

Research Article

A Global Pandemic: How Different Nations Coped with COVID-19 Phobia

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Abstract

Aim: This study examined the impact of coping on COVID-19 Phobia (C19P) among individuals from different nations including a cluster of European countries, India, Indonesia, Pakistan, and the United States of America (USA) by using quantitative measures (C19P-S; Brief COPE) and a demographic questionnaire.

Method: The research participants were recruited *via* disseminating an electronic survey on Facebook Messenger. We used the sample of 812 participants from our previous study that focused on resilience toward C19P.

Result: Most coping styles correlated statistically significantly with the level of C19P at different domains including psychological, psychosomatic, economic, and social factors. At least two nations out of the five had statistically different scores for all 14 coping styles ($p < 0.05$). The coping styles including self-distraction, use of emotional support, use of instrumental support, behavioral disengagement, humor, religion, and self-blame were statistically significantly affected by age ($p < 0.05$).

Keywords: COVID-19 phobia; Coping styles; Survey; Mental health; Counseling

Introduction

The year 2020 challenged various nations' public health with the coronavirus disease 2019 (COVID-19) spreading across the world. Without having the necessary treatments to eradicate the virus infection, for now, more than two million people (2,951,968) have died globally from the coronavirus, almost 20% (563,375) of them in the United States [1]. The worldwide impact of COVID-19 on mental health functioning among individuals across the globe is complex and has increased mental health concerns [2-4] but is not yet clear as previous research has shown the variation of responses to potentially traumatic experiences [5]. Some individuals respond to COVID-19 with depression, anxiety, and substance use [6], insomnia, posttraumatic stress disorder, and phobia [7]. Literature indicates that higher levels of perceived stress are associated with higher levels of depression, distress, anxiety, and poorer health status and lower quality of life [8-10]. A stressful event that is associated with mental health symptoms or functioning includes appraisal of experience, potential consequences of the event, and the person's selection of used coping strategies that will either change the stressful event or modify the emotional response [11]. A key task during such an unparalleled pandemic for most individuals is to cope with uncertainty and to keep their distress at the minimum. Lazarus and Folkman [11] defined coping as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). COVID-19 has raised challenging questions about how to achieve these goals during and after this pandemic. Negative coping strategies such as substance use, behavioral disengagement, or venting may lead to higher levels of fear and phobia, while the use of positive

coping strategies such as emotional support, positive reframing, and acceptance may increase the ability to bounce back. Moreover, because of the repeated exposure to anxiety-provoking topics related to the crisis of COVID-19 outbreak through personal experiences, social media, and news channels; it is crucial to conduct evidence-based research on the phobia related to COVID-19 and coping styles. Currently, there is a lack of research about effective coping styles for dealing with extreme fear of being infected by COVID-19, also called COVID-19 phobia (C19P). Because countries all over the world are affected and people are exposed to inconsistent news related to the COVID-19 pandemic, identifying which coping styles are effective for dealing with C19P in different countries can benefit for guiding the treatment process with clients who struggle with extreme fear of being infected by COVID-19.

COVID-19 Phobia

The sudden evolution of COVID-19 remains unpredictable and has led to concerns about public health in society. Individuals across the world experience increased stress and fear of becoming infected with the corona virus. Severe negative effects such as stress, depression, psycho-somatic, and psycho-social problems of the COVID-19 pandemic have been reported in many countries [12]. C19P is defined as a persistent and excessive fear of being infected with the coronavirus [12]. Some are experiencing a relapse of depressive disorders [13]; paranoia and nihilistic delusions [14]; and possible prevalence of schizophrenia in subsequent years [15]. The onset of panic and phobia among children has been caused by a lack of accurate information on COVID-19 and acquiring wrong information from their peers [7]. People with pre-existing mental health conditions are more prone to experience re-occurrence

of their previous illness due to their heightened susceptibility to stress caused by COVID-19 as compared to healthy individuals [7]. Elderly patients are also susceptible to mental health issues such as relapse of depressive disorder, which was found to be particularly associated with fear of contracting COVID-19 and fear of loneliness during the outbreak [13]. Other extremely vulnerable populations including medical staff and frontline workers such as nurses showed higher scores on fear scale as compared to the non-clinical staff [16]. Therefore, based on the demographic and individual differences, and governments' success to control COVID-19 in their respective countries, individuals have used various healthy and unhealthy ways of coping to deal with their phobia of COVID-19.

Coping styles

Facing the current worldwide pandemic of COVID-19 requires all people to cope with distress and maintain well-being. Some ways of coping are considered as healthy and others as maladaptive. It has been postulated that coping depends on specific contextual aspects such as the type of stressor that an individual experiences [11,17]. According to Skinner et al. [18], individuals' coping strategies can be categorized as multifaceted system which contains sub-categories of different types of coping actions. Different coping strategies can be categorized as coping styles [19].

Self-blame is an example of a maladaptive coping style while acceptance can be described as an adaptive coping style. Using a particular coping strategy is influenced by the person's underlying attributions and often increases the risk for self-blame as it may indicate a sense of control over a stressful situation [20]. Thus, the use of coping strategies determines mental well-being of individuals [21]. A meta-analysis by Kato [22] found that self-blame, emotional venting, rumination, and behavioral disengagement were correlated with mental distress, whereas coping actively, using positive reinterpretation, seeking social support, and acceptance were correlated with mental well-being. Previous studies have examined coping strategies and coping styles by using standardized instruments such as the Ways of Coping [11] and the COPE inventory [23]. Coping styles can mediate the correlation between stressful life events and cancer related stress [24] and impact individuals' adjustment to diagnosed disorders [25].

