Social Support is Fundamentally Important for Mental Health among Adolescents and Emerging Adults: Evidence across Relationships and Phases of the COVID-19 Pandemic

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Author Note:

Conflicts of Interest
There was no external funding for this project. GWN and JAB denote conflicts of interest. GWN is a research director for the non-profit organization, Our Minds Matter, and helps to organize research logistics with local school partners. JAB served as a research consultant for Our Minds Matter during the time of this project and helped design surveys asking about student mental health and functioning for students participating in Our Minds Matter clubs, as part of efforts to evaluate program relevance and impact for participating students.

Data Availability
De-identified data from this project is available at:
https://osf.io/bxdqr/?view_only=65c49688461944938b65308a3d6add46

Ethical Approval Statement
This research has been conducted in accordance with APA standards for the ethical treatment of human subjects and was overseen by the Institutional Review Board at the University of Missouri. Informed consent and assent was collected for all studies presented in this manuscript.

Author Contributions
AM formed the research questions guiding this manuscript and contributed to original writing and editing of this manuscript. CLJ, ES, and GWN contributed to data collection for multiple Studies represented in this manuscript, and to editing this manuscript. JAB supervised AM, contributed to data collection and data analysis, and contributed to manuscript editing.

Positionality Statement
Our team was comprised of graduate students and individuals who held PhDs in different research industries. Our team comprised multiple ethnic and gender backgrounds, for a set of important perspectives in considering experiences of social support and topics of mental health. The lead author was motivated to pursue this line of inquiry given her broader graduate training and interests in contributions to healthy development and functioning in education contexts.

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Abstract

People are fundamentally driven to seek support, care, and validation from others. These are aspects of social support. Feeling sufficiently supported and cared for is important for wellness and mental health across adolescent and emerging adult development. Further, social support is valuable for wellness across both "mundane" periods of daily life as well as during times of turmoil and uncertainty. Guided by multiple frameworks on social motivation, social cognition, and ecological frameworks of development, we aimed to replicate and expand insights about social support, wellness, and mental health for adolescents and emerging adults, studying people living through periods of the COVID-19 pandemic. We studied reports of social support, coping and distress, and mental health concerns (i.e., depression, anxiety) from middle and high school age adolescents, as well as college-going emerging adults recruited during periods of COVID quarantine and following returns to in-person activities in the US. Across eight samples, social support showed positive relations with coping strategies and negative relations with depressive and anxious problems. These findings were relevant for both adolescents and emerging adults; supported across multiple time points; involved support from family, friends, and other peers; and were sustained during periods of quarantine and the return to face-to-face daily activities. Our work both replicates and extends insights on the essential needs of feeling supported by close others for wellness and mental health and underscores the value of investing in additional infrastructure that can foster social support across multiple relationship domains (i.e., improving family relations, building spaces for peer and friend engagement in schools).

Keywords: Social support; Coping; Anxiety; Depression; Relatedness; Agreeableness; Belonging

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People have a fundamental need for dependable and supportive relationships—the kinds of relationships defined by enjoyable interactions and responsive partners (Baumeister & Leary, 1995; Ryan & Deci, 2000). Social support—a recognition of receiving care, respect, acceptance, and validation from others—is an important indicator of social fulfillment and success (Antonucci, 2001; House et al., 1988). Social support has been positively associated with coping resources and mental health for adolescents and emerging adults (e.g., Liu et al., 2020; Spencer & Patrick, 2009; Wesley & Booker, 2021), with most evidence representing development before the COVID-19 pandemic. As this pandemic introduced major threats to mental health and disruptions to social relationships and resources (e.g., depression, loneliness; Bareket-Bojmel et al., 2021; Hawes et al., 2022; Racine et al., 2021), we aimed to replicate and expand insights about social support, coping, and mental health. We argue that social support should be fundamentally beneficial for coping and mental health. That is, social support should be a robust, distinct, and valuable resource across multiple developmental periods (i.e., adolescence, emerging adulthood), from different relationship contexts (i.e., family, friends, other peers), and across different sociohistorical events (i.e., during COVID-19 quarantine, following returns to in-person activities). Using multiple cohorts of adolescents and emerging adults recruited from 2020 to 2023, we tested the ways social support from family, friends, and other peers was associated with coping and mental health. Samples represented periods of quarantined living and returns to in-person activities. We were interested in building on the consensus that social support is a fundamental resource for wellness and mental health, using this intentional focus on a generational, sociohistorical event.

Social Support during Adolescence and Emerging Adulthood

Social support involves the psychosocial resources people receive from their social networks, including respect and empathy shown by others; care in times of distress; and validation of one's thoughts, feelings, and efforts (Antonucci, 2001; House et al., 1988). To have support from family, friends, and other people in different microsystem spaces (i.e., school, work, recreation) is to have valuable resources for psychological health. Social support fits within multiple frameworks that conceptualize healthy development and human functioning. We focus on arguments that positive social relationships are fundamentally important across development. Below, we connect arguments about how feeling validated and supported may shape cognition and reasoning relevant to coping and mental health. Here, we situate social support within the common developmental tasks and settings of adolescents and emerging adults.

Positive affiliation and relatedness with others are universal motivations for daily life (Baumeister et al., 2007; Baumeister & Leary, 1995; Deci & Ryan, 2008; Ryan & Deci, 2000; Stewart & Suldo, 2011; Wang & Eccles, 2012). Social support reflects a recognition of sufficient affiliation, care, and validation from others. People seek and work to maintain relationships involving greater support (e.g., Mongeau et al., 2019). Further, threats to social standing, including losing the support of others, are threats to adolescent and emerging adults' mental health (e.g., Silk et al., 2012). Social support is beneficial across the many relationships where adolescents and emerging adults spend much of their time: family, close friends, coworkers, classmates, roommates, and so on (e.g., Lepore, 1992; Stewart & Suldo, 2011; Wesley & Booker, 2021).

Social support, like other aspects of social fulfillment and affiliation with others, integrates with people's [social] cognitions (Kilford et al., 2016). Social support is a resource that shapes how people cope with situational or contextual demands, and shapes reasoning that is relevant for mental health. For example, working adults training for new job roles endorsed higher workplace

self-efficacy and motivation to incorporate new training skills when they also reported greater support from their supervisors. These workers also reported dedicating more time thinking about ways to integrate training skills into their routines. They incorporated training skills and methods into their daily work habits at higher levels than peers with less support (Chiaburu et al., 2010).

Social support is important because it contributes to salient developmental demands during adolescence (from puberty to about age 18; i.e., ego and identity development) and emerging adulthood (approximately ages 18 to 29; i.e., navigating intimate relationships, building social networks in settings beyond the family home; Arnett, 2014; Erikson, 1950, 1968). To have the support and care of parents, friends, romantic partners, employers, teachers, classmates, and coworkers means to also have people to share excitement with during the highs of life and people to seek guidance from during the lows of life. Yet seeking additional social support can also be intimidating, especially for adolescents who are managing multiple changes with relationship demands and broader shifts across school, family, and part-time work (Andrew Collins et al., 2017; Booker & Dunsmore, 2017; Lepore, 1992; Steinberg, 2001). This may be one reason that adolescents are historically hesitant to reach out to others for social support, especially in regard to seeking assistance with mental health concerns (Radez et al., 2021; Smith, 2012). This is a highly stigmatized topic for many middle and high school students who are already finding new ways to navigate expectations for different relationships (Hartman et al., 2013). Social support is worth studying during periods of both adolescence and early adulthood to reinforce that access to social resources provides a consistent value for coping and mental health, even as responsibilities, relationships, and settings differ between adolescent and emerging adults (Taylor et al., 2014).

As a fundamental resource, social support should be valuable across developmental periods, across relationship domains, and across different sociohistorical events. We aimed to

replicate and expand insights about social support with an appreciation of bioecological theories of human development (Bronfenbrenner & Morris, 2007), recognizing the importance of social resources across multiple microsystem relationships, the importance of different macrosystem policies and resources, and the importance of chronosystem changes for 1) developing adolescents and emerging adults; 2) their relationships and received support; and 3) ongoing policy and resource changes across communities (see Figure 1). We focused on adolescents and emerging adults living through different phases of the COVID-19 pandemic. This was an important period to consider, as this pandemic resulted in early periods of quarantine and isolation that disrupted social resources (Bareket-Bojmel et al., 2021) and ongoing threats to mental health that shaped daily living for adolescents and emerging adults for multiple years (e.g., Booker et al., 2024).

