

Research Article

Changing Relationships Between Social Contact, Social Support, and Depressive Symptoms During the COVID-19 Pandemic

Shannon Ang, PhD*

School of Social Sciences, Nanyang Technological University, Singapore, Singapore

*Address correspondence to: Shannon Ang, PhD, School of Social Sciences, Nanyang Technological University, 48 Nanyang Ave, Singapore 639818, Singapore. E-mail: shannon.ang@ntu.edu.sg

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Abstract

Objectives: Given the longstanding consensus that social contact can promote older adult well-being, many have focused on how social contact changed during the pandemic. Less is known, however, about whether the link between social contact and health changed during the pandemic. This study sought to understand how associations between social contact, social support, and depressive symptoms changed during the coronavirus disease 2019 (COVID-19) pandemic.

Methods: Data from 2 waves of the Health and Retirement Study were used. Respondents reported both virtual and in-person social contact, as well as perceived positive and negative social support. Path models were used to estimate relationships between social contact, social support, and depressive symptoms. Bootstrapping was used to estimate the change in associations between 2016 and 2020.

Results: Estimates show that associations between positive social support and depressive symptoms, as well as between in-person social contact and depressive symptoms, attenuated during the pandemic. Virtual social contact played a relatively minor role in determining outcomes such as social support and depressive symptoms, compared to in-person social contact.

Discussion: Findings suggest that researchers and policymakers should not only focus on the changing quantity of social interactions when events such as the COVID-19 pandemic happen, but also the changing content and efficacy of the social interactions that remain.

Keywords: COVID-19, Informal social participation

Having social contact with family and friends is associated with many aspects of older adult well-being such as mortality and mental health (Ang, 2018; Holt-Lunstad et al., 2017). While the salubrious effects of social contact among older adults have been known for some time, the coronavirus disease 2019 (COVID-19) pandemic and its attendant social distancing measures accentuated its importance in an unprecedented way (Settersten et al., 2020). Many were concerned that lowered social contact meant worse well-being (Armitage & Nellums, 2020), and thus focused

on tracking changes in social contact among older adults (Freedman et al., 2021; Peng & Roth, 2021). However, the associations between social contact and well-being may have themselves changed, given how the nature of social interactions changed during the pandemic. Some older adults may have been forced to turn to online forms of social contact through means such as video calls and social media (Hajek & König, 2021). Others, especially marginalized groups more exposed to the risks of the virus (Lin & Liu, 2021), may have changed the way they interact with

friends and family during in-person meetings (e.g., showing less physical affection), given social distancing measures and fears around spreading the virus. The current study thus examines relationships between social contact, social support, and depressive symptoms in the United States. Findings show that some of these relationships weakened during the pandemic, suggesting that those interested in social contact and well-being among older adults should not simply focus on the quantity of those interactions, but also how they are associated with well-being.

Background

The COVID-19 pandemic affected the lives of older adults around the world, either through direct exposure to the virus or indirectly through measures taken to mitigate its spread (Miller, 2020). Because older adults experience higher mortality risks and need for intensive care once infected (Pijls et al., 2021), policymakers face a “paradox”—while social distancing measures may shield older adults from COVID-19 infection, they also expose them to the risks of social isolation, resulting in other physical and mental health issues (Armitage & Nellums, 2020; Moore & Hancock, 2020). For instance, Steptoe and Di Gessa (2021) find that for older adults (especially those with disability), worse mental health and quality of life during the pandemic was accompanied by lower levels of social contact. Furthermore, for those who eventually succumb to COVID-19, distancing measures and pressure on the health care system often result in “bad deaths,” characterized by great physical discomfort in an environment without the presence of family and friends (Carr et al., 2020).

Many relied on online communication tools as a major (albeit imperfect) way to address this conundrum. Social interaction through video chats or online social media sites can help older adults feel more socially connected, making these modes of communication feasible substitutes or complements for reduced in-person contact with friends and family during the pandemic (Hajek & König, 2021). For instance, older adults reported using tools like Zoom to participate in virtual book clubs and/or attend religious services during the pandemic (Daly et al., 2021). Online communication tools therefore facilitate social contact without the need for in-person meetings that present the risk of spreading infectious diseases like COVID-19.