Maladaptive coping styles counted for a large variance to predict depression and life satisfaction in individuals with diagnosed hepatitis C [26]. Wildt et al. [27] reported coping as a mediator between the correlation of war trauma and level of distress. Repetitive negative thinking as a coping mechanism was correlated with anxiety, depression, and eating disorder symptoms as well as with lower levels of life satisfaction in adults and children [28]. Miller Smedema et al. [29] found that healthy coping styles are associated with self-esteem, quality of life, and subjective well-being. College students' usage of alcohol to limit their social anxiety also showed lower academic grades and the use of unhealthy coping styles such as self-injury [30]. However, there is a lack of research related to different coping styles and phobia. We were specifically interested in how individuals from various nations coped with C19P, which was also found missing in the literature.

Purpose of the present study

The authors aimed to identify different coping styles used

by individuals of various nations to deal with the psychological, psychosomatic, economic, and social factors of C19P. We used the sample of our previous study [31]. We analyzed demographic data (age, marital status, country of birth, country of residence, ethnicity, race, educational level, and professional status) of 812 individuals from a cluster of European countries, India, Indonesia, Pakistan, and the United States of America (USA) and assessed 14 different coping styles (self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame) to reveal the impact on C19P. Research Questions

RQ1: Do coping styles correlate with the levels of C19P?

RQ2: Are there differences in coping styles to deal with C19P among different nations?

RQ3: Does age correlate with coping styles toward C19P?

Method

Ethical consideration

The proposal of the current study was approved by the Institutional Review Board (IRB) of the University of Providence (002-UPIRB-2020). Participants were requested to read and confirm the informed consent prior to their participation in the online survey. We conducted the current study by following the ethical guidelines for research according to the American Counseling Association [32].

Sample procedures

We sent a brief information of the study including the electronic survey, which we created on Google Forms to our English-speaking friends *via* Facebook Messenger (FM) and documented the numbers. Next, we selected 5-10 of these respective FM friends and requested them to forward the survey link only to 5-10 people who were not FM friends with us in order to stop the chain. We also requested them to forward us the total number of recipients of the online survey for calculating the response rate. We used this sampling method for collecting responses from a wide range of populations in various countries instead of a narrowed sample based on specific criteria such as country, age, education, profession, or mental health status [31].

Respondents who clicked on the provided electronic survey link accessed the consent form and the instructions for completing the survey. The approximate time commitment for completing the survey was 15-20 minutes. Respondents were also informed that their participation was voluntary and thus, they could withdraw at any time without penalty and data would remain anonymous. Only participants who agreed to the consent form could access the demographic questionnaire and questions on coping strategies related to C19P [31]. The sample procedure is represented in Figure 1.

Sample

We invited 1267 respective English-speaking FM friends from different countries *via* FM to participate in this study. Of those, 902 agreed to participate and responded to the online survey, which led to a calculated 71% response rate. Some respondents who disagreed with the consent form could not continue with questions and were removed, which resulted in sample of 887 participants. Incomplete answers, missing data and the elimination of a few people who