Coping and Mental Health during Adolescence and Emerging Adulthood

There is consensus that adolescence brings important advancements in socioemotional skills and functioning (e.g., Booker & Dunsmore, 2017) and coincides with changing pressures in social settings that can be challenging to cope with (Cole et al., 2001). Mental health problems like anxiety and depression become more prevalent during adolescence compared to childhood (Racine et al., 2021). The prevalence of mental health problems declines slightly with the transition into emerging adulthood, but salient challenges remain for young adults navigating common tasks of additional school, full-time employment, romance, and/or childrearing (Arnett, 2014; Petersen et al., 2018). The COVID-19 pandemic exacerbated mental health concerns in recent years for adolescents, with increases to national trends in endorsed mental health problems, as well as increases in extreme responses to distress, such as forms of self-harm and suicidality (Hawes et al., 2022; Mpofu et al., 2023). These impacts extended to emerging adults, with implications for transitions into roles such as college life. College adults sampled from both public and private

institutions across the US endorsed major worries about schoolwork, relationships, finances, professional development, and physical health for the self and for family and friends during COVID-related shutdowns (i.e., late spring 2020) and during the following months (Follmer Greenhoot et al., 2022). Even as COVID stressors and some threats to mental health lessened with the return to in-person activities (Booker et al., 2024), lingering changes in many school, work, and community contexts continue to introduce distress and risks for mental health concerns for adolescents and emerging adults (i.e., elevated school closures and in following academic years; Colvin et al., 2024; Kelchen et al., 2021).

Social support is an important resource that is positively related to coping and negatively related with mental health concerns like internalizing problems (i.e., anxious and depressive symptoms; Liu et al., 2020; Spencer & Patrick, 2009; Wesley & Booker, 2021). A large body of research reveals social support to be a key resource for mental wellness across developmental transitions from adolescence into emerging adulthood (i.e., from high school to college; Taylor et al., 2014). Yet, much of this evidence was built before the COVID-19 pandemic and deserves additional inquiry. Given the major challenges to functioning and wellness introduced by the COVID-19 pandemic and persistent over multiple years (e.g., Booker et al., 2022a, 2024; Styck et al., 2021), we found it worthwhile to affirm the robust associations of social support and wellness across phases of the COVID-19 pandemic and to explore possible nuances in the ways social support operated as a resource for cohorts of adolescents and emerging adults over multiple years.

The Current Project

In this project, we built on the consensus that social support is fundamentally valuable for psychological wellness (i.e., coping, mental health; Liu et al., 2020; Spencer & Patrick, 2009; Wesley & Booker, 2021), using data from adolescents and emerging adults studied during periods

of COVID-related quarantine and the return to in-person activities. Across eight studies, we addressed three major aims reflected in two hypotheses and one exploratory question. First, we addressed social support as fundamentally relevant for coping and mental health across different settings, points of development, and sociohistorical contexts. We hypothesized (H1) that social support, across multiple social domains and contexts, would be positively related to coping and would be negatively related to mental health problems (i.e., depressive problems, anxious problems). Second, we addressed social support as distinct from other important indicators of social functioning and adjustment. We hypothesized (H2) that social support would show incremental associations with coping and mental health beyond other covariates that are relevant for social adjustment (i.e., social motivation, personality, social behaviors, social cognitions). Third, we explored the possibility of person-by-environment interactions with recognized social support. We asked whether resources in social support would operate differently for mental health between periods of quarantine and returns to in-person activities (E1). This question was motivated by previous work about the ways personality differences (e.g., hopefulness, self-compassion, personal growth in life storytelling) showed stronger benefits for psychological well-being and mental health across different phases of the COVID pandemic (e.g., Booker & Johnson, 2024; Booker et al., 2024).

This project was not pre-registered. De-identified data from this project is available at: https://osf.io/bxdqr/?view_only=65c49688461944938b65308a3d6add46. Given earlier data agreements with school partners, S2 and S3 data are not publicly shared.

Method

The Current Samples

We focused on eight study samples collected from 2020 to 2023—periods spanning both

COVID-related quarantine and returns to in-person activities across many parts of the US. Table 1 presents the demographics of each sample.

Our first three samples focused on adolescents studied during quarantine (S1) and the return to in-person activities (S2 and S3). S1 includes a secondary analysis (see Ell & Booker, 2023) of 12-to-16-year-old, middle and high school adolescents recruited from the central US. These students were quarantined at home and were completing schoolwork remotely. S2 and S3 included high school students, ages 14-to-18 years, recruited from multiple regions of the US (i.e., Mid-Atlantic, Great Lakes States, Georgia, California). Students were participating in extracurricular clubs (i.e., Our Minds Matter, ourmindsmatter.org). Club activities were broadly aimed at reducing mental health stigma, strengthening protective factors for mental health, combatting risks of adolescent suicide, and promoting constructive mental health strategies among high schoolers (e.g. fostering social connectedness, healthy coping skills, prosocial behaviors). Still, club involvement was not a formal intervention. High school-recruited samples included a higher proportion of girls, which reflected the makeup of the extracurricular clubs. Students' racial backgrounds broadly reflected their school and community makeup.

Our remaining five samples focused on emerging adults recruited from Introductory Psychology classes at a college in the central US. Emerging adults were studied during quarantine (S4 and S5) and returns to in-person activities (S6 to S8). The gender and racial backgrounds of respondents reflected the courses they were recruited from. We focused on 18-to-25-year-olds. Analyses include secondary analyses of previous mental health and stressor reports (see Booker & Johnson, 2024), but our work includes a novel focus and set of analyses.

Procedures

As adolescent samples (S1 to S3) were recruited, both parental consent and adolescent

assent were obtained before any data collection. S1 adolescents completed computer surveys at two time points (i.e., baseline, four-month follow-up) as part of a larger home-based study (i.e., Fall 2020 to Spring 2021); they were compensated $25 for each survey. S2 and S3 adolescents completed single computer surveys outside of classroom hours (i.e., academic years 2021-2022, 2022-2023 respectively); they were entered in drawings for gift cards that could go toward extracurricular club activities. There were no formal interventions involved in S1, S2, or S3 studies. Surveys were designed to take less than one hour to complete.

Emerging adult samples (S4 to S8) were recruited through Introductory Psychology courses as part of a research requirement, and students were recruited through a SONA online system to complete computerized surveys. Students had alternative assignments for course credit when they preferred not to participate in research studies. We limit our current focus to participants 18-to-25-years of age (~99% of recruited respondents), focusing on traditional college-age students. Across college-recruited samples, most participants represented majors other than psychology (~93%). S4 and S5 emerging adults completed computer surveys at two time-points (i.e., baseline, one-month follow-up) during periods of remote college living and work (i.e., Fall 2020 to Spring 2021). S6, S7, and S8 emerging adults completed single, computerized surveys during returns to in-person activities (i.e., Fall 2021 to Fall 2022). Surveys were designed to take no more than one hour to complete.

Study Measures

Social Support

Participants in S1 (adolescents) and S4 to S8 (emerging adults) reported on the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988). This scale includes 12 items addressing the ways people feel they have figures in their life they can turn to

for assistance and who care for them. We focused on subscales for family (4 items) and friends (4 items). Participants in S2 and S3 (adolescents) reported on four items adapted from the MSPSS about peer social support, asking about peers in the same extracurricular clubs ("sample item, "I can count on OMM club members when things go wrong"). Items were completed on 7-point Likert Scales (1 = *Very strongly disagree*; 7 = *Very strongly agree*).

Coping and Distress

Adolescents in S2 and S3 reported on coping strategies. Adolescents completed four items from the Proactive Coping Inventory and Instrumental Support Seeking subscale (Greenglass et al., 1999). Items were completed on a 4-point Likert scale (1 = *Not at all true*; 4 = *Completely true*; sample item = "I try to talk and explain my stress in order to get feedback from my friends"). Adolescents also completed four items about support-seeking with informal (i.e., family, friends) and formal (i.e., school counselors, outside professionals) figures (sample item = "If I had a mental health concern, I would intend to seek help from a friend or classmate"). Items were completed on a 7-point Likert scale (1 = *Strongly disagree*; 7 = *Strongly agree*). In previous work, 11-to-14-year-olds' support-seeking was related to declines in depressive and anxious problems six months later (Vélez et al., 2016), showing that support-seeking is relevant for adolescents' mental health.

