

LONELINESS AND MENTAL HEALTH DURING THE FIRST COVID-19 LOCKDOWN IN ROMANIA

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Abstract

During the spring of 2020, Romania entered its first lockdown in response to the growing Covid-19 pandemic. The pandemic’s impact on mental health was thus superimposed on an already epidemic risk of loneliness in developed countries. The purpose of this article was thus to measure the impact of perceived social isolation during the national lockdown on emotional distress among the general population, while also considering potential risk or buffering factors like social media usage, and romantic relationships. Featuring a cross-sectional design, data was collected from 180 participants, aged 20 – 60 years using an online questionnaire which included the DASS-21 scale, the UCLA Loneliness Scale and the Intimate Relationships Scale. Our results indicated that loneliness significantly predicted depressive, anxious and stress symptoms even when correcting for gender and age. Distancing measures had no significant effect on couples, though differences in depression and loneliness were found between those with no partner, and those who described minimal impact of social distancing measures. Number of social media sites used predicted greater depressive and anxious symptoms, even when correcting for age and gender, whereas partner intimacy presented as a protective factor for loneliness. Given the many public, individual and dyadic factors involved in mental health during a pandemic, the implications for further studies are discussed.

Keywords: Loneliness; Covid-19; Mental health; Social Network Sites; Intimacy.

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Following its emergence in December 2019, the SARS-CoV-2 virus rapidly spread throughout 2020, leading to an unprecedented health crisis in the modern world. Between February and May 2020, Romania had 13,512 confirmed cases and 803 deaths (World Health Organization, 2020). In response, the Romanian government instituted multiple preventive measures, from travel bans, school closures, bans on public gatherings, and finally, a military curfew (Dascalu, 2020). Even before the COVID-19 pandemic, loneliness had been described as an epidemic occurring in the developed world (Williams & Braun, 2019; Jeste et al., 2020), particularly in former Soviet countries (Yang & Victor, 2011). Our study explored the pivotal role of loneliness during the first wave of the pandemic in Romania, its relationship with social distancing and intimacy, and its effect on social media usage and psychological distress.

Psychological distress has been largely defined as a state of emotional suffering characterized by symptoms of depression and anxiety (Mirowsky & Ross, 2002). Most studies during the pandemic found females at higher risk for psychological distress than men (Beutel et al., 2021; Fernández et al., 2020; Li & Wang, 2020; Prout et al., 2020; Filindassi et al., 2022; Ausín et al., 2021), whereas age was found a negative predictor (Li & Wang, 2020; Prout et al., 2020; Naser et al., 2020; Ausín et al., 2021; Robillard et al., 2020). Pandemic restrictions meant that individuals had access to their social support suddenly restricted, which in turn can lead to more subjective distress (Wang et al., 2021). Indeed, during the pandemic social risk factors for psychological distress included living alone (Fancourt et al., 2021; Li & Wang, 2020; Guo et al., 2020), low social support (Elmer et al., 2020), low quality of social interactions (Wathelet et al., 2020) and worse relationships with family and friends (Robillard et al., 2020; Guo et al., 2020).

Loneliness has been defined as the subjective, aversive state that arises from the perceived discrepancy between one's actual and desired social relationships (Peplau & Perlman, 1982). An individual can experience loneliness even when surrounded by friends or family, as loneliness relates to the perceived quality rather than the quantity of one's relationships or time spent with others (Hawkley et al., 2003; Masi et al., 2011). Loneliness has been identified as a risk factor for somatic illness (e.g., Foti et al., 2020; Abdellaoui et al., 2019; Qualter et al., 2021), neurodegenerative syndromes (Buchman et al., 2010) and psychiatric disorders (for a review, see Hawkley & Cacioppo 2010). A study undertaken in Spain during the first year of the pandemic found that loneliness was one of the main predictors of psychological distress (González-Sanguino et al., 2022). A comparative analysis of adults before and during the COVID-19 pandemic revealed that while some risk factors were the same as in pre-pandemic times (e.g., women and individuals living alone), other groups presented a higher-than-usual risk (e.g., younger people) while others, usually not at risk, presented at risk (i.e., students) (Bu et al., 2020).

Intimate relationships allow for dyadic coping (Bodenmann, 2005), allowing partners to support each other during difficult situations (Gottlieb & Wagner, 1991).