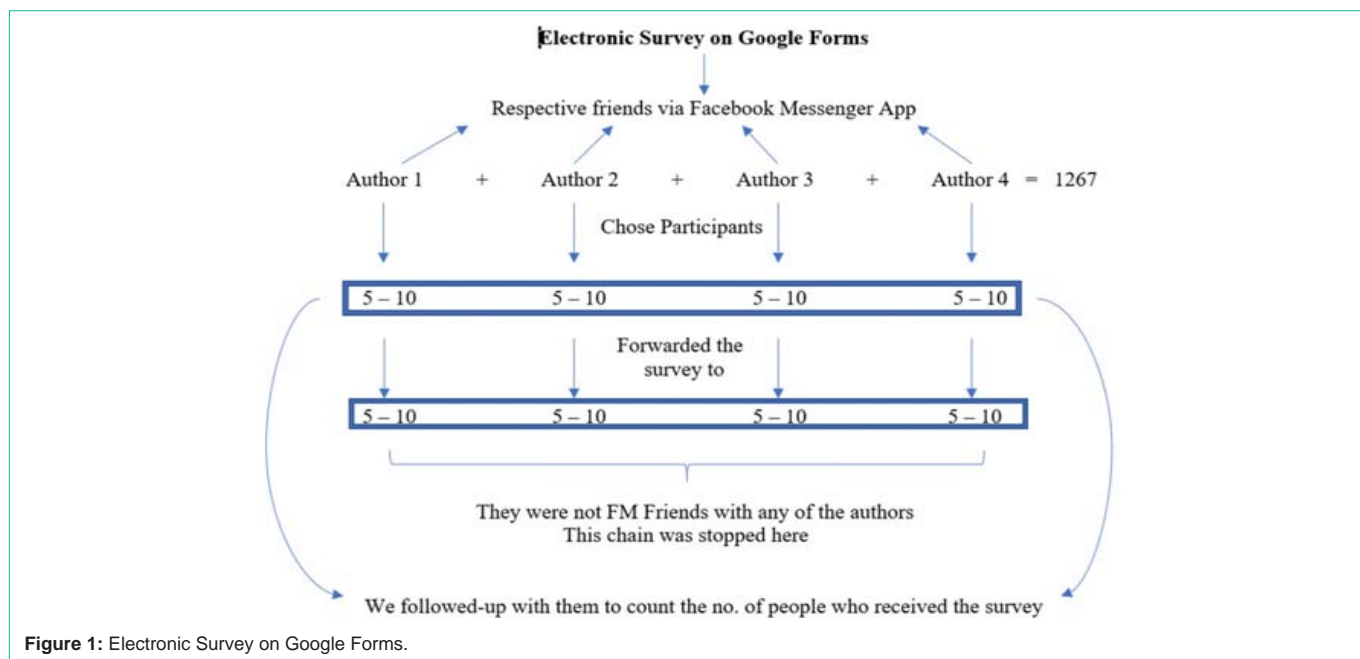


Figure 1: Electronic Survey on Google Forms.

fell outside of a group of 30 individuals of a country reduced 75 participants and resulted in 812 participants. The cluster of European countries included the Western European countries Austria, Belgium, France, Germany, Ireland, Italy, Netherland, Spain, and United Kingdom. We combined them because English is not the first language in most European countries, which limited the numbers of participants compared to other countries in this study. Our final sample included 812 participants from the country of residence in European countries, Indonesia, India, Pakistan, and the USA (Table 1).

Instruments

We asked a set of demographic questions and two standardized measurements including C19P [12] and the Brief COPE (BCOPE; [19]).

Demographic questionnaire

Participants who agreed with the given informed consent form were asked to provide demographic information on their age, gender identity, marital status, country of birth, country of residence, ethnicity, race, level of education, and professional status. These data did not include any identifiable information such as name, date of birth or social security numbers. The demographic data were used for descriptive and inferential statistics in the previous and present study [31].

COVID-19 phobia scale

The COVID-19 Phobia Scale (C19P-S) was created by Arpacı et al. [12]. The C19P-S assesses the level of phobia toward the C19P with 20 items that are rated on a 5-point Likert-type scale ranging from (1 = strongly disagree to 5 = strongly agree). The questionnaire consists of four subscales determining the psychological, psychosomatic, economic, and social factors of C19P. For example, the items on the C19P-S include “I experience sleep problems out of the fear of coronavirus”, and “I am unable to curb my anxiety of catching coronavirus from others”.

Table 1: Fourteen Variables of Coping Style.

No.	Code	Variable name (Coping Style)	Sum of questions scores
1	SD	Self-Distraction	Cope1 + Cope19
2	AC	Active Coping	Cope2 + Cope7
3	Denial	Denial	Cope3 + Cope8
4	SU	Substance Use	Cope4 + Cope11
5	UES	Use of Emotional Support	Cope5 + Cope15
6	UIS	Use of Instrumental Support	Cope10 + Cope23
7	BD	Behavioral Disengagement	Cope6 + Cope16
8	Venting	Venting	Cope9 + Cope21
9	PR	Positive Reframing	Cope12 + Cope17
10	Plan	Planning	Cope14 + Cope25
11	Humor	Humor	Cope18 + Cope28
12	Acc	Acceptance	Cope20 + Cope24
13	Rel	Religion	Cope22 + Cope27
14	SB	Self-Blame	Cope13 + Cope26

Arpacı et al. [12] reported an internal consistency for the 20 items with a Cronbach alpha coefficient 0.93, subscale reliabilities ranging from 0.85 to 0.90, and established convergent, construct, and discriminant validity. Our previous study that focused on resilience toward C19P found for the overall C19P-S scale an internal consistency with Cronbach alpha coefficient of 0.93 and for the four subscales a range between 0.82 to 0.87. The item validity evidenced by Spearman correlations were also found valid [31].

The brief COPE

The dispositional coping behavior was assessed by using the Brief COPE (BCOPE; [19]) instrument. The BCOPE is a self-report measure consisting of 28 items (coping strategies), which are categorized as 14 scales (coping styles) including active coping, planning, positive reframing, acceptance, humor, religion, using

Table 2: Results of Spearman Rank Correlations between Coping Style and the C19P Factors.

Variable (X) Coping Style	Variable (Y)			
	C19P Factors			
	Psychological	Psycho-Somatic	Economic	Social
Self-Distraction	0.3804*	0.3569*	0.3405*	0.3868*
Active Coping	0.3270*	0.2050*	0.2322*	0.3405*
Denial	0.1029*	0.3106*	0.2257*	0.1776*
Substance Use	0.0864*	0.2303*	0.1418*	0.0932*
Use of Emotional Support	0.2682*	0.2676*	0.2648*	0.2901*
Use of Instrumental Support	0.3079*	0.2963*	0.3321*	0.3873*
Behavioral Disengagement	0.2484*	0.3965*	0.2905*	0.2846*
Venting	0.3145*	0.3473*	0.2954*	0.3483*
Positive Reframing	0.1832*	0.1574*	0.1988*	0.2427*
Planning	0.3788*	0.2937*	0.2800*	0.3976*
Humor	0.0725*	0.1864*	0.1248*	0.0634
Acceptance	0.0833*	-0.0454	0.0333	0.0983*
Religion	0.2947*	0.2360*	0.2542*	0.3285*
Self-Blame	0.3181*	0.4632*	0.3478*	0.3156*

* $p < 0.05$.

emotional support, using instrumental support, self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame. Each scale of the BCOPE instrument includes two items. Therefore, total number of items on the BCOPE is 28, where items are rated on a 4-point Likert scale ranging from (1 = 'I haven't been doing this at all', 2 = 'I've been doing this a little bit', 3 = 'I've been doing this a medium amount', and 4 = 'I've been doing this a lot.'). Participants were asked to rate themselves based on how frequently they engaged in each coping behavior related to the pandemic. The examples of items on BCOPE include "I've been refusing to believe that it has happened", "I've been looking for something good in what is happening", and "I've been trying to find comfort in my religion or spiritual beliefs."