In S3 (adolescents), students completed two items based on measures of regulatory focus (i.e., items about motives toward desirable outcomes and away from undesirable outcomes; Booker et al., 2023; Lockwood et al., 2002; McCarty et al., 2021): their typical approaches for promoting mental health ("I typically focus on ways to increase the chance of mental wellness for people at my school") and typical approaches for preventing risks to mental health ("I typically focus on ways to decrease the chance of mental health challenges for people at my school"). Items were completed on a 5-point Likert scale (1 = *Strongly disagree*; 5 = *Strongly agree*).

In S4 (emerging adults), participants completed a general, recent stressor scale, reflecting a lack of coping resources. This measure was tailored in a similar fashion as the Patient Health Questionnaire (Kroenke et al., 2001, 2009). Participants reported about the impacts of 10 general stressors from the past four weeks (sample items, "Worrying about your health", "Stress at work outside of the home or at school", "Financial problems or worries", "Having no one to turn to when you have a problem"). Items were completed on a 3-point Likert Scale (0 = *Not bothered*; 2 = *Bothered a lot*).

In S5 (emerging adults) reported on COVID-19-related stressors. Five items about worries on the dangers of COVID were collected from the COVID Stress Scale (sample item = "I am worried that social distancing is not enough to keep me safe from the virus"; Taylor et al., 2020). Items were collected on a 5-point Likert scale (1 = *Not at all*; 5 = *Extremely*).

Mental Health

In S1 (adolescents) and S4-S8 (emerging adults), students completed a version of the Patient Health Questionnaire (Kroenke et al., 2001, 2009), regarding depressive symptoms over the past four weeks. S1, S4, and S5 completed the PHQ-9, which has an item on self-harm and suicidality. S6 to S8 included the PHQ-8, which removes this item on self-harm (sample item, "Feeling bad about yourself – or that you are a failure or have let yourself or your family down"). Items were completed on a four-point Likert scale (0 = *Not at all*; 3 = *Nearly every day*). We used item means to interpret findings.

In S5 to S8, emerging adults completed the GAD-7 (Spitzer et al., 2006). This measure addresses experiences with generalized anxiety symptoms over the last two weeks (sample item, "Worrying too much about different things"). Items were completed on a four-point Likert scale (0 = *Not at all*; 3 = *Nearly every day*). We used item means to interpret findings.

Study Covariates

Across S2 and S3 (adolescents) and S6 to S8 (emerging adults), we collected additional covariates about aspects of social functioning for H2 (i.e., social support will show incremental relations with coping and mental health). These covariates included motivational factors (S2, S7), personality traits (S6 to S8), social behaviors (S6), and aspects of social cognition (S3, S8) that have been related to social support, coping, and mental health—constructs that could be "third variables" when considering the relations of social support with coping and with mental health.

Social Motivation and Need Fulfillment. Adolescents in S2 completed reports on motivational need fulfillment. Adolescents completed four items from the Basic Psychological Need Satisfaction Scale (Deci et al., 2001) addressing feelings of relatedness, specifically about their extracurricular club experiences. Items were completed on a 7-point Likert scale (1 = *Not at all true*; 7 = *Very true*; sample item = "I really like the people I am in my OMM club with"). Emerging adults in S7 reported on loneliness, which fits within broader frameworks on human motivation and need fulfillment as a sign of unfulfilled relatedness needs (Baumeister & Leary, 1995; Patrick et al., 2007; Ryan & Deci, 2000). Emerging adults completed the UCLA Loneliness Scale (Russell et al., 1978). This scale includes 20 items completed on a 4-point Likert scale (1 = *I never feel this way*; 4 = *I often feel this way*; sample item, "I am no longer close to anyone").

Personality Trait Agreeableness. Emerging adults in S6 to S8 reported on trait agreeableness. Participants responded to the Ten Item Personality Inventory (Gosling et al., 2003), which included two items about agreeableness (i.e., sympathetic; warm). Items were completed on a 7-point Likert scale (1 = *Disagree strongly*; 7 = *Agree strongly*). Because only two items were collected, internal consistency was not calculated. However, measures on the TIPI have shown strong agreement with lengthier personality inventories (see Erhart et al., 2009).

Social Behaviors. Emerging adults in S6 completed the College Activities and Behaviors Questionnaire (Pennebaker et al., 1990), asking about activities in the last week. Students provided a numerical estimate for social behaviors of a) talking on the phone to one or both parents; b) talking on the phone to old friends who are not at your college; c) having a heart-to-heart with someone at the college; and d) making a new friend. Open-ended responses were truncated to a maximum score of 10 (i.e., range 0 to 10) to avoid scaling concerns.

Social Cognitions. Adolescents in S3 completed reports of social appraisals of their extracurricular clubs—the same clubs students reported peer social support from. We used a scale adapted from Booker (2023) asking about appraisals of club demandingness, opportunities for personal and professional growth, enjoyment, and fit with future goals. Items were completed on a 5-point Likert scale (1 = *Not at all*; 5 = *A great deal*). Emerging adults in S8 reported social appraisals relevant to the college experience—homesickness and college belonging. Students completed the Simple School Belonging Scale (Whiting et al., 2018). This scale included 10 items completed on a 4-point Likert scale (1 = *Not at all*; 4 = *Absolutely*; sample item = "People at this school are friendly to me"). Students completed the homesickness subscale of the College Adjustment Test (Pennebaker, 2013), with six items completed on a 7-point Likert scale (1 = *Not at all*; 7 = *A great deal*; sample item = "Missed your parents and other family members").

Analytical Plan

Each study involved similar analyses to address hypotheses. *Preliminary analyses* included independent samples *t*-tests to determine sex differences in study measures between girls/women and boys/men. *T*-tests are presented in Table S1 in the Supplemental Materials. We used sex rather than gender given minimal representation (and power concerns) of minoritized gender identifications and potentially identifying findings regarding gender. Sex was controlled in

hypotheses tests for emerging adult samples given differences in friend support (i.e., S4, S6, S7, S8), endorsed stressors (i.e., S4, S5), depressive problems (i.e., S5, S8), and anxious problems (i.e., S5, S7, S8). Bivariate (S1 to S3) and partial (S4 to S8) correlation analyses were used for H1. Regression analyses with main effects were used for H2. Regressions including two-way interaction terms between social support and COVID timing were used for E1.

Results

Tables present both the descriptive statistics and correlation analyses for each Study: Table 2 (S1, adolescents in quarantine); Table 3 (S2, adolescents in person); Table 4 (S3, adolescents in person); Table 5 (S4, emerging adults in quarantine); Table 6 (S5, emerging adults in quarantine), Table 7 (S6, emerging adults in person); Table 8 (S7, emerging adults in person); and Table 9 (S8, emerging adults in person). Findings are organized by our three major research aims: 1) affirming that social support—across relationships, developmental periods, and COVID timing—is positively related with coping and negatively related with mental health problems; 2) affirming that social support is incrementally related with coping and mental health beyond covariates (i.e., traits, motivations, behaviors, cognitions); and 3) exploring whether COVID timing moderates the associations of family and friend social support with depressive symptoms.

H1: Social Support will be Positively Related with Coping and Negatively Related with Mental Health Problems

The hypothesis that social support would be positively related with coping reports and inversely related with signs of an inability to cope (higher distress) was partly supported. With S2 and S3, adolescents' peer support was positively related with instrumental support seeking and mental health support seeking with multiple figures (i.e., out-of-school professionals, school counselors, parents), as well as endorsed actions for promoting and protecting mental health. With

S4, emerging adults' family and friend support were negatively related with reports of general stressors, both within and across time points. Yet, with S5, emerging adults' family and friend support were not significantly related with COVID stressors within or between time points.

The hypothesis that social support would be negatively related with mental health problems was widely supported across developmental periods and COVID timings. Across S1 and S4 to S8, family support was related with fewer depressive problems and fewer anxious problems, within and across study waves. Except for quarantined adolescents (S1), friend support was negatively correlated with depressive and anxious problems, within and across study waves.

