Fear of COVID-19 and Mental Health: The Role of Mindfulness in During Time of Crisis

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Research Article

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Abstract

The novel Coronavirus disease (COVID-19) is impactful on all aspects of individuals' lives, particularly mental health due to the fear associated with the pandemic. Thus, current study explored the relationship between fear of COVID-19 and mental health aspects, namely anxiety and depression and whether this relationship is mediated by mindfulness. Data were collected from a student sample of 355 participants (71.5 % female and 28.5% males) ranged between in age 18 and 41 (M= 22.41±3.27) and participants completed Fear of COVID-19 Scale, Mindfulness Attention and Awareness Scale and anxiety and depression subscale of SCL-90-R. In terms of the results, correlational analyses indicated that fear of COVID-19 is reversely associated with mindfulness while positive correlations were found with anxiety and depression. Structural equation modeling analyses demonstrated that mindfulness mediated in the relationship between fear of COVID-19 and depression and anxiety. Implications are further discussed.

Introduction

COVID-19 is a rapidly spreading novel virus that transmits between humans through coughing, sneezing and potentially contaminated surfaces. An outbreak of the virus was declared by WHO in 30 th of January and as of 23 th of June, over 9 million infected cases were declared with 474.000 death tolls worldwide (European Centre for Disease Prevention and Control, 2020). Due to the outbreak's novelty and uncertainties regarding how bad will be the consequences of the pandemic (Asmundson& Taylor, 2020), this special time period is characterized with psychological effects including fear (Rajkumar, 2020). Other sources might include high infection and mortality rate which results in fear reactions regarding the pandemic (Ahorsu et al., 2020).

Fear is defined as the unpleasant emotional state that is elicited by a perceived threat (de Hoog et al., 2008). Due to the lack of control on the pandemic in terms of unavailability of an effective vaccine and treatment cure, individuals naturally began experiencing fear regarding developing the disease. Literature suggests that while fear of COVID-19 propels individuals to observe the rules that will help minimizing the spread of the virus, it may also result in an array of psychological effect such as anxiety (Roy et al., 2020) or depression (Holmes et al., 2020). Several studies documented those individuals experiencing life-threatening situations are at risk of developing anxiety and depressive symptoms (Nickell et al., 2004; Tsang, Scudds, &Chan, 2004). Additionally, home confinements and associated social and physical isolation are themselves are critical risk factors for development of mental health problems during the pandemic (Holmes et al., 2020).

Not surprisingly, positive psychological strengths are critical against the negative effect of the fear and stress during such adverse situations as they lessen the psychological burden of prolonged distress (Polizzi, Lynn, & Perry, 2020). In this regard, one of the potential concepts that might help to cope with such fear is surely mindfulness.

Mindfulness refers to the awareness of the present moment and acceptance of thoughts and feelings without judgment (Kabat-Zinn, 1990). Literature suggests that mindfulness is associated with an attitude of *acceptance* (Bishop et al., 2004). Thus, individuals with high levels of mindfulness are less likely to be overwhelmed by the distressing feelings such as depression (e.g., Alzahrani et al., 2020; Barnes& Lynn, 2010; Carmody & Baer, 2008; Fisak & Von Lehe, 2012; Royuela-Colomer & Calvete, 2016) and anxiety (MacDonald & Olsen, 2020; Singh et al., 2020). In support, an immense number of studies documented that mindfulness programs decreased individuals' levels of depression (Zemestani&Nikoo, 2019) and anxiety symptoms (e.g., La Torre et al., 2020).

As contributing to psychological well-being, mindfulness is a critical concept during times of crisis such as COVID-19 pandemic. For instance, mindfulness is considered as a focused attention in concrete experience in the present moment (Svendsen, Kvernenes, Wiker, &Dundas, 2017). On contrary, COVID-19 fear is centered on the future including contracting with the virus or losing the loved ones to the disease. In this regard, mindfulness might counteract the negative effect of fear associated with covid-19 and contribute to the individuals' mental health. Additionally, immediate research priorities recently are to investigate the constructs that will inform interventions to cope with COVID-19 fear that will reduce the rates of mental health problems such as anxiety and depression (Holmes et al., 2020).