A good internal reliability for the scale of the BCOPE was found with Cronbach alpha reliabilities exceeding the value of 0.60 for all the scales except for denial, acceptance, and venting subscales [23]. Furthermore, the BCOPE demonstrated a good construct validity as well as good convergent and divergent validity measuring coping with psychological distress among various populations [33].

The current study found an internal consistency with Cronbach alpha coefficient of 0.85 for the BCOPE and subscales reliabilities ranging from 0.83 to 0.86. More specifically, the lowest reliability of 0.83 was for the subscale Use of Instrumental Support and the highest reliability of 0.86 was for the subscale Substance Use. Furthermore, we used the Spearman method to conduct the item validity test. The results showed that all Spearman correlations have p-values smaller than 2.2×10^{-16} , $p < 0.05$, which confirms valid items.

Design

A cross-sectional design involving the data collection from different populations was utilized in the previous and current study [31]. We used an electronic survey assessing unidentifiable

demographic information, a questionnaire on COVID-19 Phobia (C19P-S; [12], and a questionnaire to measure Coping Strategies (BCOPE; [19]) for investigating the impact of coping strategies on C19P in different nations.

After descriptive analysis of variables, inferential statistics was conducted. We performed the inferential statistics based on the research questions and on the nature of categorical and numerical variables based on Likert scale. The predictive analysis based on correlations between variables was conducted with Spearman correlation analysis and results are shown as means, medians, and deviations.

Statistical analysis

We used the R-Software [34] for data analysis. The R-software is developed by Ihaka and Gentleman [35] and is mainly used for statistical computing and for graphics. R-software is widely used by statisticians for creating statistical and data analysis tools and software. The sample size is 812 participants residing in Europe (n=88), India (n=396), Indonesia (n=184), Pakistan (n=38), and the USA (n=106) that we used in our previous [31] and current study.

Based on the nature of the data, the Kruskal-Wallis test was used for the statistical analysis. The Kruskal-Wallis test is a nonparametric test that is accurate when the assumption of one-way ANOVA is not met [36]. Assessing for significant differences between a dependent variable with Likert scale and a categorical independent variable with two or more groups can be accomplished by the Kruskal-Wallis test. We cleaned the data set of 812 participants by recoding Likert scale into numbering of the responses to the C19P-S and the BCOPE. We did not use the total score of the C19P-S, which is the range between 20 and 100, but the total scores of the four factors psychological (range between 6 and 30), psychosomatic (range between 5 and 25), economic (range between 4 and 20), and social (range between 5 and 25). The BCOPE did not need reverting scores of items.

As the BCOPE score is a sum of items scores (range of this score is 2 to 8, it is not a continuous variable. We performed our statistical analysis *via* Kruskal-Wallis test and Spearman correlation analysis. Kruskal-Wallis test was used to compare means (or medians) of more than two populations, and Spearman correlation analysis was used to analyze the correlation between two rank variables. Through the Spearman rank correlation analysis, the correlation strength between two rank variables was analyzed. Like most non-parametric tests, Kruskal-Wallis was performed on the ranks of the measurement observations.

Results

Descriptive statistics

We used the sample of our previous study [31] including demographic data that asked participants variables including age, gender, marital status, country of birth, country of residence, ethnicity, race, educational level, and professional status. We analyzed the demographic variables of participants (N=812) and the age distribution was ranged from 18 to 71 years old (Mean = 32.75, Median = 31).

RQ1: Do Coping Styles Correlate with the Factors of C19P?

To answer this question, the relationship between coping styles

and the level of C19P was analyzed using Spearman correlation analysis. Spearman correlation analysis was used to determine how coping styles correlate with the level of C19P. Table 1 shows the questionnaire consists of 28 items (coping strategies), which are categorized into 14 scales (coping styles): self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame. The questionnaire on the level of C19P consisted of 20 items, which are categorized into four scales: psychological factors, psycho-somatic factors, economic factors, and social factors. The results of four groups Spearman correlation analysis are shown in Table 2 to identify if there are strong correlations between coping styles and each factor of C19P.

To analyze the results in Table 2, we tested the null hypothesis: 'there is no correlation between each coping style and each factor of C19P', which in mathematics notation is $H_0: \rho_{ij} = 0$, while the alternative hypothesis is 'there is a correlation between each coping style and each factor of C19P', which in mathematics notation is $H_1: \rho_{ij} \neq 0$; $i = 1, 2, \dots, 14$ (14 coping styles); $j = 1, 2, 3, 4$ (4 factors of C19P). These hypotheses were applied to fourteen times four Spearman correlation analysis models. If the p-value of each test model is smaller than 0.05, then the null hypothesis is rejected, which means that the correlation is statistically significant.

