2020 models for both positive and negative affect were similar to those found in models where parent and peer social support were combined into one variable. The three-way interaction between stress, race, and social support was found in 2019 peer social support models for both negative and positive affect, but these effects were not present in any 2020 peer support models nor any parent support models. Regarding the negative affect model, peer social support was effective at weakening the relation between stress and negative affect among White youth only. In the positive affect model, peer social support strengthened the negative relation between stress and positive affect such that Black adolescents who feel supported by their peers actually experienced less positive affect in the presence of stress. Full results for this post hoc analysis (including Tables and interaction plots) can be found in Appendix A.

6.0 Discussion

During the onset of the COVID-19 pandemic, adolescents were exposed to sudden school closures and public health mandates that limited opportunities for social connection with peers and changed family interpersonal dynamics. This study sheds new light on understanding adolescents' stress, coping, and affect before and during the onset of the COVID-19 pandemic within the larger context of wealth and racial inequality. Significant differences were found between Fall 2019 and Spring 2020 stress, affect, and social support among Black and White adolescents. Among the full sample, stress predicted positive and negative affect in both Fall 2019 and Spring 2020, and while social support shared a predictive relationship with positive affect in both waves, it did not moderate this relation. This moderation model was examined among Black and White adolescents with various nuanced results. These results will be discussed in the following sections.

6.1 Contextualizing Adolescents' Fall 2019 and Spring 2020 Stress

Between Fall 2019 and Spring 2020, negative affect increased, positive affect decreased, and social support decreased among the full sample. While these results were as hypothesized, it was unclear as to whether adolescents' mean-level stress would change significantly between the two time points. As the pandemic onset had resulted in a fair amount of uncertainty and confusion about the future of schooling, it was surprising to find that adolescents' generalized stress decreased between Fall 2019 and Spring 2020. We offer several explanations for this finding.

First, the timing of data collection may have influenced our results. At the time of data collection, participants' schools had been closed for approximately five weeks. A week prior to data collection, adolescents learned that school would not be reconvening for in-person lessons for the remainder of the 2019-2020 school year. It may have been that stress was higher when the future of the 2019-2020 school year was unknown (i.e., during March 13 – April 10) than when students had certainty over the discontinuation of in-person learning. Indeed, some researchers found dramatic increases in American adolescents' worry and concern for others in the period between March 6 and March 20, 2020 (Waselewski et al., 2021). Alternatively, students may have treated COVID-related school cancellations much like snow days or extended school breaks, especially considering that many of the participating school districts were not able to coordinate remote learning services until May 2020. If stress was primarily driven by school and schoolwork, it makes sense that adolescents would experience a reprieve from traditional school-related stressors during school closures, hence explaining the overall reduction in stress seen between Fall 2019 and Spring 2020 student reports.

In addition to normative developmental stress related to schoolwork and academics, there is also a substantial amount of stress that can arise from the school climate. For instance, equity is a primary element of school climate, and while recent efforts have squarely targeted policies that propagate racial inequity within schools (Del Toro & Wang, 2021), Black youth continue to consistently rate elements of school climate less positively than their White peers (Wang et al., 2020; Wang & Degol, 2016). This difference in perception has been attributed to racial biases among teachers and school-based adults that have infiltrated classroom interactions and disciplinary policies within American schools (Gregory et al., 2016; Skiba et al., 2014). Although there is no evidence to suggest that participating schools harbored racial disparities in school

climate, it is possible that some youth—and Black youth in particular—may have experienced a reduction in stress between Fall 2019 and Spring 2020 if experiencing an inequitable climate within their school.

Furthermore, some youth's stress in 2019 may have been related to challenging interpersonal relationships. As discussed in the literature review, adolescent relationships highly influence academic, social, and emotional growth during middle and high school (Allemand et al., 2015; Caprara et al., 2010; Eisenberg & Morris, 2013; Layous et al., 2012; McDonald & Messinger, 2014). However, peer pressure and bullying become increasingly salient factors during adolescence, which can negatively affect processes of identity development and socioemotional well-being (Brown & Klute, 2006; Rubin et al., 2007; Spencer et al., 2018). It is also important to recall that youth in this study were all from low-income backgrounds, and unfortunately, lower socioeconomic status has been tied to a higher likelihood of being a victim of bullying (Tippett & Wolke, 2014). Should youth be involved in power dynamics within interpersonal relationships that inculcate stress, it is possible that the removal of these relationships during stay-at-home orders (i.e., when contact with peers was limited) may have contributed to decreased stress.