Present Study

The main aim of this study was to examine the relationship between fear of COVID-19 and mental health indicators such as anxiety and depressive symptoms with a Turkish sample as mediated by students' levels of mindfulness. The hypothesises of the study included that (a) fear of COVID-19 would be inversely related to mindfulness and positively related with anxiety and depression and that (b) mindfulness would mediate the relationship between fear of COVID-19 and anxiety and depression. As no studies per see examined such link between the concepts, exploring such relationship is certainly worth studying.

Methods

Participants

Sample included three hundred fifty five university students (71.5 % female and 28.5% males) ranged between in age18 and 41 (M= 22.41±3.27). Their socioeconomic levels ranged from medium (71%), high (17.2%),very high (0.3%) low (10.7%) and very low (0.8%).

Measures

Fear of COVID-19 Scale (FCV-19S).FCV-19S is a 7-item scale based on 5-point Likert scale that was developed to measure the extent to which a person fears COVID-19 (Ahorsu et al., 2020). The total score of the scale is obtained by summing the item scores of the respondents and higher scores on the scale

demonstrate higher levels of COVID-19 fear. Turkish adaptation of the scale demonstrated satisfactory psychometric properties of the scale (Satici et al., 2020).

Mindful Attention and Awareness Scale: The scale is comprised of 15 items and rated based on 6-point Likert scale from 1 (almost always) to 6 (almost never) (MAAS; Brown & Ryan, 2003). The total score of the scale is obtained by calculating the mean score of the participants' responses of 15 items. Higher scores on the scale convey the higher levels of dispositional mindfulness. Psychometric properties of the scale revealed good internal consistency in a student sample with coefficient α of .82, in a sample of adults with α of .87, and test-retest reliability (*r*=.81). Validity and reliability studies of Turkish adaptation of the scale yielded good psychometric qualities (Catak, 2011).

Symptom Checklist Revised (SCL-90-R) Anxiety and Depression Subscale: The SCL-90-R is a 90-item self-report measure based on five-point Likert scale (0=Not at all, 4=Very much) and developed to assess psychiatric problems of individuals (Derogatis, Lipman, &Covi, 1973). The scale is comprised of eight subscales such as somatization, anxiety and depression. The depression subscale encompasses 13 items to assess several core symptoms of depression, e.g., low affect and lack of interest that has occurred during the last seven days and anxiety dimension includes 10 items in order to measure anxiety symptoms. Turkish adaptation of the scale was conducted by Dağ (1991) who reported good psychometric properties.

Procedure

Undergraduate students in Bursa Uludag University Educational Science Department were contacted by email lists and were invited to partake in the study. Data were collected through an online survey webpage between May 20 to May 31, 2020 (N=355). The consent form to participate in the study was obtained via the first page of the online survey. Test administration was carried out via online software for the exchange of course credit. Participants were informed about the purpose of the study, rights to withdraw during or after the involvement, and ensured about anonymity and confidentiality of storage, and the disposal of the personal information.Other than demographic information, all questions were mandatory to answer, and participants could only proceed from one page to another after responding all questions.

Data Analyses

Before main analyses, skewness and kurtosis statistics were analysed to test the assumptions of normality. As Table 1 indicates, skewness and kurtosis values fall between -/+1 conveying no violation of normal hypothesis (Hair et al., 2017). Two-step procedure employing structural equation modeling (SEM) has been conducted for mediation analyses (Anderson &Gerbing, 1988). In SEM models, mindfulness, anxiety and depression were represented by three parcels in order to improve the psychometric properties of the variables and diminish inflated measurement error. For such variables, items were assigned to the parcels based on factorial algorithm technique (Matsunaga, 2008). This technique is utilized for parceling the items of unidimenisonal scales and parcels are created with regards to magnitude of factor

loadings based on factor analysis. Furthermore, fear of COVID-19 was represented in the model with seven indicators.

