THE DEVELOPMENT OF CORONAVIRUS ANXIETY SCALE IN URDU (CASU)

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ABSTRACT

OBJECTIVE
We aimed at developing an instrument to screen anxiety symptoms related to Covid-19, in Urdu language.

STUDY DESIGN
A descriptive study.

PLACE AND DURATION OF THE STUDY
Combined Military Hospital, Kharian Cantonment, Pakistan, from September to December 2020.

SUBJECTS AND METHODS
A six step approach was taken up for development of the scale. A pilot study was conducted on the final scale, followed by a validation study involving 400 gender balanced volunteers. Exploratory factor analysis was performed using Varimax rotation, which identified a uni-dimensional model. Confirmatory factor analysis was performed using goodness of fit model, standardized root mean square residual, root mean square error of approximation, comparative fit and Tucker-Lewis indices. Scoring of the scale was Likert – type.

RESULTS
Fulfilling the prerequisites was followed by factor analysis. Uni-dimensionality with acceptable range of variance was established. Confirmatory factor analysis was performed, and the goodness of fit indices indicated that our model fitted the data well. Crohnbach's alpha was 0.75, Spearman Brown coefficient was 0.68, and Guttmann split-half coefficient was 0.69. Different demographic variables were found to influence the anxiety levels, like age and level of education.

CONCLUSION
CASU was found to be a reliable and valid self-administered instrument to screen people with Covid-19 related anxiety.

KEY WORDS
COVID-19, Anxiety, Pakistan, Urdu, Scale

INTRODUCTION

The COVID-19 pandemic that started in late 2019 and engulfed the world by the first three months of 2020, caused a lot of unprecedented panic and anxiety[1]. Not just the exposure, fear of exposure, but also the overwhelming information on the social media, that changed rapidly, thus added to the uncertainty[2]. And then the quarantines and lockdowns world over, added insult to injury. Uncertainty about jobs and financial problems further aggravated the problem.

The anxiety and fear thus caused did not leave any societal entity unaffected. All ages, genders and professions were affected[3]. Such psychiatric manifestations had remained under the attention of mental health workers. A need had emerged to quantify the presence of such signs and symptoms. The symptoms mostly ranged from stress, worry, to fear, uncertainty, restlessness, dread, and other similar manifestations of anxiety syndrome[4]. Being threatened by illness and death, and feeling vulnerable had been a hallmark of previous pandemics too[5].

Many different factors were identified, as a cause to such mental health symptoms. These included fear of contacting the virus, not having enough or appropriate personal protective equipment and hospital closures[6].

Some more worries had been reported, like scarcity of household essentials, separation from loved ones, occupational closure including schools and workplaces. Furthermore, disturbance in wages, even deduction or stoppage, laying off, disturbance of habits and customs, social isolation and quarantines, were included in the list[7]. The prevalence of anxiety related symptoms have also shown to vary from region to region[5].

Better safeguarding of the psychological health of the community through practical mental health intervention is crucial to help prevent or ameliorate health care delivery disruptions during outbreaks[8]. The burden of mental health issues during the prevalent pandemic still remains unclear and unexplored in our part of the world. We aimed at developing an instrument to measure the symptoms of anxiety related to COVID-19 pandemic, and to develop a scale for further research in the national language.

SUBJECTS AND METHODS

Our study was done at the Department of Psychiatry Combined Military Hospital Kharian Cantonment, from September to December 2020. The ethical review committee approved our study in their periodic conference.

The sequence of our study included gathering the relevant information, followed by generating a pool of items that we aimed to measure. The information gathering was taken up by the authors through online literature

search, and focus group discussion with senior experts of the field. This group included five psychiatrists, actively seeing patients. The theme of the discussions was the type of anxiety signs and symptoms observed in their clinical practices, in relation to the current Covid-19 pandemic. Examples observed by these psychiatrists while seeing patients, during the pandemic were quoted and relevant advice was shared. The group approved most of the points that we had included in our preliminary draft. In the light of this discussion, two of the items from our draft were excluded and one new added.

After formatting our items, we presented it to a group of subject experts (an associate professor in psychiatry and an associate professor in behavioural science), statisticians (associate professor in behavioural sciences) and language experts (an associate professor and an assistant professor in department of English at Karakoram International University, Gilgit) in a virtual meet. Their feedback was noted down and discussed with them as a group, and separately wherever required. The scale was hence modified according to their input. A language expert was involved for improving the final face validity.

