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Sociability Moderates the Negative Association Between COVID-Related Disruptions and Life Satisfaction

Amna Khan, MA
Derner School of Psychology, Adelphi University, Garden City, New York, United States

Katherine L. Fiori, PhD
Derner School of Psychology, Adelphi University, Garden City, New York, United States
https://orcid.org/0000-0003-3386-5898

Contact: *amnakhan@mail.adelphi.edu*

Abstract

Disruptions in individuals' lives during the COVID-19 pandemic have been associated with increased mental health problems and decreases in life satisfaction, although recent research indicates that these effects are not uniform across individuals. The purpose of the present study was to examine the role of sociability in moderating the association between COVID-related disruptions and life satisfaction in a sample of adults. Using data from an online survey given to $N = 166$ adults, COVID-19 disruptions related to conflicts with household members or roommates and disruptions in care during the pandemic were negatively associated with life satisfaction. Sociability was found to moderate the associations between COVID-related disruptions in social interactions and life satisfaction; specifically, high sociability was found to possibly intensify the negative association between disruptions and life satisfaction. The findings of this study indicate that sociability may have been a liability during the pandemic, serving to worsen the potential negative effects of social distancing. Although future research is needed to better understand the mechanisms to explain these effects, the findings from the present study can be used to inform future interventions to help individuals better navigate social disruptions.

Introduction

The COVID-19 pandemic has brought on a wave of unpredictability and uncertainty that exacerbates the risk of mental health problems, even in those who do not have pre-existing mental health conditions

(Cullen et al., 2020; Moreno et al., 2020). Increasing social disruptions as a result of restrictive measures to reduce transmission of the virus may also be contributing to this rise in mental health problems due to the pandemic (Balling et al., 2021; Gonzalez-Bernal et al., 2021; Satici et al., 2021; Williams et al., 2020; Zhang et al., 2020). However, these negative effects of disruptions in social contact do not appear to be uniform across all individuals, with some individuals more negatively impacted by COVID restrictions than others (e.g., highly extroverted individuals; Wijngaards et al., 2020). Past research has identified extroversion as a potential buffer against negative mental health outcomes (Kotov et al., 2010; Naragon-Gainey & Simms, 2017) and has shown that sociability (an aspect of extroversion) is associated with positive health outcomes (Emmons & Diener, 1986; Wilt et al., 2012). However, recent research conducted during the pandemic found that the restrictions due to the pandemic can exacerbate negative mental health outcomes depending on an individual's level of extroversion and sociability (Liu et al., 2021; Sommerlad et al., 2021; Wijngaards et al., 2020). Building on existing research, the present study's purpose was to examine the role of sociability in moderating the association between COVID-related disruptions and life satisfaction in a sample of adults.

Theoretical Framework

We used an integrated model of top-down and bottom-up approaches to life satisfaction as the theoretical framework for the present study. Whereas the top-down approach considers the level of overall life satisfaction as a function of personality and other stable traits (Diener et al., 1999; Erdogan et al., 2012), such as the primarily positive association found between extroversion and life satisfaction (Kim et al., 2018), the bottom-up approach focuses on the complex interactions among various situations, events, and contexts in predicting life satisfaction (Lachmann et al., 2018). Although these bottom-up and top-down models have sometimes been presented as competing theories, Brief et al., (1993) proposed integrating these approaches. Namely, according to his perspective, both objective life circumstances and personality dimensions likely indirectly affect life satisfaction through their effects on the interpretation of life circumstances. Given the powerful contextual effects of social restrictions due to COVID-19, the present study uses an integrated model of top-down and bottom-up approaches to examine the roles of both environmental factors and personality, as well as their interactions, in predicting life satisfaction.

Literature Review

COVID-19 Disruptions and Life Satisfaction

The COVID-19 pandemic has presented significant disruptions in daily life, resulting in financial strain, serious physical illness, and negative impacts on mental health (Balling et al., 2021). Research shows that well-being and quality of life have notably declined for people during the pandemic, primarily due to stay-at-home orders (Balling et al., 2021; Williams et al., 2020). In particular, restrictions on individuals' social activities as a result of protective measures and physical distancing have been implicated in higher levels of loneliness (Heidinger & Richter, 2020; Krendl & Perry, 2021; Lee, C. M. et al., 2020) and worsening mental health problems (Brooks et al., 2020). This is most clearly seen in the population of college students as research has found that the pandemic caused significant changes in students' lives, with many experiencing psychosocial strain on several levels, including but not limited to academic and mental health distress (Tasso et al., 2021).