Firstly, measurement model was examined by performing confirmatory factor analysis in order to estimate the extent to which each latent variable is represented by its indicators. Secondly, proposed causal model was examined by conducting structural equation modeling (SEM) with maximum likelihood estimation method and 95 % bias-corrected bootstrap to examine the significance of mediating effect of mindfulness. In SEM analyses, fit indices were analyzed in order to evaluate the final model (Kline, 2011). Overall model fit was determined based on the criteria recommended by Hu & Bentler (1999). In terms of the criteria, insignificant and lower values for Chi-Square are preferable though this value is mostly affected by sample size (Tabachnick, &Fidell, 2001). Comparative Fit Index (CFI), Incremental Fit Index (IFI) and Tucker-Lewis Index (TLI) scores equal or greater than .95 demonstrates a good model-data fit and a model is considered to be a good fit to the data when CMIN/DF<3 while RMSEA ≤ 0.08 demonstrates adequate fit (MacCallum et al, 1996). All analyses were conducted by using SPSS AMOS 23 (Arbuckle, 2014).

Results

Findings from preliminary analyses showed that no severe violations of normal hypotheses were encountered (e.g., skewness from 0.93 to -0.14, kurtosis from 0.51 to -0.91)(West, Finch & Curran, 1995). Descriptive statistics including Cronbach's alphas, minimum, maximum, mean, standard deviation, skewness, kurtosis values for the study variables are presented Table 1.

……Table 1…….

Correlation Analyses

……Table 2……

Zero-order correlations between variables were computed and results demonstrated that fear of COVID-19 was positively correlated with depressive symptoms and anxiety while inverse correlation was found between mindfulness with the correlation coefficients ranging between r = .38 and r = .23. Table 2 demonstrates the intercorrelations between the variables.

Measurement Model

Measurement model was examined by performing confirmatory factor analyses (CFA) in order to evaluate whether the model adequately fits the data. Results revealed good model-data fit: $\chi 2$ (94, N = 355) = 264.53, $\chi 2$ / df = 2.81, p < .001; CFI = .96; TLI = .95; IFI=.96; RMSEA = .07 (90% CI = .061–.082).

Structural Model

Structural equation modeling analyses were performed in order to test the mediator role of mindfulness. Thus, two possible structural models have been tested to compare the competing models and identify the most appropriate model in regards with the structural relations. First, a partial mediating effect of mindfulness in the relationship between fear of COVID-19 and depression and anxiety was tested as Model 1 (M1) and results demonstrated good model-data fit with all significant paths between latent and observed variables except the path between fear of COVID-19 and depression: $\chi 2$ (95, N = 355) = 352.50, $\chi 2$ / df = 3.71, p< .001; CFI = .94; TLI = .92; IFI=.93; RMSEA = .08 (90% CI = .078–.097). Omitting the path between fear of COVID-19 and depression, full mediating effect of mindfulness between fear of COVID-19 and depression; partial mediator role of mindfulness between fear of COVID-19 and anxiety was tested with the aim of comparison competing models (M2) and results revealed very satisfactory fit to the data: $\chi 2$ (95, N = 355) = 264.76, $\chi 2$ / df = 2.78, p< .001; CFI = .96; TLI = .95; IFI=.96; RMSEA = .07 (90% CI = .061–.081).

.....Table 3.....

As Table 3 demonstrates, fit indices indicates a slight improvement for Model 2 to Model 1 and path between fear of COVID-19 and depression became non-significant supporting the full mediator role of mindfulness (β = .02, p> .05). In Model 2, fear of COVID-19 predicted mindfulness (β = -0.22, p < 0.001), and anxiety (β = 0.25, p < 0.001). Mindfulness negatively predicted anxiety (β = -0.44, p< 0.001) and depression (β = -0.21, p< 0.001) as Figure 1demonstrates. More importantly, mindfulness mediated the relationship between fear of COVID-19, anxiety and depression. 95 % bias-corrected bootstrapping procedure was applied to determine the significance of mediating effect and results indicated mindfulness significantly mediated in the relationship between fear of COVID-19, anxiety (95% CI=[0.05, 0.15]) and depression (95% CI=[0.20, 0.34]).