Finally, stress may have reduced between Fall 2019 and Spring 2020 because adolescents may not have realized the gravity of a pandemic-level threat. Adolescents tend to have a penchant for engaging in risky behaviors as a means of asserting their autonomy and challenging authority (Arnett, 1999; Nakkula & Toshalis, 2013; Rogers, 2007), but they also tend to overestimate their vitality and evaluate risks poorly due to developmentally normative perceptions of invincibility (i.e., the personal fable; Elkind, 2016). Literature has shown that this phenomenon of invincibility influences adolescents' involvement in risky health behaviors, posing difficulty for those trying to promote healthy behaviors in this population (Wickman et al., 2008). Moreover, adolescents may

not have realized the impending danger of a public health emergency severe enough for government officials to mandate the widespread, extended closures of schools. Indeed, scholars have indicated that youth may not fully grasp the consequential effect of a disaster until after the event (Masten, 2021; Masten et al., 2015; Pfefferbaum et al., 2014). This lack of knowledge about the pandemic may have been especially salient among our participants, as they all lived in economically disadvantaged neighborhoods where sufficient, accurate health information may have been less readily available (Corral et al., 2012; Tai et al., 2020; Taylor, 2019). Together, the personal fable in conjunction with being underinformed about the severity and scope of COVID-19 may have kept stress levels low among adolescents during the initial stages of the pandemic.

6.2 Contextualizing Adolescents' Fall 2019 and Spring 2020 Social Support

Within- and between-wave differences in stress, affect, and social support were found among Black and White adolescents as well. Significant differences emerged regarding positive affect and social support, such that White students reported higher values for both variables in 2019 and 2020—a point that will be revisited while discussing 2019 and 2020 regression models. When group differences were examined between waves, though, mean-level differences were only noted among White adolescents, such that negative affect increased, while stress and social support decreased. The reduction in social support among Black and White youth was especially noticeable between Fall 2019 and Spring 2020, with White youth experiencing greater reduction in social support than Black youth. When looking at racial differences in school-based social support, White students tend to report higher levels of social support from teachers and more school connectedness (Huang & Cornell, 2018; Konold & Shukla, 2017; Voight et al., 2015; Wang & Degol, 2016). As

such, it may be the case that the removal of school-based social supports affected White students more than Black students during the COVID-19 pandemic.

To better understand adolescents' sources of social support during the COVID-19 pandemic, post hoc analyses were conducted examining parent and peer social support separately. Among the full sample, peer support decreased while parent support did not significantly change between the two waves. In the context of COVID-19 school closures, this finding makes sense: Peer contact was limited by school closures and stay-at-home orders, but adolescents continued to receive similar levels of interpersonal supports from family members, who may have been more available than usual due to stay-at-home orders, job loss, furloughs, or working from home arrangements. Furthermore, within-wave levels of 2019 parent and peer support and 2020 peer support were significantly higher in White adolescents, but there was not a significant within-wave difference between Black and White adolescents regarding 2020 parent support. However, these significant decreases in parental and peer social support over time were present among White adolescents only, begging the question of why White adolescents' perceived social support networks significantly declined while Black adolescents reported relatively stable social support networks over time.

According to past literature, Black families draw strength from a number of sources that are couched within culturally specific beliefs, experiences, and relationships (Gregory, 2001; Hollingsworth, 2013; Walsh, 2015). For instance, processes of cultural socialization whereby Black parents prepare their children to navigate racially stratified systems (Nelson et al., 2018) help children to develop a strong Black identity and personal resilience (Hollingsworth, 2013). Specific attributes of this resiliency may have been especially influential during stay-at-home orders resulting in increased time with family, as resilient Black families tend to become closer

during times of adversity or struggle (Gregory, 2001). These close family relationships provide mutual support, respect for individual needs, and opportunities to collaborate and conquer adversity (Walsh, 2015). Perhaps most importantly, though, is that Black families strive to have a positive outlook; place heavy emphasis on making meaning out of adversity; adopt a collectivist approach to meeting individual, family, and community needs; and forge strong ties among kin and the Black community at large (Gregory, 2001; Hollingsworth, 2013; Walsh, 2015). As such, Black adolescents—despite their heightened risk during the COVID-19 pandemic—may have had more effective social support networks to rely on than White adolescents when confronted with adversity.

6.3 Relations Between Adolescents' Fall 2019 and Spring 2020 Stress and Affect

Stress was positively associated with negative affect in 2019, 2020, and lagged 2020 models; however, stress was only significantly related with positive affect prior to the pandemic, such that higher stress was associated with less positive affect. The relationship between stress and affect has been well-established in extant literature, with the ultimate concern being that heightened stress and negative affect contribute to internalizing symptoms and mental health difficulties among adolescents (Compas, Gruhn, et al., 2017; McRae & Mauss, 2016; Skinner & Zimmer-Gembeck, 2016). This same body of literature has shown a strong inverse relation between stress and positive affect; however, the expected association between stress and positive affect was absent in Spring 2020 models.