H2: Social Support will be Incrementally Related with Coping and Mental Health beyond other Covariates

We tested evidence for H2 using regression models that included sex (S6 to S8), measures of social support, and covariates of interest: trait agreeableness (S6 to S8); indicators of motivational need fulfillment (S2, S7); constructive social behaviors (S6); and aspects of social cognition (S3, S8).

The Supplemental Materials present the regression findings for adolescent samples in S2 (Table S2), and S3 (Table S3). The model omnibus was significant for each tested model. Multiple findings supported H2. In S2, peer support was incrementally and positively related with instrumental support seeking ($\beta = .23$, $p = .042$) and mental health support seeking with out-of-school professionals ($\beta = .30$, $p = .010$), but not with support-seeking with other social sources (i.e., school counselors, parents, friends). In S3, peer support was incrementally associated with instrumental support-seeking ($\beta = .22$, $p = .028$); mental health support-seeking from out-of-school professionals ($\beta = .30$, $p = .003$), friends ($\beta = .43$, $p < .001$), and school counselors ($\beta = .31$, $p = .002$); as well as actions to promote mental health resources ($\beta = .26$, $p = .010$) and reduce mental

health risks (β = .36, $p < .001$). There was considerable evidence supporting H2; adolescents' peer support showed incremental relations with coping reports.

The Supplemental Materials present the regression findings for emerging adult samples in S6 (Table S4), S7 (Table S5), and S8 (Table S6). The model omnibus was significant for each model of depressive problems and anxious problems. Findings mostly supported H2 within S6 and S8. With depressive symptoms, family support was significantly and negatively related to depressive problems across S6 (β = -.45, $p <.001$) and S8 (β = -.43. $p < .001$). Friend support was significantly and negatively related to depressive problems in S6 (β = -.16, $p = .018$), but did not show an incremental association with depression in S8 (β = .02, $p = .259$), beyond homesickness and college belonging. Family support had incremental associations with anxious problems in S6 (β = -.34, $p < .001$) and S8 (β = -.29, $p < .001$). Again, friend support had an incremental association with anxious problems in S6 (β = -.17, $p = .018$), but did not have an incremental association with anxious problems in S8 (β = .02, $p = .734$).

There was a notable exception with S7 findings. Between family support, friend support, and the covariate of loneliness, the collinearity condition index was 26.9, which is a sign of serious concerns of multicollinearity. Hence, a data reduction approach was used. A principal components analyses was conducted among the measures of loneliness, family support, and friend support—three items reflecting perceptions of social standing with others. A single component was supported, explaining 68.8% of the variance given these three items, and a composite regression score was formed as a single model effect for H2 tests. This composite score was significantly and negatively related with depressive problems (β = -.46, $p < .001$), and with anxious problems (β = -.41, $p < .001$) beyond the measures of sex and trait agreeableness. The direction of these effects fits with broader project expectations but H2 was not supported given multicollinearity.

Overall, we found ample, but bounded, evidence for H2.

E1: COVID Timing Might Moderate Relations Between Social Support and Depressive Symptoms

Final analyses tested whether the relations between social support and mental health—here, depressive symptoms—were qualified by the timing of COVID impacts (i.e., in quarantine, in person). S1 (adolescents in quarantine), S4 and S5 (emerging adults in quarantine), and S6 to S8 (emerging adults in person) were used for these tests, along with measures of family support, friend support, and (baseline) depressive problems.

Preliminary, one-way ANOVAs did not find mean differences in family support (p = .736), friend support (p = .549), nor depressive symptoms (p = .387) given COVID timing. Further, there was no evidence of mean differences in social support or depressive symptoms between samples (ps = .129 - .464). Regressions included a two-way interaction term between social support and COVID timing (i.e., in quarantine, in person), tested separately between family and friend support. See Table S7 of the Supplemental Materials. The interaction of family support and COVID timing was not significant (p = .185). Similarly, the interaction of friend support and COVID timing was not significant (p = .445). Overall, social support showed negative associations with depressive symptoms with similar slopes across periods of quarantine and returns to in-person activities. Figure 2 presents the simple slopes of the family support*COVID timing interaction (left) and the simple slopes of the friend support*COVID timing interaction (right).

Discussion

We asked three major questions with this project, approaching social support as a fundamental resource for wellness and mental health. Are measures of social support related to indicators of coping and mental health across different settings and periods of both adolescence

and emerging adulthood? Do measures of social support provide distinct information for coping and mental health over other aspects of social functioning and adjustment? And does social support operate differently for mental health across different periods of the COVID-19 pandemic? We found broad evidence that affirmed social support is complementary to coping and mental health; social support provides unique information for coping and mental health; and social support shows consistent relations with mental health against the backdrop of different sociohistorical events—here with drastic changes in daily life during quarantine and returns to in-person activities.

Social Support is Valuable across Relationship Domains, Across Periods of Development, and Across Points of the COVID-19 Pandemic

Time and again, reports of social support were related with measures of coping and mental health, matching the hypothesized directions. Supports involving family, close friends, and peers—here, those sharing space in safe, mental health-focused extracurricular clubs—were positively related with indicators of coping and negatively related with depressive and anxious problems. These findings were supported across adolescents and emerging adults and across periods of both COVID-related quarantine and returns to in-person activities around high schools and colleges. Our findings reinforce the fundamental value of social support from the many places and spaces young people spend their time as they are developing across the adolescent and early adult years and navigating different developmental demands (i.e., intimacy, network maintenance and formation in new communities; Arnett, 2014; Booker et al, 2022b; Erikson, 1950, 1968). Our findings add to the larger consensus of the importance of social support as a resource across periods of "mundane" life and across periods of greater uncertainty and distress (Saltzman et al., 2020; Spencer & Patrick, 2009; Wesley & Booker, 2021).

While social support showed broad, expected relations with coping and mental health, there

were nuances to our findings. Peer social support was positively related with endorsements of proactive and instrumental coping, and family and friend support were negatively related with general stressors in the moment and at a one-month follow-up; however, family and friend support were not related to COVID stressors and specific demands involving the pandemic. Because of the unpredictable and larger-scale impacts of the pandemic (i.e., events beyond people's control involving how schools, workplaces, and healthcare settings were operating, with implications for them and their loved ones; Greenhoot Follmer et al., 2022), it is possible that particular pandemic stressors reflect different structural pressures (i.e., macrosystem) that support within closer relationships (i.e., microsystem) does not as closely align with.

Further, there were instances where family support, for both adolescents and for emerging adults, showed stronger relations with mental health than did friend support (see Table 2 [H1, S1] with adolescents; see Supplemental Table 5 [H2, S8] with emerging adults). Though limited in scope, these distinctions fit past work and underscore the robust and enduring importance of family relations, family processes (i.e., socialization), and the priority family takes with topics like support-seeking, finding satisfaction in one's life, navigating mental health, and establishing meaning and reasoning in life (e.g., Booker & Ell, 2022; Booker et al., 2022; Merrill et al., 2019).

Social Support Provides Distinct Information for Coping and Mental Health Beyond Many Other Aspects of Social Adjustment and Functioning

Social support from adolescents' peers was incrementally related to coping, and social supports from emerging adults' family and friends were incrementally related to depressive and anxious problems in most cases. This supports broader consensus on the ways social support is complementary to, but still distinct from, other important aspects of social functioning and adjustment, including personality traits (i.e., agreeableness), social behaviors (i.e., forming new

relationships, staying in contact with others), and social cognitions (i.e., evaluating peer groups, perceiving personal standing with others, e.g., Barekt-Bojmel et al., 2021). Findings reinforced the value of collecting aspects of social support alongside other measures that indicate development and functioning across adolescence and emerging adulthood.

However, social support showed large relations with covariates of motivation (S2 adolescents in person) and relationship need fulfillment (S7 emerging adults in person), with emerging adults' loneliness conflating highly with family and friend support. Most conceptualizations and measurements of social support and loneliness approach these constructs as distinct ways of recognizing fulfillment of relationship demands or a lack thereof (Barekt-Bojmel et al., 2021). Still, findings here fit earlier arguments that constructs like social support, loneliness, and other related ideas like social isolation fall under a common conceptual umbrella (i.e., Rook, 1984). These measures serve as indices of successful standing (or peril) in relationships, and each informs well-being and mental health concerns (see Baumeister & Leary, 1995). While a more parsimonious measure of relationship fulfillment may be beneficial, we recognize that other projects continue to find distinctions between measures of loneliness and social support (Milevsky, 2005; Saltzman et al., 2020), and that more study is warranted.