During the pandemic, couples living apart from their partner reported loneliness levels similar to singles living alone (Hopf et al., 2022). For couples living together, relationship quality seemed negatively associated with psychological distress during the pandemic (Estlein et al., 2022), while loneliness seemed to mediate the relationship between the two (Charvat et al., 2023). One way of communicating romantic closeness is sexual intimacy, which involves the physical and emotional expression of feelings between partners (Theiss & Estlein, 2014). Studies during the first year of the COVID-19 pandemic found decreases in sexual functioning (Fuchs et al., 2020; Omar et al., 2021) frequency (Baran & Aykac, 2020; Li et al., 2020) and satisfaction (Omar et al., 2021), while sexuality was also negatively associated with psychological distress during the pandemic (Estlein et al., 2022).

The emergence during the last two decades of social network sites (SNS) has provided individuals with access to new channels through which to stay connected and engage with their peers. SNS can provide meaningful social resources during social distancing (Latikka et al., 2022) by facilitating social connection and inclusion (Morahan-Martin & Schumacher, 2003; Thomas et al., 2020) yet can also serve as risk factors for psychological distress (Geirdal et al., 2021; Hunt et al., 2018). During the pandemic, loneliness predicted both excessive social media use and anxiety (Boursier et al., 2020). Individuals experiencing loneliness can use social media to compensate for absent in-person relationships, though they do not necessarily receive the support they seek (O'Day & Heimberg, 2021). High-frequent SNS usage seems to be associated with higher levels of loneliness in younger adults (Bonsaken, 2020). During the pandemic, in young adults, SNS usage was associated with depressive, anxiety, and stress symptoms (Al-Dwaikat et al., 2020; Lin et al., 2020).

In the current study, we examined the relationship between loneliness and psychological distress during the COVID-19 lockdown in Romania in the spring of 2020. We also considered the impact of distancing measures, SNS usage, and the protective role of sexual intimacy for couples. Our study thus set upon the following hypotheses:

h1) Increased loneliness will predict increased psychological distress symptoms.

h2) SNS usage will predict psychological distress symptoms.

h3) Partner absence and greater impact of social distancing measures will predict higher levels of loneliness and psychological distress

h4) SNS will mediate the relationship between loneliness and psychological distress

h5) For couples, loneliness will mediate the relationship between sexual intimacy and psychological distress

Methods

Study Design

The study's target was represented by the general population of Romania during the first Romanian COVID-19 lockdown. Following a cross-sectional design, data was collected using Google Forms between April and May 2020. Due to the lockdown measures in place, snowball sampling was used to disseminate the questionnaire through social media. Participants could access the link through personal computers and smart devices like phones or tablets. Participation in the study was preceded by an online consent form, during which participants were instructed on the goals and methods of the study, as well as data storage. The survey employed conditional branching based on a single response item regarding the impact of social distancing. Though no time limit for completion was set, participants had to finish the questionnaire in one sitting. No incentives were offered. There was no randomization of items or scale order. Individual responses were timestamped. The digital questionnaire has been tested prior to publishing by the main author.

The study has been reviewed and approved by the Institutional Review Board of the Cluj-Napoca Military Hospital 'C. Papilian' (reference number 1855/11.05.2020) prior to publication.

Measures

Social Network Sites (SNS) were measured using a single item Likert-scale, asking the participant how many SNSs they regularly use (e.g., Facebook, Instagram, Twitter), with answers ranging from 'one' to 'four and beyond' for a total of four possible answers.

The impact of social distancing on romantic relationships was measured using a single-item question. Participants had to answer whether the lockdown measures had affected the frequency with which they could meet their partner: (a) not at all, (b) partially affected, (c) strongly affected, or (d) if they had no romantic partner during the lockdown at all.

Psychological distress was conceptualized as depressive, anxiety, and stress symptoms and assessed via the DASS-21 scale (Lovibond & Lovibond, 1995). The DASS-21 contains 21 self-report items (7 items per subscale), including: "I couldn't seem to experience any positive feelings at all" (depression), "I experienced trembling (e.g., in the hands)" (anxiety), and "I tended to overreact to situations" (stress). Participants indicated the frequency with which they experienced each statement). Higher scores suggest a greater frequency of depressive, anxiety, and stress symptoms, whereas low scores suggest a lower frequency. Completion of the DASS-21 was mandatory for all participants. In our sample, the following internal reliability

coefficients and descriptive statistics were observed: depression ($\alpha = .91$, $M = 6.81$, $SD = 5.60$), anxiety ($\alpha = .88$, $M = 4.63$, $SD = 4.7$), and stress ($\alpha = .91$, $M = 8.05$, $SD = 5.29$)

Loneliness was measured using the revised version of the University of California, Los Angeles Loneliness Scale (ULCA-L) (Russel et al., 1980). Modeled on the conceptualization of loneliness as, first and foremost, a subjective emotion, this self-reported scale uses twenty items representing Likert-type scales. The scale has repeatedly demonstrated good construct validity and reliability and has been extensively used on younger populations. Higher scores reflect higher perceived social isolation. Completion of the UCLA-L was mandatory for all participants. Reliability analysis of the scale in our sample revealed excellent results ($\alpha = .93$, $M = 23.09$, $SD = 12.2$).

