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Impact of COVID-Stress on Loneliness Mediated by Paranormal Beliefs

Wajeeha Tahir
Department of Psychology
University Of Sahiwal
&
Adnan Adil
Department of Psychology
University of Sargodha
&
Imran Bukhari
National Institute of Psychology
Quaid-i-Azam University, Islamabad
&
Samina Rashid
Department of Psychology
Wah University, Wah Cantt

Abstract

The current study examined the impact of COVID-19 stress on loneliness mediated by paranormal beliefs in 101 men and 148 women (N = 249) from Sargodha and Lahore. They ranged in age from 18-60 (M = 23.69, SD = 7.03) years. COVID Stress Scale (CSS; Taylor et al., 2020, translated into Urdu in the current study), the Pakistani Version of the Revised Paranormal Belief Scale (Rao et al., 2020), and the Urdu version of UCLA Loneliness Scale (Batool, 2001) were used to measure focal constructs in this study during COVID-19. Findings revealed COVID stress had a significant direct positive effect on loneliness, and this effect was dampened by paranormal beliefs when it mediated between COVID stress and loneliness in our sample. We think paranormal beliefs or magical thinking can be beneficial in reducing feelings of loneliness as a coping mechanism however, we also think since these coping mechanisms are not helpful in the long run; problem-focused coping needs to be inculcated in people who suffer from COVID stress or other kinds of stresses.

Keywords: *COVID-19 stress, xenophobia; traumatic stress, compulsive checking, loneliness, paranormal beliefs, religious beliefs, psychokinesis, witchcraft, superstition*

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, Zhu et al., 2020) is a strain of coronavirus disease-2019 (COVID-19) more popularly known as COVID, a worldwide pandemic that causes fever, pneumonia, lung infection, and difficulty in breathing (WMHC, 2020). COVID started in China in 2019 and in no time, affected the whole country followed by Italy and the world thereafter. In Pakistan, the first case of COVID-19 was reported in Karachi on February 26, 2020, and within 45 days the number of cases rose to 4601 (GOP, 2020). The pandemic caused fear, stress, and anxiety about oneself and others and adversely affected everyone by restricting them to their dwellings and social distance (Brooks et al., 2020).

Correspondence concerning this article should be addressed to Imran Bukhari
National Institute of Psychology
Quaid-i-Azam University, Islamabad
E-Male: imranpsy@yahoo.com

Different studies reported anxiety and stress caused by COVID-19 (Qiu et al., 2020; Wang et al., 2020). Taylor (2019) for example reported, COVID cause anxiety or stress leading to psychopathological symptoms such as fear of becoming infected, fear of coming into contact with possibly contaminated objects or surfaces, fear of foreigners who might be carrying infection (i.e., disease-related xenophobia), fear of the socioeconomic consequences of the pandemic, compulsive checking and reassurance-seeking regarding possible pandemic-related threats, and traumatic stress symptoms about the pandemic (e.g., nightmares, intrusive thoughts), etc.

COVID stress adversely influences the patterns of sleep, eating habits, and physical and social interaction of everyone. People experienced a prolonged state of physical and social distancing enforced by countries to maintain strict quarantines. According to the Mental Health Foundation, (2020), almost one-third of the population reported a high level of loneliness due to this quarantine, and was a painful social experience (Perlman & Pepau, 1981). Loneliness and mental health are significantly related (Wang, et al., 2017). It influences the body to increase the stress hormone cortisol (Rozenbaum, 2020) and directly influences changes in the

brain that disrupt chemical balances inducing anger, anxiety, and stress (Rozenbaum, 2020). Hossain et al. (2020) found that people who underwent social isolation during COVID-19 were vulnerable to a variety of mental health issues including stress, anxiety, mood disorders, psychological distress, post-traumatic stress disorder, insomnia, fear, stigmatization, reduced self-esteem, and self-control.