We used a Spearman Rank correlation to compute the correlation between each coping style and each C19P factor (psychological, psycho-somatic, economic, and social). The results of the correlation between coping styles and C19P factors are shown in Table 2.

Based on the results in Table 2, most coping styles correlate to the factors of C19P. The coping style Acceptance has a weak negative correlation to the psycho-somatic factor and no correlation to the economic factor of C19P. The results show there is also no correlation between the coping style Humor and the social factor of C19P. All coping styles show a weak correlation, but statistically significant (0.0725 to 0.3804) with psychological factors ($p < 0.05$). Furthermore, all coping styles except Acceptance show a weak but statistically significant correlation with the psycho-somatic (0.1574 to 0.4632) and the economic factors (0.1248 to 0.3478), also for p-values smaller than 0.05. Acceptance shows no significant correlation (-0.0454) with the psycho-somatic and the economic factors of C19P. Similarly, we found a weak but statistically significant correlation between most coping styles, except Humor, and the social factor of C19P (0.0932). In conclusion, the psychological factor is the one that correlates significantly with all coping styles, while the other three have a few exceptions.

RQ2: Are there Differences in Coping Styles to Deal with C19P among Different Nations?

The objective of this question was to investigate whether there are differences of coping styles in participants ($N=812$) of different nations (India, Indonesia, Pakistan, the USA, and a cluster of some nations in Europe). We used the Kruskal Wallis test because the distribution of the level of coping style variables has not met the normality assumption. In the appendix, Figure 2 shows the distributions of the scores of each variable in coping styles, and Table 3 shows the results of Kruskal Wallis test for each variable in coping

Table 3: The Results of Kruskal Wallis Test for Every Variable of Coping Styles Based on Nations.

Variables by Nations	Kruskal-Wallis chi-squared	p-value'
Self-Distraction	105.32	$< 2.20 \times 10^{-16}$
Active Coping	14.319	0.006345
Denial	16.437	0.002485
Substance Use	26.763	2.22×10^{-5}
Use of Emotional Support	41.011	2.67×10^{-8}
Use of Instrumental Support	22.366	0.000169
Behavioral Disengagement	28.694	9.021×10^{-6}
Venting	50.961	2.275×10^{-10}
Positive Reframing	18.676	0.00091
Planning	38.358	9.453×10^{-8}
Humor	72.389	7.102×10^{-15}
Acceptance	39.984	4.361×10^{-8}
Religion	130.64	$< 2.20 \times 10^{-16}$
Self-Blame	142.82	$< 2.20 \times 10^{-16}$

' $P < 0.05$.
style.

According to Table 3, p-values of Kruskal Wallis tests are smaller than .05, which indicates that at least two nations have statistically different scores of each variable of 14 coping styles. These differences are represented in Figure 1 in the appendix.

Table 4 shows that the median of Self-Distraction scores is higher for Indonesia than other nations, followed by the USA and Pakistan, while Europe and India show a lower and same median of this coping style. The median of Active Coping scores was lower for Europe than the other four nations, which have the same median. All five nations show the same median for using Denial as a coping style to cope with C19P, where the scores are more spread for Pakistan and India and the scores of the USA almost immovable in 2. The medians of Substance Use scores are the same for all five nations, but they are more spread for Europe and the scores for other nations are almost immovable in 2. Use of Emotional Support scores show the same medians for Europe, India, Indonesia, and USA, while Pakistan shows a lower median for using emotional support to deal with C19P. The distribution of scores of Europe, Indonesia, and USA are the same, while the distribution of scores is larger for India and Pakistan. The median of Use of Instrumental Support scores is lowest for Pakistan and same for Europe, India, Indonesia, and the USA, while the spread of scores are higher for India and Indonesia than the other three nations. The median of Behavioral Disengagement scores is same for Indonesia and Pakistan with the large spread of scores for Pakistan, and lower but same median for the other three nations including Europe, India, and the USA. The medians of the coping style Venting scores for Europe and Indonesia are higher than India, Pakistan, and the USA. The results show that the median of Positive Reframing scores for Indonesia is higher than that of the other four nations with a higher spread of scores in Europe and Indonesia. The median of Planning scores is higher for Indonesia than the median of Europe, India, and the USA, while lowest for Pakistan. The median of Humor scores for Europe and Indonesia are higher than the USA and lowest for India and Pakistan. The results show the same and higher

Table 4: Median and Mean of Coping Styles Scores of Every Nation.

Coping Styles	Europe		India		Indonesia		Pakistan		USA	
	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean
Self-Distraction	4	4.136	4	4.152	6	5.63	5	4.684	5	4.717
Active Coping	4	4.739	5	4.725	5	5.239	5	4.816	5	4.821
Denial	2	2.602	2	2.997	2	2.728	2	2.947	2	2.566
Substance Use	2	2.795	2	2.396	2	2.185	2	2.184	2	2.396
Use of Emotional Support	4	4.727	4	3.912	4	4.685	3	3.658	4	4.208
Use of Instrumental Support	4	3.875	4	4.068	4	4.505	3	3.263	4	3.953
Behavioral Disengagement	2	2.682	2	3.25	3	3.375	3	3.5	2	2.689
Venting	4	3.92	3	3.402	4	4.147	3	3.184	3	3.726
Positive Reframing	5	5.432	5	4.967	6	5.592	5	5.053	5	4.925
Planning	5	4.977	5	4.611	6	5.538	4	4.553	5	4.792
Humor	4	3.989	2	3.073	4	3.935	2	2.763	3	3.453
Acceptance	7	6.693	6	5.856	7	6.647	6	5.632	7	6.443
Religion	3	3.67	4	4.533	6	6.13	6	5.895	4	4.132
Self-Blame	2	2.818	2	2.601	4	3.891	2	2.816	2	2.585

*P<0.05.

