Adversity and Resilience Science
https://doi.org/10.1007/s42844-024-00147-y

ORIGINAL ARTICLE

Finding Silver Linings: Benefit-Finding, Stress, and Depressive Symptoms During the COVID-19 Pandemic

Samantha R. Scott[1] · Christopher S. Rozek[2] · Grayden R. Wolfe[1] · Kathryn R. Fox[1] · Jenalee R. Doom[1]

Accepted: 28 June 2024

Abstract

The COVID-19 pandemic lockdowns led to high psychological stress for many adolescents and young adults, which may have contributed to increased depressive symptoms. We aimed to determine if benefit-finding, a cognitive-based coping strategy, was associated with lower depressive symptoms early in the pandemic, and if associations between different types of stress and depressive symptoms depended on the level of benefit-finding that high school and university students reported using. Hypotheses were tested using online survey data in May 2020 during stay-at-home restrictions. The high school sample ($N = 651$; $M = 16.2$ years) included students from three US urban high schools, and the university sample ($N = 437$; $M = 26.6$ years) included undergraduate and graduate students at a mid-size private urban university. Participants self-reported COVID-19-specific psychological and financial stress, benefit-finding, and depressive symptoms. In both samples, higher psychological stress, higher financial stress, and lower benefit-finding were associated with higher depressive symptoms. In the university sample only, those reporting high benefit-finding showed lower psychological stress and depressive symptoms. Benefit-finding did not moderate associations between financial stress and depressive symptoms in either sample. Benefit-finding was associated with lower depressive symptoms generally, suggesting a potential benefit for this strategy regardless of stress level for high school and university students. Benefit-finding may have helped buffer the association between high levels of psychological stress related to the pandemic and depressive symptoms, but only for university students. Finally, benefit-finding appeared less beneficial for buffering against high depressive symptoms in the context of high financial stress in both samples.

Keywords Benefit-finding · Depression · COVID-19 · Stress

Introduction

The COVID-19 pandemic led to increased stress for adolescents and adults (Galea et al., 2020; Scott et al., 2021) and heightened rates of mental health disorders (Salari et al., 2020). The unpredictability of the pandemic (e.g., changing infection rates, public health actions) likely contributed to mental health challenges as well (Moreno et al., 2020). Adolescence and young adulthood are periods of increased risk for the development of psychopathology (Masten, 2006; Steinberg & Morris, 2001). However, not all adolescents and young adults developed clinically significant depressive symptoms at the beginning of the pandemic, and some even experienced improved well-being (Soneson et al., 2022). Understanding what resources protected against worsening mental health symptoms early in the pandemic may help inform why some individuals were buffered from adverse mental health outcomes and what interventions may be beneficial during future pandemics or global stressors.

While there are multiple definitions of resilience used in the literature, we define resilience as the *process* of harnessing resources that are pre-existing or learned in the face of adversities, such as the COVID-19 pandemic (PeConga et al., 2020; Rosenberg & Yi-Frazier, 2016; Southwick et al., 2014). Several resilience resources identified in curbing the development of mental health symptoms in adolescents and adults during the lockdown period of COVID-19 include having a growth mindset (Schleider et al., 2021), cultivating mindfulness (Yuan, 2021), and harnessing social

✉ Samantha R. Scott
Samantha.Scott@du.edu

[1] Department of Psychology, University of Denver, 2155 S. Race Street, Denver, CO 80209, USA

[2] Department of Education, Washington University in St. Louis, 1 Brookings Drive, St. Louis, MO 63130, USA

Published online: 15 July 2024

connections (Doom et al., 2023; Marchini et al., 2021). One less-studied resilience resource that may have helped promote adaptive outcomes is benefit-finding. Benefit-finding, which refers to the practice of finding the "silver lining" in adverse experiences (Southwick et al., 2014), has been linked to better psychological outcomes (e.g., lower stress, depression, and anxiety) and has typically been studied in youth and adults with severe chronic illness (Helgeson et al., 2006).

Learning whether benefit-finding was protective against mental health challenges early in the pandemic may help inform treatment recommendations and early interventions during future pandemics. Researchers have also acknowledged that strategies like "making collective meaning during these times," which could include benefit-finding, were crucial for many in fostering long-term mental health recovery from the pandemic (PeConga et al., 2020). Preliminary research suggests an association between benefit-finding early in the pandemic and positive outcomes. For example, one sample of young adults reported finding unexpected personal growth, experiencing gratitude, and focusing on what really matters (August & Dapkewicz, 2021). Additionally, children and adolescents who reported they experienced benefit from home quarantine displayed lower symptoms of psychopathology compared to those who did not (Tang et al., 2021).

Some COVID-19-specific psychological stressors (e.g., changing virus restrictions, decisions to socialize) and financial stressors (e.g., job loss) present early in the pandemic persisted (American Psychological Association, 2021; Ettman et al., 2021; Jordà et al., 2022). Subsequently, researchers have not yet identified whether benefit-finding was associated with fewer mental health symptoms while considering different pandemic-specific stressors (e.g., psychological, financial). As such, learning from those buffered against poor outcomes early in the pandemic is crucial, as protective factors may differ by stressor type. For example, mental health challenges related to general psychological stress could be buffered by teaching more cognitive-based coping skills such as benefit-finding (Magson et al., 2021). Psychological stress related to the pandemic remained high as of late 2021—up to 48% of adults between the ages of 18–41 endorsed they were so stressed about the pandemic that they struggled to make basic decisions (American Psychological Association, 2021). It is possible that mental health challenges secondary to financial stress, which might persist for decades (Jordà et al., 2022), may have also been offset by having stronger benefit-finding skills (Hittner et al., 2019; Jamieson et al., 2018; Rozek et al., 2019; Yeager et al., 2022), in addition to policy-level intervention (Wilson & McDaid, 2021). Benefit-finding skills can be taught, practiced, and improved by asking if any good things come from a certain stressor (Rosenberg et al., 2019), suggesting that they may be a target for interventions to improve mental health.