As a coping mechanism, some individuals use paranormal beliefs to protect themselves in stressful situations. Paranormal beliefs or magical thinking violate physical laws and are not supported by scientific evidence (Williams & Irwin, 1991). Pakistani culture is religious and superstitious; many people believe in spirits, magic, witchcraft, and other paranormal phenomena, that might have arisen during COVID. This line of reasoning is supported by a local study, which found anxiety, psychological distress, and depression during COVID-19 were defended by religious and spiritual thinking in Pakistani students (Salman et al., 2020). To the best of our knowledge, no published study in Pakistan has examined the influence of COVID stress on paranormal beliefs however, in Spain, Gascón et al. (2020) did report COVID introduced pseudoscientific beliefs in Spanish subjects during quarantine and these beliefs increased to combat psychological distress. In light of the aforementioned literature, the present study was formulated to test the following hypothesis: COVID-19 stress should be positively associated with loneliness and paranormal beliefs, and paranormal beliefs would mediate (and dampen) the effect of COVID-19 stress on loneliness.

Methodology

Sample

A convenient sample of the non-clinical adult population (N = 249) from Sargodha (n = 149) and Lahore (n = 100) was taken containing 101 men and 148 women. G*Power (Faul et al., 2007) suggested a sample size of 211 was sufficient (β = .90, α = .05) to detect a low-medium effect size with two predictors. The age range of the participants was 18-60 (M = 23.69; SD = 7.03) years. The sample included 185 single and 4 married participants. 133 participants belonged to the nuclear and 116 participants belonged to the joint family system. About 30 percent of the participants were students, others were working adults; the minimum educational qualifications were matriculation (high school). Only non-clinical adults were included in this study, participants below 18 years or those who had any chronic mental or physical illness were excluded.

Instrument

COVID-Stress Scale (CSS). The CSS (Taylor et al., 2020) consists of 36 items with a 5-point Likert-type response format ranging from 0 (not at all) to 4 (extremely). It comprises five subscales that include *danger and contamination* (D&C, items 1-6 and 19-24), *socioeconomic consequences* (SC, items 7-12), *xenophobia* (X, items 13-18), *traumatic stress symptoms* (TSS, items 25-30), and *compulsive checking* (CC, items 31-36). There are no reverse-coded items in this scale. The internal consistency of the scale is moderate to high (α = .83 to .95; Taylor et al., 2020). The total score was computed by summing up the responses on individual items. The high score reflected a high degree of COVID-19 stress.

The scale was translated into Urdu (after permission from the authors) through standard backward translation method (Brislin, 1970) involving four distinct steps: a forward (Urdu) set of translations of the scale by three bilinguals; translations of each item reviewed by expert with a consensual finalizing of the item for the Urdu version of the scale; back (English) translations of the scale in Urdu were reviewed by a committee of experts to establish the equivalence of the original and the translated versions of the scale. The results of CFA confirmed the same factor structure of the Urdu version of CSS (Table 1, Figure 1).

Table 1

Stepwise Model Fit for CFA of Covid Stress Scale

			Fit Index							
Model	χ^2	*df*	GFI	CFI	IFI	RMSEA	SRMR	PCLOSE	$\Delta\chi^2$	Δdf
Model 1[a]	1254.34	559	.78	.89	.89	.07	.06	.00	-	-
Model 2[b]	968.81	551	.83	.94	.94	.05	.05	.07	285.53**	07