Table 5: The Results of Correlation Test between Every Variable of Coping Style and Age.

Variables of Coping Styles	Spearman's rank Correlation rho	S	p-value
Self-Distraction	-0.2697*	113298646	5.31E-15
Active Coping	0.0083	88487165	0.8125
Denial	0.0651	83419499	0.06359
Substance Use	0.0923*	80996541	0.008507
Use of Emotional Support	-0.0934*	97565705	0.007737
Use of Instrumental Support	-0.0843*	96749672	0.01632
Behavioral Disengagement	-0.1459*	102249024	3.00E-05
Venting	-0.0748*	95904189	0.03311
Positive Reframing	-0.0425	93023225	0.2264
Planning	-0.0667	95179545	0.05759
Humor	-0.1005*	98199433	0.004146
Acceptance	0.0045	88827405	0.8976
Religion	-0.1793*	105232098	2.69E-07
Self-Blame	-0.3645*	121753760	< 2.2e-16

*P<0.05.

medians of Acceptance scores for Europe, Indonesia and the USA as compared to India and Pakistan. The median of Religion scores for Indonesia and Pakistan are higher, while the scores are largely spread in Indonesia. Using religion as a coping style to deal with C19P shows the same median for India and the USA, while the spread is larger in the USA. The lowest median of religion scores in Europe shows that a fewer people use religion as a coping style to deal with C19P. Individuals in Indonesia show a higher median of Self-Blame scores than the other four nations including Europe, India, Pakistan, and the USA.

RQ3: Does Age Correlate with Coping Styles toward C19P?

Spearman's rank correlation tests between age and each variable

of coping styles were conducted, and the results are shown on Table 5. Our results show that Self-distraction, Substance Use, Use of Emotional support, Use of Instrumental Support, Behavioral Disengagement, Venting, Humor, Religion, and Self-Blame are statistically significantly correlated with age, for the p-values are less than 0.05. These significant coping style variables, except Substance Use, are negatively correlated with age, which indicates that the higher the age, the lesser the score of these variables. In contrast, Substance Use is positively correlated with age indicating that older individuals more likely use substances to deal with C19P.

Discussion

The worldwide spread of the coronavirus has increased individuals' fear of getting infected with COVID-19, which resulted in the C19P in different areas of life. We explored the impact of coping styles on C19P for a sample of 812 participants (Table 1) from European countries, India, Indonesia, Pakistan, and the USA [31].

RQ1: Do Coping Styles Correlate with the Factors of C19P?

Results of the current study support the hypothesis that specific coping styles significantly correlated with the level of C19P at different domains including psychological, psychosomatic, economic, and social factors.

The results represented in Table 2 show that almost all coping styles show a significant weak correlation with the four factors of C19P, except Acceptance, which has a weak negative correlation with the psychosomatic and no correlation with the economic factors of C19P. The coping style Humor has no correlation with the social factor of C19P. Acceptance and Humor have been described as protective factors for anxiety [37]. Umucu and Lee [38] found a correlation between well-being and the coping styles Active Coping, Denial, Use of Emotional Support, Humor, Religion, and Self-Blame after controlling for demographic and psychological characteristics in individuals with disabilities.

Conclusion

In conclusion, the psychological factor is the one that shows a weak positive relationship with all coping styles, while the psychosomatic factor of C19P has a weak negative correlation with the use of Acceptance and no correlation with the economic factors of C19P. There is also no correlation between the coping style Humor and the social factor of C19P. Nevertheless, the correlations are overall weak, which may signal an unsubstantial relationship between coping styles and C19P as our data collection was in summer 2020 when the impact of the pandemic was unknown and without a vaccination most individuals were extremely afraid and thus, coping styles may not have been so effective to reduce their scores in C19P. A study by Agha [39] supports our results partially as problem-focused and positive coping strategies were found to be insignificant for all three investigated mental health problems including stress, anxiety, and depression. The use of acceptance was found to have no relationship with the economic factor of C19P and there is also no correlation between Humor and the social factor of C19P. Detailed results are available in Table 2, where significant correlated variables are marked with a star at 0.05 level of significance. To date there is no reported study that demonstrated whether there was a correlation between Acceptance and the economic factor of C19P, or a correlation between Humor and the social factor of C19P. The rationale of no existing studies on these correlations is that C19P-S is a recently developed scale and not much research has been done on identifying correlations between different factors of this scale and other variables. However, Wu et al. [40] reported a negative correlation between altruistic acceptance of risk from SARS and posttraumatic stress symptoms, when controlling for sociodemographic factors and levels of exposure. Lee et al. [41] found a positive correlation between dysfunctional coronavirus anxiety and perceived lack of social support.

RQ2: Are there Differences in Coping Styles to Deal with C19P among Different Nations?