Sexual-emotional intimacy was measured using the Intimate Relationship Scale (IRS) (Hetherington & Soeken, 1990). This self-administered scale measured changes in intimacy and sexuality on three dimensions (personal, physical, and cognitive). The scale consists of 12 items adapted for the lockdown (i.e., “Since the lockdown, my desire for sexual intercourse is”) scored on a Likert scale (from 1 – ‘muchless’ to ‘5 – a lot more’). The final score thus represents changes in sexual intimacy, with lower scores representing reduced sexual intimacy and higher scores representing improved sexual intimacy following lockdown measures. Although initially developed for measuring post-partum changes in emotional and sexual intimacy between partners, the scale has also been used to measure changes in intimacy following miscarriage (Serrano & Lima, 2006), malignancies (Cleary, 2019), pregnancy (Cassis, 2020). In our sample, the scale presented excellent internal reliability ($\alpha = .92$, $M = 35.80$, $SD = 7.84$).

Participants

The sample was composed of 180 responders who completed the online survey. Age ranged from 20 to 60 years old ($M = 31.21$, $SD = 7.76$). Most participants were female (70%), with most reporting a bachelor-level education or higher (85%) and describing themselves as employed (64%) or freelancers (13%). Regarding the involvement in home-office activities during the lockdown, responses were mostly balanced, with little over half (56%) reporting involvement in such. Demographic characteristics of our sample are summarized in Table 1.

Table 1. Demographic characteristics of the study sample

N=180		
Gender	Male	53 (29.4%)
	Female	127 (70.6%)
Education	Less than High school	1 (.6%)
	High school	26 (14.4%)
	Bachelor	116 (64.4%)
	Post-grad	37 (20.6%)

		N=180
Professional status	Unemployed	3 (1.7)
	Student	26 (14.4)
	Employed	116 (64%)
	Self-employed	24 (13.3%)
	(Missing)	11 (6.1%)
Distancing impact	No partner	51 (28.3)
	No separation	79 (43.9%)
	Partial separation	21 (11.7%)
	Important separation	28 (15.6)
	Missing	1 (0.6%)
SNS usage	1	40 (22.2%)
	2	79 (43.9)
	3	32 (17.8%)
	≥4	28 (15.6%)

Statistical analysis

Statistical analyses were performed using R v. 4.3.0 (R Core Team, 2021). Path analysis was conducted in a Structural Equation Modeling (SEM) framework using the lavaan package for R (Rosseel, 2012). Multiple imputations for the path analysis were conducted using the mice package (Van Buuren & Groothuis-Oudshoorn, 2011).

Results

Loneliness and psychological distress.

Linear regressions were used to test if loneliness predicts depressive, anxious, and stress-typesymptoms, all measured with the DASS-21, while also controlling for age and gender. The overall model for depression was significant, $R^2 = .52$, $F(3, 175) = 63.13$, $p < .001$. Model coefficients (see Table 2) indicated that loneliness, $b = .31$, $SE = 0.02$, $\beta = .68$, $t(175) = 12.85$, $p < .001$, and age, $b = -.11$, $SE = 0.04$, $\beta = -.15$, $t(175) = -2.77$, $p = .006$. were both significant predictors. The overall model for anxiety was alsosignificant, $R^2 = .30$, $F(3, 175) = 24.79$, $p < .001$. Model coefficients (see Table XX2) indicated that loneliness was the only significant predictor, $b = .20$, $SE = 0.02$, $\beta = .51$, $t(175) = 7.99$, $p < .001$. Finally, the overall model for stress symptoms was again significant, $R^2 = .48$, $F(3, 175) = 53.75$, $p < .001$. Individual coefficients (see Table 2), indicated that both loneliness, $b = .28$, $SE = 0.02$, $\beta = .65$, $t(175) = 11.69$, $p < .001$, and age $b = -.10$, $SE = 0.04$, $\beta = -.14$, $t(175) = -2.53$, $p < .001$, were significant predictors of stress symptoms.