Not only may protective factors differ by stressor type (e.g., psychological, financial), but also by developmental stage. For instance, adolescents may rely more on peer support given that establishing peer relationships is a central developmental task. In contrast, perspective taking and "looking at the bigger picture" may be more challenging for adolescents, especially when stress is high (Steinberg & Morris, 2001). Benefit-finding is often referred to as a skill that takes time to develop in the context of stressful events. However, once developed, benefit-finding can buffer against stress across time (Helgeson et al., 2006). Perhaps, those in later developmental stages have had more practice finding benefits from adverse experiences prior to the pandemic and were able to use this skill more immediately.

In sum, it is unknown whether benefit-finding, in the context of COVID-19-specific financial stress or psychological stress, may have protected against mental health problems in high school or university students (primarily young adults) early during the pandemic. The current study examines whether higher benefit-finding was associated with lower depressive symptoms, which would suggest it was generally helpful across levels of stress, in high school and university students early during the COVID-19 pandemic. Additionally, we examined whether benefit-finding moderated associations between specific types of COVID-19-related stressors (financial and psychological) with depressive symptoms. We hypothesized that depressive symptoms would be lower for individuals higher in benefit-finding. We also hypothesized that those who had higher benefit-finding skills would display weaker associations between both types of COVID-19-specific stress (financial and psychological) and depressive symptoms in both cohorts.

Method

Hypotheses were tested using online survey data from two independent samples in May 2020. Protocols were approved by the Institutional Review Board at the University of Denver.

Sample 1: High School Students

School administrators from three high schools invited students to take a survey related to their mental health, physical health, social relationships, academic motivation, and home life in early May 2020 during the COVID-19 pandemic (Scott et al., 2021). We surveyed students from three US urban high schools between May 1 and 18 while teaching and school-related activities were remote. One participating school (public) was located in a midwestern US city, and the

other two schools (one private, one public) were located in a western US city. For the midwestern school, a stay-at-home order was in place throughout the survey period. For the western schools, there was a stay-at-home order in effect through May 8 and a safer-at-home order (less restrictive than stay-at-home) from May 9 through the end of the survey period. Surveys were administered by teachers, were optional, and took 20–30 min to complete. Schools did not know whether individual students participated. Students completed an assent form, and they could opt-in to a gift card raffle for survey completion. Parents were informed about the survey and could opt to not have their child's data used for research. Participants ($N = 651$) were 67% girls/women, 31% boys/men, and 3% transgender or gender non-conforming (i.e., identified with a gender distinct from birth-assigned sex). They were mostly non-Hispanic/Latino/a/x White (63%), Hispanic/Latino/a/x (14%), and Black (10%). On average, participants were 16.2 years old (Table 1).

Table 1 Sample demographics and descriptive statistics

Variable	*M*	*SD*	Range
High school sample ($N = 651$)			
Depressive symptoms (PHQ-2)	2.68	1.86	0–6
Age (years)	16.21	1.17	14–18
Perceived social status	4.03	1.65	1–10
Benefit-finding	2.03	1.15	0–5
Psychological stress	2.99	1.07	0–5
Financial stress	1.32	1.37	0–5
Percentage (%)			
% Female	66.7		
% Male	30.6		
% Gender minority	2.5		
% Non-Hispanic/Latina/o/x White	63.4		
% Hispanic/Latina/o/x	14.4		
% Black	10.1		
% Asian	4.3		
% Bi/multiracial	6.1		
% Other race	1.5		
University sample ($N = 437$)			
Depressive symptoms (PHQ-9)	9.97	6.52	0–27
Age (years)	26.57	7.77	18–57
Perceived social status	4.76	1.73	1–10
Benefit-finding	1.65	1.17	0–5
Psychological stress	3.28	1.03	0–5
Financial stress	2.06	1.40	0–5
Percentage (%)			
Undergraduate	37.8		
Graduate	62.2		
% Female	68.3		
% Male	22.4		
% Gender minority	10.1		
% Non-Hispanic/Latina/o/x White	75.1		
% Hispanic/Latino/a/x	6.9		
% Black	2.7		
% Asian	5.0		
% Bi/multiracial	9.4		
% Other race	1.0		

Sample 2: University Students

Both undergraduate and graduate students at a mid-size private university located in a Western US city were invited to participate in a voluntary 30-min online survey sent by administrators during May 2020. Participants first filled out a short (5-min) institutional research survey from the university and, at the conclusion of the survey, were invited to participate in the optional current study to be entered into a gift card raffle upon study completion. A stay-at-home order was in effect for the entire survey duration, so all classes were remote. Participants ($N = 437$) were 68% cisgender female, 22% cisgender male, and 10% transgender or gender non-conforming. They were mostly non-Hispanic/Latina/o/x White (75%) and multiracial (9%). The majority were pursuing graduate degrees (62%). On average, participants were 26.6 years old (Table 1).