To shed light on this finding, we look to between-wave differences in stress and affect. Unexpectedly, stress decreased between Fall 2019 and Spring 2020. According to extant literature,

decreased stress should have resulted in heightened positive affect, but positive affect also declined between Fall 2019 and Spring 2020. It may have been that social support, which declined between Fall 2019 and Spring 2020, was a better predictor of positive affect than stress, a supposition that is indeed supported by the presence of significant main effects between social support and positive affect in all 2019 and 2020 regression models.

Prior to discussing the role of social support, though, we return to exploring the relation between stress and affect in 2019 and 2020. Grade level was positively associated with Spring 2020 negative affect and inversely associated with Fall 2019 positive affect. These findings align with developmental trends in stress and affect in which older adolescents experience more stress than their younger peers (Eisenberg et al., 2006; Saarni et al., 2006; Valiente et al., 2015). It is less clear, though, why grade level's relation with positive affect failed to remain significant in 2020 models or why grade level was significantly associated with negative affect in 2020 but not 2019.

Looking at the correlations between stress and grade level, grade level shared a positive correlation with stress in 2020, but not 2019. It may be the case that older youth experienced heightened stress in relation to school closures due to being further along in their educational pursuits. For instance, eleventh-grade students may have been concerned over how school closures might impact their ability to graduate on time the following year or complete college- or career-preparatory programs. In addition, older youth may also have experienced more stress in Spring 2020 related to family responsibilities, especially if they became responsible for caring for younger siblings during school closures. As the population of youth in this study were from low-income backgrounds, it is highly likely that pandemic-related financial and work constraints resulted in heightened family and individual stress. As stress contributes positively to negative affect, it makes sense, then, that older youth experienced both more stress and negative affect during the COVID-

19 pandemic. School personnel and parents should recognize that older youth may have carried additional emotional weight throughout the pandemic; thus, these youth may be in need of extra academic and socioemotional support to resolve pandemic-related stressors and remain on graduation timelines.

Finally, interesting results emerged within lagged Spring 2020 that help illustrate the importance of including pre-pandemic indicators in work determining risk and resilience among adolescents. Both 2019 negative and positive affect were highly influential in Lagged 2020 models, with 2019 negative affect accounting for 20.3% of the variance in 2020 negative affect and 2019 positive affect accounting for 19.4% of the variance in 2020 positive affect. In other words, adolescents with higher (vs. lower) negative affect in 2019 had larger increases in negative affect between 2019 and 2020, and adolescents with lower (vs. higher) positive affect in 2019 experienced larger decreases in positive affect between 2019 and 2020. This finding indicates that youth who were at risk for developing internalizing symptoms prior to the pandemic may have become even more at risk for these experiences during the course of the pandemic.

As students begin the 2021-22 school year, it is critically important to understand changes experienced by youth throughout the pandemic to be able to identify populations most in need of emotional, behavioral, and academic supports. Schools should be prepared to address student and teacher mental health and well-being as a community, and special attention and support should be given to youth who were receiving emotional and behavioral supports prior to the pandemic. Specifically, school counselors, mental health professionals, and special education teachers should directly address COVID-19 experiences when creating individualized education plans for the 2021-2022 school year, as these youth were at a heightened risk for developing internalizing symptoms throughout the pandemic.

6.4 Fall 2019 and Spring 2020 Adolescent Stress, Social Support, and Affect

Social support did not share a significant direct effect with negative affect in any model, nor was the expected moderation effect present in any 2019 or 2020 model for positive or negative affect. Social support did, however, share a significant, positive relation with positive affect in the 2019, 2020, and lagged 2020 models. These results were surprising, as researchers have strongly established social support as an effective moderator of the relation between stress and affect (Compas, Jaser, et al., 2017; Connor-Smith et al., 2000; Skinner & Zimmer-Gembeck, 2016), especially during adolescence (S. H. Cook et al., 2016; Gunnar & Hostinar, 2015; McMahon et al., 2020; Ronen et al., 2016). In fact, the American Psychiatric Association lists social support as a protective factor before, during, and after stressful events (APA, 2013). While social support did hold negative relations with negative affect, these relations were not significant.

Conversely, relations between social support and positive affect showed that social support accounted for most of the variation in 2019 and 2020 positive affect. Post hoc analysis examining parent and peer social support separately showed that it was primarily parent social support driving the relation between social support and positive affect, results which have been echoed in recently published research (Wang et al., 2021). It is essential, then, that practitioners and educators recognize the powerful driving force that parental social support can be in influencing youth affect. To bolster parental social support's efficacy in reducing negative affect, family and community services could provide parents with resources, such as parenting and stress management trainings, to help them provide social support to their children during stressful times.

Furthermore, our findings indicate that social support may be an effective form of upregulating positive emotion, but an ineffective form of downregulating negative emotion, thereby supporting the use of an emotion regulation rather than a coping framework for this project.