Table 2. Regression table for loneliness, age, and gender on depressive, anxious, and stress symptoms

Parameter	<i>b</i>	95% CI (<i>b</i>)	<i>T</i>	<i>df</i>	<i>p</i>	β
<i>Depression scores regressed on loneliness, gender, and age.</i>						
(Intercept)	2.82	[-0.46, 6.09]	1.70	175	.091	0.00
Loneliness	0.31	[0.26, 0.36]	12.85	175	< .001***	0.68
Gender	0.07	[-1.20, 1.34]	0.11	175	.914	0.01
Age	-0.11	[-0.18, -0.03]	-2.77	175	.006**	-0.15
<i>Anxiety scores regressed on loneliness, gender, and age.</i>						
(Intercept)	2.84	[-0.49, 6.18]	1.68	175	.094	0.00
Loneliness	0.20	[0.15, 0.25]	7.99	175	< .001***	0.51
Gender	-0.86	[-2.15, 0.43]	-1.31	175	.190	-0.08
Age	2.84	[-0.49, 6.18]	1.68	175	.094	0.00
<i>Stress scores regressed on loneliness, gender, and age.</i>						
(Intercept)	5.77	[2.55, 9.00]	3.53	175	.001***	0.00
Loneliness	0.28	[0.23, 0.33]	11.68	175	< .001***	0.68
Gender	-0.92	[-2.17, 0.33]	-1.46	175	.147	0.01
Age	-0.10	[-0.17, -0.02]	-2.53	175	.012*	-0.15

Note. *b* represents unstandardized regression weights. β indicates the standardized regression weights. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively.

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

Online social network usage and psychological distress

We conducted a similar analysis using social media use as the predictor of interest while also controlling for demographics. The overall model for depression was significant, $R^2 = .09$, $F(3, 175) = 5.99$, $p < .001$. Model coefficients (see Table XX3) indicated that social media use, $b = .95$, $SE = 0.42$, $\beta = .17$, $t(175) = 2.26$, $p = .025$, and age, $b = -.15$, $SE = 0.05$, $\beta = -.21$, $t(175) = -2.97$, $p = .003$, both predicted depression. For anxiety, the overall model was significant, $R^2 = .10$, $F(3, 175) = 6.18$, $p < .001$, but model coefficients (Table 3) indicated that social media use was the only significant predictor, $b = 1.14$, $SE = 0.35$, $\beta = .24$, $t(175) = 3.22$, $p = .002$. For stress symptoms, the model was also significant, $R^2 = .09$, $F(3, 175) = 5.71$, $p < .001$, but model coefficients (Table 3) indicated that age was the only significant predictor, $b = -.15$, $SE = 0.05$, $\beta = -.21$, $t(175) = -2.90$, $p = .004$.

Table 3. DASS-21 scores regressed on social media use, gender, and age

Parameter	<i>b</i>	95% CI (<i>b</i>)	<i>t</i>	<i>df</i>	<i>p</i>	β	
<i>Depression</i>							
(Intercept)	9.99	[5.21, 14.78]	4.13	175	< .001***	0.00	
Social media usage	0.95	[0.12, 1.79]	2.26	175	.025*	0.68	
Gender	-0.33	[-2.07, 1.42]	-0.37	175	.712	0.01	
Age	-0.16	[-0.26, -0.05]	-2.97	175	.003**	-0.15	
<i>Anxiety</i>							
Parameter	<i>b</i>	95% CI (<i>b</i>)	<i>t</i>	<i>df</i>	<i>p</i>	β	
(Intercept)	5.64	[1.62, 9.66]	2.77	175	.006**	0.00	
Social media usage	1.14	[0.44, 1.84]	3.22	175	.002**	0.24	
Gender	-1.06	[-2.52, 0.41]	-1.42	175	.156	-0.10	
Age	-0.07	[-0.16, 0.02]	-1.60	175	.112	-0.12	
<i>Stress Symptoms</i>							
Parameter	Fit	<i>b</i>	95% CI (<i>b</i>)	<i>T</i>	<i>df</i>	<i>p</i>	β
(Intercept)		12.74	[8.21, 17.28]	5.55	175	< .001***	0.00
Social media usage		0.68	[-0.11, 1.47]	1.71	175	.089	0.13
Gender		-1.29	[-2.94, 0.36]	-1.55	175	.124	-0.11
Age		-0.15	[-0.25, -0.05]	-2.90	175	.004**	-0.21

Note. *b* represents unstandardized regression weights. β indicates the standardized regression weights. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively.

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

Differences in psychological distress and loneliness between levels of social distancing

Multifactorial analysis of covariance (ANCOVA) was performed to compare the effect of distancing on loneliness and psychological distress. Gender was also introduced in the model as a factor, and age as a continuous covariate. Only main effects were introduced in the model, without interaction terms. Significant main effects were followed by pairwise comparisons of estimated marginal means from the model, using Bonferroni correction for multiple comparisons.

