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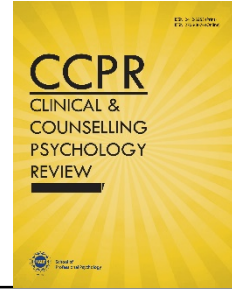|	
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Urdu Translation and Validation of Secondary Traumatic Stress Scale among Frontline Healthcare Workers during COVID-19

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Abstract

The current study was intended to translate and validate Secondary Traumatic Stress Scale on frontline healthcare workers working during COVID-19. The study consisted of two phases. The first phase comprised the translation of scale in Urdu language following guidelines provided by WHO in 2015. In the second phase, the psychometric properties of the translated scale were `established in two steps. In the first step, Cronbach's alpha, factor loadings, exploratory factor analysis (EFA), and item-total correlation were computed on a sample of $N = 290$ frontline healthcare workers. 49% of Men and 51% of Women were included. The mean age of the participants was $M = 35.14$ $SD = 8.94$. The result of Kaiser-Guttman's and Cattell's scree plots suggested that only one principal component emerged with a minimum factor loading of 0.50. Item total correlation ranged from .68 to .75. Cronbach's alpha was 0.94. In the second step, test-retest reliability, construct validity (convergent and discriminant validity), and language equivalency of the Urdu-translated version of the Secondary Traumatic Stress Scale was analyzed on the sample of $N = 120$ healthcare workers. The mean age was $M = 35.82$ ($SD = 9.01$). Test-retest reliability of the scale was 0.86. For convergent validity, the correlation coefficient with the perceived stress scale was .83 and the depression, anxiety, and stress scale was 0.77, 0.73, and 0.74 respectively which showed a significant positive relationship among constructs of scales. For discriminant validity, the correlation coefficient with the satisfaction with life scale was -.26 suggesting a weak correlation among both constructs. On Language equivalence, both scales (English and Urdu versions) have a strong correlation of 0.94. Reliability and validity coefficients suggest that the Urdu version of the Secondary traumatic stress scale (STSS) is reliable and valid scale.

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Keywords: exploratory factor analysis, Secondary Traumatic Stress Scale (STSS), Urdu translation

Introduction

The sudden outbreak of COVID-19 affected human beings globally. The first case of COVID-19 was diagnosed in the city of China named Wuhan in December 2019. It was initially diagnosed as pneumonia of an unknown cause which later rapidly spread in other countries as well. On 30th January 2020, World Health Organization confirmed coronavirus as the sixth public health emergency of international concern (PHEIC). The World Health Organization later classified it as a pandemic on March 11, 2020 (World Health Organization [WHO], 2020).

The initial cases of coronavirus in Pakistan were reported in February 2020 and considering the life-threatening circumstance, the Government displayed lockdown across the country in March 2020. After some relaxations in lockdown restrictions, a second wave was initiated in November 2020; then semi-lockdown restrictions were displayed in the areas where the ratio of COVID-19-affected individuals was high. Like other underdeveloped countries, Pakistan, a country of 212 million individuals, faced diverse critical issues including a low patient-provider ratio (1:1300) due to lack of resources and sudden outbreak specifically during 2nd wave outbreak (Mahmood et al., 2021). On September 19, 2020, a re-surge in new daily cases was detected, creating the huge third coronavirus wave in the province with an average daily case of 838. The third wave reached its plateau on November 25, 2020. The fourth wave began on March 31, 2021, during which an average of 929 cases were reported daily. The province managed to come out of it on May 29, 2021, however shortly after, on June 22 the country entered its fifth wave with an average daily count of 5825. The wave came to an end on December 18, 2021, after several weeks of declining numbers of new cases followed by a plateau (Memon et al., 2021).

The pandemic condition had been classified as a traumatic and horrific occasion that had exceptional significance as it was beyond the normal human experience leading to face death (Dutheil et al., 2020). The events that suddenly occurred and exposed individuals to dreadful situations, left a long-term impact on the physical as well as the psychological health of an individual. This impact then exhibited itself in the form of

psychopathologies, for instance, Post Traumatic Stress Disorder (PTSD) and Acute Stress Disorder (ASD) (Brooks et al., 2020; Henry et al., 2020; Maunder et al., 2006).