Measures

Depressive Symptoms

In the high school sample, depressive symptoms were assessed using the two-item Patient Health Questionnaire (PHQ)-2 (Löwe et al., 2005). Items were assessed on a 4-point Likert scale assessing symptom frequency (0 = *not at all*, 3 = *nearly every day*). The two items were summed to range from 0 to 6. This measure has been validated in numerous populations and demonstrates strong reliability, which was observed in our sample ($\alpha = 0.75$). Higher scores corresponded to higher depressive symptoms.

In the university sample, depressive symptoms were assessed using the nine-item Patient Health Questionnaire (PHQ)-9 measure (Kroenke et al., 2001). Items were assessed on a 4-point Likert scale assessing symptom frequency (0 = *not at all*, 3 = *nearly every day*). The nine items were summed to range from 0 to 27. This measure has been validated in several populations and demonstrates strong reliability, which was observed in our sample ($\alpha = 0.90$). Higher scores corresponded to higher depressive symptoms.

Benefit-Finding

In both samples, benefit-finding was assessed with a one-item self-report question from the COVID-19 Adolescent Symptom and Psychological Experience Questionnaire

(CASPE; 29) asking "Overall, how much has the Coronavirus/COVID-19 outbreak, and the resulting changes to daily life, affected your life in a positive way?" (0 = *not at all*, 5 = *extremely*).

In the high school sample only, students also checked off select benefits they perceived, which included reduced amount of schoolwork, getting more sleep, spending more time with family, not having to deal with kids at school, and getting more time on the phone/computer (texting, social media).

Psychological Stress

In both samples, psychological stress was assessed using two adapted items from the CASPE (Ladoucer, 2020) and one item adapted from the Coronavirus Health and Impact Survey (Nikolaidis et al., 2021). Questions included "COVID-19 presents a lot of uncertainty about the future. In the past two weeks, including today, how stressful have you found this uncertainty to be?", "In the past two weeks, overall, how much has the COVID-19 outbreak, and the resulting changes to daily life, affected your life in a negative way?", and "During the past two weeks, how worried have you been about your physical health being influenced by COVID-19?" (0 = *not at all*, 5 = *extremely*). Scores were averaged for a total psychological stress score. Reliability in the high school sample ($\alpha = 0.72$) and the university sample ($\alpha = 0.78$) was strong.

Financial Stress

In both samples, financial stress was assessed using one item adapted from CASPE (Ladoucer, 2020). We used information from the question: "To what extent has COVID-19 created financial problems for you?" (0 = *not at all*, 5 = *extremely*).

Demographic Information

Race/ethnicity, gender identity, age, and perceived social status were assessed via self-report. Race/ethnicity dummy codes were created for the largest race/ethnicity categories. Given that the majority of participants identified as non-Hispanic/Latina/o/x White in both samples, this category was the reference group. Using the MacArthur Scale of Subjective Social Status, participants reported perceived social status on a ladder with ten "rungs" ranging from "10" being the lowest part of the ladder and "1" being the highest (Adler et al., 2000). This scale has good reliability and validity for predicting health outcomes. High school students had an average ladder score of 4.03 (SD = 1.65) and university students had an average score of 4.76 (SD = 1.72).

Data Analytic Plan

We conducted two multiple regression models in each cohort. The first models in each cohort assessed whether benefit-finding moderated the association between psychological stress and depressive symptoms. In Step 1, we entered all covariates and main effect terms (psychological stress and benefit-finding). In Step 2, we entered the interaction term (psychological stress × benefit-finding) that was created after centering the main effects. The second models in each cohort assessed the extent to which benefit-finding moderated the association between financial stress and depressive symptoms. In Step 1, we entered all covariates and main effect terms (financial stress and benefit-finding). In Step 2, we entered the interaction term (financial stress × benefit-finding) that was created after centering the main effects.

In all four models, we controlled for age, gender, race/ethnicity (proxy for experiences of systemic racism), and perceived social status as these factors have been identified as potential risk factors for psychopathology in the context of the COVID-19 pandemic (Lee & Singh, 2021; Solomou & Constantinidou, 2020). Of note, although we controlled for perceived social status in the financial stress models, social status and financial stress were moderately correlated in both samples ($r = 0.40$ [high school]; $r = 0.38$ [university]). Given this moderate association and the potential for multicollinearity that could impact analyses, we conducted sensitivity analyses that excluded perceived social status from models. Results are reported using standardized beta values. See Table S1 for correlation matrices. Statistical assumptions, including linearity, independence, homoscedasticity, and multicollinearity, were tested and met.

High school students checked off a list of which benefits they perceived in the context of the pandemic, and those percentages were provided in the results.

Results

High School General Psychological Stress

In Step 1 of the regression model, greater psychological stress was associated with higher depressive symptoms ($\beta = 0.45$, $p < 0.001$). Benefit-finding was not associated with depressive symptoms ($\beta = -0.03$, $p = 0.33$). In Step 2 of the regression, the association between psychological stress and depressive symptoms was not moderated by

benefit-finding ($\beta = -0.05$, $p = 0.19$). Full results for Step 1 are reported in Table S2.

High School Financial Stress

A multiple linear regression model revealed that greater financial stress was associated with higher depressive symptoms ($\beta = 0.19$, $p < 0.001$), and greater benefit-finding was associated with lower depressive symptoms ($\beta = -0.13$, $p < 0.001$). When the interaction term was entered in Step 2, the association between financial stress and depressive symptoms was not moderated by benefit-finding ($\beta = -0.00$, $p = 0.94$). The statistical significance of results remained the same when perceived social status was excluded as a covariate. Full results for Step 1 are reported in Table S3.

