

Translation and Validation of Symptom Checklist-90

Nadia Shafique and Muhammad Tahir Khalily

International Islamic University

Louise Mchugh

University College Dublin, Ireland

The Symptom Checklist-90 (SCL-90; Derogatis, Lipman, & Covi, 1973) is a widely used multidimensional measure for psychiatric morbidity. The present study translated and validated the SCL-90 in Urdu in two phases. Phase I included the translation of the scale by using the forward and back translation method, while Phase II dealt with the establishment of psychometric properties for SCL-90. A total sample of 367 adults with mean age of 21.46 years was drawn from different universities of Rawalpindi and Islamabad. The Cronbach alpha coefficients of all the subscales ranged from .71 to .87. Moreover, Confirmatory Factor Analysis showed an acceptable goodness of fit indices ranging from .96 to .99 on each subscale of the SCL-90. The convergent validity indicated a significant correlation between subscales of SCL-90 and clinical scales of Minnesota Multiphasic Inventory (Mirza, 1977). In addition, the Depression Anxiety Stress Scale (Zafar, 2014) highly correlated with the overall subscales of the SCL-90. Furthermore, the independent sample *t*-test demonstrated that the individuals with psychiatric disorders significantly scored high on all the nine dimensions of the SCL-90 as compared to the healthy individuals.

Keywords. Somatization, anxiety, depression, interpersonal sensitivity, hostility

Linguistically and cultural-adapted self-report questionnaires provide enough support to the clinicians, psychologists, and psychiatrists in establishing the diagnosis and typifying other factors

Nadia Shafique and Muhammad Tahir Khalily, Department of Psychology, International Islamic University, Islamabad, Pakistan.

Louise Mchugh, School of Psychology, University College Dublin, Ireland.

Correspondence concerning this article should be addressed to Nadia Shafique, Department of Psychology, International Islamic University, Islamabad, Pakistan. E-mail: nadiashafique17@gmail.com

affecting treatment response. It also provides a baseline for the follow-up of progression of an illness over a period in response to specific interventions (Holi, 2003). The SCL-90 (Derogatis et al., 1973) is one of the broad spectrum assessment measures of nine psychiatric symptoms that overall depicts the psychological distress. It has been extensively used in research settings in Western and some Asian countries and has been adapted in many languages (Derogatis, 1994; Derogatis, Rickels, & Rock, 1976). Another most important implication of the SCL-90 in the assessment of psychiatric comorbidity as the chronic illness or neurological disorders often develop psychiatric symptoms (Juang, Wang, Fuh, Lu, & Su, 2000). Due to its extensive application, an attempt has been made in the present study to translate and adapt the SCL-90 in Urdu and to establish its psychometric properties for Pakistani population.

After several revisions of the SCL-90, there are nine primary constructs including Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic, Paranoid Ideation, and Psychoticism (Derogatis, 1994). According to their description in Diagnostic and Statistical Manual of Mental Disorders-V (DSM-V; American Psychiatric Association, 2013), Somatization refers to the persistent thoughts, feelings, or behaviors related to the health or body dysfunction. Obsessive-Compulsive disorder relates to the obsessions or preoccupations with appearance, hair pulling, and compulsions are body-focused repetitive behaviors. Interpersonal sensitivity refers to the feelings of personal inadequacy or inferiority, uneasiness, and marked discomfort during interpersonal interactions. Depression is the sense of gloominess, dejection, irritable mood accompanied by physical and cognitive changes that hinder the individual's daily life functioning. Anxiety is having the excessive fear with behavioral disturbances such as panic attacks. Hostility reflects the thoughts, feelings, or actions which are the characteristics of the adverse affect or state of anger. Phobia refers to the irrational fear of particular objects and situations such as using automobiles, ships, planes, buses, and being in open or closed places such as standing in a queue or to go outside the home alone. Paranoid represents paranoid ideation disordered thinking which includes suspiciousness and delusions. Psychoticism shows the bizarre behavior and includes a broad range of personality disorders such as Schizoid personality to clinical psychosis (DSM-V; American Psychiatric Association, 2013; Smits, Timmerman, Barelds, & Meijer, 2014).

All the subscales demonstrated a high degree of criterion validity with the clinical scales of Minnesota Multiphasic Personality

Inventory, and the other analogous measures such as the Depression and State-Anxiety Inventories (Koeter, 1992; Derogatis, 2000; Schmitz et al., 2000; Prinz et al., 2013). Lundin, Hallgren, and Forsell (2015) administered the SCL Depression and Anxiety Subscales in a Swedish population and found it as an excellent diagnostic tool of the depression and highly correlated with other depressive measures. Kennedy, Morris, Pedley, and Schwab (2001) studied the efficacy of SCL-90 in differentiating anxiety and depression symptoms. Further, SCL-90 Somatization Subscale scores of physically ill patients were suggestively allied with anxiety and depression scores (Burns & Eidelson, 1998; Spinhoven & Vander Does, 1997). Congruently, the SCL-90 has remarkably discriminated the patients in the community which added the utility of SCL-90 as a screening instrument (Holi, Sammallahti, & Aalberg, 1998; Miotto et al., 2010; Wongpakaran, Wongpakaran, & Boripuntakul; 2011). Likewise, Bonicatto, Dew, Soria, and Seghezze (1997) identified considerable differences between the healthy respondents and physically ill patients on the psychological symptom patterns by using SCL-90 in Argentina.