Considering the consequences, the condition was considerably frustrating not only for the one who lived with it but also for those who dealt with it. The frontline healthcare workers had been found to be fulfilling their duties exceptionally both in their personal and professional lives. In that effort, they also got exposed to an ailment with doubtful etiology, and pathology, followed by no remedy, no vaccination, and ultimately death. Due to the fast progression of COVID-19, imprudent chances of contamination, high death rate, lack of particular medications, no formal operative protocols, and lockdown, healthcare workers and emergency workers had fulfilled their duties in extreme conditions. Despite being uncertain about themselves and their loved ones, they were required to take challenging ethical decisions and work professionally (Dutheil et al., 2020; Gavin et al., 2020).

It has been seen that healthcare professional and the supporting staff is likely to be exposed to the traumatic circumstance that also involved seeing a patient dying in front of their eyes. During the COVID-19 pandemic circumstances, the likelihood of being exposed to these factors increased intensely leading both healthcare workers and the paramedic staff to develop Post-Traumatic Stress Disorder (PTSD) or Secondary Traumatic Stress (STS) (Gavin et al., 2020). Keeping in view of COVID-19, recent research on Pakistani healthcare professionals has also supported the fact that there was a strong influence of the pandemic circumstances on the psychological health of frontline healthcare workers. The frontline healthcare workers suffer from anxiety, depression, insomnia, and distress in dealing with pandemic situations due to the stressful environment (Ullah et al., 2022).

During this crisis, it was important to assess the secondary traumatic stress level of front liners so that protective measures for their mental health could be taken. Different instruments had been established to determine secondary traumatic stress among frontline healthcare workers, one of which is the Secondary Traumatic Stress Scale (STSS). It is a self-assessment scale having excellent psychometric properties. A Secondary Traumatic Stress Scale was developed in the English language by Bride (2004). It has also been translated into Hungarian (Kegya et al., 2018),

French (Jacob et al., 2019), German (Daniels, 2008), Japanese (Kitano et al., 2021), Chines and other languages, and no item was excluded. The only difference on the basis of factors was there. STSS scale has varied factors in different languages (Liu et al., 2022). There was no translation available in Urdu Language. The Secondary Traumatic Stress Scale was translated into the Urdu language. The main reason for translating the scale into Urdu language was that Urdu is the native language of Pakistan, which is easily read and understood by its native people. So, the current study was designed to translate and validate the Secondary Traumatic Stress Scale in the Urdu language.