University General Psychological Stress

A multiple linear regression model indicated that greater psychological stress was associated with higher depressive symptoms ($\beta = 0.43$, $p < 0.001$). Benefit-finding was not associated with lower depressive symptoms ($\beta = -0.06$, $p = 0.20$). When the interaction term was entered in Step 2, the association between psychological stress and depressive symptoms was moderated by benefit-finding ($\beta = -0.12$, $p = 0.01$). Follow-up tests of simple slopes indicated that the association between psychological stress and depressive symptoms was weaker, though still statistically significant, for those high on benefit-finding (greater than 1 SD above the mean: slope = 0.73, $t = 5.02$, $p < 0.001$) than for those low on benefit-finding (lower than 1 SD below the mean: slope = 1.13, $t = 13.06$, $p < 0.001$). See Table 2 and Fig. 1.

University Financial Stress

A multiple linear regression model indicated that greater financial stress was associated with higher depressive symptoms ($\beta = 0.24$, $p < 0.001$) and greater benefit-finding was associated with lower depressive symptoms ($\beta = -0.14$, $p = 0.003$). In Step 2, the association between financial stress and depressive symptoms was not moderated by benefit-finding ($\beta = -0.01$, $p = 0.74$). The statistical significance of results remained the same when perceived social status was excluded as a covariate. Full results for Step 1 are reported in Table S4.

High School Endorsed Benefits

The high school sample selected which benefits of the COVID-19 pandemic they perceived from a list of items (Fig. 2). The most common benefits endorsed by participants were getting more sleep (68%), spending more time with family (54%), reduced schoolwork (43%), getting more

Table 2 University sample: benefit-finding interacts with psychological stress to predict depressive symptoms

Model results				
Predictor	β	t	p	
Step 1				
Intercept		28.77	< .001	
Hispanic/Latina/o/x	0.01	0.18	.86	
Asian	−0.06	−1.42	.16	
Multiracial	0.07	1.55	.12	
Other race	0.01	0.19	.85	
Low perceived social status	0.22	5.13	< .001	
Age	−0.06	−1.34	.18	
Male	−0.02	−0.50	.62	
Gender minority	0.02	0.52	.60	
Benefit-finding	−0.06	−1.30	.20	
Psychological stress	0.43	9.73	< .001	
Step 2				
Intercept		28.21	< .001	
Hispanic/Latina/o/x	0.00	0.09	.93	
Asian	−0.05	−1.25	.21	
Multiracial	0.06	1.40	.62	
Other race	0.01	0.23	.90	
Low perceived social status	0.22	5.14	< .001	
Age	−0.04	−1.01	.31	
Male	−0.02	−0.50	.62	
Gender minority	0.03	0.71	.48	
Benefit-finding	−0.08	−1.80	.07	
Psychological stress	0.44	9.98	< .001	
Psychological stress × benefit-finding	−0.12	−2.81	.01	
Model fit	F	df	p	R^2
Step 1 fit statistics	17.65	426	< .001	.293
Step 2 fit statistics	17.02	426	< .001	.306

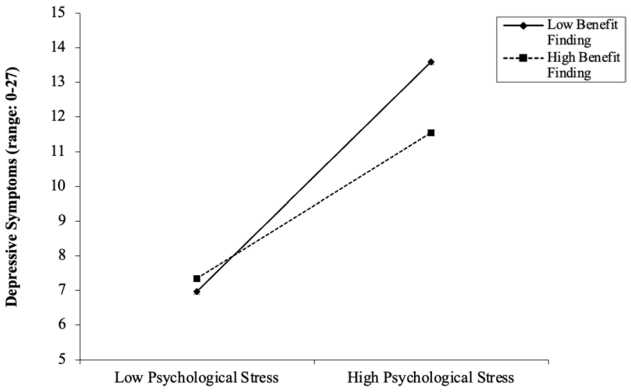

Fig. 1 Benefit-finding moderates the association between psychological stress and depressive symptoms in the university sample. High psychological stress and benefit-finding are 1 SD above the mean and low psychological stress and benefit-finding are 1 SD below the mean

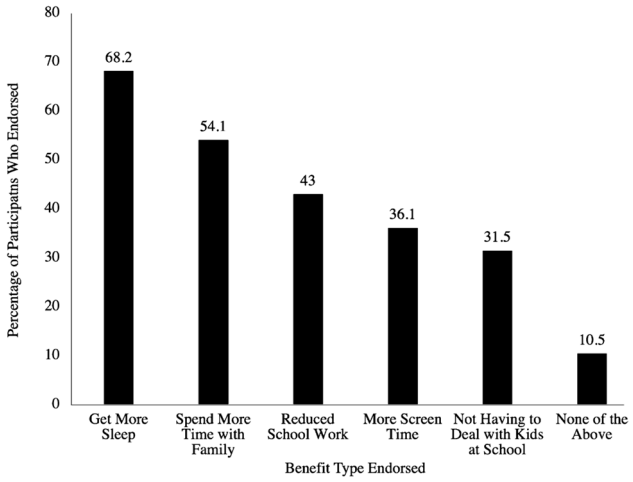

Fig. 2 Benefits of the COVID-19 pandemic endorsed by high school participants. High schoolers were allowed to choose multiple responses

screen time (36%), and not having to deal with kids at school (32%). The university sample was not provided with this list of benefits to select from.