Social contact with friends and/or family through avenues such as in-person visits, having meals together, and speaking on the phone (Levasseur et al., 2010)—also known as informal social participation—is crucial for older adult well-being. This has been known for some time, but the COVID-19 pandemic and its associated social distancing measures brought this to the forefront of everyone’s minds in an unprecedented way (Settersten et al., 2020). A large body of research has shown that more social contact is associated with better older adult well-being across various outcomes such as depressive symptoms and mortality (Ang, 2018; Holt-Lunstad et al., 2017). These associations

work through multiple pathways, such as by reducing perceived isolation, providing opportunities for social support, or improving self-efficacy among older adults (Thoits, 2011). For instance, a longitudinal study by Santini et al. (2020) found that having more social contact with friends and family is associated with fewer feelings of loneliness, in turn reducing depressive symptoms and anxiety. More social contact can also lead to better self-management of health conditions, ostensibly through social influence, the transfer of health information, and promotion of self-efficacy (Ang, 2019).

With increasing numbers of older adults going online in the past decade (Hogeboom et al., 2010), recent studies have also sought to establish if the same benefits from more traditional forms of social contact (e.g., meeting up and speaking on the phone) can also be gained virtually (e.g., contact via video calls and social media). While some have argued that online communication is fundamentally different and can hinder the quality of in-person social contact (e.g., Przybylski & Weinstein, 2013; Turkle, 2011), others show that in-person social contact has not declined and online tools such as social media can encourage in-person interactions and promote social connectedness (e.g., Fischer, 2011; Sinclair & Grieve, 2017; Wang & Wellman, 2010). A recent study among U.S. older adults found that social media communication led to improved levels of perceived social support and social contact, in turn reducing levels of loneliness (Zhang et al., 2021). Likewise, Ang and Chen (2019) find that social media use can buffer the effects of pain on depression, demonstrating that virtual social contact can supplement attempts to maintain in-person social contact in later life. Overall, it seems that while virtual social contact is conceptually distinct from more traditional forms of contact (Sinclair & Grieve, 2017), it shares many of its benefits.

Studies focused on the effects of the COVID-19 pandemic so far have focused on examining changes in the quantity of social contact (Freedman et al., 2021; Peng & Roth, 2021). Given past evidence that social contact matters for older adult well-being, many have been concerned that reduced social contact during the pandemic would lead to worse well-being. These risks may be especially pronounced for marginalized groups such as African Americans (Gauthier et al., 2021; Lin & Liu, 2021), and/or women who often encounter more social costs in their relationships (Song et al., 2021).

Such concerns, however, assume that associations between social contact and well-being remained consistent during the COVID-19 pandemic. Yet the COVID-19 pandemic likely changed the very nature and function of social contact—if virtual social interaction with family had been optional before, they likely became necessary for many to maintain social contact with friends and family (O’Connell et al., 2022). This would have been difficult for older adults who were unfamiliar with technology, compromising the quality of virtual social contact (Rodrigues et al., 2022). Going online can provide an avenue for older

adults to stay connected with the rest of society, but there may also be downsides, such as heightened exposure to misinformation, scams, and ageism (Jimenez-Sotomayor et al., 2020; Moore & Hancock, 2020). Such negative experiences can in fact erode perceived social support and increase feelings of loneliness (Shiovitz-Ezra et al., 2018). The COVID-19 pandemic likely also changed the nature of in-person social contact, given new norms around voluntary/involuntary social distancing, wearing of masks, and/or smaller group sizes. The nature of in-person interactions would likely also change, with fewer physical gestures such as shaking of hands and/or hugging (Settersten et al., 2020). In their study of how face coverings affect social interactions, Calbi et al. (2021, p. 8) conclude that “the fear of the virus can be linked to uneasiness and nervousness during social interactions.” The context in which in-person contact occurs also matters. Long et al. (2022) point out that large social gatherings to celebrate rites of passage and reinforce belonging (e.g., weddings and sporting events) could not occur. Social gatherings thus shifted to a much smaller scale, with fewer opportunities for “social-bonding” activities such as singing and dancing. These changes in the norms and context of social interactions are likely to change how social contact is related to older adult well-being. Yet as Hajek and König (2021) point out, studies on the benefits of social contact have mostly been conducted before the COVID-19 pandemic.