Social Support's Relations with Depressive Problems were Not Qualified by COVID Timing

A set of null interaction findings lent further credence to the idea of social support as a fundamental and consistent psychological resource for wellness and mental health, even as broader policies and daily environments changed for adolescents and adults across different periods of the pandemic. For samples collected across periods of remote living and during returns to in-person activities, social support showed similar, negative associations with depressive problems. Having greater respect, care, and regard from family and friends was a consistent resource and benefit

during periods of extreme uncertainty and chaos earlier in the COVID-19 pandemic (e.g., Greenhoot Follmer et al., 2022) as well as in ongoing years involving attempted returns to typical activities across school, home, and work. This was different from recent work showing that ways of relating to oneself and making sense of personal experiences could serve as larger contributors to resilience during different phases of the COVID-19 pandemic (e.g., Booker & Johnson, 2024; Booker et al., 2024). Still, our comparisons of different cohorts align with broader theories that having care and regard from others remains valuable across the different highs and lows of life (Antonucci, 2001; Baumeister & Leary, 1995; House et al., 1988; Ryan & Deci, 2000) and that social support will coincide with greater mental health and wellness at different phases of development (Liu et al., 2020; Spencer & Patrick, 2009; Wesley & Booker, 2021).

The Importance of COVID-19 and Student Activities Supporting Social Support

Daily life in the US was turned on its head for multiple years given the impacts of the COVID-19 pandemic (Hawes et al., 2022; Liu et al., 2020; Pasupathi et al., 2022). This has contributed to lasting threats to mental health and daily social functioning for middle school adolescents, high school adolescents, and college-going emerging adults. Hence, our work was timely in addressing relations between social support and mental health and addressing an important sociohistorical context with the lingering impacts of COVID-19. By, focusing on the different social demands and opportunities for grade school and college learners, our findings reinforced the ongoing importance of social support and other indicators of social success and fulfilment as key indicators of psychological adjustment and mental health (Baumeister et al., 2007; Patrick et al., 2007; Ryan & Deci, 2000).

Middle and high school students, facing increases in distress over recent years (Mpofu et al., 2023), still have to navigate the “typical” demands across school (Wang & Dishion, 2012),

family (Steinberg, 2001), and friend settings (Andrew Collins et al., 1997). They also have to figure out "next steps" in their lives (Nurmi et al., 1994). To have dependable support from friends and safe, structured spaces like an extracurricular club (S2 and S3), continues to be key for adolescent outlook and mental health. This social support is also important for adolescents' social reasoning—who they feel they can lean on in times of need and who they want to spend time bonding with. The investment in additional social infrastructure, like extracurricular activities (i.e., sports, arts, prosocial, governance) and safe, welcoming spaces for peer and mentor interactions, can help continue meeting students' interests and encouraging positive community-building for social support from both peers and adult figures (i.e., club directors, teachers, coaches, counselors; Eccles & Barber, 1999; Schaefer et al., 2011; Wang & Eccles, 2012).

Similarly, traditional age college students have faced drastic and lasting disruptions to daily life (Lederer et al., 2021; Pasupathi et al., 2022). Even as full-time students returned from college shutdowns and resumed in-person activities across class, peer, and work settings, they continued to face common pressures in maintaining social connections across the hometown and on-campus (Booker et al., 2022a; Paul & Brier, 2001). This study reinforces that while the challenges to the college experience could be qualitatively different from the important challenges of adolescence and emerging adults across other community spaces (Lederer et al., 2021), there is continued importance in understanding and investing in healthy social experiences and resources for adults in college settings. This work especially stands out given the continued importance of family and concerns given distance from family for many full-time and residential students—students who are negotiating new social networks around campus, classroom and professional demands, and so on (Arnett et al., 2014). It remains apparent that college resources and activities that promote opportunities for peer engagement and relationship-building around campus will continue to be

critical targets for student affairs initiatives. Recent online interventions showcase the potential and feasibility of approaches like providing information for incoming students and investing in social infrastructure on campus for student affairs and quality relationships on campus (Walton et al., 2023). Relatedly, there remains space to build more infrastructure (i.e., structured activities) that invite visits and opportunities from family and off-campus friends to reaffirm support and love for students (i.e., family visit weekends). Each of these strategies provide targets for investing in students' adjustment and flourishing, as life beyond the COVID-19 pandemic continues toward a new sense of routine and other typical highs and lows of emerging adult life persist.

Limitations, Strengths, and Future Directions

Our work is limited by our recruitment and study designs. While our adolescent samples reflected multiple ethnic populations, gender populations, and geographic regions of the US, our emerging adult samples were more homogenous, involving mostly women, mostly White participants, and students attending a single college in the central US. There may be important limits for generalizing this work to other college populations. Further, our use of a very specific peer support measure in S2 and S3—involving a specific kind of extracurricular that is not available nationally at this time—fits alongside S1 findings and other research about the benefits of classmate social support (Lepore, 1992; Stewart & Suldo, 2011), but may be too specific to generalize to adolescents involved in different extracurricular activities or to forms of social support in other relationships. We also did not have direct measures of mental health concerns in S2 and S3, which limited our ability to compare findings between these studies and the remaining studies in this project. Our focus on 18-to-25-year-old adults represents part of emerging adulthood, but not the full span of this developmental transition as proposed by Arnett (2014).

Despite these limitations, our work benefited from the consideration of multiple samples

captured in a timely and important period against the backdrop of COVID-19 disruptions. Our focus on both adolescent and emerging adult populations is a strength providing richer developmental and contextual evidence for the relations between social support and mental health. Our repeated focus on common measures of social support alongside different covariate measures were also strengths, letting us replicate and extend areas of consensus about how social support is related to other areas of development and functioning. In sum, our project adds to the consensus that social support is key for healthy development by offering a meaningful ecological focus.

Future work will benefit from improved study designs, recruitment practices, and uses of measures to enrich topics on social support and healthy development. Projects with longitudinal designs will provide more opportunities to test stability and change in aspects of social support and possible bidirectional influences between social support and other areas of functioning, like mental health. Studies will benefit from the intentional recruitment of ethnically diverse and geographically diverse adolescents and emerging adults, improving generalizability and potential relevance of findings to additional researchers, policymakers, and other community partners. Lastly, social support can be successfully measured across multiple domains and settings (e.g., Chiaburu et al., 2010; Stewart & Suldo, 2011; Wesley & Booker, 2021), and measures that address many sources of support simultaneously, including "less intimate" microsystem relationships (i.e., classmates, coworkers, neighbors), could provide a richer and more nuanced view about both the antecedents and implications of social support across adolescence and emerging adulthood.

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Table 1

Demographic Information for Each Study Sample

Age Group	**Adolescents**			**Emerging Adults**				
COVID Timing	Quarantine	Return to In-Person		Quarantine		Return to In-Person		
Study (S#)	1	2	3	4	5	6	7	8
Sample *N*	45	143	96	233	113	231	229	389
School Recruitment	Public & Private; MS & HS	Public HS	Public HS	Public College	Public College	Public College	Public College	Public College
Recruited Academic Year	2020-2021	2021-2022	2022-2023	2020-2021	2020-2021	2021-2022	2021-2022	2021-2022
Mean Age (SD)	13.6 (1.4)	16.2 (1.0)	16.4 (1.2)	18.4 (0.7)	18.9 (1.2)	18.7 (1.1)	19.0 (1.0)	19.1 (1.0)
Gender Identifications %								
Cisgender male	48.2	8.8	17.5	23.2	25.2	24.9	39.1	34.5
Cisgender female	51.2	78.4	67.0	76.4	68.5	73.9	59.1	64.0
Transgender or Nonbinary	0.0	11.7	11.3	0.4	0.8	0.8	1.8	1.5
Racial Identifications %								
Southeast Asian	6.1	16.0	4.1	2.1	2.6	2.1	3.9	1.5
Black	0.0	21.3	47.4	11.0	14.9	5.5	8.7	10.2
Latine	0.0	20.7	9.3	3.8	1.8	3.0	1.3	3.3
White	63.0	40.0	23.7	75.1	67.5	81.0	80.1	77.7
Middle Eastern	0.0	0.2	5.2	0.8	2.6	1.3	0.4	0.8
Indio-Asian	0.0	0.0	0.0	0.0	1.8	0.4	0.9	0.5
American Indian	0.0	0.1	0.0	0.0	0.0	0.4	0.4	0.8
Multiracial	30.3	1.7	7.2	6.3	7.0	5.9	3.9	4.8

Note. Gender and racial identifications reflect valid percentages. MS = Middle School HS = High School. During quarantine (S4 and S5), most emerging adult respondents (~70%) were living in on-campus housing.