The model for depression indicated a significant effect for distancing, $F(3, 173) = 5.29$, $p = .001$, $\eta_p^2 = 0.08$, and for age, $F(1, 173) = 7.67$, $p = .006$, $\eta_p^2 = 0.04$. The fixed effect for age was negative, $b = -.15$, $SE = 0.05$, suggesting that age had a negative effect on depression. The only significant difference in the level of distancing emerged between those who did not have a partner ($M = 8.42$, $SE = .78$) and those who reported that distancing had not affected their relationship with their partner ($M = 5.34$, $SE = .63$), $t(173) = 3.14$, $p = .012$. The marginal means across levels of distancing impact are plotted in Figure 1. The model for anxiety indicated no significant effects.

The model for stress responses indicated a significant effect of age, $F(3, 173) = 8.41$, $p = .004$, $\eta_p^2 = 0.05$, while the fixed effect for age was once again negative, $b = -.15$, $SE = 0.05$. Finally, for loneliness, we found a significant effect of distancing impact, $F(3, 173) = 4.36$, $p = .005$, $\eta_p^2 = 0.07$. Adjusted pairwise comparisons indicated a significant difference between those reporting that they did not have a partner ($M = 26.44$, $SE = 2.75$) and those that were not affected by the social distancing measures ($M = 19.91$, $SE = 1.40$), $t(173) = 2.98$, $p = .020$ (see Figure 1).

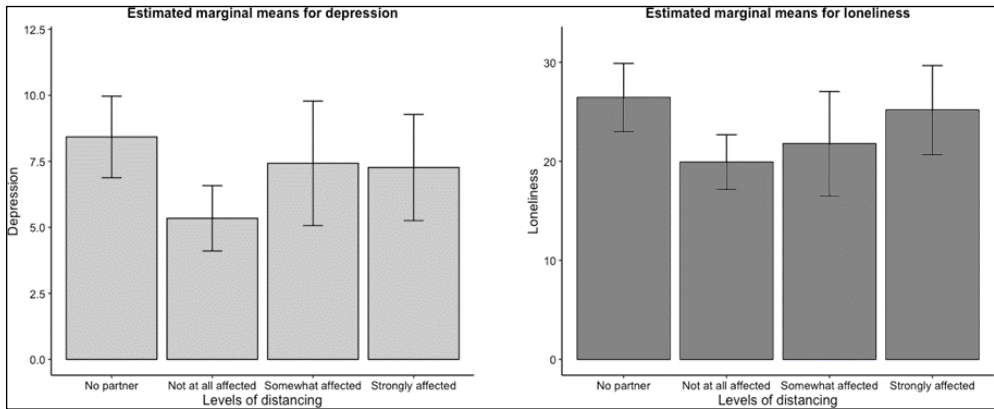


Figure 1. Depression (A) and loneliness (B) across levels of distancing.

Note. Error bars represent 95% confidence intervals of the means.

Path-analysis for indirect effects

To test our hypotheses about the indirect effects that loneliness might have on emotional symptoms via social media usage, we conducted a path analysis using an SEM framework, with maximum likelihood estimation of model parameters and bias-corrected bootstrap confidence interval of the indirect effects, computed on 5000 resamples. The model we tested is presented in Figure 2. Our model was just identified, so model fit is not of interest for this model. The results suggested a direct effect of loneliness on all other variables: depression, $b = .32$, $SE = 0.02$, $\beta = .69$, $p < .001$, anxiety, $b = .19$, $SE = 0.02$, $\beta = .49$, $p < .001$, stress, $b = .29$, $SE = 0.02$, $\beta = .66$, $p < .001$, and social media use, $b = .02$, $SE = 0.01$, $\beta = .21$, $p = .004$. Social media usage had a significant effect only on anxiety, $b = .78$, $SE = 0.31$, $\beta = .16$, $p = .011$. The indirect effect of loneliness on anxiety was significant, $b = .013$, 95%CI [.003, .034], $\beta = .034$ (all variables standardized), but the indirect effect on depression, $b = .007$, 95%CI [-.002, .033], $\beta = .015$, and stress, $b = .003$, 95%CI [-.005, .019], $\beta = .008$, were not.

A final set of hypotheses that we tested were related to the effects of intimacy on loneliness and indirectly on psychological distress through loneliness and social media use. To test these relationships, we conducted a second path analysis, like the previous one, in which changes in intimacy acted as a predictor of loneliness and expressed its effects on all other variables through loneliness. Although this model is a direct extension of the previous one, we conducted a separate analysis with a different estimation approach to account for the missing data on the intimacy variable. To overcome this issue, we imputed 50 datasets based on all other variables, including demographics, using the mice package. We then ran our SEM model on these datasets using maximum likelihood estimation and pooled the coefficients and fit indices. To compute the confidence interval for product coefficients describing indirect effects, we used a Monte Carlo estimation. The model (see Figure 3) had excellent fit, $\chi^2(4) = 4.28$, $p = .369$, CFI = .99, RMSEA = .02, 95%CI [.00, .116], SRMR = .046. The standardized direct paths are presented in Figure 3.