Discussion

This study examined the degree to which benefit-finding, which refers to the ability to find the "silver lining" in the face of adverse situations (Southwick et al., 2014), may have protected against symptoms of depression in high school and university students during the early stages of the COVID-19 pandemic. We found partial support for this potential protective effect. Benefit-finding as a main effect generally was associated with lower depressive symptoms for both high school and university students. Additionally, benefit-finding moderated the association between psychological stress and depressive symptoms, but for university students only. Benefit-finding did not moderate the association between financial stress and depressive symptoms in either sample.

Overall, our results suggest that higher benefit-finding was associated with lower depressive symptoms. High school and university students had fewer depressive symptoms when they reported finding benefits to the pandemic, though only while controlling for financial stress. The finding that there was a main effect of benefit-finding on depressive symptoms while controlling for financial but not psychological stress was likely due to the stronger association between psychological stress and depressive symptoms, compared to financial stress and depressive symptoms.

We did find some evidence that benefit-finding moderated the association between psychological stress and depressive symptoms. Specifically, university students with higher self-reported benefit-finding showed weaker associations between psychological stress and depressive symptoms, suggesting a potential protective effect of benefit-finding for those experiencing greater psychological stress. High school students did see a main effect of benefit-finding when controlling for financial stress, suggesting they had fewer depressive symptoms when they reported finding benefits during the pandemic. However, we did not see that benefit-finding was especially helpful for high school students experiencing greater psychological stress, as benefit-finding did not moderate the association between psychological stress and depressive symptoms for them. Perhaps when stress is especially high, it is harder to utilize cognitive-based skills, especially for high school students (in mid-adolescence), even if a resource such as benefit-finding is also high. Given that benefit-finding was associated with lower depressive symptoms among high school students, interventions to help apply this skill to specific stressors could help offset the mental health problems often associated with high levels of stress.

We found that benefit-finding did not moderate the association between financial stress and depressive symptoms in either sample. However, benefit-finding did demonstrate main effect associations with lower depressive symptoms when controlling for financial stress. These findings for financial stress may be helpful to consider in the context of recent theoretical work. The shift-and-persist model suggests that for those raised in low socioeconomic (SES) contexts, accepting stressors and using strategies such as re-evaluating stressful situations (e.g., benefit-finding) to reduce emotional impacts is especially helpful (Chen & Miller, 2012). This skill typically develops after longer term exposure to low SES contexts and/or exposure to multiple uncontrollable, systemic stressors over time (Troy et al., 2013). Perhaps generally stronger benefit-finding skills could have buffered against depressive symptoms for those who experienced low SES contexts pre-pandemic and/or were exposed to multiple uncontrollable stressors, however, this was not our research question. Our question about financial stress was specific to the COVID-19 pandemic, which, at the time participants were surveyed, was a proximal, uncontrollable stressor, but did not necessarily reflect exposure to a long-term low SES context. Our question about benefit-finding was also specific to the pandemic, not financial stress. While it is possible that those who could find benefits of financial stress may have had lower depressive symptoms, we did not see evidence that benefit-finding skills more broadly were helpful for financial stress. Financial stress was strongly associated with depressive symptoms across both of our samples. Although we were not able to measure received financial assistance during the pandemic in this study, financial assistance in the context of the pandemic should be studied in order to understand its role in potentially reducing financial stress,

systemic inequities, and improving mental health (Wilson & McDaid, 2021).

Boosting the skill of benefit-finding as a resilience resource could potentially be considered during future COVID-19 outbreaks, global stressors, or other pandemics to help address depressive symptoms. Some individuals have higher self-reported benefit-finding than others, which may be due to temperament, personality characteristics, and other life experiences (Bauer et al., 2019). However, benefit-finding is a teachable cognitive skill relevant to experiencing stressful events (Borman et al., 2019; Jamieson et al., 2018; Rosenberg et al., 2019; Rozek et al., 2019; Yeager et al., 2022) that can be practiced and improved with repetition in brief cognitive-behavioral interventions by asking if any good things come from a certain stressor (Rosenberg et al., 2019). Although our study found that benefit-finding was associated with lower depressive symptoms as a main effect, and as a buffer against high psychological stress for university students, other studies suggest that benefit-finding and other cognitive re-appraisal strategies can be protective against developing adverse mental health outcomes in the context of different types of stressors (Chen & Miller, 2012; Rozek et al., 2019; Troy et al., 2017).

It is important to note that benefit-finding may not be ubiquitously beneficial. First, advocating for finding the silver lining in an unprecedented global crisis can be invalidating or may encourage a reluctance to be realistic about stressors (Tomich & Helgeson, 2004), which could lead to less proactive problem solving. Benefit-finding is just one potential contributor to mental health during a global stressor, as those who consider the positive and negative components of stressful experiences often have the most optimal outcomes (Cheng et al., 2006).

Limitations

There are several limitations to this study. First, we cannot universally refer to the university sample as young adults given their age range. Approximately 90% of the university sample was between the ages of 18 and 35; however, 10% of the sample was between the ages of 36 and 57. When models were re-run excluding these older participants, the results remained the same. However, we caution against interpreting our findings as applicable to all young adults. The added financial stress of being enrolled in undergraduate or graduate programs, or the privileges of being in an institution of higher education, could have affected university students differently than the high school sample or similarly aged adults not enrolled at a university. The wider age range (inclusive of graduate students) is also helpful for generalizability, given that conclusions are not drawn from an undergraduate-only sample and are inclusive of students beyond the traditional undergraduate ages of 18–24 years. Both samples, and especially the university sample, were majority non-Hispanic/Latinx White, which limits the generalizability of results.