This study aims to examine the relationship between social contact, social support, and depressive symptoms—and compare how they differ before and during the COVID-19 pandemic. As highlighted earlier, social contact can shape both social support and older adult well-being (Gilmour et al., 2020; Thoits, 2011; Zhang et al., 2021). Social contact and social support have also been consistently linked to depressive symptoms (Ang & Chen, 2019; Choi et al., 2021; Santini et al., 2020). A simplified representation of the theoretical pathways, as illustrated by past research (Thoits, 2011), is shown in Figure 1. The research question for this paper is straightforward—have associations between social contact, perceived social support, and depressive symptoms changed (i.e., become stronger or weaker) during the COVID-19 pandemic, compared to before?

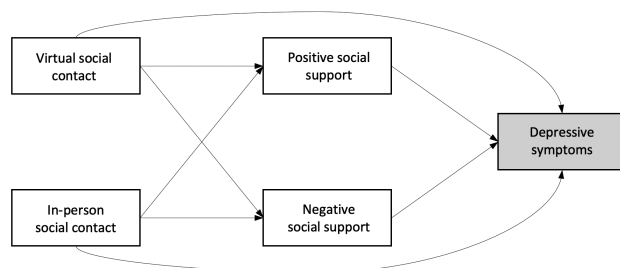


Figure 1. Conceptual model for the relationships between social contact, social support, and depressive symptoms.

Data and Methods

Data are from the Health and Retirement Study (HRS), a national biennial longitudinal survey of older adults (Sonnegga et al., 2014). Specifically, I use data from its 2016 and 2020 (Early V1.0) waves. Data collection periods for the 2020 and 2016 waves of the HRS were March 2020 to May 2021 and April 2016 to April 2018, respectively. Measures of social contact and social support are drawn from the self-administered Psychosocial and Lifestyle Questionnaire (PLQ; Smith et al., 2017), which was left with respondents upon completion of the in-person core interview from the year 2006 onwards. Only a random half of the full sample receives the PLQ at each wave of the HRS, such that each half completes the PLQ once every 4 years. Due to pandemic restrictions, interviews for the 2020 wave were conducted largely by phone/internet, and the PLQ was mailed to respondents instead. Four thousand six hundred forty six out of the total 15,324 respondents in the 2020 wave had data on social contact or on social support. Respondents aged 50 and younger in 2020 were excluded ($N = 59$), yielding a final analytical sample of 4,587 older adults aged 50 and older. To examine changes between 2016 and 2020, data from these same 4,587 respondents were also drawn from the 2016 wave of the HRS.

Social Contact

Social contact was assessed for both waves. For in-person social contact, the HRS asked how often, on average, respondents met up with others not living with them (whether by chance or arranged). For virtual social contact, the HRS included a single item on whether respondents “communicate(d) by Skype, Facebook, or other social media” with others not living with them. Responses were rated from 0 (less than once a year or never) to 5 (three or more times a week). Each of these items were asked separately for contact with children, other family members, and friends. Overall scales (range 0–5) of in-person/virtual social contact were created by averaging scores across all sources, with higher scores representing higher levels of social contact.

Perceived Social Support

Both positive and negative aspects of perceived social support were assessed in the HRS. The three questions eliciting positive social support include: “How much do they really understand the way you feel about things?” “How much can you rely on them if you have a serious problem?” and “How much can you open up to them if you need to talk about your worries?” The four questions eliciting negative social support were: “How often do they make too many demands on you?” “How much do they criticize you?” “How much do they let you down when you are counting on them?” and “How much do they get on your nerves?” Responses were rated from 1 (not at all) to 4 (a lot). Each

of these items were asked separately for support from children, other family members, and friends. Indexes (range 1–4) for positive and negative social support were constructed by taking the average score across all sources, with higher scores representing higher levels of social support.

Depressive Symptoms

Depressive symptoms were assessed via the 8-item Center for Epidemiologic Studies Depression scale, a widely used measure among older adults. Respondents were asked if they felt/experienced any of the following symptoms for “much of the week”: felt depressed, everything was an effort, sleep was restless, was happy (reverse-coded), felt lonely, felt sad, could not get going, and enjoyed life (reverse-coded). A depressive symptom score was constructed by summing up the symptoms that respondents reported feeling much of the week (range 0–8). Respondents who did not answer three or more of the eight items were treated as missing.