In addition to the increases in mental health problems due to COVID-19, some research has indicated that restrictive measures put in place to prevent the spread of COVID-19 can also more generally reduce life satisfaction (Gonzalez-Bernal et al., 2021). Life satisfaction, which refers to a general cognitive evaluation of one's living conditions, is an important indicator of subjective well-being and quality of life (Huebner, 2004). Gonzalez-Bernal et al. (2021) found that life satisfaction decreased for individuals who were

subjected to home confinement during the period of quarantine in Spain. However, individual differences such as gender and employment status contributed to differing levels of life satisfaction among participants, indicating the possibility of protective factors (Gonzalez-Bernal et al., 2021). In a study looking at the well-being of adults during the period of confinement in China, Zhang et al. (2020) found that the severity of the pandemic was negatively associated with life satisfaction. Similar to the findings by Gonzalez-Bernal et al., this association was dependent on the specific prefecture that participants resided within as well as individual differences, such as pre-existing medical conditions and physical activity level (Zhang et al., 2020).

The declines in life satisfaction due to the pandemic have been linked to declines in social participation (Ammar et al., 2020). In their cross-sectional study of the behavioral and lifestyle consequences of COVID-19 restrictions, Ammar and colleagues noted that participants reported a 71% decrease in social activities after stay-at-home orders, indicating a higher risk of social exclusion. They also noted a 16% decrease in levels of life satisfaction during the pandemic. For the current study, we also investigated the impact of pandemic-related social disruptions, as past research indicated that life satisfaction has important implications for mental health outcomes (Gonzalez-Bernal et al., 2021; Tasso et al., 2021; Zhang et al., 2020). However, we addressed a gap in the research by exploring a potential moderator of this association. As shown in previous studies, several potential variables can reduce the impact of the stressors of the pandemic on life satisfaction (Ammar et al., 2020; Gonzalez-Bernal et al., 2021; Zhang et al., 2020). More specifically, building on existing research, we focused on the role of sociability in the association between social disruptions and life satisfaction.

Sociability

Personality traits have been implicated in individual susceptibility to the psychosocial strain of the pandemic. Past research has indicated that personality traits may serve as risk factors for the experience of depression, anxiety, and stress as well as potential protective factors against negative mental health outcomes (Balling et al., 2021; Kotov et al., 2010; Pocnet et al., 2017). Specifically, higher extroversion has been identified as a potential buffer against the internalization of problems (Kotov et al., 2010; Naragon-Gainey & Simms, 2017). Extroversion, a multidimensional higher-order trait, refers to an individual's tendency towards being sociable and outgoing, rather than being reserved (Eysenck, 1998; Watson & Clark, 1997). Sociability, a component of extroversion, indicates an individual's preferences for the quantity and quality of social affiliation (Eysenck & Eysenck, 1963; Plomin, 1976).

Sociability has been empirically associated with positive health outcomes, including higher positive affect and higher life satisfaction (Emmons & Diener, 1986; Wilt et al., 2012). Extroverts tend to have stronger social relationships in comparison to introverts, typically having higher-quality relationships and higher levels of perceived social support (Tan et al., 2017). Because introverts typically have fewer social interactions than extroverts (Tan et al., 2017), the social restrictions of the pandemic may have had less impact on the behaviors of introverted compared to extroverted individuals. Alternatively, reducing social contact can have a negative impact on an individual's feelings of interpersonal closeness and can increase feelings of loneliness, specifically for individuals high in extroversion and sociability (Baumeister & Leary, 1995). In a study examining the association between pandemic-related stress and extroversion, researchers found that individuals high in extroversion, particularly those with high levels of sociability, experienced a greater increase in stress levels in comparison to before the pandemic (Liu et al., 2021). Liu and colleagues (2021) posited that the inability to socialize may have been a source of stress for extroverts, as their hypothesis that perceived threat would mediate the relationship was not supported.