The data collected were all self-reported, so there were no clinical measures of depression, objective measures of psychological or financial hardship, or cognitive-behavioral measures of benefit-finding. Well-validated instruments for measuring benefit-finding typically anchor on the stressor of chronic illness (e.g., Benefit Finding Scale for Children with Cancer; Phipps et al., 2007). At the time of data collection, instruments had not yet been validated for assessing benefit-finding anchoring on the pandemic as the stressor. While one-item Likert scale questions are sometimes necessary to measure emergent psychological constructs (Allen et al., 2022), our one-item measure assessing benefit-finding is not well-validated. However, in our sample, higher benefit-finding correlated with lower depressive symptoms and lower psychological stress, which is consistent with other benefit-finding research using reliable and valid scales (e.g., Rosenberg et al., 2019). Given that benefit-finding is a teachable skill that potentially buffers against depressive symptoms in the context of the COVID-19 pandemic, it may be helpful for future research to develop a better validated benefit-finding scale that anchors on the stress of a global health crisis (e.g., pandemic).

Similarly, psychological and financial stress scales associated with the pandemic were not well developed. Although our scales with multiple items indicated strong reliability and were adapted from measures that were widely used (e.g., CASPE), scale validity may limit generalizability. Additionally, these data were collected in May 2020, which was shortly after the onset of the pandemic during lockdown and remote learning periods in many US cities. While researchers have stated that learning what "worked" early in the pandemic to protect against adverse mental health outcomes is crucial (PeConga et al., 2020), there is no guarantee that benefit-finding would be associated with positive mental health in later phases of the pandemic. However, research regarding psychosocial stress and depressive symptoms in the early stages of the pandemic is crucial for informing early responses to future pandemics, especially given that medical treatments (e.g., vaccines) are slow to develop and pandemic response efforts are largely behavioral at first (Eaton & Kalichman, 2020), which may be informed by understanding associations between important stressors and depressive symptoms. Finally, other key aspects of psychosocial stress, such as social stress and concerns for viral contraction, were not assessed. As such, our findings may not be relevant for these types of stressors.

Conclusions

Both high school and university students who reported higher benefit-finding during the pandemic tended to also report better mental health. For university students (but not for high school students), higher benefit-finding was potentially protective against higher depressive symptoms in the context of higher psychological stress. Benefit-finding did not moderate the association between financial stress and depressive symptoms in either sample, suggesting that other interventions, such as financial assistance or evidence-based therapy, may have been needed to reduce depressive symptoms in the context of high financial stress.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s42844-024-00147-y.

Author Contribution SS: conceptualization, data analysis, and writing—original draft. CR: funding acquisition, conceptualization, methodology, supervision, and writing—review and editing. GW: conceptualization, writing—review and editing. KF: conceptualization, supervision, and writing—review and editing. JD: funding acquisition, conceptualization, methodology, supervision, and writing—review and editing.

Funding This specific research project was funded by a University of Denver Faculty Research Fund grant, and the larger high school project receives funding from the Mental Research Institute. SRS is supported by a Graduate Research Fellowship from the National Science Foundation. JRD is supported by the National Heart, Lung, and Blood Institute (K01HL143159). This paper is solely the work of the authors and does not represent the official views of the Mental Research Institute, NSF, and NIH.

Data Availability The data that support the findings of this study are available from the corresponding author, JRD, upon reasonable request.

Declarations

Ethics Approval and Consent to Participate Protocols were approved by the Institutional Review Board at the University of Denver. Participation was optional. Participants in the university sample provided informed consent. In the high school sample, students completed an assent form, and they could opt-in to a gift card raffle for survey completion. Parents were informed about the survey and could opt to not have their child's data used for research. All methods were carried out in accordance with relevant guidelines and regulations. No experimental protocols were used in this study.

Competing Interests The authors declare no competing interests.

References

Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy white women. *Health Psychology, 19*(6), 586–592. https://doi.org/10.1037/0278-6133.19.6.586

Allen, M. S., Iliescu, D., & Greiff, S. (2022). Single item measures in psychological science: A call to action. *In European Journal of Psychological Assessment, 38*(1), 1–5. https://doi.org/10.1027/1015-5759/a000699

American Psychological Association. (2021). *Stress in America 2021: One year later, a new wave of pandemic health concerns*. American Psychological Association. Retrieved from: https://www.apa.org/news/press/releases/stress/2021/sia-pandemic-report.pdf

August, R. A., & Dapkewicz, A. S. (2021). Benefit finding in the COVID-19 pandemic: College students' positive coping strategies. *Journal of Positive School Psychology, 5*(2), 73–86. https://doi.org/10.47602/JPSP.V5I2.245

Bauer, J. J., King, L. A., & Steger, M. F. (2019). Meaning making, self-determination theory, and the question of wisdom in personality. *Journal of Personality, 87*(1), 82–101. https://doi.org/10.1111/JOPY.12381

Borman, G. D., Rozek, C. S., Pyne, J., & Hanselman, P. (2019). Reappraising academic and social adversity improves middle school students' academic achievement, behavior, and well-being. *Proceedings of the National Academy of Sciences of the United States of America, 116*(33), 16286–16291. https://doi.org/10.1073/pnas.1820317116

Chen, E., & Miller, G. E. (2012). "Shift-and-Persist" strategies: Why low socioeconomic status isn't always bad for health. *Perspectives on Psychological Science, 7*(2), 135–158. https://doi.org/10.1177/1745691612436694

Cheng, C., Wong, W. M., & Tsang, K. W. (2006). Perception of benefits and costs during SARS outbreak: An 18-month prospective study. *Journal of Consulting and Clinical Psychology, 74*(5), 870–879. https://doi.org/10.1037/0022-006X.74.5.870