The direct paths from loneliness and social media on psychological distress are almost identical to those from the previous model. The path from intimacy to loneliness was significant, $b = -.55$, $SE = 0.11$, $\beta = -.35$, $p < .001$. The indirect effects of intimacy, through loneliness, on depression, $b = -.17$, 95%CI [-.25, -.10], $\beta = -.24$, anxiety, $b = -.11$, 95%CI [-.16, -.06], $\beta = -.17$, and stress, $b = -.16$, 95%CI [-.23, -.09], $\beta = -.23$, were all significant. Also, the effect through loneliness and social media use on anxiety, $b = -.007$, 95%CI [-.018, -.001], $\beta = -.012$, was also significant. The indirect effects of intimacy on depression and stress through the loneliness-social media link were not.

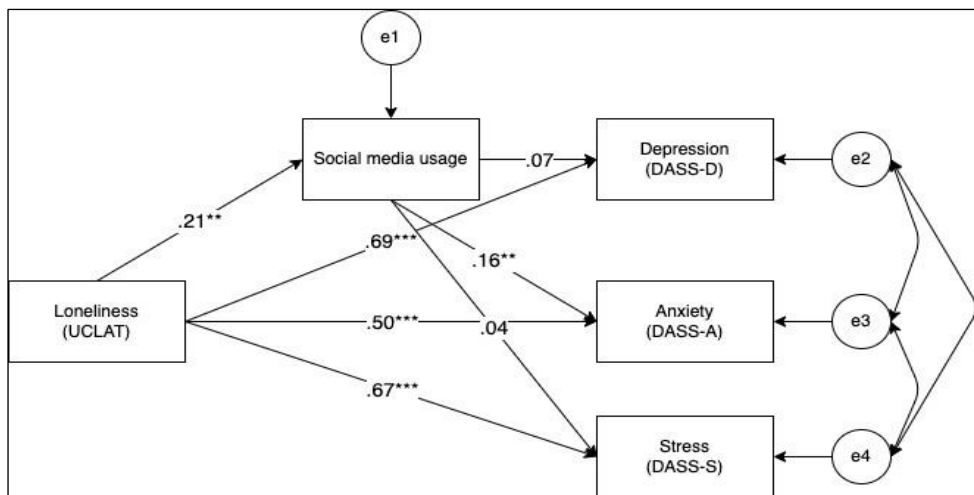


Figure 2. Path model for the indirect effect of loneliness on psychological distress.

Note. Values indicate standardized coefficients. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$.

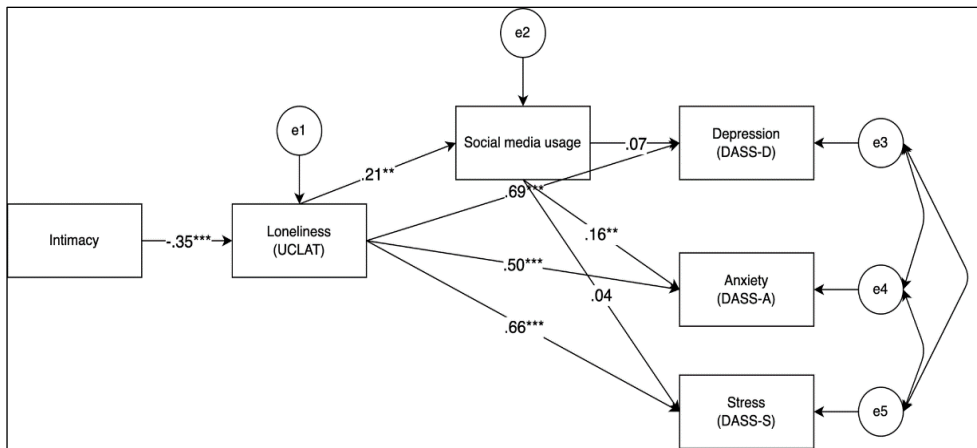


Figure 3. Path model for the indirect effect of intimacy on psychological distress.

Note. Values indicate standardized coefficients. * indicates $p < .05$. ** indicates $p < .01$, *** indicates $p < .001$.