Coping tends to refer to an intentional act in response to stress that moderates its positive relation with negative affect (Compas et al., 2001; Connor-Smith et al., 2000). Emotion regulation, on the other hand, takes a more hedonic approach to understanding processes that influence affect, as its goal is to not only decrease negative affect, but also increase positive affect (Gross, 2014). According to these definitions, future research should consider whether social support serves as a form of emotion regulation or coping mechanism.

Regardless of which framework is used, our results regarding social support were not as expected. It is likely the case that since stress levels and negative affect were relatively low in Fall 2019 and Spring 2020, adolescents may not have felt the need to activate their social support network as a means of contending with stress, thus explaining (a) the significance of social support in regression models for positive but not negative affect and (b) the weak or non-existent relations between stress and social support. Future work should continue to disentangle the use of social support as a form of emotion regulation as well as the long-term implications of bolstering positive affect during times of stress. Tangentially, future researchers may want to examine which matters more for adolescents' long-term adjustment following stressful events: minimizing negative affect or bolstering positive affect. It is also possible that the ecological conditions of the pandemic affected the type of social support available during periods of school closures, as evidenced by significant decreases among peer, but not parent, social support. Because both of these sources of social support appear to confer some benefit to adolescents' positive affective states, those working with youth contending with change or adversity should be careful to assess and address any barriers between youth and their parent and peer social support networks.

6.5 Fall 2019 and Spring 2020 Stress, Social Support, and Affect among Black and White Adolescents

In Fall 2019, there was a three-way interaction in the 2019 negative affect model, such that social support moderated the relation between stress and negative affect for White, but not Black, adolescents. For White adolescents only, social support moderated the relation between stress and negative affect such that those with higher social support experienced less negative affect in response to stress. This moderation effect is strongly supported within extant literature (Compas et al., 2001; Connor-Smith et al., 2000; Zimmer-Gembeck & Skinner, 2016); however, racial differences in the use of social support tend to be less well explored. These findings, then, provide an evidentiary basis for future researchers to attend more closely to nuances in group dynamics and processes within different ethnic-racial groups. The presence of racial group differences in the relations between stress, social support, and negative affect adds credence to arguments regarding the impact of cumulative, chronic stressors (Evans, 2004; Evans & Kim, 2012; Larson, 2006) and underscores the importance of social support networks as an effective means of weakening the link between stress and negative affect.

The presence of this moderation effect in White, but not Black adolescents indicates that social support may operate differently among these groups. More research is needed, though, to better elucidate the mechanisms driving these differences. Social support has been established as an effective method of regulating emotions when an individual's social network provides positive, prosocial encouragement and support. However, it is often the case that social support networks encountering the same stressors may engage in co-rumination, a maladaptive form of social coping where youth exclusively and incessantly focus on self-disclosed problems and emotions (Rose,

2002). The consequences of this maladaptive response to a stressor include increased negative affect and stress (Ohannessian et al., 2021; Silk et al., 2003; Stone et al., 2019), and the psychological well-being of one's social support network may suffer as a result of the empathic cost of repeatedly listening to maladies, as negative affect and stress are known to be contagious in these instances (Schwartz-Mette & Rose, 2012).

Furthermore, it is possible that negative affect may have influenced adolescents' perceptions of social support and stress. Consensus in the field of emotion regulation contends that stress (i.e., the body's physiological reaction to adversity) is a biological process that precedes an individual's emotional response (Gross, 1999, 2014). Chronic, frequent, or prolonged stress—such as that experienced in marginalized and minoritized communities—contributes to lower quality relationships with peers (McMahon et al., 2020). In addition, the ability to perceive social support can be influenced by an individual's affective state (Gross, 1999, 2014). Those with heightened negative affect and poor emotion regulation tend to have difficulty with social relationships, including a lower likelihood of perceiving close, supportive relationships with others (English et al., 2013; Gross & John, 2003; Srivastava et al., 2009). This negative affect in combination with lower perceived social support may actually contribute to heightened stress. Taken together, it may be the case that chronic adversity contributed to both (a) directionality issues in the relation between stress and affect and (b) perceptions of social support.

Certainly, though, more research is needed to tease out the psychosocial determinants of how social support is perceived, the relational processes that occur within different social groups, and directionality of the relation between stress and affect. In the meantime, practitioners encouraging the use of social support among youth should help youth scaffold support networks

that avoid co-rumination and promote more adaptive responses to stress, especially among youth living in chronic adversity.