Doom, J. R., Deer, L. B. K., Dieujuste, N., Han, D., Rivera, K. M., & Scott, S. R. (2023). Youth psychosocial resilience during the COVID-19 pandemic. *Current Opinion in Psychology, 53*, 101656. https://doi.org/10.1016/J.COPSYC.2023.101656

Eaton, L. A., & Kalichman, S. C. (2020). Social and behavioral health responses to COVID-19: Lessons learned from four decades of an HIV pandemic. *Journal of Behavioral Medicine, 43*(3), 341–345. https://doi.org/10.1007/S10865-020-00157-Y/METRICS

Ettman, C. K., Abdalla, S. M., Cohen, G. H., Sampson, L., Vivier, P. M., & Galea, S. (2021). Low assets and financial stressors associated with higher depression during COVID-19 in a nationally representative sample of US adults. *Journal of Epidemiology and Community Health, 75*(6), 501–508. https://doi.org/10.1136/jech-2020-215213

Galea, S., Merchant, R. M., & Lurie, N. (2020). The mental health consequences of COVID-19 and physical distancing. *JAMA Internal Medicine, 180*(6), 817. https://doi.org/10.1001/jamainternmed.2020.1562

Helgeson, V. S., Reynolds, K. A., & Tomich, P. L. (2006). A meta-analytic review of benefit finding and growth. *Journal of Consulting and Clinical Psychology, 74*(5), 797–816. https://doi.org/10.1037/0022-006X.74.5.797

Hittner, E. F., Rim, K. L., & Haase, C. M. (2019). Socioeconomic status as a moderator of the link between reappraisal and anxiety: Laboratory-based and longitudinal evidence. *Emotion, 19*(8), 1478–1489. https://doi.org/10.1037/emo0000539

Jamieson, J. P., Crum, A. J., Goyer, J. P., Marotta, M. E., & Akinola, M. (2018). Optimizing stress responses with reappraisal and mindset interventions: An integrated model. *Anxiety, Stress and Coping, 31*(3), 245–261. https://doi.org/10.1080/10615806.2018.1442615

Jordà, Ò., Singh, S. R., & Taylor, A. M. (2022). Longer-run economic consquences of pandemics. *Review of Economics and Statistics, 104*(1), 166–175. https://doi.org/10.1162/rest_a_01042

Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*(9), 606–613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Ladoucer, C. (2020). COVID-19 adolescent symptom & psychological experience questionnaire. *Unpublished Manuscript*. Retrieved from: https://www.nlm.nih.gov/dr2/CASPE_AdolSelfReport_Qualtrics.pdf

Lee, H., & Singh, G. K. (2021). Monthly trends in self-reported health status and depression by race/ethnicity and socioeconomic status during the COVID-19 Pandemic, United States, April 2020 – May 2021. *Annals of Epidemiology, 63*, 52–62. https://doi.org/10.1016/J.ANNEPIDEM.2021.07.014

Löwe, B., Kroenke, K., & Gräfe, K. (2005). Detecting and monitoring depression with a two-item questionnaire (PHQ-2). *Journal of Psychosomatic Research, 58*(2), 163–171. https://doi.org/10.1016/J.JPSYCHORES.2004.09.006

Magson, N. R., Freeman, J. Y. A., Rapee, R. M., Richardson, C. E., Oar, E. L., & Fardouly, J. (2021). Risk and protective factors for prospective changes in adolescent mental health during the COVID-19 pandemic. *Journal of Youth and Adolescence, 50*(1), 44–57. https://doi.org/10.1007/s10964-020-01332-9

Marchini, S., Zaurino, E., Bouziotis, J., Brondino, N., Delvenne, V., & Delhaye, M. (2021). Study of resilience and loneliness in youth (18–25 years old) during the COVID-19 pandemic lockdown measures. *Journal of Community Psychology, 49*(2), 468–480. https://doi.org/10.1002/jcop.22473

Masten, A. S. (2006). Developmental psychopathology: Pathways to the future. *International Journal of Behavioral Development, 30*(1), 47–54. https://doi.org/10.1177/0165025406059974

Moreno, C., Wykes, T., Galderisi, S., Nordentoft, M., Crossley, N., Jones, N., Cannon, M., Correll, C. U., Byrne, L., Carr, S., Chen, E. Y. H., Gorwood, P., Johnson, S., Kärkkäinen, H., Krystal, J. H., Lee, J., Lieberman, J., López-Jaramillo, C., Männikkö, M., … Arango, C. (2020). How mental health care should change as a consequence of the COVID-19 pandemic. *The Lancet Psychiatry*, *7*(9), 813–824. https://doi.org/10.1016/S2215-0366(20)30307-2

Nikolaidis, A., Paksarian, D., Alexander, L., Derosa, J., Dunn, J., Nielson, D. M., Droney, I., Kang, M., Douka, I., Bromet, E., Milham, M., Stringaris, A., & Merikangas, K. R. (2021). The Coronavirus Health and Impact Survey (CRISIS) reveals reproducible correlates of pandemic-related mood states across the Atlantic. *Scientific Reports, 11*(1), 8139. https://doi.org/10.1038/s41598-021-87270-3

PeConga, E. K., Gauthier, G. M., Holloway, A., Walker, R. S. W., Rosencrans, P. L., Zoellner, L. A., & Bedard-Gilligan, M. (2020). Resilience is spreading: Mental health within the COVID-19 pandemic. *Psychological Trauma: Theory, Research, Practice, and Policy, 12*(S1), S47–S48. https://doi.org/10.1037/tra0000874