The burden of the psychiatric issue is reaching at an alarming stage in Pakistan as well. Nonetheless, mental health services are still scarce to combat the growing dilemma. According to the prediction of World Health Organization, depression and anxiety will likely to be the second most absolute cause of disability by the year 2020 in Pakistan (Murray & Lopez, 1996). As Pakistan is a developing nation and facing many instabilities regarding the education, unemployment, security, inflation, and lack of essential resources which added to vulnerabilities (Karim, Saeed, Rana, Mubbashar, & Jenkins, 2004) explicitly causing aggression and harming the psychological well-being of youngsters (Imtiaz, Yasin, & Yaseen, 2010). Later on, the hostility and maladaptive coping styles are assumed to grow in depression (Nazir, & Mohsin, 2013). Moreover, Minhas and Nizami (2006) argued that most individuals come up with somatic complaints rather than psychological symptoms and often get wrong treatment. This issue prompted to the development of assessment and screening tools for the general population and its use for accurate diagnosis.

Availability of culturally adapted and valid instruments in Urdu are very few. A compact and multidimensional tool for covering all the psychological issues is needed. Mostly, MMPI is employed for measuring the vast array of psychological issues which may cause substantial burden due to a large number of items (Tomioka, Shimura, Hidaka, & Kubo, 2008). Giving the time limitations, short-term scales are more convenient for the clinicians to weigh among the screen-negative and screen-positive symptoms (Gaynes et al., 2008). Thus,

the inclusion of SCL-90 as a screening measure will provide support to the clinician for assessing the psychological distress or disarrays in less time and will be vitally important in epidemiological studies. To date, no study has yet analyzed the psychometric properties of Urdu version of the SCL-90 in Pakistan. The present study pursued to fill this void in Pakistani literature by validating the SCL-90 in Urdu. Therefore, the objectives of the study were threefold; that is, firstly, to translate and adapt the SCL-90 in Urdu for Pakistani population. Secondly, to establish the factorial structure of the translated and adapted the SCL-90 in indigenous population. Thirdly, to validate the SCL-90 by establishing evidence of construct and concurrent validity.

Method

In order to achieve the objectives, the current study was carried out in two phases. The phase 1, was involved with the translation of SCL-90 in Urdu. In phase II, the psychometric properties of the SCL-90 were determined. The Confirmatory Factor Analysis was used to assess the factorial structure of nine dimensions of SCL-90. The correlation was examined between the subscales of SCL-90, MMPI, and DASS-42. Moreover, the scores on nine dimensions of SCL-90 of healthy and non-healthy individuals were also compared.

Measures

SCL-90 (Derogatis et al., 1973). The SCL-90 was used to assess the rate of occurrence of symptoms of distress in the last seven days. Each item valued on a 5-point Likert scale from “*not at all*” (0) to “*extremely*” (4) which usually takes 12-15 minutes to complete. It measures nine primary symptom dimensions, that is, Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. The Somatization contain 12 items (1, 4, 12, 27, 40, 42, 48, 49, 52, 53, 56 and 58) with score ranging from 0 to 48. The following three subscales contain 10 items each for Obsessive-Compulsive (3, 9, 10, 28, 38, 45, 46, 51, 55, 65), Anxiety (2, 17, 23, 33, 39, 57, 72, 78, 80, 86), and Psychoticism (7, 16, 35, 62, 77, 84, 85, 87, 88, 90) with scores ranging from 0 to 40. The two subscales of Hostility (11, 24, 63, 67, 74, 81) and Paranoid Ideation (8, 18, 43, 68, 76, 83) consist of 6 items each with scores ranging from 0 to 24. Interpersonal Subscale comprises 9 items (6, 21, 34, 36, 37, 41, 61,

69, 73) and score ranged from 0-36. Depression contains 13 items (5, 14, 15, 20, 22, 26, 29, 30, 31, 32, 54, 71, 79) and score ranged from 0-52. Phobia includes 7 items (13, 25, 47, 50, 70, 75, 82) and score ranged from 0-28. SCL-90 subscales had total 83 items, and seven items were found additionally which added into the total score. The total scores range from 0 to 360 of the SCL-90, as an indicator of general psychological distress.

Accordingly, elevated scores on any subscale are the warning for further assessment of the client's mental state. (Derogatis, 1983). Additionally, the General Severity Index (GSI) is achieved by integrating the scores on the nine subscales and additional seven items. The total score is divided by the total number of responses (Derogatis, 2000).

Minnesota Multiphase Personality Inventory (MMPI). The Urdu version of MMPI (Mirza, 1977) with 399 items was used to determine the criterion validity of SCL-90. The MMPI is a dichotomous instrument having "yes" or "no" options with ten subscales including Depression, Hysteria, Hypochondriasis, Psychopath Deviate, Masculinity/Femininity, Paranoia, Psychasthenia, Schizophrenia, Hypomania, and Social Introversion. The reliability of Urdu version of MMPI (Mirza, 1977) ranged from .59 to .86.