Discussion

Our study's main goal was to evaluate the relationship between loneliness and psychological distress symptoms during the COVID-19 pandemic while also considering the impact of SNS usage and sexual intimacy. These predictive relationships were tested using linear regression models, analysis of covariance, and finally, within a structural equation modeling framework, measuring both intra-model relationships and inter-model ones.

First, our initial regression analysis indicated that loneliness has a predictive value on depression, anxiety, and stress symptoms even when correcting for age and gender, confirming our first hypothesis that loneliness would predict psychological distress. Our results align with prior research using the same scale that demonstrated significant correlations between loneliness and psychological distress (Tan et al., 2020; Panicker & Sachdev, 2014; Barroso et al., 2021). In the regression models for depression and stress, age presented a minimal yet statistically significant negative predictive value, in line with other studies that found younger adults at higher risk for mental health symptoms during the pandemic. distress (Li & Wang 2020; Prout et al., 2020; Naser et al., 2020; Ausín et al., 2021; Robillard et al., 2020). While most studies report female gender as a risk factor for psychological distress during the Covid-19 pandemic (Kolakowsky-Hayner et al., 2022; Bu et al., 2020; González-Sanguino et al., 2021), none of the regression models reported any effect of gender, on either loneliness or psychological distress symptoms. The relationship between

gender and loneliness is still being debated (Rokach, 2018), with some authors suggesting women are more likely to report symptoms of loneliness than men (Victor & Yang, 2012). Though similar results have been reported by some previous studies (Tan et al., 2020), one cannot exclude either the asymmetrical gender distribution in our sample or selection bias when interpreting the lack of a significant effect for gender in our sample.

Our second set of regression analyses set out to explore the predictive value of SNS usage on psychological distress, testing our second hypothesis. Regression analysis revealed that higher numbers of social networking sites used predicted depressive and anxious symptoms even when adjusting for age and gender, while age was found to be significant only in the depression and stress models. This is in line with prior research that linked psychological distress to social media addiction (Huang et al., 2023) and depressive symptoms to time spent and intensity of SNS usage (Hunt et al., 2018; Cunningham et al., 2021), including during the pandemic (Geirdal et al., 2021). Interpretation is limited by the quantitative approach used in our study, as prior research has demonstrated specific SNS usage patterns are more likely to predict depressive and anxious symptoms (O'Day & Heimberg, 2021), while other metrics like number of Facebook friends have been linked to decreased loneliness (Phu & Gow, 2009).

Lockdown measures affected everyone: couples living together experienced more time together, those living separately had fewer opportunities to interact, and individuals without a partner would spend more time alone at home. Our third hypothesis predicted that greater separation would yield more psychological distress and loneliness, while individuals lacking a partner would be the most affected. Statistical analysis revealed mixed results, with the only significant difference between couples who reported no impact of social distancing measures and individuals without a partner, and only for depressive symptoms and loneliness. Social distancing measures, though presenting more distress the more separated from their partner (see Figure 1), failed to produce statistically significant results. During the pandemic, concerns regarding the pandemic affected psychological well-being, though this effect was mediated through dyadic coping for couples (Donato et al., 2021). Though negative dyadic coping can exacerbate the effects of stress on mood (Bar-Kalifa et al., 2022), our results align with those that found individuals with no partner at greater risk for loneliness during the pandemic (Bu et al., 2020). Individuals experiencing both objective and subjective social isolation, who are denied social coping mechanisms and absent dyadic coping, can thus be at increased risk of depression (Cacioppo & Cacioppo, 2018).

Finally, our two SEM models revealed significant direct and indirect effects between all variables considered. Our first model (Figure 2) revealed important connections between loneliness and depression, stress, and anxiety symptoms. Though statistically significant in our regression models, in our first SEM model, SNS predicted only anxiety symptoms at a significant threshold. Regarding our

fourth hypothesis, the indirect path from loneliness through SNS usage to anxiety symptoms was also significant, possibly reflecting an inefficient support-seeking behavior aimed at reducing perceived social isolation through social media usage (Cauberghe et al., 2021). Our second SEM model (Figure 3) revealed an important protective role for sexual intimacy on perceived isolation, with indirect pathways through the latter on all three dimensions of psychological distress, confirming our fifth hypothesis.