Phipps, S., Long, A. M., & Ogden, J. (2007). Benefit finding scale for children: Preliminary findings from a childhood cancer population. *Journal of Pediatric Psychology, 32*(10), 1264–1271. https://doi.org/10.1093/jpepsy/jsl052

Rosenberg, A. R., & Yi-Frazier, J. P. (2016). Commentary: Resilience defined: An alternative perspective. *Journal of Pediatric Psychology, 41*(5), 506–509. https://doi.org/10.1093/jpepsy/jsw018

Rosenberg, A. R., Bradford, M. C., Barton, K. S., Etsekson, N., McCauley, E., Curtis, J. R., Wolfe, J., Baker, K. S., & Yi-Frazier, J. P. (2019). Hope and benefit finding: Results from the PRISM randomized controlled trial. *Pediatric Blood & Cancer, 66*(1), e27485. https://doi.org/10.1002/pbc.27485

Rozek, C. S., Ramirez, G., Fine, R. D., & Beilock, S. L. (2019). Reducing socioeconomic disparities in the STEM pipeline through student emotion regulation. *Proceedings of the National Academy of Sciences, 116*(5), 1553–1558. https://doi.org/10.1073/pnas.1808589116

Salari, N., Hosseinian-Far, A., Jalali, R., Vaisi-Raygani, A., Rasoulpoor, S., Mohammadi, M., Rasoulpoor, S., & Khaledi-Paveh, B. (2020). Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: A systematic review and meta-analysis. *Globalization and Health, 16*(1), 1–11. https://doi.org/10.1186/S12992-020-00589-W

Schleider, J. L., Mullarkey, M. C., Fox, K. R., Dobias, M. L., Shroff, A., Hart, E. A., & Roulston, C. A. (2021). A randomized trial of online single-session interventions for adolescent depression during COVID-19. *Nature Human Behaviour*. https://doi.org/10.1038/s41562-021-01235-0

Scott, S. R., Rivera, K. M., Rushing, E., Manczak, E. M., Rozek, C. S., & Doom, J. R. (2021). "I hate this": A qualitative analysis of adolescents' self-reported challenges during the COVID-19 pandemic. *Journal of Adolescent Health, 68*(2), 262–269. https://doi.org/10.1016/j.jadohealth.2020.11.010

Solomou, I., & Constantinidou, F. (2020). Prevalence and predictors of anxiety and depression symptoms during the COVID-19 pandemic and compliance with precautionary measures: Age and sex matter. *International Journal of Environmental Research and Public Health, 17*(14), 1–19. https://doi.org/10.3390/ijerph17144924

Soneson, E., Puntis, S., Chapman, N., Mansfield, K. L., Jones, P. B., & Fazel, M. (2022). Happier during lockdown: A descriptive analysis of self-reported wellbeing in 17,000 UK school students during Covid-19 lockdown. *European Child and Adolescent Psychiatry, 32*(6), 1131–1146. https://doi.org/10.1007/s00787-021-01934-z

Southwick, S. M., Bonanno, G. A., Masten, A. S., Panter-Brick, C., & Yehuda, R. (2014). Resilience definitions, theory, and challenges: Interdisciplinary perspectives. *European Journal of Psychotraumatology, 5*, 1–14. https://doi.org/10.3402/ejpt.v5.25338

Steinberg, L., & Morris, A. (2001). Adolescent development. *Annual Review of Psychology, 133*(18), 556–557. https://doi.org/10.1136/bmj.330.7494.789-a

Tang, S., Xiang, M., Cheung, T., & Xiang, Y. T. (2021). Mental health and its correlates among children and adolescents during COVID-19 school closure: The importance of parent-child discussion. *Journal of Affective Disorders, 279*, 353–360. https://doi.org/10.1016/j.jad.2020.10.016

Tomich, P. L., & Helgeson, V. S. (2004). Is finding something good in the bad always good? Benefit finding among women with breast cancer. *Health Psychology, 23*(1), 16–23. https://doi.org/10.1037/0278-6133.23.1.16

Troy, A. S., Shallcross, A. J., & Mauss, I. B. (2013). A person-by-situation approach to emotion regulation. *Psychological Science, 24*(12), 2505–2514. https://doi.org/10.1177/0956797613496434

Troy, A. S., Ford, B. Q., McRae, K., Zarolia, P., & Mauss, I. B. (2017). Change the things you can: Emotion regulation is more beneficial for people from lower than from higher socioeconomic status. *Emotion, 17*(1), 141–154. https://doi.org/10.1037/emo0000210

Wilson, N., & McDaid, S. (2021). The mental health effects of a Universal Basic Income: A synthesis of the evidence from previous pilots. *Social Science & Medicine, 287*, 114374. https://doi.org/10.1016/J.SOCSCIMED.2021.114374

Yeager, D. S., Bryan, C. J., Gross, J. J., Murray, J. S., Krettek Cobb, D., Santos, P. H. F., Gravelding, H., Johnson, M., & Jamieson, J. P. (2022). A synergistic mindsets intervention protects adolescents from stress. *Nature, 607*(7919), 512–520. https://doi.org/10.1038/s41586-022-04907-7

Yuan, Y. (2021). Mindfulness training on the resilience of adolescents under the COVID-19 epidemic: A latent growth curve analysis. *Personality and Individual Differences, 172*, 110560. https://doi.org/10.1016/j.paid.2020.110560