Due to the social restrictions of the pandemic, sociability can be considered a potential risk factor for the development of mental health problems. The lifestyle associated with social distancing may pose more difficulty for extroverts than introverts, as it can inhibit their need to seek out social contact (Wijngaards

et al., 2020; Woodcock et al., 2013). Results of a study conducted by Folk et al. (2020) indicated that relatively extroverted individuals experienced larger declines in social activity and connection during the pandemic. Although the negative effect of extroversion was reversed after controlling for levels of social connection prior to the pandemic, it indicates that extroverted individuals had more pre-existing social connections to lose during the pandemic, potentially making them more vulnerable to social restrictions (Folk et al., 2020). Similarly, Wijngaards et al. (2020) found that whereas pandemic protective measures such as social distancing were associated with lower levels of depressive symptoms for introverted individuals, they had positive (but nonsignificant) associations with depressive symptoms for extroverts, suggesting that the lifestyle associated with such measures may pose more difficulties for extroverted individuals (Wijngaards et al., 2020).

Present Study

Given that the positive role of sociability in terms of mental health outcomes is well-established in the field (Baumeister & Leary, 1995; Emmons & Diener, 1986; Wilt et al., 2012), examining whether sociability could actually be a risk factor for negative mental health outcomes in the context of social restrictions due to the COVID-19 pandemic is important. Using an integrated model of top-down and bottom-up approaches to life satisfaction, we undertook this study with the purpose of exploring whether sociability moderates the association between COVID-19-related social disruptions and life satisfaction. We hypothesized that: (1) COVID-19-related disruptions would be negatively associated with life satisfaction; and (2) sociability would moderate this association, such that higher levels of sociability would strengthen the negative association between COVID-19-related disruptions and life satisfaction.

Methods

Participants and Procedure

The sample consisted of 166 adults between the ages of 18 and 65 (*M* = 30.47, *SD* = 12.04). We recruited participants for this study between November 2020 and March 2021, during the height of the third wave of COVID-19 in the United States (Drake, 2020) by posting information about the study along with a link to the study's online Qualtrics survey on several social media websites (Facebook, Twitter, and Instagram) affiliated with the university from which data were collected. Participants were also recruited from an undergraduate psychology subject pool at the affiliated university. As an incentive for participation, participants were offered the opportunity to be entered into a raffle to win a $50 Amazon gift card upon completion. Seventy-two percent of the sample identified as female. The ethnic distribution of the sample was as follows: 68.1% White, 9.6% Black, 7.2% Latino, and 15.1% Other. Approximately 34% of individuals had at least some university education.

Measures
[Background Information]

Participants provided information about their age, gender (male, female, other), race and ethnicity (White; Black, Latino; Indian American/Alaska Native; Asian; Asian Indian; Native Hawaiian; Other Pacific Islander; Other), and education level (less than a high school diploma/certificate; high school or equivalent; some university, no degree; bachelor's degree or associate's degree; postgraduate degree; other). Age, gender (0 = male, 1 = female), race (0 = white, 1 = non-white), and education (1 = less than a high school diploma/certificate to 5 = postgraduate degree) were treated as covariates in all analyses.

Social Disruptions

The Disruption to Daily Activities and Social Interactions subscale, adapted from the COVID-19: Impact of the Pandemic and HRQOL in Cancer Patients and Survivors Scale (Penedo et al., 2020), was used to measure disruptions due to the COVID-19 pandemic. The original subscale was intended for use in cancer patients and survivors to measure the impact of the pandemic in their daily lives and social interactions. We used the following three items that were relevant to social interactions from the original six-item subscale: (1) "I have experienced disruptions in day-to-day social interactions with family and/or friends" (disruptions in social interactions), (2) "I have not been able to adequately take care of family members or friends I provide for" (disruptions in care), and (3) "I have experienced conflict with household members (e.g., spouse/partner, children, parents, others)" (disruptions due to conflict). All items were scored on a 5-point Likert-scale format from 1 (*strongly disagree*) to 5 (*strongly agree*) and were examined independently. Because the reliability of these three items was not very high (alpha = 0.67), and because conceptually the items address different aspects of social engagement that may be more or less relevant for highly sociable individuals (e.g., disruptions in day-to-day social interactions vs. care), we examined each item separately in our analyses rather than combining them into a single scale.