Figure 1
Phases of Study
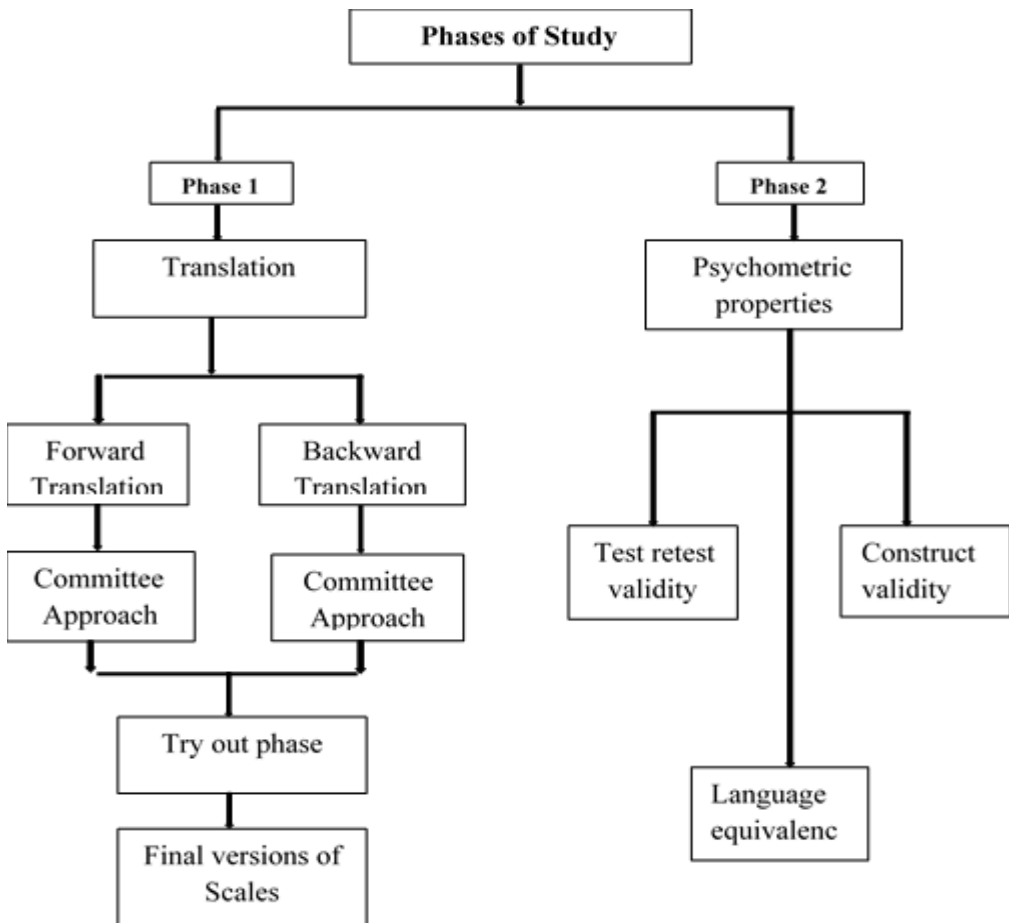
Method

Participants

The current study was comprised of two phases. In the first phase translation of the scale was done following the guidelines of WHO (2015) whereas, in the second phase psychometric properties of the scale were established. In the first part of the study, $N = 290$ frontline healthcare workers participated in the study; 169 were young adults (58.3%) and 121 were middle-aged adults (41.7%). Among them, 53.1% were women and 46.9% were men. On marital status, 173 participants were married and 117 were unmarried. According to the level of education, the concentration of participants with MBBS degrees was high. Professionally, 58.6% were doctors, 21.4% were nurses and 20.0% were other paramedic staff. According to job sectors, 63.8% were doing government jobs and 36.2% were doing jobs in the private sector. In the second part of the study, out of 120 participants, 109 were females (90.8) and 11 (9.2%) were males. 62 (51.7%) were young adults and 58 were middle-aged adults (48.3%). On marital status 30 reported to be unmarried, 85 were married and 5 were divorced. On education level 59 reported having nursing courses, 41 reported having an intermediate degree, and 15 reported having matric, whereas 5 reported being graduates.

In the second phase, 120 participants (male = 11, female = 109) participated in the study. Among them 62 were young adults and 58 were middle age adults. Mean age of the participants was 35.82 years ($SD = 9.01$). Most of them completed their nursing course (49.2%) and higher secondary education (34.2%). More than half of the participants (i.e., 56.7%) belongs to public sector.

Procedure

The current study was comprised of two phases. In the first phase, translation of the scale was done following the guidelines of WHO (2015) whereas, in the second phase psychometric properties of the scale were established. Data were collected through an online forum due to lockdown restrictions. Participants were approached through mixed sampling; snowball and purposive sampling methods. The sample size was estimated using G-Power 3.1.6. F-test family was selected in G-power. By adding 20% of the sample size to the estimated sample size, the total sample was calculated. Healthcare workers dealing with Covid-19 indoor and outdoor

patients were included. Frontline healthcare workers of the age range 19 years to 55 years were included (WHO, 2015). Participants who were willing and committed to participating in research, who have access to the internet, and who can read and fill out the questionnaire in the Urdu language were included (WHO, 2015). Data was collected in 4 months duration from April 2021 to July 2021.

In the first phase, the translation procedure was carried out according to the guidelines provided by World Health Organization (Course Hero, 2015). In forward translation, five bilingual persons from the field of psychology who have expertise in understanding both languages (English and Urdu) and are also aware of technical terminologies (used in scale) were approached and requested to translate the scale. The translators were requested to translate the scale into a simple and easy language without altering the theme/content of terminologies used in that scale. All five translators were contacted independently. Important information regarding the translation procedure was communicated to the experts and they requested to translate the instructions along with all items as precisely as possible.

After completing the forward translation, the committee of subject matter experts was approached for the selection of the most appropriate and adequate translated options. Five professionals and subject matter experts who were bilinguals were requested to be part of the committee. The assessment and selection of translation based on understandable language, and sentence structure according to the cultural context, was done by the committee. The most suitable translation of each item and closest to the foundation language (English) was carefully selected.

For the purpose of back translation, five bilingual professionals who were subject experts (Psychologists) were approached. The professionals for the forward and backward translations were separate to avoid shortcomings in the translation process. After completing the backward translation, the committee was approached for the selection of the most appropriate and adequate translation. Five professionals and subject matter experts who were bilinguals were requested to be part of a committee. The assessment and selection of the translation based on simple language, understandable, and sentence structure according to cultural context was done by the committee members. The most suitable translation of each item and closest to the target language (Urdu) was carefully selected.

Subject experts received the forward and backward translation of each item of scale and evaluated each item in terms of accuracy and appropriate meaning of original items. Once the translation was completed and reviewed by experts, a semi-final version of the Secondary Traumatic Stress Scale (STSS) Urdu version was achieved. In the try-out phase translated scale was given to 30 participants to evaluate the face and operational validity of all items and instructions. Participants were contacted personally and all participants were university teachers with age range above 30 years. Participants didn't report any difficulty, so there was no further requirement for any change. A final version of the scale was achieved.