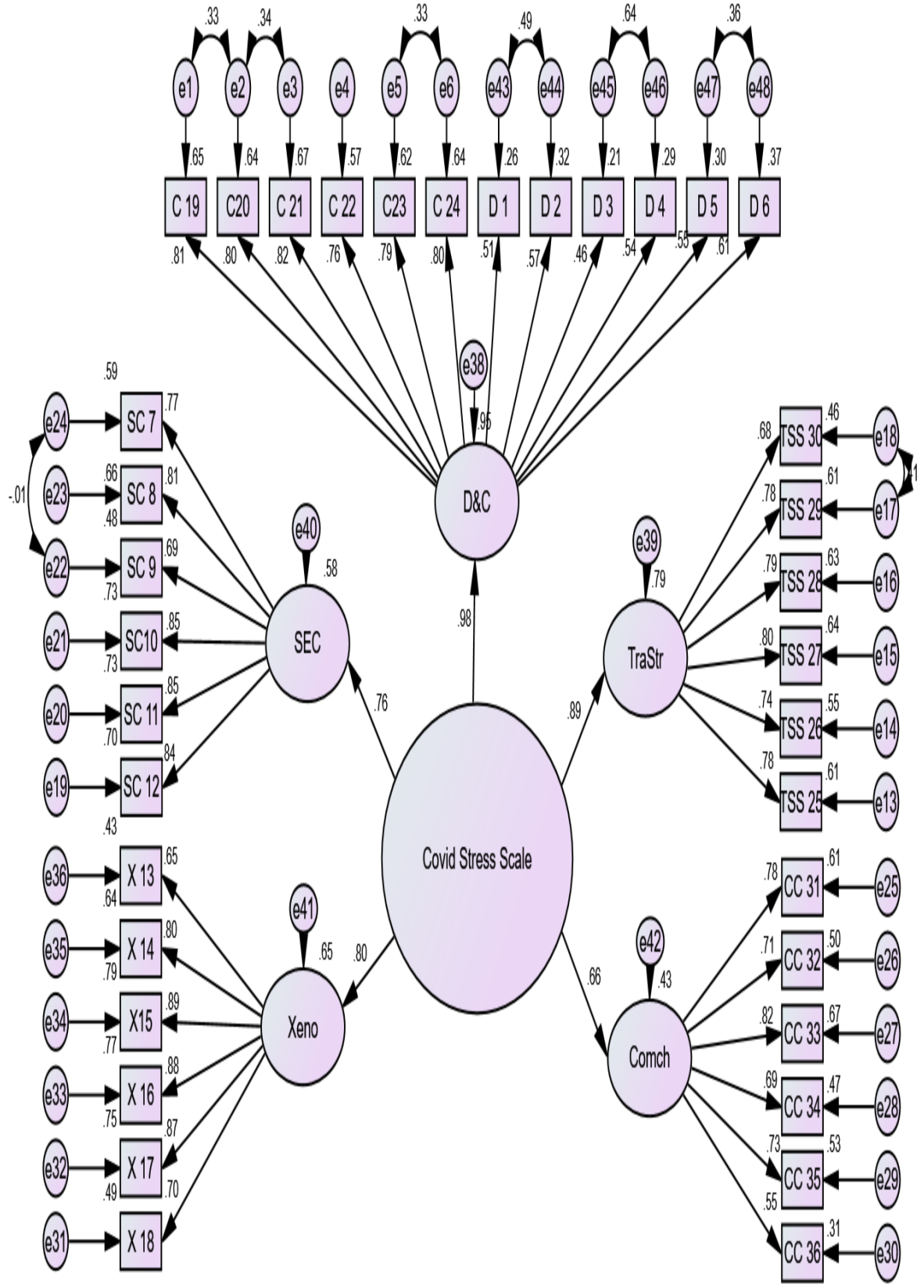
Note. GFI = (Adjusted) Goodness of Fit, CFI = Comparative Fit Index, IFI = Incremental Fit Index, RMSEA = Root Mean Square Error of Approximation, SRMR = (Standardized) Root Mean Square, PCLOSE = *p* of Close Fit

[a] Independent Errors

[b] Errors Covariances Allowed

** $p < .01$

Figure 1
Confirmatory Factor Analysis of COVID Stress Scale



Note. D & C = Danger and Contamination, TraStr = Traumatic Stress Symptoms, Comch = Compulsive checking, Xeno = Xenophobia, SEC = Socioeconomic consequences