Sociability

Sociability was assessed using the sociability subscale from the extroversion domain of the Big Five Inventory (BFI; John & Srivastava, 1999). Sample items include the following: "I love to chat," "I make friends easily," and "I enjoy being part of a group." Participants indicated how true each of the 10 items that assessed sociability was for them on a 7-point Likert scale from 1 (*very untrue*) to 7 (*very true*). We averaged the ratings across all 10 items to create a mean score with a range between 1 and 7, with higher scores indicating greater sociability. The BFI shows high convergent validity with other self-report scales, and its domain scales have shown high reliabilities, clear factor structures, and strong convergence with longer Big Five measures (Benet-Martínez & John, 1998; Gosling et al., 2003; Soto et al., 2008). Cronbach's alpha for the total scale was .88.

Life Satisfaction

To measure life satisfaction, participants completed the Satisfaction With Life Scale (SWLS; Diener et al., 1985). The 5-item scale was intended to assess global life satisfaction (e.g., "I am satisfied with life"). Items on this scale were scored on a 7-point Likert scale from 1 (*very untrue*) to 7 (*very true*). A sum score ranging from 5 to 35 was calculated, with higher scores indicating greater satisfaction. The scale shows good convergent validity with other scales and assessments of subjective well-being (Lucas et al., 1996). Cronbach's alpha for the total scale was .87.

Analysis

To test our hypotheses, we ran three separate hierarchical linear regression models predicting life satisfaction from (1) disruptions in day-to-day social interactions; (2) disruptions in care; and (3) disruptions due to conflict, along with sociability and the interactions between the disruption variables and sociability. More specifically, in the first step of each regression, we included the covariates (age, gender, race, and education). In the second step, we added the disruption variable and sociability. Finally, in the third step of each regression, we added the interaction between the disruption variable and sociability.

Results

Descriptive Statistics

Table 1 provides the correlations and descriptive information for all variables used in the present analyses. As summarized in Table 1, point-biserial correlations indicated that disruptions in social interactions were

significantly positively associated with being female (r_{pb} = .21, p = .008), but significantly negatively associated with being non-White (r_{pb} = -.16, p = .043). A point-biserial correlation also indicated that disruptions in care were positively correlated with being non-white (r_{pb} = .17, p = .031). Pearson correlations indicated that disruptions in social interactions were correlated with greater levels of education (r = .18, p = .018), and disruptions due to conflicts were negatively correlated with age (r = -.21, p = .007). Sociability was positively correlated with life satisfaction (r = .34, p = .000). It should also be noted that the outcome variable of life satisfaction was normally distributed, with very little skew (-.49, *SE* = 0.19) or kurtosis (-.20, *SE* = 0.38).

Hierarchical Linear Regressions

Table 2 shows the regression predicting life satisfaction from COVID-19-related disruptions in day-to-day social interactions, sociability, and the interaction between disruptions and sociability. As seen in Step 1 of the regression, with only covariates included (R^2 = .024), being female was negatively associated with life satisfaction at the level of a trend (β = -.15, p = .071). As shown in Step 2, adding disruptions in day-to-day social interactions and sociability to the model significantly increased the amount of variance accounted for (R^2 = .138; ΔR^2 = .117, p < .001); sociability was significantly positively associated with life satisfaction (β = .34, p < .001). Contrary to our prediction, disruptions in day-to-day social interactions were not significantly associated with life satisfaction (β = -.02, p = .769). However, the interaction between disruptions in day-to-day social interactions and sociability added in Step 3 was significant (β = -.23, p = .015), and explained a significant amount of additional variance in life satisfaction (R^2 = .170; ΔR^2 = .032, p = .015). As Figure 1 illustrates, disruptions in day-to-day social interactions were *negatively* associated with life satisfaction for individuals high in sociability (+ 1 *SD*; standardized simple slope = -.196), but not associated with life satisfaction for individuals low in sociability (- 1 *SD*; standardized simple slope = .008) (Aiken et al., 1991).