The results support the hypothesis that there are statistically significant differences in utilized coping styles to deal with C19P among different nations, where nations were categorized as participants' country of residence (India, Indonesia, Pakistan, the USA, a cluster of European countries). Table 3 provides the results of Kruskal Wallis test for each coping style. The results showed that the p-values of Kruskal Wallis tests are smaller than 0.05, which means that at least two nations out of the four nations have statistically different scores for all 14 coping styles (Self-Distraction, Active Coping, Denial, Substance Use, Use of Emotional Support, Use of Instrumental Support, Behavioral Disengagement, Venting, Positive Reframing, Planning, Humor, Acceptance, Religion, and Self-Blame). These findings are presented more detailed in Figure 2 in the appendix. We did not find other studies that investigated the differences in coping styles to deal with C19P among different nations. Nevertheless, Fullana et al. [42] investigated the impact of COVID-19 pandemic and related increase of anxiety and symptoms of depression as well as protective factors in 5545 Spanish adults. Their results showed that 65% of participants reported anxiety and depressive symptoms. Some protective factors to reduce anxiety were a healthy diet, limited consumption of news about COVID-19, while following a routine and pursuing hobbies and staying outdoors were the most effective predictors to reduce depressive symptoms.

National differences of coping styles to deal with C19P are presented in Table 4. While Indonesia scored highest in Self-Distraction, all nations showed the same media for Denial. A study by Pérez-Cruz et al. [37] found that denial may be a risk factor for anxiety. We found that European countries showed lower scores for Active Coping compared to the other nations, and Substance Use medians were the same in all nations. A study by Budimir [43] found that active stress coping was a positive predictor for well-being, and negative predictor for perceived stress, depression, anxiety, and insomnia. He also found that alcohol consumption was a negative predictor for well-being, and a positive predictor for perceived stress, depression, anxiety, and insomnia. Our study found a lower score for using Emotional Support and Instrumental Support in Pakistan compared to Europe, India, Indonesia, and the USA. This may be related to the fact that individuals in Pakistan are using religion as a major support instead of individual support. A study by Abideen and Abbas [44] found that active involvement in congregations and mosque attendance in Pakistan received higher levels of care and emotional support from other believers who consider it as a religious obligation compared to those who attended mosque less frequently.

Behavioral Disengagement scores for dealing with C19P were higher in Indonesia and Pakistan. Our results revealed that the coping style Venting showed higher medians in Europe and Indonesia compared to India, Pakistan, and the USA. Higher scores of Positive Reframing and Planning were found for Indonesia, whereas Pakistan scored the lowest for planning to manage C19P. These coping styles appear more common in Indonesia. For instance, a study by Fathi and Simamora [45] investigated 134 nurses in Indonesia to explore what are their preferred coping styles to deal with stress. Their results showed that religion, positive reframing, instrumental support, and planning were the most frequently used coping strategies. Planning may be a protective factor of anxiety [37].

Pakistan also showed the lowest scores for using Humor compared to the highest score found in Europe followed by Indonesia. Batool et al. [46] found that humor did not predict job satisfaction in Pakistan bankers, which may confirm that humor is in general not a common coping style for residents of Pakistan. We found lower scores of Acceptance of C19P in Pakistan and India compared to Europe, Indonesia, and the USA. In contrast, using Religion as a coping style for dealing with C19P was higher in Pakistan and Indonesia compared to the lowest median found in Europe. This might be due to the unclarity on the difference between spirituality and religion in the used questionnaire. Hence and Mass [47] postulated that Europeans perceived religious identity as interfering with modern-day autonomy and freedom. In contrast, they described a growing interest in spirituality including its spiritual customs, developments, and practices such as pilgrimages that are detached from their previous religious context. Religion is more frequently used as a support system in Pakistan [44]. A study by Agha [39] reported a significant association between religious and denial coping strategies and mental health problems. Our results showed that participants in Indonesia showed higher scores using Self-Blame as a coping style than the other four nations Europe, India, Pakistan, and the USA. A study by Pérez-Cruz et al. [37] identified the coping style self-blame as a risk factor of anxiety.

RQ3: Does Age Correlate with Coping Styles toward C19P?

The current study supported the hypothesis that demographic data such as age correlate with the coping styles toward C19P. We applied Pearson correlation to test correlations between age and each variable of the 14 coping styles. The findings represented in Table 5 showed that the coping styles Self-Distraction, Substance Use, Use of Emotional Support, Use of Instrumental Support, Behavioral Disengagement, Venting, Humor, Religion, and Self-Blame are statistically significantly affected by age, for the p-values less than 0.05. These identified coping styles except Substance Use are negatively correlated with age, which means the higher the age, the lower the scores on the factors of coping styles. These findings are partially supported by [48] who found that in early weeks of C19P older adults have showed better emotional well-being and less reactive to stressors but did not differ from younger adults in their exposure to COVID-19 stressors. In contrast, our study found that Substance Use showed a positive correlation with age, indicating that older individuals are showing higher tendencies to use substances as a coping style to deal with C19P. Various studies have examined the effect of COVID-19 related fear and anxiety on children, adults, and the older population [7] or correlation between anxiety due to COVID-19 and different ages of targeted population [13]. However, no study has investigated the correlation between age and coping styles toward C19P. Budimir [43] found that alcohol and cigarette consumption was a negative predictor for psychological life quality, and well-being, and a positive predictor for perceived stress, depression, anxiety, and insomnia.