Pakistani Version of Revised Paranormal Belief Scale (PRPBS). The PRPBS (Rao et al., 2020) is a 27-item measure designed to measure seven different categories of paranormal beliefs including *traditional religious beliefs* (TRB, items 1, 8, 15, 22 and 27), *psi* (PSI, items 2, 9, 16 and 23 [reversed scored]), *witchcraft* (W, items 3, 10, 17 and 24), *superstition* (St, items 4, 11 and 18), *spiritualism* (Sp, items 5, 12, 19 and 25), *extraordinary life forms* (ELF, items 6, 13 and 20) and *precognition* (PC, items 7, 14, 21 and 26). The response format of the scale was a 7-point Likert scale that ranged from 1 (Strongly Disagree) to 7 (Strongly Agree). The total score was computed by summing up the responses on individual items after reversing the negative item. A high score reflected a high degree of paranormal beliefs. The reliability of the full scale was high (r = .92, Rao et al., 2020).

UCLA Loneliness Scale-Urdu (LO-U). An Urdu-translated version of the UCLA Loneliness Scale (Batool, 2001) was used to measure perceived social isolation. The LO-U scale has 21 items, where each item is scored on a 4-point Likert-type scale ranging from 1 (never) to 4 (always). According to Batool (2001), the scale has an excellent level of internal consistency (Cronbach's alpha = .94). Items 1, 5, 6, 10, 11, 16, 17, 20 and 21 were reverse coded. The total score was computed by summing up the responses on individual items after reversing the negative items. The high score reflected a high degree of loneliness. In addition, demographic information such as age, gender, education, family system, and marital status were collected through a demographic form.

Procedure

The study was approved by the Ethical Research Committee of the Department of Psychology, University of Sargodha (UOS/Psy/786 dated 11/11/2021). The participants completed the above three instruments on Google Forms during COVID-19. About 300 emails and other online platforms were used in sending messages, and the link to Google Forms was included in the text of the message. After collecting data, a total of 249 forms (83%) were usable; 37 respondents did not respond or complete the instruments or provide demographic information; 14 forms were discarded due to outliers (≥ 2.58σ) or incorrect responses. Participants gave their informed consent and were told that their information would be kept anonymous and confidential. The data were statistically analyzed through IBM SPSS version 26 (IBM Corp., 2016).

Results

Descriptive statistics and internal consistency were calculated for all measures of the present study (see Table 2). Values of skewness, histograms, and PP plots indicated that the three focal constructs of the present study were normally distributed.

Table 2

Descriptive and Psychometric Properties of Scales and Subscales of Present Study

					Range			
Scale/Subscale	*k*	*M*	*SD*	*α*	Potential	Actual	*Sk*[a]	*Sk*[b]
CSS	36	35.97	27.21	.96	.00-144	00-134	1.16	1.35
D&C	12	7.09	5.29	.91	00-48	00-48	.91	.66
SC	6	5.27	5.87	.91	00-24	00-24	1.28	1.11
X	6	6.73	6.12	.91	00-24	00-24	.95	.31
TSS	6	4.25	5.16	.89	00-24	00-24	1.4	1.62
CC	6	7.22	5.63	.86	00-24	00-24	.61	-.12
PRPBS	27	99.68	25.20	.91	27-189	27-176	-.29	.06
TRB	5	22.42	5.82	.83	5-35	5-35	-.51	-.02
P	4	15.59	3.87	.81	3-21	3-21	-.94	1.11
W	4	11.08	4.91	.81	4-28	4-26	.51	-.23
St	3	10.71	4.15	.87	3-21	3-21	-.19	-.48
Sp	4	15.59	4.67	.84	4-28	4-28	-.30	-.48
ELF	3	10.45	4.58	.80	3-21	3-21	-.23	-1.06
PC	4	13.82	5.79	.80	4-28	4-28	-.31	-.86
LO-U	21	47.26	9.28	.81	21-84	24-74	.09	-.22

Note. CSS = COVID Stress Scale; D&C = Danger and Contamination; SC = Socioeconomic Consequences; X = Xenophobia; TSS = Traumatic Stress Symptoms; CC = Compulsive Checking; PRPBS = Pakistani Version of Revised Paranormal Belief Scale; TRB = Traditional Religious Beliefs; PSI = Psychokinesis; W = Witchcraft; St = Superstition; Sp = Spiritualism; ELF = Extraordinary life forms; PC = Precognition; LO-U = UCLA Loneliness Scale-Urdu