Table 1. *Descriptive Statistics and Correlations for Study Variables* (N = 166)

Variable	*M/%*	*SD*	1	2	3	4	5	6	7	8	9
1. Age	30.46	12.04	—								
2. Female	72%	n/a	.015	—							
3. Level of education	3.64	.998	.417**	.249**	—						
4. Non-White	31.9%	n/a	-.077	-.125	-.097	—					
5. Disruptions in social interactions	3.98	.994	.033	.206**	.183*	-.157*	—				
6. Disruptions in care	2.96	1.10	.072	-.122	.030	.167*	.209**	—			
7. Disruptions due to conflict	3.27	1.22	-.207**	.038	.125	-.046	.393**	.292**	—		
8. Sociability	4.74	1.21	.025	-.007	.030	.000	.057	.051	-.043	—	
9. Life satisfaction	22.61	6.84	.014	-.144	-.026	-.004	-.025	-.116	-.185*	.342**	—

*$p < 0.05$. **$p < 0.01$. Variables 5, 6, and 7 range from 1 = *strongly disagree* to 5 = *strongly agree*. Variables 8 and 9 range from 1 = *very untrue* to 7 = *very true*

Table 2. *Summary of a Hierarchical Multiple Linear Regression Predicting Life Satisfaction From Disruptions in Day-to-Day Social Interactions, Sociability, and Their Interaction*

| Predictor	B	*SE* B	β	*p*
Step 1				
Age	.008	.049	.014	0.874
Female	-2.25	1.24	-.148	0.071
Level of education	.016	.611	.002	0.979
Non-white	-.312	1.15	-.021	0.787
Step 2				
Age	-.002	.046	-.003	0.970
Female	-2.20	1.18	-.146	0.063
Level of education	.157	.583	.023	0.788
Non-white	-.346	1.10	-.024	0.753
Disruptions	-.156	.528	-.023	0.769
Sociability	1.94	.417	.343	0.001
Step 3				
Age	-.006	.046	-.010	0.901
Female	-2.51	1.17	-.165	0.034
Level of wducation	.335	.578	.049	0.563
Non-White	-.449	1.08	-.031	0.679
Disruptions	.836	.657	.121	0.205
Sociability	1.92	.410	.341	0.001
Disruptions x Sociability	-.966	.392	-.232	0.015

Figure 1.
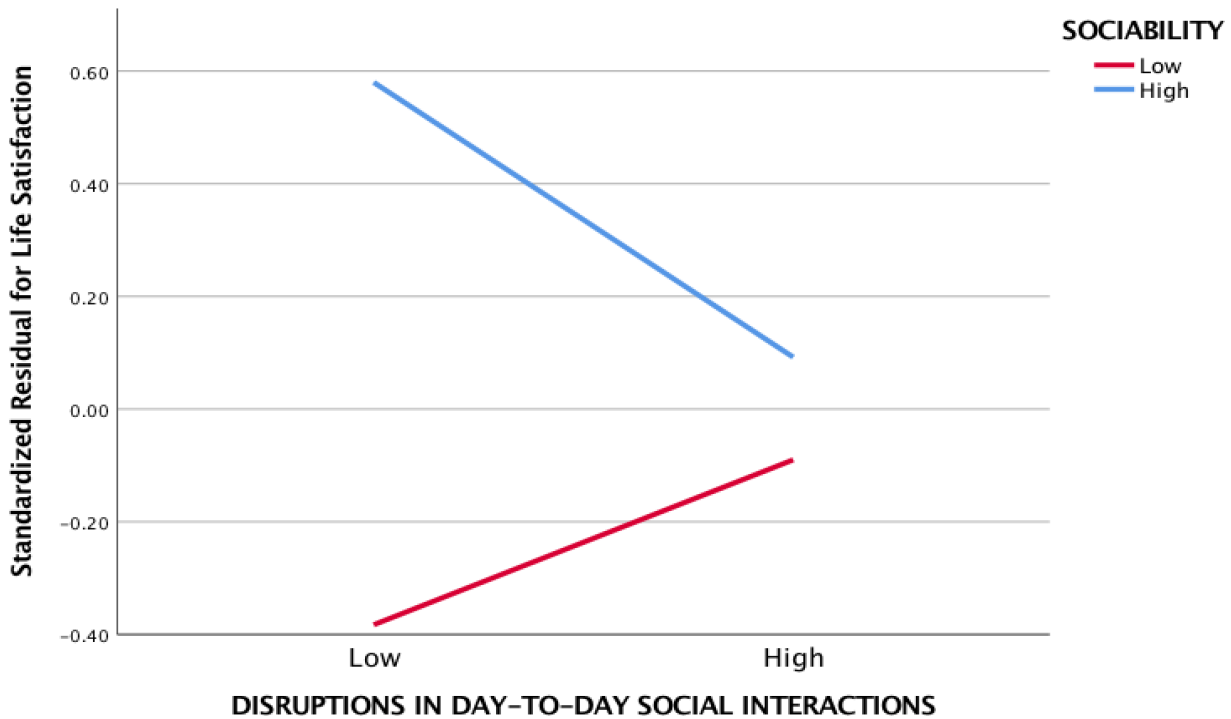
Table 3 shows the regression predicting life satisfaction from COVID-19-related disruptions in care, sociability, and the interaction between disruptions and sociability. Step 2 of the regression shows that COVID-19-related disruptions in care were significantly negatively associated with life satisfaction (β = -.16, p = .038), as predicted, and added a significant amount of additional variance to the model (R^2 = .161; ΔR^2 = .122, p <.001). The interaction between disruptions in care and sociability added in Step 3 was not significant (β = -.05, p = .599), and did not explain a significant amount of additional variance in life satisfaction (R^2 = .163; ΔR^2 = .001, p = .599), indicating that sociability did not moderate this association.