The responses in our scale were Likert type, i.e. four responses for each statement[9]. A common instruction stem was given at the beginning of the scale, asking the volunteer to respond in a continuum. A response choice was given to the respondent including 'not at all', 'sometimes', 'many days' to 'almost every day'. Fifty participants, 25 females plus 25 males, took part in the pilot study. All gave us their informed consent. Their participation was voluntary and they had the right to withdraw from the study at any time/any stage.

We also included these participants in the final validation analysis, the total number of participants for validation stage was 400. These participants were included through convenience non probability sampling technique, and consisted of healthy adults visiting CMH Kharian, with other patients as attendants, nursing cadets, auxiliary staff of the hospital and medical students. The inclusion criteria included being adult, either gender, able to read and write Urdu. Exclusion criteria was the presence of a pre-existing psychiatric disorder, and an inability to read or write. Along with filling a demographic sheet, we interviewed all the participants regarding any problem faced in comprehending or answering the statements in our scale. None reported any problem.

The purpose of our data analysis was to find out psychometrically sound items screening anxiety as signs / symptoms in relation to the Covid-19 pandemic.

RESULTS

As regarding the descriptive results of our study, we included 200 (50.0%) males with age ranged from 18 to 80 years (M = 31.17, SD = 11.31) and 200 (50.0%) females with age ranging from 18 to 74 years (M = 28.67, SD = 9.93). The majority of the participants belonged to Gilgit Baltistan = 307 (76.75%), details of participants from other areas is as follows; Punjab = 40 (10.0%), Sindh = 41 (10.25%), Baluchistan = 2 (0.5%), KPK = 5 (1.25%), and Islamabad Capital Territory = 5 (1.25%).

The split up of sample as per level of formal education showed that majority were educated for at least 14 years of formal education, details are as follows; 160 (40.20%) participants were educated up to 16 & above years, 159 (39.94%) participants were educated up to 14 years, 52 (13.06%) participants were educated up to 12 years, 20 (5.02%) participants were educated up to 10 years and those below 10 years were only 7 (1.75%). The occupations of our participants included students 184 (46%), Government employees 55 (13.75%), businessmen 38 (9.5%), housewives 23 (5.75%), military & unemployed both 21 (5.25%) each, and others including miscellaneous occupations were 58 (14.5%).

Before conducting the exploratory factor analysis, we assessed its prerequisites. Kaiser-Meyer Olkin sample adequacy value was 0.80 indicating item sufficiency and Bartlett's Test of Sphericity was <0.00, depicting that the correlations were different from identity matrix. The item-respondent ratio (1:67) was quite above the desirable level. A minimum of ≥0.5 item-total correlation was fixed as a criterion to retain items for factor analysis. After achieving all above mentioned necessities, the principal component factor analysis with Varimax rotation was finalised. This produced a single component COVID-19 Anxiety Scale Urdu (CASU) depicting that all the six different items measured various features of the same construct. The unidimensional components of CASU with an eigenvalue of 2.95 explained a variance of 49.3% (Table 1).

Table 1:
Exploratory factor analysis showing single dimension of corona virus Anxiety Scale Urdu (N=400)

S. No.	Item No.	Factor Loading	M	SD	Item-Total Correlations
1	5	.76	1.87	0.85	.65**
2	3	.72	2.42	0.97	.63**
3	6	.69	1.96	0.88	.71**
4	4	.63	1.63	0.78	.62**
5	1	.62	1.71	0.76	.72**
6	2	.57	1.72	0.80	.67**
Eigenvalue		2.95			
% Variance		49.3			

Note: ** correlation is significant at .01 level.

According to the results of the exploratory factor analysis, a unidimensional model was identified in which "fear of having coronavirus", "fear for the near and dear ones getting coronavirus", "feeling anxious or nervous after reading or listening about coronavirus", "unable to stop/control worrying after reading or listening about coronavirus", "trouble relaxing after reading or listening about coronavirus", and "becoming restless after reading or listening about coronavirus" loaded onto the latent variable of COVID-19 related anxiety. The developed Likert-type scale had a range of scores from 6 to 24, with higher scores showing higher levels of COVID-19 related anxiety.