After the final version of the scale was achieved analysis was completed in two parts. In the first part; Cronbach's alpha, factor loadings, exploratory factor analysis (EFA), and item-total correlation were computed on the sample of 290 frontline healthcare workers. Whereas, in the second part test-retest reliability, construct validity (convergent and discriminant validity), and language equivalency of the Urdu-translated version of the Secondary Traumatic Stress Scale were analyzed on the sample of 120 healthcare workers. For the purpose of ensuring psychometric properties Perceived Stress Scale (PSS) consisted of 10 items (Mariam, 2011), the Depression, Anxiety, and Stress Scale consisted of 21 items (DASS) (Aslam & Kamal, 2017), the Satisfaction with Life Scale consisted of 5 items (Barki et al., 2017) and Secondary Traumatic Stress Scale comprised of 17 items (STSS) (Bride, 2004) was used. Cronbach's alpha was calculated on the total number of participants which was 290.

Results

SPSS 26.0 was used for analyses. Exploratory factor analysis has been used to determine factors. All items have factor loading equal to and above 0.50. One component emerged on Kaiser-Guttman's and Cattell's scree plot. Eigenvalue of $\lambda = 9.24$ with 54.33 variance explained (KMO= 0.96, χ^2 (136) = 2931.88, $p < .001$). Cronbach's alpha was 0.94. Test-retest reliability of the scale was 0.86. For convergent validity correlation coefficient with the perceived stress scale was .83 and with depression, anxiety, and stress scale was 0.77, 0.73, and 0.74 respectively which showed a significant positive relationship among constructs of scales. For discriminant validity, the correlation coefficient with the Satisfaction with Life Scale was -.26 suggesting a weak correlation among both constructs. On Language equivalence, both scales (English and Urdu versions) have a strong

correlation of 0.94. Reliability and validity coefficients suggest that the Secondary Traumatic Stress Scale (STSS) was a reliable and valid scale.

Table 1

Mean, Standard Deviation, Factor Loadings, Item-Total Correlation, and Cronbach's Alpha (N=290)

Sr. No.	Item no.	*M*	*SD*	Factor loading	Item total correlation
1	7	3.06	1.29	.50	.68**
2	3	3.07	1.25	.50	.69**
3	9	2.99	1.31	.50	.71**
4	8	2.95	1.35	.51	.71**
5	14	2.93	1.35	.52	.72**
6	10	2.96	1.37	.52	.72**
7	1	2.76	1.25	.52	.72**
8	4	3.23	1.28	.52	.72**
9	5	3.09	1.40	.52	.72**
10	6	3.12	1.30	.53	.73**
11	17	2.68	1.36	.54	.74**
12	12	2.83	1.26	.58	.76**
13	11	2.92	1.38	.59	.77**
14	16	3.04	1.38	.59	.77**
15	15	3.03	1.29	.60	.77**
16	2	2.96	1.22	.62	.78**
17	13	2.96	1.33	.63	.79**
α	0.94				
Eigen value	9.24				
%value	54.33				

Note. KMO=0.96, Bartlett's test of sphericity= 0.000

Table 2

Convergent and Discriminant Validity of Secondary Traumatic Stress Scale (N=120)

Variables	*M*	*SD*	1
Convergent validity			
Secondary Traumatic Stress Scale (Urdu)	52.08	16.86	-
Perceived Stress Scale	22.33	9.54	.83**

Variables	*M*	*SD*	1
DASS Scale			
Depression	10.53	4.51	.77**
Anxiety	10.49	4.37	.73**
Stress	10.56	4.44	.74**
Discriminant validity			
Satisfaction with life scale	16.17	5.26	-0.26*

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

Discussion

This study was conducted to translate and validate the Secondary Traumatic Stress Scale into the Urdu language by following translation guidelines provided by WHO (2015). The purpose of translating this scale into Urdu (the native language of Pakistan) was to facilitate participants to easily understand the language of the instrument and to obtain more accurate responses. There was no scale available in Urdu to measure secondary traumatic stress. So, this scale was translated to be used for research purposes to evaluate the secondary traumatic stress among frontline healthcare workers during COVID-19.