Table 4 shows the regression predicting life satisfaction from COVID-19-related disruptions due to conflict, sociability, and the interaction between disruption and sociability. Step 2 of the regression shows that COVID-19-related disruptions due to conflict were significantly negatively associated with life satisfaction (β = -.19, p = .015), as predicted, and explained a significant amount of additional variance (R^2 = .170; ΔR^2 = .113, p <.001). The interaction between disruptions due to conflict and sociability added in Step 3 was not significant (β = -.14, p = .152), and did not explain a significant amount of additional variance in life satisfaction (R^2 = .180; ΔR^2 = .011, p = .152), again indicating that sociability did not moderate this association.

Table 3. *Summary of a Hierarchical Multiple Linear Regression Predicting Life Satisfaction From Disruptions in Care, Sociability, and Their Interaction*

Predictor	*B*	*SE B*	β	*p*
Step 1				
Age	.008	.049	.014	0.874
Female	-2.25	1.24	-.148	0.071
Level of education	.016	.611	.002	0.979
Non-White	-.312	1.15	-.021	0.787
Step 2				
Age	-.004	.046	-.008	0.924
Female	-2.55	1.16	-.167	0.030
Level of education	.190	.570	.028	0.739
Non-White	.068	1.10	.005	0.950
Disruptions	-.966	.462	-.156	0.038
Sociability	1.97	.411	.349	0.001
Step 3				
Age	.000	.047	.000	0.997
Female	-2.56	1.16	-.168	0.029
Level of education	.199	.572	.029	0.728
Non-white	.020	1.10	.001	0.985
Disruptions	-.761	.604	-.123	0.210
Sociability	1.98	.412	.351	0.001
Disruptions x Sociability	-.185	.351	-.051	0.599

Table 4. *Summary of a Hierarchical Multiple Linear Regression Predicting Life Satisfaction From Disruptions due to Conflict, Sociability, and Their Interaction*

Predictor	B	SE B	β	p
Step 1				
Age	.008	.049	.014	0.874
Female	-2.25	1.24	-.148	0.071
Level of education	.016	.611	.002	0.979
Non-White	-.312	1.15	-.021	0.787
Step 2				
Age	-.035	.047	-.062	0.463
Female	-2.35	1.15	-.154	0.042
Level of education	.466	.583	.068	0.425
Non-White	-.427	1.10	-.029	0.691
Disruptions	-1.05	.426	-.187	0.015
Sociability	1.89	.408	.337	0.001
Step 3				
Age	-.043	.048	-.076	0.365
Female	-2.33	1.15	-.153	0.044
Level of education	.458	.581	.067	0.431
Non-White	-.522	1.07	-.036	0.626
Disruptions	-.540	.552	-.097	0.330
Sociability	1.84	.409	.327	0.001
Disruptions x Sociability	-.469	.326	-.142	0.152