Table 2

Descriptive Statistics and Bivariate Correlations for Study 1 (Adolescents in Quarantine)

	Mean	SD	ω	1.	2.	3.	4.	5.	6.
Baseline									
1. Family Support	5.89	.85	.88	--					
2. Friend Support	5.42	1.38	.94	.30*	--				
3. Depressive Symptoms	1.71	.51	.82	-.46*	-.26	--			
Four-Month Follow-Up									
4. Family Support	5.66	1.15	.95	.56*	-.07	-.16	--		
5. Friend Support	5.33	1.31	.95	.06	.37*	.06	.33*	--	
6. Depressive Symptoms	1.71	.56	.90	-.42*	-.09	.34*	-.69*	-.34*	--

Note. $* p < .05$.

Table 3

Descriptive Statistics and Bivariate Correlations for Study 2 (Adolescents In-Person)

	M	SD	ω	1.	2.	3.	4.	5.	6.
1. Peer Social Support	5.18	1.01	.86	--					
2. Relatedness Need Fulfillment	5.22	1.03	.74	.72*	--				
3. Instrumental Support Seeking	3.01	.66	.77	.36*	.35*	--			
4. Support Seeking from Out-of-School Professionals	5.00	1.65	--	.31*	.23*	.37*	--		
5. Support Seeking from Friends	5.17	1.48	--	.15	.14	.46*	.21*	--	
6. Support Seeking from Parents	4.65	1.74	--	.26*	.28*	.35*	.23*	.19*	--
7. Support Seeking from School Counselors	4.17	1.97	--	.37*	.38*	.21*	.24*	.02	.48*

Note. Comfort seeking support from specific figures were single-item responses.

Table 4

Descriptive Statistics and Bivariate Correlations for Study 3 (Adolescents In-Person)

	M	SD	ω	1	2	3	4	5	6	7	8
1. Peer Social Support	4.96	1.29	.89	--							
2. Club Evaluations	5.29	1.14	.81	.26*	--						
3. Instrumental Support Seeking	2.95	.64	.74	.36*	.36*	--					
4. Support Seeking from Out-of-School Professionals	5.23	1.73	--	.34*	.23*	.09	--				
5. Support Seeking from Friends	5.13	1.64	--	.47*	.27*	.37*	.29*	--			
6. Support Seeking from Parents	5.11	1.67	--	.22*	.21*	.39*	.29*	.32*	--		
7. Support Seeking from School Counselors	4.78	1.78	--	.36*	.28*	.17	.39*	.30*	.56*	--	
8. Actions to Prevent Mental Health Risks	6.74	1.00	--	.40*	.23*	.18	.28*	.21*	.11	.10	--
9. Actions to Promote Mental Health Resources	6.85	1.04	--	.32*	.31*	.31*	.35*	.31*	.17	.20	.56*

Note. Comfort seeking support from specific figures and reported actions to address mental health were single-item responses.

Table 5

Descriptive Statistics and Partial Correlations for Study 4 (Emerging Adults in Quarantine)

	Mean	SD	ω	1.	2.	3.	4.	5.	6.	7.
Baseline										
1. Family Support	5.46	1.38	.93	--						
2. Friend Support	5.58	1.24	.94	.45*	--					
3. Depressive Symptoms	.88	.62	.86	-.34*	-.29*	--				
4. General Stressors	1.62	.38	.77	-.25*	-.30*	.62*	--			
One-Month Follow-Up										
5. Family Support	5.58	1.24	.93	.76*	.39*	-.27*	-.25*	--		
6. Friend Support	5.36	1.42	.94	.48*	.69*	-.40*	-.25*	.58*	--	
7. Depressive Symptoms	.89	.63	.89	-.37*	-.28*	.73*	.51*	-.42*	-.38*	--
8. General Stressors	1.63	.39	.78	-.32*	-.39*	.53*	.74*	-.35*	-.40*	.74*

Note. $* p < .05$.

Table 6

Descriptive Statistics and Partial Correlations for Study 5 (Emerging Adults in Quarantine)

	Mean	SD	ω	1	2	3	4	5	6	7	8	9
Baseline												
1. Family Support	5.72	1.11	.87	--								
2. Friend Support	5.74	1.18	.96	.54*	--							
3. COVID Stressors	2.66	1.35	.92	-.17	-.09	--						
4. Depressive Symptoms	1.02	.72	.90	-.35*	-.32*	.27*	--					
5. Anxious Symptoms	1.04	.83	.93	-.24*	-.30*	.27*	.75*	--				
One-Month Follow-Up												
6. Family Support	5.78	1.22	.90	.75*	.49*	-.13	-.35*	-.29*	--			
7. Friend Support	5.66	1.25	.95	.35*	.80*	-.07	-.29*	-.32*	.49*	--		
8. COVID Stressors	2.51	1.33	.91	-.17	-.02	.80*	.21*	.27*	-.10	.01	--	
9. Depressive Symptoms	.80	.63	.89	-.44*	-.36*	.38*	.80*	.72*	-.43*	-.33*	.30*	--
10. Anxious Symptoms	.98	.80	.94	-.29*	-.34*	.33*	.74*	.80*	-.26*	-.35*	.32*	.77*

Note. $* p < .05$.

Table 7

Descriptive Statistics for Study 6 (Emerging Adults In-Person)

	M	SD	ω	1.	2.	3.	4.	5.	6.	7.	8.
1. Family Support	5.54	1.48	.93	--							
2. Friend Support	5.58	1.33	.93	.40*	--						
3. Agreeableness	4.97	1.16	--	.27*	.28*	--					
4. Talks with Parents	3.60	2.73	--	.36*	.08	.19*	--				
5. Talks with Off-Campus Friends	2.19	2.45	--	-.05	.08	.18*	.21*	--			
6. Heart-to-Heart on Campus	1.25	1.45	--	.01	.16*	-.01	.09	-.02	--		
7. Made New Friend	1.50	1.60	--	.04	.17*	.09	.14*	.25*	.18*	--	
8. Depressive Symptoms	1.93	.77	.90	-.52*	-.34*	-.16*	-.22*	-.02	-.06	-.07	--
9. Anxious Symptoms	2.13	.83	.92	-.38*	-.30*	-.10	-.12	-.10	-.06	-.06	.72*

Note. $*$ $p < .05$. Social behaviors (i.e., talks with others, heart-to-heart talks, new friends) were open-ended responses that were truncated to max values of 10 to avoid scaling concerns.

Table 8

Descriptive Statistics for Study 7 (Emerging Adults In-Person)

	M	SD	ω	1.	2.	3.	4.	5.
1. Family Support	5.61	1.31	.91	--				
2. Friend Support	5.70	1.16	.91	.58*	--			
3. Agreeableness	4.89	.94	--	.14*	.15*	--		
4. Loneliness	1.95	.70	.96	-.44*	-.58*	-.02	--	
5. Depressive Symptoms	1.80	.72	.90	-.28*	-.26*	-.04	.59*	--
6. Anxious Symptoms	1.93	.77	.92	-.21*	-.21*	-.05	.56*	.79*

Note. $*$ $p < .05$.