Covariates

Covariates included in the analyses are age (at baseline), gender (male/female), race (White/Black/other), education (college/less than college education), marital status (married/not married), number of living children, work status (working for pay/not working for pay), number of difficulties in activities of daily living (ADL; including bathing, dressing, eating, getting in/out of bed, and walking across a room), and number of chronic conditions (including high blood pressure, diabetes, cancer, lung disease, heart disease, stroke, psychiatric problems, and arthritis). These covariates, encompassing both sociodemographic and health factors, closely mirror those used in previous studies examining social contact and mental well-being (e.g., [Ang & Chen, 2019](#); [Peng & Roth, 2021](#); [Zhang et al., 2021](#)).

Analytical Strategy

To examine associations between social contact, social support, and depressive symptoms, I construct path models using the structural equation modeling framework. Missing data are accounted for using full information maximum likelihood (FIML). Models are stratified by the year of survey (2016 or 2020) but are estimated simultaneously so that all data are considered during the FIML procedure. Bias-corrected 95% confidence intervals (CIs) for all coefficients, including differences in coefficients, are calculated using 2,000 bootstrap samples. Sensitivity analyses included estimating several additional models. First, models stratified by gender and race were estimated. Second, a range of COVID-19-related variables such as the level of concern for COVID-19 or personal/household diagnoses of COVID-19 were included in the model for the 2020 sample. Third, models allowing for correlation in error terms for

endogenous variables across time periods were estimated. Fourth, models including measures of other forms of social contact (e.g., by phone/email) were included as covariates. None of these alternate models evinced meaningful differences in the findings.

Results

A description of the sample in 2016 and 2020 is shown in [Table 1](#). Most respondents were female, White, married, had lower than a college education, and were not currently working for pay. Compared to 2016, respondents were less likely to be working and had more ADL difficulties and/or chronic conditions in 2020. Respondents experienced fewer depressive symptoms, more positive social support, and less negative social support. They also reported lower in-person social contact and higher virtual social contact in 2020 compared to 2016.

[Table 2](#) shows the coefficients for associations between the key variables of interest. The direction of association for all paths across both 2016 and 2020 waves are similar. In-person social contact is associated with an increase in both positive and negative social support. Similarly, virtual social contact is associated with increases in both types of social support, but these associations are considerably weaker than those for in-person social contact.

Associations between social contact and social support, as well as those between social support and depressive symptoms, were all statistically significant across both waves of data. Comparing coefficients across the years 2016 and 2020 ([Table 2](#)), the direction of association for each path remained consistent. Furthermore, associations between social contact and social support did not differ much in terms of magnitude. However, I find that the association between positive social support and depressive symptoms became weaker in 2020 compared to 2016—there was a decrease of about 35.6% ($\beta = 0.229$, 95% CI: [0.087, 0.391]) across the coefficients.

Overall associations between virtual and in-person social contact on depressive symptoms were also estimated, holding other covariates constant. Because perceived social support is known to lie on the pathway between social contact and depressive symptoms ([Thoits, 2011](#)), estimates shown in [Table 2](#) are not conditional on social support. A negative association between virtual social contact and depressive symptoms was observed, but it was only statistically significant in 2016 ($\beta = -0.061$, 95% CI: [-0.091, -0.029]) and not in 2020 ($\beta = -0.027$, 95% CI: [-0.056, 0.003]). This decrease from 2020 to 2016 in the two coefficients, however, was not statistically significant ($\beta = 0.034$, 95% CI: [-0.003, 0.070]). In-person social contact also had an overall negative association with depressive symptoms, statistically significant across both 2016 ($\beta = -0.175$, 95% CI: [-0.230, -0.120]) and 2020 ($\beta = -0.105$, 95% CI: [-0.152, -0.060]). The difference between the two

Table 1. Sample Characteristics ($N = 4,587$).