Discussion

The social restrictions of the COVID-19 pandemic have created growing concern for associated negative mental health outcomes. Much of the research on the pandemic has sought to examine the impact on individuals' well-being and has shown both a rise in mental health problems and declines in life satisfaction (Balling et al., 2021; Gonzalez-Bernal et al., 2021; Satici et al., 2021; Williams et al., 2020; Zhang et al., 2020). Paradoxically, although sociability has been empirically associated with positive health outcomes, including higher positive affect and higher life satisfaction (Emmons & Diener, 1986; Wilt et al., 2012), it has also been associated with an increase in stress levels in response to the disruptions of the pandemic (Liu et al., 2021).

The integrated model of top-down and bottom-up approaches to life satisfaction adopted for the present study would predict that personality traits can be impacted by situational factors in determining an individual's level of life satisfaction. Therefore, the aim of the present study was to assess the association between COVID-related social disruptions and life satisfaction and to investigate the role of sociability as a potential moderator of this association. Our findings, outlined and interpreted below, extend support for an integrated model of life satisfaction and contribute to the growing body of research on the mental health effects of the pandemic and highlight the potential vulnerability of highly sociable individuals during periods of social disruption.

COVID-19-Related Social Disruptions and Life Satisfaction: The Role of Sociability

Our first hypothesis was partially supported, as disruptions due to conflicts with household members/roommates and disruptions in providing care were significantly negatively associated with life satisfaction. Our findings are consistent with those of Gonzalez-Bernal et al. (2021) and Zhang et al. (2020), showing lower life satisfaction in response to an increase in social disruptions. More specifically, Gonzalez-Bernal and colleagues found that fewer days of home confinement during the pandemic were associated with greater life satisfaction. As our findings indicate, home confinement may also increase susceptibility to conflicts with other household members as well as interfere with the level of care one can provide and may negatively influence life satisfaction. Disruptions in day-to-day social interactions were the only type of disruption not significantly associated with life satisfaction, but the presence of sociability as a moderator of the association likely explains this null finding.

That is, consistent with our second hypothesis, sociability significantly moderated the association between disruptions in day-to-day social interactions and life satisfaction. More specifically, disruptions in day-to-day social interactions were *negatively* associated with life satisfaction for individuals high in sociability but not associated with life satisfaction for individuals low in sociability. These findings suggest that sociability may heighten the negative mental health effects of the pandemic. Similarly, Liu et al. (2021) found that individuals with higher levels of sociability indicated higher levels of distress, as these individuals may have been unable to seek out social stimulation during the restricted social period of the pandemic. It could be that highly sociable individuals are less able to offset social disruptions, as past research has found that individuals high in extroversion experienced greater distress when their social connectedness was compromised (Lee, R. M. et al., 2008). It is important to note that both introverts and extroverts require some level of social connectedness, as it is essential to well-being (Small et al., 2011). However, the level at which introverted individuals need social engagement may be lower than that of extroverted individuals. Thus, the social restrictions of the pandemic may limit the ability of extroverted individuals to satisfy their social needs, causing them to experience the disruptions of the pandemic more acutely.

It is notable that associations of disruptions in providing care and disruptions due to conflict with household members/roommates with life satisfaction were not moderated by sociability. This finding may be due to the nature of these specific types of disruptions; that is, the needs of sociable individuals may not normally be met through caretaking or conflict, such that not being able to adequately care for family members or experiencing greater conflict with household members would not necessarily affect sociable individuals more so than less sociable individuals. In fact, it could be that for highly sociable individuals, increased conflict with household members counteracts some of the social interaction losses due to the pandemic by allowing for greater engagement with others (albeit negative). Alternatively, there may be other factors we did not assess that could act as stronger moderators of the association between these disruptions and life satisfaction, such as physical activity (Zhang et al., 2020), employment status (Gonzalez-Bernal et al., 2021), or the experience of confinement (Prime et al., 2020).