Confirmatory factor analysis was used to test the hypothesis that the taken dataset was not different from the theoretical construct, i.e. COVID-19 related anxiety. Goodness of fit of model was assessed using three indices as all of them provided different information about the model fit, in the software AMOS 20. The standardized root mean square residual (SRMR) was used to check absolute fit, the root mean square error of approximation (RMSEA) was used to check model parsimony, and comparative fit index (CFI) and Tucker-Lewis index (TLI) were used to check a fit relative to the null model. The following acceptable model fit criteria (Brown, 2006) were used to interpret our results[13]: SRMR values near to .08 or below, RMSEA values near to .06 or below, and CFI and TLI values near to .95 or greater were taken as desirable. Each of the goodness-of-fit indices revealed that the unidimensional model fit the data well, X^2 (8, N = 438) = 14.92, p = 0.06, CFI = 0.95, TLI = .91, SRMR = 0.02, RMSEA = 0.04.

Cronbach's alpha for CASU was 0.75. The reliability was broadened by split-half reliability of CSBSU: part 1 (r = 0.61), part 2 (r = 0.68), and correlation between the two halves (r = 0.52). Spearman Brown coefficient was 0.68, and Guttmann split-half coefficient was 0.69.

Additional findings revealed that the participants' age was negatively (r = -.11, p = .02) correlated with COVID-19 related anxiety, meaning that COVID-19 anxiety decreased with increase in age, however the quality of this relationship was very weak. Participants' occupation also significantly influenced their COVID-19 related anxiety [F (6, 393) = 2.38, p = 0.02], i.e. students reported highest level while unemployed people reported lowest levels of COVID-19 related anxiety. Other demographic variables like, gender (t = 0.16, p = 0.53), native area [F (2, 385) = 0.41, p = 0.66], and educational level [F (4, 393) = 1.68, p = 0.15] were found not to influence the COVID-19 related anxiety levels in the participants. SPSS version 23 was used in the study. The final scale is given in Figure 1.

Figure 1:
The Covid-19 Anxiety Scale Urdu (CASU)

DISCUSSION

This study was conducted to develop a psychometrically comprehensive instrument to assess COVID-19 related anxiety, which could be used to guide clinicians and policy-makers in improving their care, and policies pertaining to COVID-19, by adding the care for anxiety as well. To assess construct validity, exploratory factor analysis with Varimax rotation was used that created a single component COVID-19 Anxiety Scale-Urdu (CASU). Factor communalities (0.33 to 0.59) were in acceptable range (Child, 2006) [10]. Multicollinearity issue was assessed using item-total correlations and it was aimed to have been less than 0.8[11]. In the present study the highest bivariate correlation matrix was 0.72 for fifth item indicating that there was no multicollinearity issue. The unidimensional component of CASU explained 49.3% of the observed variance, which was also in the acceptable range[12]. Confirmatory factor analysis results revealed that values of all three indices; SRMR (0.02), RMSEA (0.04), CFI (0.95), and TLI (.91) were in acceptable range indicating a good fit of our unidimensional component of CASU[13].

Additional findings revealed that participants' age was negatively (r = -.11, p = .02) correlated with COVID-19 anxiety. This meant that COVID-19 related anxiety decreased with an increase in age. Researchers reported consistent findings from different parts of the world. In USA and Canada, participants' age had a small-to-medium negative correlation with COVID-19 stress syndrome[14]. Only in Canada, participants with age ≤25 years reported highest level while participants with age >60 years reported lowest level of anxiety during COVID-19 pandemic[15]. While in India, younger age predicted higher psychological impacts of COVID-19[16].

Participants occupation also significantly influenced their COVID-19 anxiety [F (6, 393) = 2.38, p = 0.02], i.e. students reported highest level, while unemployed people reported lowest level of COVID-19 related anxiety. Other demographic variables, i.e. gender (t = 0.16, p = 0.53), native area [F (2, 385) = 0.41, p = 0.66], and educational level [F (4, 393) = 1.68, p = 0.15] were found not to influence the participants' COVID-19 related anxiety. Other studies also reported the overwhelming negative impact of COVID-19 on students' mental health [17-19] but contrary to our findings many studies reported female gender as risk factor to develop COVID-19 related mental health issues while another study found media exposure as a risk factor to develop fear of coronavirus[20].

CONCLUSION

CASU was found to be a reliable and valid scale to screen anxiety, in Urdu language.