Variables	Mean (SD) or %		2020	N	<i>p</i> Value for difference
	2016	N			
Depressive symptoms	1.25 (1.83)	4,391	1.18 (1.70)	4,454	<.01
Positive social support	3.06 (0.60)	3,588	3.10 (0.60)	4,569	<.001
Negative social support	2.31 (0.45)	3,590	2.29 (0.44)	4,570	<.001
In-person social contact	2.54 (1.07)	3,596	2.38 (1.13)	4,577	<.001
Virtual social contact	1.71 (1.75)	3,553	1.95 (1.73)	4,536	<.001
Gender					
Male	39.81	4,554	—	—	—
Female	60.19	4,554	—	—	—
Race					
White	71.32	4,537	—	—	—
Black	19.20	4,537	—	—	—
Other	9.48	4,537	—	—	—
Age	65.53 (10.05)	4,456	69.38 (10.15)	4,587	<.001
College-educated	28.72	4,555	—	—	—
Married	60.30	4,453	57.01	4,587	<.001
No. of living children	2.96 (1.97)	4,388	2.93 (1.96)	4,587	<.001
Working for pay	45.26	4,445	33.37	4,576	<.001
No. of ADL difficulties	0.23 (0.70)	4,455	0.46 (0.98)	2,855	<.001
No. of chronic conditions	2.10 (1.46)	4,456	2.33 (1.47)	4,586	<.001

Notes: *p* Values are calculated using paired *t*-tests, using only observations with responses across both waves for each variable. Two-sample *t*-tests with all available observations were also performed but did not produce meaningfully different results compared to paired *t*-tests. ADL refers to activities of daily living. *SD* = standard deviation.

Table 2. Coefficients From Models Estimating Cross-sectional Associations Between Social Contact and Social Support ($N = 4,587$)

Path	2016	2020	Difference ^a
Virtual social contact -> Positive social support	0.039* (0.029, 0.051)	0.044* (0.035, 0.055)	0.005 (-0.006, 0.018)
Virtual social contact -> Negative social support	0.015* (0.006, 0.023)	0.021* (0.013, 0.029)	0.006 (-0.004, 0.017)
In-person social contact -> Positive social support	0.172* (0.153, 0.191)	0.173* (0.157, 0.190)	0.001 (-0.021, 0.022)
In-person social contact -> Negative social support	0.094* (0.079, 0.107)	0.102* (0.090, 0.113)	0.008 (-0.008, 0.025)
Positive social support -> Depressive symptoms	-0.643* (-0.775, -0.510)	-0.414* (-0.519, -0.306)	0.229* (0.087, 0.391)
Negative social support -> Depressive symptoms	0.520* (0.347, 0.681)	0.414* (0.263, 0.557)	-0.106 (-0.299, 0.083)
Virtual social contact -> Depressive symptoms ^b	-0.061* (-0.091, -0.029)	-0.027 (-0.056, 0.003)	0.034 (-0.003, 0.070)
In-person social contact -> Depressive symptoms ^b	-0.175* (-0.230, -0.120)	-0.105* (-0.152, -0.060)	0.071* (0.005, 0.137)

Notes: Models include all covariates. *Indicates confidence interval does not include zero.

^aDifferences are calculated by subtracting 2020 coefficients from 2016 coefficients; 95% confidence intervals are derived from 2,000 bootstrap samples.

^bReported coefficients are unconditional on positive/negative social support.

coefficients was statistically significant ($\beta = 0.071$, 95% CI: [0.005, 0.137]), indicating that the negative association between in-person social contact and depressive symptoms waned (by about 40.5%) during the pandemic.

Discussion

This study aimed to understand how associations between social contact, social support, and depressive symptoms changed during the COVID-19 pandemic, compared to

before. While prior studies have been concerned about how social contact itself changed during the pandemic (Freedman et al., 2021; Peng & Roth, 2021), none (to my knowledge) have examined whether social contact functions in a different way compared to prepandemic times. With its longitudinal panel design, the HRS provides a good opportunity to analyze how these associations may have changed. I provide several key takeaways from the findings of my analysis.

First, overall differences in social contact across 2016 and 2020 waves showed that in-person social contact decreased, while virtual social contact increased. These differences likely reflect the effects of social distancing measures taken to stop the spread of the COVID-19 virus, but the size of these changes were relatively small (changing by approximately 0.15 standard deviations). Other studies have also found considerable stability across various measures of social connectedness. For instance, Peng and Roth (2021) use the HRS to study within-person change between the years 2016 to 2020 and found that digital isolation and loneliness did not increase. While they detected increases in physical isolation, this was limited to those with higher levels of concern about COVID-19. Furthermore, Freedman et al. (2021) find that 1 in 4 Medicare enrollees aged 65 and older reduced their visits with nonresident family and friends to less than weekly (especially impacting those in residential care), but phone and electronic contact remained largely stable. Taken with the results of past studies, the current findings suggest that despite legitimate concerns about older adults being socially isolated and the risks posed to their health as a result (e.g., Armitage & Nellums, 2020; Wu, 2020), many community-dwelling U.S. older adults remained in contact with friends and family during the COVID-19 pandemic.