Strengths, Limitations, and Future Research

This study offers insight into how individuals with varying levels of sociability may be differentially impacted by social restrictions. Notably, data were collected from a diverse sample of adults ranging in age from 18 to 65, starting at the beginning of the third (and largest) wave of the pandemic in the United States (November 2020) and ending at the start of the fourth wave (March 2021). This timing allowed us to assess the potential consequences of COVID-related social disruptions during a heightened period of social distancing. In spite of several strengths, some limitations should be noted in order to inform future research on the topic.

First, this was a correlational, cross-sectional study. As such, we were unable to make any causal claims, and without a baseline assessment of disruptions before the pandemic, we were limited in drawing directional conclusions. Based on our findings, we concluded that greater social disruptions may contribute to lower life satisfaction during the pandemic. However, it could also be interpreted that individuals who are lower in life satisfaction tend to experience greater conflict in their relationships stemming from social disruptions. Future research conducted on this association should utilize longitudinal data in order to allow for potentially assessing directionality.

Furthermore, this study used self-report data, which may be biased; namely, participants may be reluctant to report their honest experiences or may be inclined to provide socially desirable responses. However, such self-reported experiences can provide powerful insight into the subjective feelings of participants. To assess these experiences, we used three individual items specifically related to *social* disruptions from a sub-scale originally intended to assess effects of the pandemic more generally (Penedo et al., 2020). Because these three items did not load together on a single scale, we examined each separately and were thus unable to calculate reliability for a total scale. Although this allowed us to look for potential differences between the various types of social disruptions, in the future scholars should develop validated scales and/or more objective behavioral assessments of individual social disruptions during the pandemic. For example, the Pandemic Emotional Impact Scale (PEIS) was developed to measure pandemic-related effects on emotional well-being in order to address the lack of a pandemic-specific research instrument (Ballou et al., 2020). The need for assessments that can comprehensively measure the psychological effects of the pandemic is imperative in informing interventions that can be used to address mental health outcomes.

Finally, though our sample was relatively diverse in terms of age, race, and ethnicity, 72% of our sample was female, limiting the generalizability of our findings. Although we did control for gender, past research shows notable gender differences in the association between social support and mental health (Fiori & Denckla, 2012). More specifically, women are more likely than men to have larger and denser social networks (Acitelli & Antonucci, 1994; Antonucci, 1994; Antonucci & Jackson, 1987; Pugliesi & Shook, 1998; Turner, 1994; Umberson et al., 1996) and are more likely to draw upon social support during times of stress (Belle, 1983; Krause & Keith, 1989; Walen & Lachman, 2000). Additionally, research on the pandemic has found that its effects are not equally distributed, with women bearing the brunt of the impact of pandemic disruptions (Mooi-Reci & Risman, 2021). As our sample was 72% female, it may be that our findings reflect these gender differences, such that women may be more affected by social disruptions in comparison to men.

Implications and Conclusions

There are several important implications as a result of our findings. First, our results contribute to the current literature on COVID-19, specifically drawing attention to the importance of personality traits when identifying individuals who are more at risk for negative mental health outcomes. Second, our findings can help to inform interventions that take personality traits into account. More specifically, protective measures for highly sociable individuals should be developed, as this group seems to be more vulnerable in the face of the social restrictions of the pandemic.

As COVID-19 has disrupted countless aspects of individuals' lives across the world, the resulting distress may continue to worsen. The current study collected responses during the third and fourth waves of the pandemic. However, at the time of writing this paper, we may be entering a new wave due to the heightened number of infections as a result of COVID-19 variants (Hauser & DePasquale, 2021). Thus, the social restrictions of the pandemic may become the new normal for social interaction and engagement. An important finding of the present study is that sociability may play a notable role in emphasizing the disruptions of the pandemic. This finding highlights the necessity for researchers and clinicians to create and implement interventions that address the role of sociability during periods of social disruptions and distancing. Future research should explore other facets of personality and stable individual characteristics in order to broaden our understanding of which individuals may be more vulnerable during periods of social disruption.

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