The COVID-19 pandemic and its subsequent lockdown measures only further emphasized the role of SNS in disseminating information more efficiently than traditional media (Merchant & Lurie, 2020). During the pandemic, more people have become dependent on the use of social media, risking an increase in its deleterious effects on mental health (Garfin et al., 2020). Reports from prior public health incidents have noted that the intensity of the stress response to a first disaster augmented the relationship between SNS usage and worry during subsequent public health concerns (Thompson et al. 2017), with similar amplification effects of the disaster stressor found for Covid-10 (Zhao & Zhou, 2020). This is congruent with the ‘Differential Susceptibility to Media Effects Model’ (or DSMM) (Valkenburg & Peter, 2013), in which social media exposure and health outcomes operate via a feedback loop. Even before the pandemic, young adults were more likely to use SNS for disaster-related coverage (Jones et al., 2016). Thus, trait-like susceptibility to problematic SNS usage can be exacerbated by public disasters (Di Blasi et al., 2022), leading to more negative affective, anxiety, and stress (Chao et al., 2020; Garfin et al., 2020; Holman et al., 2014).

The external stressor presented by the pandemic might also have impacted dyadic relationships where one or both members presented enduring vulnerabilities (Pietromonaco & Overall, 2020). When both presence and the quality of the romantic relationship were taken into account, it was not the relationship per se, but its quality that presented as a protective factor for mental health during the pandemic (Pieh et al., 2020), and relationship quality has been repeatedly found as a predictor of mental health (Panzeri et al., 2020; Goodwin et al., 2020). The vulnerability-stress-adaptation model of marriage (Karney & Bradbury, 1995) posits that marital quality can impact the couple’s adaptive process to stressful events. This, in turn, lowers partners’ responsiveness and resilience (Pietromonaco & Overall, 2020). COVID-19 lockdowns and stay-at-home orders drastically restricted the breadth of socializing activities one could engage in, thus forcing those in relationships to rely more on their partner for their social and emotional needs and those single without any compensatory mechanism.

The COVID-19 pandemic has revealed how vulnerable the modern, interconnected world is to both an infectious and an informational pandemic. Even before the pandemic, former Soviet countries have been at risk for loneliness, which, when turning chronic, can lead to a host of mental health symptoms and disorders. Loneliness should not be seen as either a symptom of depression or an inevitability

of the modern world. Clinicians and therapists should consider both state and trait loneliness in clinical and sub-clinical individuals. State loneliness can turn chronic, leading to somatic and psychological issues in those healthy and worse recoveries in those with preexisting mental disorders. Couples' therapists should focus on loneliness as a marker of deficient intimacy and a mediator between it and perceived distress in a relationship. Therapists focusing on social media misuse should also consider how perceived social isolation can lead to increased SNS usage as a compensatory, yet ineffective, strategy.

Further research is warranted to explore not just loneliness as an individual experience but also an interpersonal one. Future studies should also consider attachment styles when researching loneliness and how those affect dyadic coping during stressful situations. Sociological research should also consider why loneliness is on an incline in parts of the world more connected than ever. Finally, policymakers should consider both the short-term effects of loneliness, such as during the pandemic and its long-term effect on mental and somatic health.

Limitations

This present study has several limitations that are worth noting. There are significant demographic characteristics of the sample that limit extrapolating the results to the general population, such as the primarily female distribution, as well as the predominantly college-level education in our sample. This can be attributed to the sampling procedure employed and could explain the lack of a significant impact on gender since the majority of studies found women at higher risk for psychological distress and loneliness during the pandemic. Similarly, low education was also a risk factor for loneliness (Bu et al., 2020) and depression (Ustun, 2021) during the COVID-19 pandemic, again limiting the generalization of our results to the population of Romania as a whole.

Another limitation is the purely quantitative measurement of SNS, which prevented the capture of qualitative variables. The impact of SNS usage can vary depending on site type (i.e., text-based or image-based) and usage type (i.e., active use versus passive use) (Masciantonio et al., 2021). Finally, our research was cross-sectional, which always limits the reliability of any casual inferences drawn from the data and is subject to sampling bias because of the snowball sampling method.

Despite these limitations, the strengths of the present study need to be equally disclosed. First, to the best of our knowledge, our study is among the first to measure loneliness in Romania during the COVID-19 pandemic. Second, it is also among the first to qualitatively measure how changes in intimacy after lockdown measures affected psychological distress. Second, our study also measured how social distancing affected loneliness and its impact on psychological distress through depressive symptoms. Finally, the structural equation model approach is among the best-fitted techniques to be used in the context of cross-sectional design with interwoven variables.

Conclusions

Our study found that perceived social isolation significantly affected all three dimensions of psychological distress, even when accounting for age and gender, as did the number of social networking sites used. Lockdown distancing measures seemed to impact psychological distress, as a significant difference in loneliness and depression was found between those who reported no impact of distancing measures and those without a partner during the lockdown. Social network site usage also mediated between loneliness and anxiety symptoms alone, possibly reflecting an inefficient coping mechanism, while romantic intimacy significantly reduced perceived social isolation during the COVID-19 lockdown.

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