Hypotheses regarding the relation between social support and positive affect were less well-defined; however, social support was strongly associated with positive affect across all models for both Black and White adolescents. Again, this finding supports the classification of social support as a form of emotion regulation with the capacity to upregulate positive emotion (Gross, 2014; Masten, 2018; Zimmerman et al., 2013). The fact that social support shared direct, strong associations with positive affect across models and participant groups shows the power of social relationships as a means of preserving positive emotions during times of stress. It also seems that there is a question as to what matters most for adolescents' long-term affective well-being: is it more important to reduce negative affect or promote positive affect during times of stress? Future research should attempt to parse out the strength of social support as a protective means of upregulating positive affect and downregulating negative affect and determine which of these processes is most predictive of future adaptive and maladaptive functioning.

6.6 Limitations

This work contributes to a growing body of literature examining adolescents' stress, coping, support, and adjustment during the COVID-19 pandemic. Due to the unexpected nature of the pandemic, it is rare that researchers have pertinent pre-pandemic data for comparison. This study design allows for the direct examination of differences between adolescents' pre-pandemic and pandemic-onset stress, social support, and positive affect. In addition, the data is drawn from an ethnically and racially diverse sample of youth from lower socioeconomic backgrounds who

not only had to contend with the stress of the pandemic but had to do so in the context of marginalization, minoritization, or both.

Despite the strengths of the study sample and design, several possible limitations should be noted. It is possible that aggregating data across 21 and 14 days for Fall 2019 and Spring 2020 data, respectively, may have oversimplified longitudinal patterns within each wave's aggregated data. These patterns should be investigated within the daily-diary data, which will allow for a more nuanced, real-time understanding of the relations between stress, social support, and affect among Black and White youth. In addition, these data were collected from White and Black adolescents residing in the same geographic area, each of which came from a low-income household; hence, results may not apply to differing geographic areas, ethnic-racial populations, and higher-income families.

Researchers and practitioners should also take caution when examining models of racial differences in Spring of 2020. The attrition rate between waves was high, and while these models do have enough power to detect a large effect (Cohen, 1992), sample sizes were precariously low in 2020 models by race. Despite this concern, patterns in 2020 regression models by race echoed those found in regression models run among the full sample in 2019, thereby supporting the validity of these results despite lower statistical power. As extant literature is largely silent on the issue of racial differences in the use of social support, the examination of social support among diverse populations of youth is critical to those wishing to capitalize on relational supports during times of stress.

Causal inferences may be strengthened by examining day-to-day changes in stress, affect, and social support using the daily-diary data. Moreover, structural equation modeling or using a valanced indicator of affect (i.e., a single difference score indicating whether an adolescent felt

more positive or negative affect overall) would reduce the potential for Type 1 error. There also may be issues of directionality in the relation between adolescents' affect, stress, and social support. As such, future longitudinal studies could conduct cross-lagged panel modeling to better understand the nature of the association between perceived social support, stress, and affective state.

6.7 Recommendations and Conclusions

Starting in the Spring of 2020, COVID-19 introduced adolescents to an entirely new social ecology. Schools and spaces where youth congregate were closed or restricted; access to social support networks shifted; and families experienced uncertain financial futures. COVID-19 circumstances aside, systemic minoritization and marginalization create hazardous developmental contexts for youth of color and those living in economic disadvantage. This study suggests that social support may serve as a developmentally salient emotion regulation strategy for contending with stress in a manner that decreases negative affect and increases positive affect.

It is essential that researchers continue to explore racial differences in social support networks and determine what factors matter most for protecting youth's holistic well-being, especially for those living in adverse conditions. These efforts could be used to improve the quality of adolescents' socioemotional support networks by incorporating information about how to engage in positive, prosocial support of peers and families during crisis scenarios. In doing so, we can equip adolescents with a powerful relational approach to contending with stress that offers benefits for both immediate and long-term adaptive functioning.

Appendix A Post Hoc Analysis: Decoupling Parent and Peer Social Support

In initial analyses, the social support variable combined adolescents' reports of parent and peer social support to provide a global social support variable. To better understand how these different sources of social support operated, analyses were run to examine the unique roles of parent and peer support. First, data was examined to determine whether there were within-wave mean-level differences in parent and peer social support among White and Black adolescents. Table 12 displays within-wave differences in parent and peer social support among Black and White adolescents in Fall 2019 and Spring 2020. In Fall 2019 and Spring 2020, White adolescents reported more peer social support than Black adolescents. In Fall 2019, White students reported higher levels of parent social support than Black adolescents; however, there were no significant differences in parental social support among Black and White adolescents. Effect sizes for group differences 2019 and 2020 peer social support and 2019 parental social support were medium (η^2range= .05 - .08).