[a] Standard error of skewness = .15; [b] Standard error of kurtosis = .31

Table 3 presents inter-correlations between and among scales and subscales. This analysis indicated that the three scales viz., CSS, PRPBS, and LO-U, or the focal variables of COVID stress, paranormal beliefs, and loneliness were positively and significantly correlated with each other. Most of the subscales were also positively and significantly associated with each other (Table 3).

Table 3

Correlations among scales and Subscales

S/Ss	D&C	SC	X	TSS	CC	PRPBS	TRB	PSI	W	St	Sp	ELF	PC	LO
CSS	.93‡	.80‡	.81‡	.86‡	.69‡	.22‡	.16‡	.02	.23‡	.13*	.13*	.18‡	.23‡	.22‡
D&C	-	.68‡	.71‡	.75‡	.58‡	.16‡	.13‡	-.03	.17‡	.08	.09	.11	.20‡	.26‡
SC	-	-	.62‡	.64‡	.39‡	.21‡	.17‡	.04	.23‡	.16*	.13*	.19‡	.15*	.18‡
X	-	-	-	.62‡	.38‡	.18‡	.12	.06	.19‡	.11	.09	.13*	.19‡	.14*
TSS	-	-	-	-	.59‡	.23‡	.13*	-.00	.25‡	.16*	.19*	.19‡	.23‡	.22‡
CC	-	-	-	-	-	.16*	.14*	.02	.15*	.06	.06	.17‡	.18‡	.07
PRPBS	-	-	-	-	-	-	.82‡	.56‡	.77‡	.71‡	.71‡	.76‡	.81‡	.15*
TRB	-	-	-	-	-	-	-	.49‡	.48‡	.56‡	.47‡	.49‡	.65‡	.12
PSI	-	-	-	-	-	-	-	-	.25‡	.28‡	.49‡	.24‡	.29‡	.04
W	-	-	-	-	-	-	-	-	-	.47‡	.54‡	.63‡	.58‡	.16*
St	-	-	-	-	-	-	-	-	-	-	.41‡	.51‡	.51‡	.01
Sp	-	-	-	-	-	-	-	-	-	-	-	.42‡	.41‡	.17‡
ELF	-	-	-	-	-	-	-	-	-	-	-	-	.64‡	.11
PC	-	-	-	-	-	-	-	-	-	-	-	-	-	.16*
LO-U	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note. S/Ss = Subscale/Subscale, CSS = COVID Stress Scale; D&C = Danger and Contamination; SC = Socioeconomic Consequences; X = Xenophobia; TSS = Traumatic Stress Symptoms; CC = Compulsive Checking; PRPBS = Pakistani Version of Revised Paranormal Belief Scale; TRB = Traditional Religious Beliefs; PSI = Psychokinesis; W = Witchcraft; St = Superstition; Sp = Spiritualism; ELF = Extraordinary life forms; PC = Precognition; LO-U = UCLA Loneliness Scale-Urdu

*p = .05, ‡p = .01

Table 4 presents the summary of the findings of hierarchical regression analysis. In the first step, demographic variables were controlled however, they could not explain any significant variance of COVID stress (CSS). In the second step, paranormal beliefs (and its subscales, PRPBS) and loneliness (LO-U) explained a 7 percent variance in the COVID stress. Results also revealed that perceived social support played a significant role in danger and contamination (ΔR^2 = .09, p < .000) and traumatic stress symptoms (ΔR^2 = .08, p < .001), however, this data is not shown.