Table 9

Descriptive Statistics for Study 8 (Emerging Adults In-Person)

	M	SD	ω	1.	2.	3.	4.	5.	6.
1. Family Support	5.54	1.31	.91	--					
2. Friend Support	5.68	1.13	.93	.49*	--				
3. Agreeableness	4.67	1.01	--	.16*	.19*	--			
4. Belonging	2.81	.63	.91	.35*	.45*	.13*	--		
5. Homesickness	4.34	1.05	.67	.14*	-.08	-.04	-.25*	--	
6. Depressive Symptoms	1.96	.71	.89	-.37*	-.22*	-.15*	-.29*	.38*	--
7. Anxious Symptoms	2.21	.77	.91	-.21*	-.16*	-.11*	-.22*	.51*	.69*

Note. $*$ $p < .05$.

Figure 1

Conceptual Model of Microsystem, Macrosystem, and Chronosystem Influences of Social Support during COVID-19 Impacts for Developing Adolescents and Emerging Adults

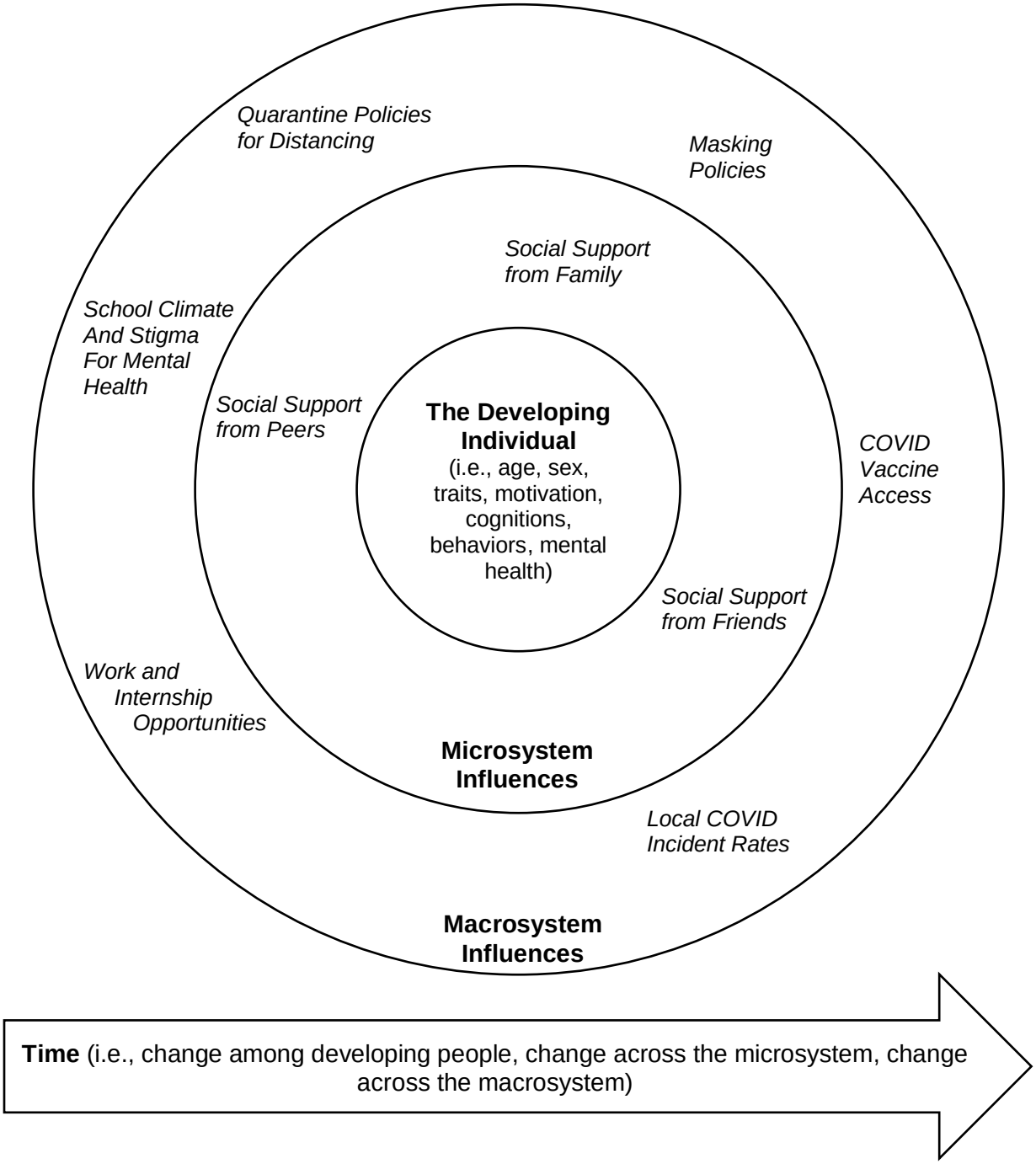
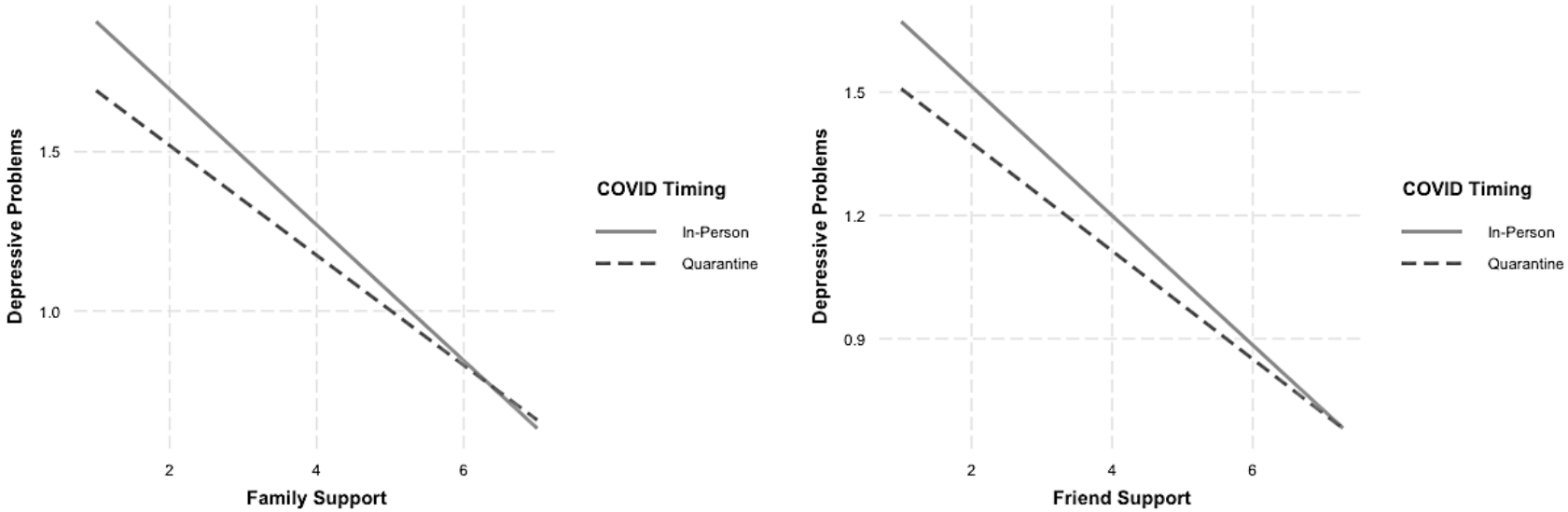


Figure 2

Simple Slopes of Depressive Problems across Samples given COVID Timing and Family Support (left) and COVID Timing and Friend Support (Right)