Table 12 Means, Standard Deviations, and One-Way Analyses of Variance for Fall 2019 and Spring 2020Parent and Peer Social Support Between Black and White Participants

	Black	White	One-way, between-group ANOVA	
Variable	*M* (SD)	*M* (SD)	*F* ratio	*Df*
2019 Parent Support	3.26 (1.16)	3.75 (1.08)	11.08**	229
2020 Parent Support	3.17 (1.17)	3.57 (1.13)	3.22	109
2019 Peer Support	3.06 (1.07)	3.71 (1.07)	21.34***	229
2020 Peer Support	2.68 (1.11)	3.27 (1.28)	6.45**	109

*p<.05, **p<.01, ***p<.001

Next, paired samples *t*-tests evaluated the change in parent and peer social support between Fall 2019 and Spring 2020 (see Table 13). Peer social support significantly decreased between Fall 2019 and Spring 2020, while there was no significant difference in parent social support between

Table 13 Paired Samples *t*-Test Between Fall 2019 and Spring 2020 Parent and Peer Social Support

	Fall 2019 *M* (SD)	Spring 2020 *M* (SD)	*M* (SD) of the Difference	95% CI of the Difference	*t*(df)	Cohen's *d*
Parent Support	3.49 (1.19)	3.40 (1.16)	-.09 (0.84)	[-.07, .25]	1.10 (110)	.06
Peer Support	3.32 (1.17)	3.02 (1.24)	-.27 (1.14)	[.08, .51]	2.75 (110)**	.24

Note. *p<.05, **p<.01, ***p<.001

waves. Table 14 shows mean-level differences across waves by race. For White adolescents only, parent and peer social support significantly decreased between Fall 2019 and Spring 2020. There were no significant mean-level differences between 2019 and 2020 variables for the Black sample; however, it was noted that parent support went up (albeit not a significant amount) among Black youth while it significantly decreased among White adolescents.

Table 14 Paired Samples *t*-Test Between Fall 2019 and Spring 2020 Parent and Peer Social Support

		Fall 2019 *M* (SD)	Spring 2020 *M* (SD)	*M* (SD) of the Difference	95% CI of the Difference	*t*(df)	Cohen's *d*
Black Adolescents	Parent Support	3.03 (1.22)	3.17 (1.07)	.15 (0.78)	[-.38, .45]	1.29 (46)	-
	Peer Support	2.77 (1.07)	2.68 (1.11)	-.17 (1.12)	[.12, .69]	-0.55 (46)	-
White Adolescents	Parent Support	3.83 (1.05)	3.57 (1.13)	-.26 (0.85)	[.05, .47]	1.55 (63)*	.31
	Peer Support	3.73 (1.08)	3.27 (1.28)	-.45 (1.15)	[.17, .74]	2.81 (63)**	.39

Note. *p<.05, **p<.01, ***p<.001

Separate regression models were run to examine the unique role of parent and peer social support in the relation between stress and positive and negative affect in Fall 2019 and Spring 2020. Correlations between all variables among the full sample and by race can be found in Tables 15 and 16, respectively. Results for Fall 2019, Spring 2020, and Lagged Spring 2020 models examining the moderating role of parental social support in the relation between stress and both positive and negative affect were similar to those found in models where parent and peer social support were combined into one variable; however, the three-way interaction present in 2019 negative affect models was not significant when only investigating parental social support (see abbreviated results in Table 17).

Table 15 Bivariate Correlations for Key Variables and Demographics

	1	2	3	4	5	6	7	8	9	10	11
1. 2019 Stress											
2. 2019 Negative	.63**										
3. 2019 Positive	-.23**	.00									
4. 2019 Parent	-.23**	-.17*	.47**								
5. 2019 Peer	-.09	-.06	.45**	.74**							
6. 2020 Stress	.59**	.60**	-.10	-.22*	-.05						
7. 2020 Negative	.61**	.78**	-.09	-.23*	-.11	.70**					
8. 2020 Positive	-.13	-.01	.67**	.47**	.38**	-.14	-.05				
9. 2020 Parent	-.19	-.18	.51**	.74**	.53**	-.27**	-.23*	.61**			
10. 2020 Peer	-.01	-.04	.35**	.60**	.55**	-.07	-.04	.50**	.78**		
11. Race (1=black)	-.01	-.10	-.15*	-.21**	-.29**	-.04	-.17	-.21*	-.17	-.24*	
12. Grade	.25**	.14	-.10	-.09	.05	.23*	.31**	-.11	.01	.07	.06