Factors were determined by using exploratory factor analysis. Factor analysis revealed that the scale has one dimension that measures secondary traumatic stress. The original scale given by Bride (2004) was comprised of 3 subscales including arousal, intrusion, and avoidance. In the current study, the lowest factor loaded in a single-factor structure was found to be equal to and greater than 0.50. This factor explained 54.33 variances with Eigenvalue of 9.24. Factor loadings were equal to and greater than .55 for each item. Furthermore, the analysis suggested that the Urdu version of the scale was internally consistent having Cronbach's alpha of 0.94. Almost all items' correlations were above .70. Only two items have correlations below .70 suggesting that all items strongly correlate with the overall scale. All items having a correlation above 0.30 be considered as part of the study (Carmines & Zeller 1974; de Vaus, 2004). This shows that the scale is internally consistent. So, all 17 items were retained.

The item distribution was not completely consistent with the original scale. There may be different reasons like cultural differences, and differences in research objects, such as gender, age, position, economic status, and time difference. The same study was conducted in China and

SPSS 26.0 was used for exploratory factor analysis of sample $n = 460$. The study identified two components of the Secondary Traumatic Stress Scale-Chinese version, which has 2 dimensions and 17 items (He et al., 2022).

Another study was done and the purpose of this study was to examine the reliability and validity of the STSS with a sample of mental health social workers. To assess the fit of the data to the three-factor structure proposed by Bride et al., an analysis was performed on data from 275 social workers who indicated exposure to client trauma. The model fits the data adequately and high factor inter correlations strongly suggest a one-dimensional scale. Subsequent confirmatory factor analysis of a unidimensional scale and a second-order factor analysis yielded similar results. Findings indicate the need for further scale validation. Challenges remain for measuring and distinctly differentiating between secondary trauma symptoms of arousal, avoidance, and intrusion (Bride et al., 2014). In addition, it can be said that intrusion, avoidance, and arousal sub-factors are interrelated in terms of STSS (Mancini, 2019).

For test-retest reliability participants were approached after two weeks to fill out the questionnaire again in the Urdu language. The time interval between test-retest should not be less than 2 weeks or more than 6 months (Mason & Ohio, 2008). Test-retest value was 0.86 which shows that the scale has a good test-retest value. To establish convergent validity of scale the Urdu version of the Perceived Stress Scale and DASS were given to participants. The constructs of the perceived stress scale and DASS were similar to the construct of the secondary traumatic stress scale. The same constructs should correlate with related constructs in convergent validity (Streiner et al., 2015). Both scales, the perceived stress scale, and depression, anxiety, and stress scales had a significant positive correlation with the secondary traumatic stress scale. To establish discriminant validity of scale the Urdu version of the Satisfaction with Life Scale was given to participants. Discriminant validity refers to how two unrelated constructs should differ and shouldn't correlate moderately or strongly (Streiner et al., 2015). Results suggest that both scales had a moderate negative correlation. They both differ in constructs.

On language equivalency both the Urdu version and the English version of the scale positively correlated strongly. According to Tang and Dixon (2002), it is important to ensure that translated version of the scale conveys

the same meaning as of original items, so a genuine response can be gained. Hence language equivalency is an important step in scale translation.

Conclusion

The Secondary Traumatic Stress Scale (STSS) Urdu version was found to be a reliable and valid scale to measure secondary traumatic stress among frontline healthcare workers during the covid-19. This scale is very useful for mental health practitioners and researchers to identify secondary traumatic stress among social workers and healthcare workers. Given the significance and severity of the COVID-19 pandemic, it is essential for organizations to provide resources for both immediate and ongoing support for the emotional well-being of healthcare workers.

Implications of Study

Results of the current study will allow researchers and psychologists to understand the impact of covid-19 on the mental health of healthcare workers by using the Secondary Traumatic Stress Scale. This will help researchers to understand the importance of adaptive coping skills in these traumatic situations to reduce secondary traumatic stress and enhance growth. The current study will also help mental health practitioners and policymakers in developing appropriate interventions for promoting the coping abilities of healthcare workers and providing tailored mental health support to them.

Recommendations

Findings indicate the need for further scale validation. Challenges remain for measuring and distinctly differentiating between secondary trauma symptoms of arousal, avoidance, and intrusion Most of the participants in the current study were doctors, nurses, and paramedic staff, so it is suggested to have different samples to ensure the psychometric properties of the scale. The mental health of frontline healthcare workers should be taken seriously and their coping skills should be enhanced so that their stress levels can be managed.

Limitations of Study

There are certain limitations of the current study. The pandemic condition affected the data collection phase of the study. Data collection was done online mode through social media platforms, emails, etc. Representation of paramedic staff in the sample is less due to the inability

to approach paramedics through online mode. This study should also be repeated with a large sample size.

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