.....Figure 1.....

Discussion

Coronavirus pandemic may exacerbate anxiety and depression symptoms among individuals due to several reasons such as lockdowns (Meda et al., 2020) and associated isolation (Hwang et al., 2020), fear of worthlessness and fear of infection (Dubey et al., 2020). One of the critical antecedents of such mental health problems might include fear of COVID-19. Thus, the present study aimed to investigate whether a) fear of COVID-19 is related to mental health indicators such as anxiety and depression symptoms b) whether mindfulness act as a protective factor and mediates the relationship between fear of COVID-19 and anxiety and depression. In this regard, the current study reports two main results: a) decreased levels of fear of COVID-19 is linked to increased levels of mindfulness and decreased levels of

anxiety and depressive symptoms, and b) mindfulness mediates the relationship between fear of COVID-19 and anxiety and depression.

Concerning the first hypothesis of the study, participants who reported higher levels of fear of COVID-19 also reported higher levels of anxiety and depression and such findings are compatible with the previous research. Several studies reported that fear and panic concerning COVID-19 elevates the risk to develop mental health issues including anxiety and depression (Du et al., 2020; Guo et al., 2020; Huang & Zhao, 2020; Lai et al., 2020; Liu et al., 2020; Lu et al., 2020). In terms of the findings regarding the mindfulness, to the best of knowledge, this is the first study to investigate the relationship between fear of COVID-19 and mindfulness. Thus, no empirical studies exist to support the findings of the current study despite conceptual overlaps between two concepts. For instance, the fear associated with pandemic aligns with the preoccupation about the future whether the individual or his/her loved ones contract with the virus and develop the COVID-19 disease. On the contrary, mindfulness conveys the awareness and acception of the present moment that might allow individuals to be less overwhelmed by predominant symptoms such as anxiety, despair and depression that is present at the time of a global crisis (Behan, 2020). Thus, inverse association between the constructs are congruent.

In accordance with the second hypothesis, the findings of the SEM analysis conveyed that mindfulness mediated the relationship between fear of COVID-19 and anxiety and depressive symptoms. This finding suggested that individuals who are mindful of the present moment are less affected by the negative consequences of fear regarding the Coronavirus pandemic in terms of developing anxiety and depressive symptoms as mindfulness counteracts to the negative psychological outcomes of such adverse conditions. The finding is meaningful in terms of theoretical and empirical literature of mindfulness. Theoretically, mindfulness was suggested as a useful skill that can offer a helpful way to adjust with such constant change and cope with anxiety and depression (Behan, 2020). Empirically, an immense number of studies demonstrated that increased levels of mindfulness is associated with decreased levels of anxiety and depression (Fong &Ho, 2020; Li et al., 2020; MacDonald & Olsen, 2020; Makadi & Koszycki, 2020; Montero-Marin et al., 2020; Soo, Kiernan&Anderson, 2020). Moreover, several studies highlighted the mitigative effect of mindfulness on interpersonal problems (Janovsky, Clark & Rock, 2019), psychological distress (Masuda & Wendell, 2010), and particularly anxiety and depression (An, Fu, Yuan, Zhang&Xu, 2019; Lima et al., 2019). Taken together, the findings of current study suggested that decreased levels of Coronavirus fear contributes to greater levels of mindfulness which in turn leads to decreased risk to develop anxiety and depressive symptoms. Therefore, greater mindfulness might aid individuals to be protected by the negative effect of Coronavirus fear and promote better mental health during COVID-19 pandemic.