Note: * = $p<.05$; ** = $p<.01$

Table 16 Bivariate Correlations for Key Variables and Demographics by Race

	1	2	3	4	5	6	7	8	9	10	11
1. 2019 Stress		.69	-.18	-.28**	-.12	.65**	.71**	-.13	-.17	-.05	.34**
2. 2019 Negative	.57**		-.04	-.25**	-.15	.65**	.77**	-.08	-.22	-.11	.05
3. 2019 Positive	-.29**	.02		.52**	.43**	-.05	-.07	.65**	.47**	.31*	-.14
4. 2019 Parent	-.20*	-.13	.39**		.74**	-.22	-.25*	.39**	.70**	.51**	.01
5. 2019 Peer	-.07	-.03	.44**	.72**		-.11	-.20	.37**	.52**	.54**	.04
6. 2020 Stress	.50**	.50**	-.19	-.28	-.03		.74**	-.05	-.25*	-.03	.30*
7. 2020 Negative	.46**	.80**	-.20	-.40**	-.20	.64**		-.10	-.30*	-.12	.31*
8. 2020 Positive	-.20	.04	.67**	.48**	.28	-.30*	-.06		.57**	.50**	-.16
9. 2020 Parent	-.26	-.18	.52**	.79**	.50**	-.32*	-.21	.62**		.74**	.03
10. 2020 Peer	-.03	.02	.35*	.68**	.47**	-.17	-.01	.46**	.82**		.08
11. Grade	.15	.36*	-.01	-.19	.15	.12	.35*	.00	.02	.11	

Note: * = $p<.05$; ** = $p<.01$; Shaded cells = White adolescents

Table 17 Unstandardized Betas for Fall 2019, Spring 2020, and Lagged Spring 2020 Parent Social Support Models Predicting Negative and Positive Affect

Table 17a. Full Sample

	Negative Affect			Positive Affect		
	Fall 2019	Spring 2020	Lagged 2020	Fall 2019	Spring 2020	Lagged 2020
Stress	.81***	.75***	.38***	-.10	.06	.01
Parent Support	-.07	-.06	-.05	.42***	.55***	.34***
Grade	-.02	.10**	.10**	-.03	-.09	-.05
Race	-.10	-.28**	-.19*	.04	-.17	-.10
2019 Lagged Affect	-	-	.65***	-	-	.54***

Table 17b. Black Adolescents

	Negative Affect			Positive Affect		
	Fall 2019	Spring 2020	Lagged 2020	Fall 2019	Spring 2020	Lagged 2020
Stress	.52***	.69***	.37**	-.42*	-.19	-.18
Parent Support	-.04	-.01	.00	.31**	.56***	.34**
Grade	.10*	.15*	.05	.07	-.00	.01
2019 Lagged Affect	-	-	.83***	-	-	.60***

Table 17c. White Adolescents

	Negative Affect			Positive Affect		
	Fall 2019	Spring 2020	Lagged 2020	Fall 2019	Spring 2020	Lagged 2020
Stress	1.12***	.81***	.38**	.25	.24	.15
Parent Support	-.07	-.10	-.08	.55***	.55***	.34***
Grade	-.12**	.07	.11**	-.12	-.15*	-.09
2019 Lagged Affect	-	-	.60***	-	-	.48***

Note: *p<.05, **p<.01, ***p<.001. Models were first run with interaction terms included. All interaction terms were non-significant; hence, models were rerun without the interaction term to increase model parsimony.

Peer social support models, though, uncovered perplexing patterns amongst Black and White adolescents in 2019 positive and negative affect models (see Table 18). In fact, the negative affect models for Black youth functioned remarkably poorly, with no significant relations between predictor and outcome variables (save the lagged effect of 2019 negative affect in the Lagged 2020 model). In White adolescents, though, the expected moderation effect was present such that peer social support weakened the positive relation between stress and negative affect (see Figure 2).

The 2019 positive affect models functioned differently among Black and White adolescents. In fact, a three-way interaction effect was present that was unique to the 2019 positive affect model examining peer social support. What is surprising, though, is the direction of this moderation. For Black youth only, peer social support strengthened the negative relation between

Table 18 Unstandardized Betas for Fall 2019, Spring 2020, and Lagged Spring 2020 Peer Social Support Models Predicting Negative and Positive Affect

Table 18a. Full Sample

	Negative Affect			Positive Affect		
	Fall 2019	Spring 2020	Lagged 2020	Fall 2019	Spring 2020	Lagged 2020
Stress	.82***	.78***	.39***	-.20	-.13	-.10
Peer Support	-.09*	-.03	-.02	.42***	.41***	.26***
Grade	-.02	.10**	.09**	-.06	-.09	-.04
Race	-.13	-.27*	-.18*	.09	-.18	-.07
2019 Lagged Affect	-	-	.66***	-	-	.62***

Table 18b. Black Adolescents

	Negative Affect			Positive Affect		
	Fall 2019	Spring 2020	Lagged 2020	Fall 2019	Spring 2020	Lagged 2020
Stress	.27	.54	.40	.63	-.78	-.52
Peer Support	-.24	-.05	.03	1.13**	.21	.12
Stress x Peer Support	.10	.06	-.01	-.44*	.14	.09
Grade	.12**	.14*	.05	-.04	-.03	-.01
2019 Lagged Affect	-	-	.83***	-	-	.70***