REFERENCE

1. Peteet JR. COVID-19 Anxiety. J Relig Health. 2020 ;59(5):2203-2204. doi: 10.1007/s10943-020-01041-4.
2. Gao J, Zheng P, Jia Y, Chen H, Mao Y, Chen S, Wang Y, Fu H, Dai J. Mental health problems and social media exposure during COVID-19 outbreak. PLoS One. 2020;15(4):e0231924. doi: 10.1371/journal.pone.0231924.
3. Šljivo A, Kaèamakoviæ M, Quraishi I, Džubur Kulenoviæ A. Fear and Depression among Residents of Bosnia and Herzegovina during COVID-19 Outbreak - Internet Survey. Psychiatr Danub. 2020 Summer;32(2):266-272. doi: 10.24869/psyd.2020.266.

4. Stein MB. EDITORIAL: COVID-19 and Anxiety and Depression in 2020. Depress Anxiety. 2020;37(4):302. doi: 10.1002/da.23014.

5. Choi EPH, Hui BPH, Wan EYF. Depression and Anxiety in Hong Kong during COVID-19. Int J Environ Res Public Health. 2020;17(10):3740. doi: 10.3390/ijerph17103740.

6. Thombs B.D., Bonardi O., Rice D.B., Boruff J.T., Azar M., He C., Markham S., et.al. Curating evidence on mental health during COVID-19: A living systematic review. J. Psychosom. Res. 2020 doi: 10.1016/j.jpsychores.2020.110113. in press.

7. Taylor S. The Psychology of Pandemics: Preparing for the Next Global Outbreak of Infectious Disease. Cambridge Scholars Publishing; Newcastle upon Tyne, UK: 2019.

8. Low J.G., Wilder-Smith A. Infectious respiratory illnesses and their impact on healthcare workers: A review. Ann. Acad. Med. Singapore. 2005;34:105–110.

9. Lietz P. Research into Questionnaire Design: A Summary of the Literature. *International Journal of Market Research. 2010; 52*(2), 249–272. DOI: 10.2501/S147078530920120X.

10. Child, D. The Essentials of Factor Analysis. ed 3rd, New York: Continuum; 2006.

11. Field, A. Discovering Statistics using SPSS, ed 4th, London: SAGE; 2013.

12. Streiner DL. Figuring out factors: the use and misuse of factor analysis. Can J Psychiatry. 1994 Apr;39(3):135-40.

13. Brown, T. A. Confirmatory factor analysis for applied research. ed 1st, New York: The Guilford Press; 2006.

14. Taylor S, Landry CA, Paluszek MM, Fergus TA, McKay D, Asmundson GJG. COVID stress syndrome: Concept, structure, and correlates. Depress Anxiety. 2020;37(8):706-714. doi: 10.1002/da.23071.

15. Nwachukwu I, Nkire N, Shalaby R, Hrabok M, Vuong W, Gusnowski A, et. al, COVID-19 Pandemic: Age-Related Differences in Measures of Stress, Anxiety and Depression in Canada. Int J Environ Res Public Health. 2020 1;17(17):6366. doi: 10.3390/ijerph17176366.

16. Varshney M, Parel JT, Raizada N, Sarin SK. Initial psychological impact of COVID-19 and its correlates in Indian Community: An online (FEEL-COVID) survey. PLoS One. 2020 May 29;15(5):e0233874. doi: 10.1371/journal.pone.0233874.

17. Islam MA, Barna SD, Raihan H, Khan MNA, Hossain MT. Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh: A web-based cross-sectional survey. PLoS One. 2020 26;15(8):e0238162. doi: 10.1371/journal.pone.0238162.

18. Solomou I, Constantinidou F. Prevalence and Predictors of Anxiety and Depression Symptoms during the COVID-19 Pandemic and Compliance with Precautionary Measures: Age and Sex Matter. Int J Environ Res Public Health. 2020;8:17(14):4924. doi: 10.3390/ijerph17144924.

19. Xiong J, Lipsitz O, Nasri F, Lui LMW, Gill H, Phan L, et. Al,. Impact of COVID-19 pandemic on mental health in the general population: A systematic review. J Affect Disord. 2020 1;277:55-64. doi: 10.1016/j.jad.2020.08.001.

20. Mertens G, Gerritsen L, Duijndam S, Salemink E, Engelhard IM. Fear of the coronavirus (COVID-19): Predictors in an online study conducted in March 2020. J Anxiety Disord. 2020;74:102258. DOI: 10.1016/j.janxdis.2020.102258.

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