Limitations of the Study

We identified some limitations in the present study. First, the distribution of the respondents was unequal (Pakistan=38, India=396, Indonesia=184, USA=106, European countries=88), which we referred to our recruitment method inviting participants from various nations. Thus, correlations between unequal dataset among different nations and accuracy of determining comparisons restricted us to use ANOVA for inferential statistic and obliged us utilizing data with Kruskal Wallis test. Second, non-English speaking people were automatically eliminated from the study, because one of the inclusion criteria was that the participants from different nations should be English speaking individuals. Also, the generalization of the sample was limited due to recruiting our international FM friends as research participants. Our recruitment approach has limited diversity of nations across the world due to authors' connections and excluded participants who are not using the Internet and FM app. Additionally, participants might have prompted limited aspects of their coping styles because our online survey relied on self-reported answers of a measurement and did not include any open questions.

Suggestions for Future Research

We provide some recommendations for future research including improved research procedures and how to expand this research agenda. One suggestion for replication studies is recruiting participants by inviting same size communities to ensure equal samples sizes in different nations. We suggest replicating this study in countries that were not included in the present study. For instance, we did not have any participants on Eastern European countries or Russia, or China and believe this would be interesting to investigate.

Future research could explore details on the impact of a positive coping approach including eight coping styles (active coping, use of emotional support, use of instrumental support, positive reframing, planning, humor, acceptance, and religion) and a negative coping approach including six coping styles (self-distraction, denial, substance use, behavioral disengagement, venting, and self-blame) on the level of specific phobia by using Brief COPE. In addition, future studies could also focus on examining the difference between the levels of C19P within and between diverse nations during different waves or variants of C19P.

Implications for Professional Counselors

Based on our findings, we provide implications for mental health providers and the public that can be implemented daily.

Acceptance: One of the most important implications is recognizing the phobia related to COVID-19 and remembering that all humanity is facing this pandemic together and no one is alone with feelings of insecurity.

Active Coping Style: Strategies to reduce C19P could be anxiety management with relaxation techniques, exploring your favorite hobby or activity, taking frequent short breaks, and spending time in nature. In addition, eating healthy food, exercising regularly, and having enough sleep can reduce ruminating thoughts about the pandemic and the risk of the virus.

Use of Emotional Support: Sharing feelings of phobia and fear honestly with a professional counselor may be a significant step to reduce emotional distress. Spending time with your loved ones, family, friends, and colleagues over phone or videoconferencing can provide feelings of security and comfort.

Use of Instrumental Support: Exploring and applying methods to receive instrumental support from others can be beneficial to alleviate C19P. Instrumental support may include getting advice or help from other people about what to do or seeking financial help from parents or friends or the government.

Positive Reframing: Another helpful strategy to cope with C19P is keeping a daily journal for writing your phobia related thoughts and emotions and reframing them to positive ones.

Focusing on the small positive things in life and practicing gratitude can change the outlook on life and relationships.

Planning: Other practical strategies include structuring every day beforehand and dividing time and space clearly as work and nonwork. For instance, dressing up for work and using a particular workspace if serving *via* the Internet from home.

Humor: Humor can be used as another healthy coping style such as smiling and laughing frequently about small things, and watching comedy shows or movies to have a break from COVID-19 related concerns.

Religion: Finding comfort in personal religious or spiritual beliefs can also be advantageous during this pandemic. For instance, practicing meditation, mindfulness, yoga, praying, performing traditional ceremonies, and reading scriptures may reduce anxiety, infuse hope, and promote comfort and overall well-being.

It is recommended that the following unhealthy coping approaches be avoided.

Self-distraction: Self-distractions such as binge-watching television, excessively following news on COVID-19, or using social media compulsively are recommended to be avoided as they can be counterproductive in coping with C19P.

Denial: Denial could be an automatic defense mechanism in the face of danger. For instance, refusing to believe that the COVID-19 virus and its effects are real or saying to oneself that it never happened. However, denial is an unhealthy coping approach that may make the situation more challenging. Therefore, we recommend avoiding this coping approach.

Substance Use: We recommend avoiding unhealthy coping strategies such as alcohol use and smoking cigarettes. The consumption of a glass of water instead of smoking a cigarette can be a useful way to take a break and center yourself. Deep breathing techniques are another effective alternative to deal with anxiety and can regulate your heart rate and reduce your nervousness. Exploring alcohol-free drinks and teas can be a valuable strategy to reward yourself and to stay hydrated.

Behavioral Disengagement: Challenging situations like this pandemic may be tempting to give up coping at all and to lose hope dealing with it. However, times of crisis can be significant for our personal growth as it forces people to prioritize what is of value to them and recognize their own strengths and wisdom inside. Being mindful and open to this new experience despite the limitations may help to engage in activities that were long postponed or almost forgotten.

Venting: Many individuals are experiencing extreme stress and strong emotions as the pandemic impacts most areas of their lives. Thus, people who are not able to express their feelings and keep them inside, may experience more likely situations when they say the sudden unkind things to others to find an outlet for their negative emotions. Having a planned talk with someone trustworthy or a professional counselor to express feelings will provide comfort.

Self-blame: Another unhealthy strategy is to criticize yourself instead of practicing self-compassion and self-forgiveness. Our control over life is limited and if a person does the best s/he can, there is no need to blame her- or himself for things that come along with crises of life. We also suggest avoiding constantly checking the latest COVID-19 cases, speculating, and believing everything you read without confirming the facts, and searching symptoms of disease on Google as this may increase your anxiety and distress. However, it will be beneficial consulting with a professional counselor who is well equipped to assist you in improving your holistic wellness during this challenging time.

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