Table 18c. White Adolescents

	Negative Affect			Positive Affect		
	Fall 2019	Spring 2020	Lagged 2020	Fall 2019	Spring 2020	Lagged 2020
Stress	1.87***	.95***	.58**	-.65	-.04	.22
Peer Support	.29	-.02	.04	.07**	.36	.36*
Stress x Peer Support	-.20*	-.03	-.05	.22	.02	-.06
Grade	-.13**	.06	.10*	-.11	-.13	-.09
2019 Lagged Affect	-	-	.60***	-	-	.57***

Note: *p<.05, **p<.01, ***p<.001. Models were first run with interaction terms included. All interaction terms were non-significant; hence, models were rerun without the interaction term to increase model parsimony.

stress and positive affect. While peer social support does not seem to contribute to negative affect among Black youth or influence the relation between stress and negative affect, it appears that peer social support may actually detract from positive affect among Black youth.

While issues with statistical power may have precluded the ability to detect significance in 2020 models due to sample size, 2019 models did have a large enough sample to reliably detect significant relations among variables; hence, it is highly likely that Black and White adolescents' peer social support networks function differently. To be able to help youth build positive, supportive peer networks, it is crucial that researchers continue to investigate differences in group social support practices among Black and White adolescents.

Figure 2a. Black Students' 2019 Negative Affect

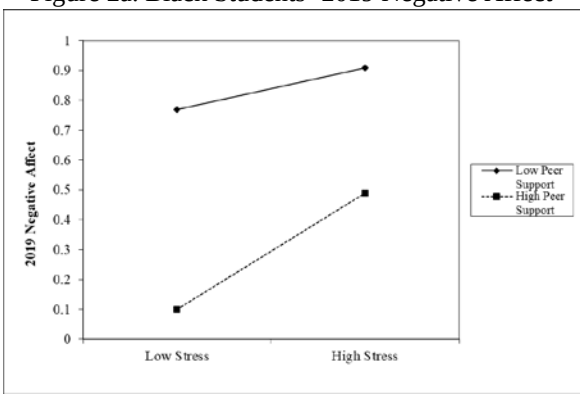

Figure 2b. White Students' 2019 Negative Affect

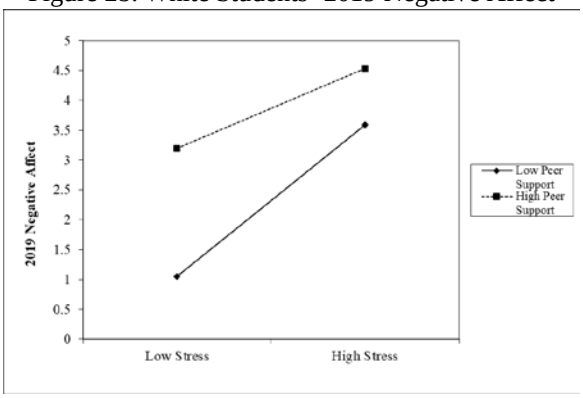

Figure 2c. Black Students' 2019 Positive Affect

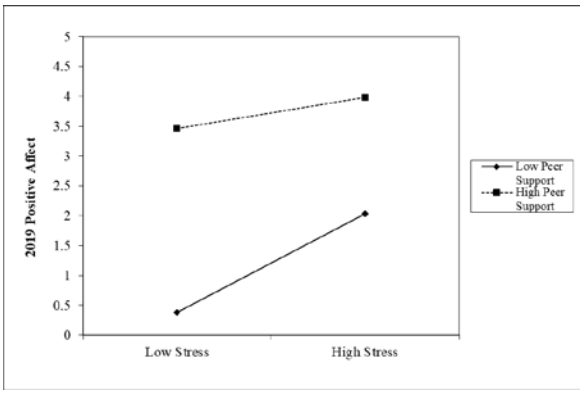

Figure 2d. White Students' 2019 Positive Affect

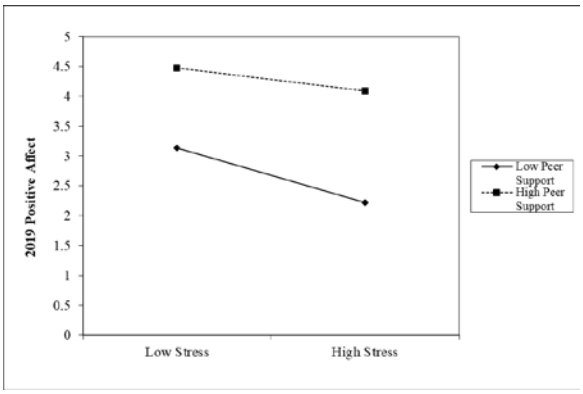

Figure 2 Interaction Plots for 2019 Peer Social Support Models

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