Table 4

Hierarchical Regression Analysis of Predictors for COVID Stress

Predictors	*B*	*SE*	*β*	95% CI for B		ΔR^2
				LL	UL	
		CSS				
Step I						.01
Age	-.61	.32	-.15	-1.23	.04	
Gender	-1.35	3.51	-.02	-8.28	5.57	
Marital Status	-.69	2.59	-.02	-5.81	4.42	
Family system	-4.49	3.47	-.08	-11.33	2.335	
Step II						.07**
Age	-.42	.32	-.11	-1.05	.21	
Gender	-1.19	3.43	-.02	-7.95	5.58	
Family System	-1.49	2.55	-.05	-6.51	3.53	
Marital Status	-5.13	3.41	-.09	-11.85	1.59	
TRB	.20	.44	.04	-.67	1.07	
PSI	-.47	.53	-.07	-1.52	.59	
W	.69	.49	.13	-.29	1.68	
St	-.02	.53	-.01	-1.06	1.02	
Sp	.07	.48	.01	-.89	1.02	
ELF	.04	.53	.01	-1.01	1.09	
PC	.48	.45	.102	-.41	1.38	
PRPBS	-.03	.19	-.03	-.41	.34	
LO-U	.51**	.19	.18	.14	.89	

Note. PRPBS = Pakistani Version of Revised Paranormal Belief Scale; TRB = Traditional Religious Beliefs; PSI = Psychokinesis; W = Witchcraft; St = Superstition; Sp = Spiritualism; ELF = Extraordinary life forms; PC = Precognition; LO-U = UCLA Loneliness Scale-Urdu

**p < .01

Table 5 (also see Figure 2) demonstrates a positive and a significant direct effect (B = .55, p < .01) of COVID on loneliness and a reduced but significant indirect effect (B = .08, p < .01) on loneliness mediated by paranormal beliefs.

Table 5

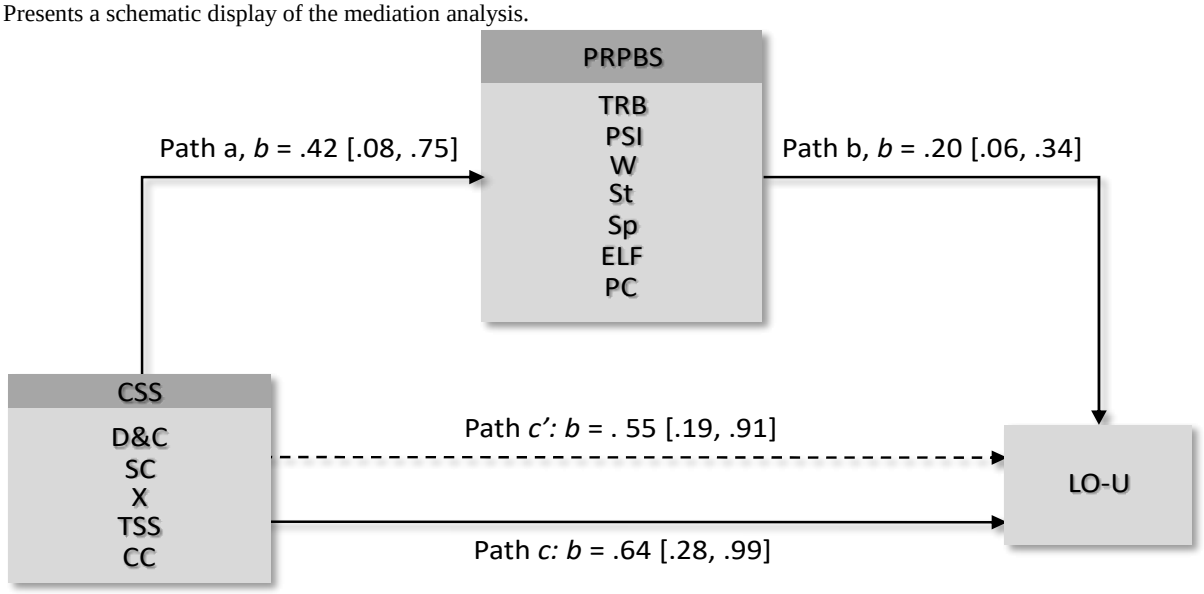
Direct and Indirect Effects of COVID Stress on Loneliness through Paranormal Beliefs

		95% *CI*	
Effects	*B*	*LL*	*UL*
Total	.64**	.28	.99
Direct	.55**	.19	.91
Indirect	.08**	.02	.21

**p < .01

Figure 2

Presents a schematic display of the mediation analysis.