Supplemental Materials

Table S1

Independent Samples T-Tests for Study Measures by Participant Sex

Study	Measure	*t*-value	*df*	Cohen's *d*	*p*-value
S1	Baseline Family Support	.52	43	.16	.299
S1	Baseline Friend Support	1.90	43	.57	.310
S1	Baseline Depressive Symptoms	.88	43	.26	.301
S1	Follow-up Family Support	.27	43	.08	.298
S1	Follow-up Friend Support	.88	43	.26	.300
S1	Follow-up Depressive Symptoms	.82	43	.24	.301
S2	Peer Social Support	-1.31	119	-.39	.303
S2	Relatedness Need Fulfillment	-1.49	119	-.44	.306
S2	Instrumental Support Seeking	-.25	119	-.07	.294
S2	Support Seeking from Out-of-School Professionals	-1.14	119	-.33	.301
S2	Support Seeking from Friends	1.04	119	.30	.299
S2	Support Seeking from Parents	.19	119	.06	.294
S2	Support Seeking from School Counselors	.37	119	.11	.294
S3	Peer Social Support	-.96	79	-.26	.277
S3	Club Evaluations	.46	79	.12	.274
S3	Instrumental Support Seeking	.78	80	.21	.275
S3	Support Seeking from Out-of-School Professionals	.56	80	.14	.274
S3	Support Seeking from Friends	-.04	80	-.01	.272
S3	Support Seeking from Parents	.66	80	.18	.274
S3	Support Seeking from School Counselors	.35	80	.10	.273
S3	Actions to Prevent Mental Health Risks	-1.63	80	-.44	.283
S3	Actions to Promote Mental Health Resources	-1.89	80	-.52	.286
S4	Baseline Family Support	-.58	231	-.09	.563
S4	**Baseline Friend Support**	**-2.52**	**231**	**-.39**	**.013**
S4	Baseline Depressive Symptoms	-1.29	231	-.20	.200
S4	**Baseline General Stressors**	**-3.29**	**231**	**-.51**	**.001**
S4	Follow-up Family Support	.93	84	.27	.255
S4	Follow-up Friend Support	.03	84	.01	.979
S4	Follow-up Depressive Symptoms	-1.07	84	-.31	.290
S4	Follow-up General Stressors	-1.01	84	-.30	.314
S5	Baseline Family Support	-.62	111	-.13	.539
S5	Baseline Friend Support	-.40	111	-.09	.688

Study	Measure	*t*-value	*df*	Cohen's *d*	*p*-value
S5	**Baseline COVID Stressors**	**-2.21**	**111**	**-.48**	**.029**
S5	**Baseline Depressive Symptoms**	**-2.03**	**111**	**-.44**	**.045**
S5	**Baseline Anxious Symptoms**	**-2.37**	**111**	**-.52**	**.020**
S5	Follow-Up Family Support	-.03	88	-.01	.978
S5	Follow-Up Friend Support	-.36	88	-.09	.717
S5	Follow-Up COVID Stressors	-.91	88	-.22	.367
S5	Follow-Up Depressive Symptoms	-1.65	88	-.40	.102
S5	Follow-Up Anxious Symptoms	-1.86	88	-.45	.066
S6	Family Support	-.57	229	.09	.571
S6	**Friend Support**	**-3.00**	**229**	**-.46**	**.003**
S6	**Agreeableness**	**-3.65**	**229**	**-.55**	**.000**
S6	**Talks with Parents**	**-4.03**	**229**	**-.61**	**.000**
S6	Talks with Off-Campus Friends	-1.67	229	-.25	.097
S6	**Heart-to-Heart on Campus**	**-3.58**	**229**	**-.54**	**.000**
S6	Made New Friend	-1.25	229	-.19	.213
S6	Depressive Symptoms	-1.32	229	-.20	.188
S6	Anxious Symptoms	-1.44	229	-.22	.152
S7	Family Support	-1.93	226	-.26	.055
S7	**Friend Support**	**-2.79**	**226**	**-.38**	**.006**
S7	Agreeableness	-.39	226	-.05	.694
S7	Loneliness	-.72	226	-.10	.470
S7	Depressive Symptoms	-1.79	226	-.24	.076
S7	**Anxious Symptoms**	**-3.08**	**226**	**-.42**	**.002**
S8	Family Support	-.05	388	-.01	.961
S8	**Friend Support**	**-2.57**	**388**	**-.28**	**.011**
S8	Agreeableness	-1.85	388	-.20	.065
S8	Belonging	1.26	388	.14	.207
S8	**Homesickness**	**-5.42**	**388**	**-.58**	**.000**
S8	**Depressive Symptoms**	**-3.52**	**388**	**-.38**	**.000**
S8	**Anxious Symptoms**	**-4.87**	**388**	**-.52**	**.000**

Note. Bolded values were significant at the $\alpha = .05$ level. For Studies with one or more significant t-tests, sex was controlled in later H1 (i.e., correlations) and H2 (i.e., regressions) hypothesis tests.

Table S2

H2 Regression Analyses for S2

Coefficient (SE)	Instrumental Support Seeking	Support-Seeking from… Out-of-School Professionals	Friends	School Counselors	Parents
Relatedness Need Fulfillment	.12 (.07)	.02 (.19)	.09 (.17)	.34 (.20)	.44 (.21)*
Peer Support	.15 (.07)*	.50 (.19)*	.16 (.18)	.20 (.20)	.41 (.22)
$F(2, 140)$	12.03	7.42	1.74	6.44	13.59
Model R^2	.15	.10	.02	.08	.16
Model Sig.	.000	.000	.180	.002	.000

Note. * $p < .05$.

Table S3

H2 Regression Analyses for S3

Coefficient (SE)	Instrumental Support Seeking	Support-Seeking from… Out-of-School Professionals	Friends	School Counselors	Parents	Confidence Reducing Risk	Confidence Promoting Health
Club Evaluations	.17 (.06)*	.23 (.15)	.23 (.13)	.31 (.15)*	.24 (.15)	.12 (.09)	.22 (.09)*
Peer Support	.11 (.05)*	.41 (.13)*	.55 (.12)*	.43 (.14)*	.23 (.13)	.28 (.08)	.21 (.08)*
$F(2, 93)$	9.35	7.56	15.32	9.44	3.69	9.84	8.65
Model R^2	.17	.14	.25	.17	.07	.18	.16
Model Sig.	.000	.000	.000	.000	.029	.000	.000

Note. * $p < .05$.

Table S4

H2 Regression Analyses for S6

Coefficient (SE)	Depressive Problems	Anxious Problems
Gender	.21 (.11)	.21 (.13)
Trait Agreeableness	.01 (.04)	.04 (.05)
Recent Behavior: Talked to Parents	-.01 (.01)	.01 (.01)
Recent Behavior: Talked to Old Friends	-.01 (.02)	-.04 (.02)
Recent Behavior: Heart-to-Heart on Campus	-.02 (.03)	-.02 (.04)
Recent Behavior: Made a Friend	.01 (.02)	.00 (.03)
Family Support	-.23 (.03)*	-.19 (.04)*
Friend Support	-.09 (.04)*	-.11 (.04)*
$F(8, 222)$	11.81	6.49
Model R^2	.30	.19
Model Sig.	.000	.000

Note. *Note*. * $p < .05$. For gender, women received the higher score.

Table S5

H2 Regression Analyses for S7

Coefficient (SE)	Depressive Problems	Anxious Problems
Gender	.20 (.08)*	.31 (.09)*
Trait Agreeableness	.01 (.05)	-.01 (.05)
Relatedness Composite	-.33 (.08)*	-.31 (.05)*
$F(3, 225)$	21.38	18.27
Model R^2	.22	.20
Model Sig.	.000	.000

Note. *Note*. * $p < .05$. For gender, women received the higher score. The relatedness composite combined loneliness (reverse scored), family support, and friend support, given earlier evidence of multicollinearity among the measures.

Table S6

H2 Regression Analyses for S8

Coefficient (SE)	Depressive Problems	Anxious Problems
Gender	.10 (.07)_	.17 (.07)*
Trait Agreeableness	-.06 (.03)	-.04 (.03)
College Belonging	-.06 (.06)	.00 (.06)
Homesickness	.28 (.03)*	.38 (.03)*
Family Support	.28 (.03)*	-.17 (.03)*
Friend Support	.04 (.03)	.02 (.04)
$F(6, 383)$	33.12	34.53
Model R^2	.34	.35
Model Sig.	.000	.000

Note. *Note*. * $p < .05$. For gender, women received the higher score.

Table S7

H3 Regression Analyses across Studies

Coefficient (SE)	Depressive Problems
Step 1	
COVID Timing	.04 (.04)
Family Support	-.18 (.02)*
Friend Support	-.06 (.02)*
Step 2a (Interaction with Family Support)	
COVID Timing*Family Support	-.04 (.03)
Step 2b (Interaction with Friend Support)	
COVID Timing*Friend Support	-.01 (.03)
Interaction with Family Support, F(4, 1258)	57.01
Model R^2	.15
Model Sig.	.000
Interaction with Friend Support, F(4,1258)	56.51
Model R^2	.15
Model Sig.	.000