Given the scarcity of research concerning the relationship between Coronavirus fear and mindfulness, the findings of the current study are noteworthy. Among the strengths of the study was to use the scales with good psychometric properties although employing only self-report measures were clearly a limitation. Thus, employing various other methods including qualitative designs are recommended. Another limitation in this instance was the cross-sectional nature of the study. In order to ascertain a causal

relationship, studies with longitudinal and experimental designs need to be conducted. Moreover, although the recruitment targeted a homogenous sample in terms of number of participants for males and females, females outweighed males to partake in the study. Additionally, participants were merely recruited from university students which clearly might restrict the generalizability of the results. Thus, further studies should aim to recruit similar number of participants of both genders and more diverse samples including older adults or a community sample to support the generalizability of the results to a larger population. Lastly, the results of the study are significant while further research should include other variables of interest to dismantle the link between fear of Coronavirus and mental health indicators. Notwithstanding these limitations, the present study sheds light on the underlying mechanism behind the relationship between fear of Coronavirus, mindfulness and anxiety and depressive symptoms

In conclusion, the current study has examined the mediating role of mindfulness in the relationship between fear of COVID-19 and mental health indicators, namely anxiety and depression. The results demonstrated that there is a link between fear of COVID-19 and mindfulness and experiencing a reduced fear associated Coronavirus pandemic contributing to greater levels of mindfulness, which in turn contributes to decreased levels of anxiety and depression.

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Declarations

Corresponding author declares no conflict of interest and ethical approval was obtained by Bursa Uludag University Ethics Comittee.

Tables

Table 1.Descriptive Statistics

	α	Min	Max	M	SD	Skew	Kurt
COVID-19S	.86	7.00	33.00	17.12	5.78	0.28	-0.38
Depression	.92	0.00	45.00	20.45	11.83	0.14	-0.91
Anxiety	.93	0.00	40.00	9.89	9.41	0.93	0.51
Mindfulness	.87	1.64	6.00	4.13	0.88	-0.14	-0.36

Table 2. Intercorrelations between main study variables

	Fear of COVID-19	Depression	Anxiety	Mindfulness
Fear of COVID-19	1			
Depression	.27**			
Anxiety	.38**	.74**		
Mindfulness	-.23**	-.54**	-.49**	1

Note. **. $p < 0.001$

Table 3. Comparison of alternativemodels

Model	*c 2*	DF	*p*	CMIN/DF	RMSEA	CFI	TLI	IFI
M1 (Partial M)	352.50	95	$p < .001$	3.71	0.08	0.94	0.92	0.93
M2 (Full Mediation)	264.76	95	$p < .001$	2.78	0.07	0.96	0.95	0.96

Figures

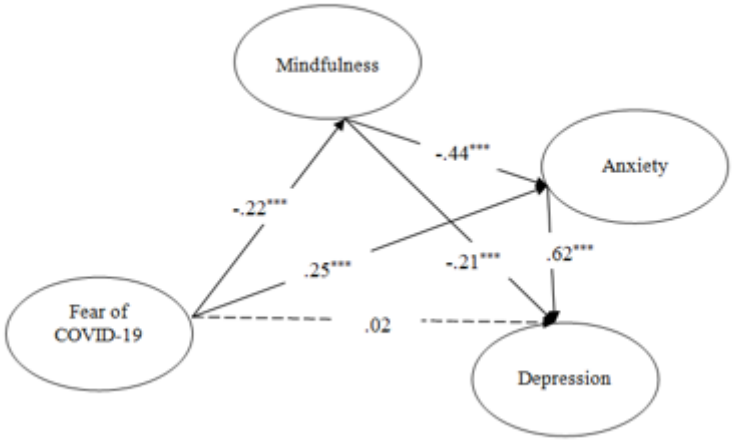

Figure 1

Mediating effect of mindfulness between fear of COVID-19 and anxiety and depression. Note.Path coefficients were standardised; insignificant path lines were dashed; ***p < .001