Note.

Direct effect c' = c-ab

Indirect effect c – c' = ab

Total Effect c = c'+ ab.

CSS = COVID Stress Scale, D&C = Danger and Contamination, SC = Socioeconomic Consequences, X = Xenophobia, TSS = Traumatic Stress Symptoms, CC = Compulsive Checking, PRPBS = Pakistani Version of Revised Paranormal Belief Scale, TRB = Traditional Religious Beliefs, PSI, W = Witchcraft, St = Superstition, Sp = Spiritualism, ELF = Extraordinary Life Forms, PC = Precognition, LO-U = UCLA Loneliness Scale-Urdu

Discussion

The results of hierarchical regression analysis revealed that loneliness and paranormal beliefs were significant positive predictors of COVID-19 stress (see Table 4). These results are aligned with the pertinent literature, for instance, Losdes et al. (2020) found that COVID severely disturbed social relationships and caused loneliness with high levels of stress and depression. Similar results were reported by Jiao and colleagues (2020) where COVID produced feelings of loneliness, which irritated, fear, stress, and mental health issues in people.

Our findings suggest, paranormal beliefs mediated between COVID stress and loneliness (see Table 5 & Figure 2). We believe COVID stress caused changes in thinking, rather than realistic thinking they reverted to magical thinking (paranormal beliefs). Such non-realistic thinking is also observed in people who try to satisfy themselves with social media when they do not have

social support (Loades et al., 2020). In China, a lack of social support that resulted in stress and fear invoked different coping strategies in people to exercise psychological relief (Babora et al., 2020). Paranormal beliefs can work as coping strategies, when individuals become more fearful, they try to combat their stress with justifications that are non-scientific and illogical. And if you are raised in a culture where such paranormal beliefs are prevalent illogical beliefs are bound to arise during stress and loneliness, and since such coping is not problem-focused, they can further increase stress from COVID or other stresses in life.

Limitations and Recommendations

This research is correlational and the factors in question i.e., COVID stress, paranormal beliefs, and loneliness merely associate with each other statistically; one factor is not the cause for another, e.g., we do not expect COVID stress to cause loneliness or paranormal beliefs; all these variables are situational and not manipulated. To establish causal relationships COVID-like stress needs to be manipulated and paranormal beliefs and loneliness then need to be assessed. In addition, we think qualitative studies could be helpful here because it is not possible to manipulate a condition like COVID. Studies need to be carried out to verify lived experiences of loneliness and paranormal beliefs in people who could narrate their connections to COVID-19 stress. There are issues of generalizability, the data was collected from Sargodha and Lahore; future studies should include other cities and rural areas to replicate these results or replicate them in longitudinal studies where effects of COVID stress, paranormal beliefs, and loneliness decline with time.

Conclusion and Implications

Stress or COVID stress we believe can account for loneliness (COVID-enforced physical and social distancing) and paranormal beliefs. Psychological literature is replete with evidence that suggests stress majorly affects depression and loneliness and invokes coping mechanisms that include magical thinking-like behaviors, in our case paranormal thinking. To put some sense to our findings we believe COVID stress directly accounted for loneliness (social distancing included) and paranormal beliefs, and these paranormal beliefs dampened loneliness indirectly. Stress from COVID-19 influenced demographic variables (age, gender, marital status, and family system) with no significant outcomes. We, like other psychologists, mental health professionals, and physicians believe people (or clients) should avoid subscribing to their irrational paranormal beliefs to curtail stress, though doing so helps to reduce the effects of COVID stress but possibly not in the long run. Instead, we propose stress (or COVID stress) should be addressed with problem-focused coping, which is more likely to bring about effective solutions.

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