Second, despite apparent stability in social contact, associations between positive social support and depressive symptoms became weaker during the pandemic. One possible explanation may be derived from the optimal matching theory of stress and social support, which posits that the effectiveness of social support depends on the match between the context and the help given (Cutrona, 1990). Given added anxieties surround the COVID-19 pandemic, the observed weakening of the link between positive social support and depressive symptoms may be because prevailing levels of social support became insufficient amidst the demands of new circumstances. The measure of perceived social support in the HRS is mainly focused around emotional support, suggesting other forms of support (e.g., instrumental and informational) may have become more salient. More research is required to clarify this mechanism.

Third, findings show that in-person and virtual social contact were positively associated with both positive and negative social support. As a number of studies have highlighted, social contact has a double-edged function—they can promote supportive relationships but may also lead to conflict, such as through relationship strain and demanding

social obligations (Ang, 2021; Song et al., 2021; Tomioka et al., 2017). Nonetheless, this study highlights that the associations observed between social contact (whether virtual or in-person) and positive social support tend to outweigh those between social contact and negative social support, resulting in an overall salubrious influence on depressive symptoms. Researchers should thus take care to properly contextualize both the benefits and costs of social contact, without exaggerating either (Song et al., 2021).

Fourth, associations between in-person social contact and depressive symptoms attenuated between 2016 and 2020 waves. Findings show that the association between in-person social contact and depressive symptoms weakened in the 2020 wave (by about 40.6%) compared to the 2016 wave. This suggests that the COVID-19 pandemic and its related policies buffered the protective potential of social contact for older adults well-being. Potential reasons for these are pointed out by Long et al. (2022), which include changes in interactional norms (e.g., physical gestures) or the restriction of certain activities (e.g., singing and dancing) during in-person meetings. Researchers should consider moving beyond frequency of contact to focus on the content and efficacy of social contact for older adult well-being, especially under extraordinary circumstances like the COVID-19 pandemic.

Finally, virtual social contact plays a relatively minor role in determining outcomes such as social support and depressive symptoms. In line with other studies (e.g., Ang & Chen, 2019; Zhang et al., 2021), results also suggest that virtual social contact can promote social support and reduce depressive symptoms. Yet while many have suggested that virtual social contact can be harnessed to compensate for reduced in-person social contact (e.g., O'Connell et al., 2022; Xie et al., 2020), findings here show that virtual social contact is not as strongly associated with social support and depressive symptoms. Virtual social contact may nonetheless promote older adult well-being indirectly by promoting in-person social contact (Wang & Wellman, 2010; Zhang et al., 2021). The current analysis does not account for or posit any temporal dynamics between virtual and in-person social contact due to limitations of the data and a general lack of prior evidence in this area.

Before concluding, I offer a few words of caution. First, the impact of the COVID-19 pandemic likely differs for different population subgroups (Gauthier et al., 2021; Lin & Liu, 2021). I thus estimated models stratified by race and/or gender, but these did not produce meaningful differences in the findings. While this does not constitute evidence of no difference, the findings broadly echo those seen in Peng and Roth (2021), who did not find that changes in social isolation or loneliness differed by race/gender. More research is needed to clarify how social contact and its association with various outcomes may have changed differently by race/gender during the pandemic. Second, the models test differences in cross-sectional associations at both waves among the same group of respondents. Cross-sectional

associations, however, may not reflect longitudinal associations, which are better suited to establish temporal order and causality (Maxwell et al., 2011). They also do not constitute evidence for causality. Readers should thus bear in mind the limitations of this approach, but also consider that the theoretical pathways tested in this analysis are well attested to in the literature (Song et al., 2021; Thoits, 2011) and have previously been established with longitudinal data (Santini et al., 2020).

In summary, this study adds to the voluminous literature providing support for the benefits of social contact for well-being, finding that both virtual and in-person social contact continue to promote social support and reduce depressive symptoms among older adults even during the pandemic. However, results also show that some aspects of these relationships were substantially attenuated during the pandemic. Findings suggest that researchers and policymakers should not only focus on the changing quantity of social interactions when events such as the COVID-19 pandemic happen, but also the changing content and efficacy of the social interactions that remain.

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Conflict of Interest

None declared.

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