Depression Anxiety Stress Scales (DASS). The Urdu version of DASS-42 (Zafar, 2014) utilized in the present study as a standardized measure. The scale has three subscales (i.e., depression, anxiety, and stress) each rated on 4-point Likert scale ranging from 0 to 3. There are 14 items in each subscale and possible score could ranged from 0-126 overall and 0 to 42 on each subscale. The purpose of the DASS was to assess the emotional states or feelings which they experience over the past week. The reliability of the total scale is reported as .86, and the subscales ranged from .65 to .68 (Zafar, 2014).

Phase I: Translation of SCL-90 in the Urdu Language

The translation was done in four steps. At first step, the scale was translated from the source (English) to target language (Urdu) with the help of six bilinguals (two Ph.D. scholars, one psychiatrist and professor, and two lecturers). All the bilinguals were requested to translate word-for-word without altering the meaning to make both versions conceptually equivalent.

In the second step, to resolve the discrepancies, evaluation of the items was completed under the supervision of the five subject matter experts from the field of clinical psychology comprising three Assistant Professors, one Lecturer of Psychology, and researcher herself. Each item was evaluated thoroughly concerning its style, grammar, and wording in Urdu by choosing the proper words closest to the original items. Thus, after a detailed discussion about the appropriateness and similarity of each item in the original SCL-90, its translation in Urdu version of SCL-90 was collated.

Thirdly, the scale was back-translated by using the Brislin (1976) method. For further linguistic coherence, four proficient English lecturers, one lecturer of Urdu, and one Ph.D scholar in clinical psychology were requested to translate Urdu SCL-90 into English as accurately as possible. Notably, these bilinguals were not familiar with the English version of the SCL-90. Also, a try out was carried on a sample of 20 individuals with mean age of 22.5 years ($SD = 3.3$). Results demonstrated no vagueness in the scale, and it was comprehensible, coherent, and ready for further validation.

Phase II: Determination of the Psychometric properties of SCL-90

In order to achieve psychometric properties, the Cronbach alpha coefficients were calculated. The construct validity of the dimensions of SCL-90 was validated through Confirmatory Factor Analysis on Analysis of Moment Structure (AMOS 20). Convergent validity was established between the subscales of SCL-90 with Urdu version of MMPI and DASS-42. Moreover, the scores of the healthy and psychiatric population were compared on the SCL-90.

Sample. A convenient sample of 367 adults with ages ranged from 18 to 30 years ($M = 21.4$, $SD = 2.01$). The data comprised of 65% female and 35% male collected from the various departments including Maths, Psychology, and Management Sciences of universities of Rawalpindi and Islamabad.

Procedure. To conduct the study, ethical approval was obtained from the ethical committee of the International Islamic University. The authority permission was obtained from the administration of the colleges and universities of Islamabad to collect data. Initially, 400 students were approached in their classrooms and asked individually to participate in the study. Additionally, copies of the questionnaires

were disbursed to collect the data from their acquaintances. Only 380 student returned the questionnaires out of which 13 were discarded due to incomplete responses. Thus, the response rate was above from 70%. For establishing the convergent validity, out of 367, 150 participants were requested to fill the MMPI along with the SCL-90. Only 63 of them have completed the forms. Later, 140 respondents filled the questionnaire booklet containing DASS and the SCL-90.

Results

Reliability of SCL-90. Cronbach alpha was computed for the assessment of the internal consistency of the dimensions of the SCL-90. Results revealed all the subscales had adequate reliability as follows: SOM $\alpha = .86$; OCD $\alpha = .86$; INT $\alpha = .85$; DEP $\alpha = .87$; ANX $\alpha = .86$; HOS $\alpha = .76$; PHOB $\alpha = .81$; PAR $\alpha = .71$; and PSY $\alpha = .84$. Subsequently, the sum of all items in the SCL-90 reflected the overall psychological distress had a high-reliability of .98.

Validation of SCL-90. To verify the underlying dimensions, Confirmatory Factor Analysis (CFA) was used to explain the relationships between the observed indicators with original factors. CFA is the most commonly used statistical procedure to examine the predefined model to fit an observed set of data in applied research. Based on the initial criteria, all the observed factors had acceptable standardized regression weights, that is, higher than .35 (Field, 2009). Thus, in the current study, the factor loadings of CFA for the nine subscales of SCL-90 were above .35 and confirmed from the previous studies (see Derogatis & Cleary, 1977; Tomioka et al., 2008). Further, the graphics of models were drawn and presented below for the comprehensive analysis.

Figure 1 demonstrated the factor models of the subscales Hostility, Phobia, Obsessive Compulsive, Depression, Interpersonal Sensitivity, Paranoid Ideation, Somatization, Psychoticism, and Anxiety. The factor loadings appeared on the path of observed indicators with covariances. All the values are higher than .35 except the item number 5 in the model of Depression showed low value .21 which might be because of cultural sensitivity. Thus, to improve the model fit, item 5 was not included in the model of depression.

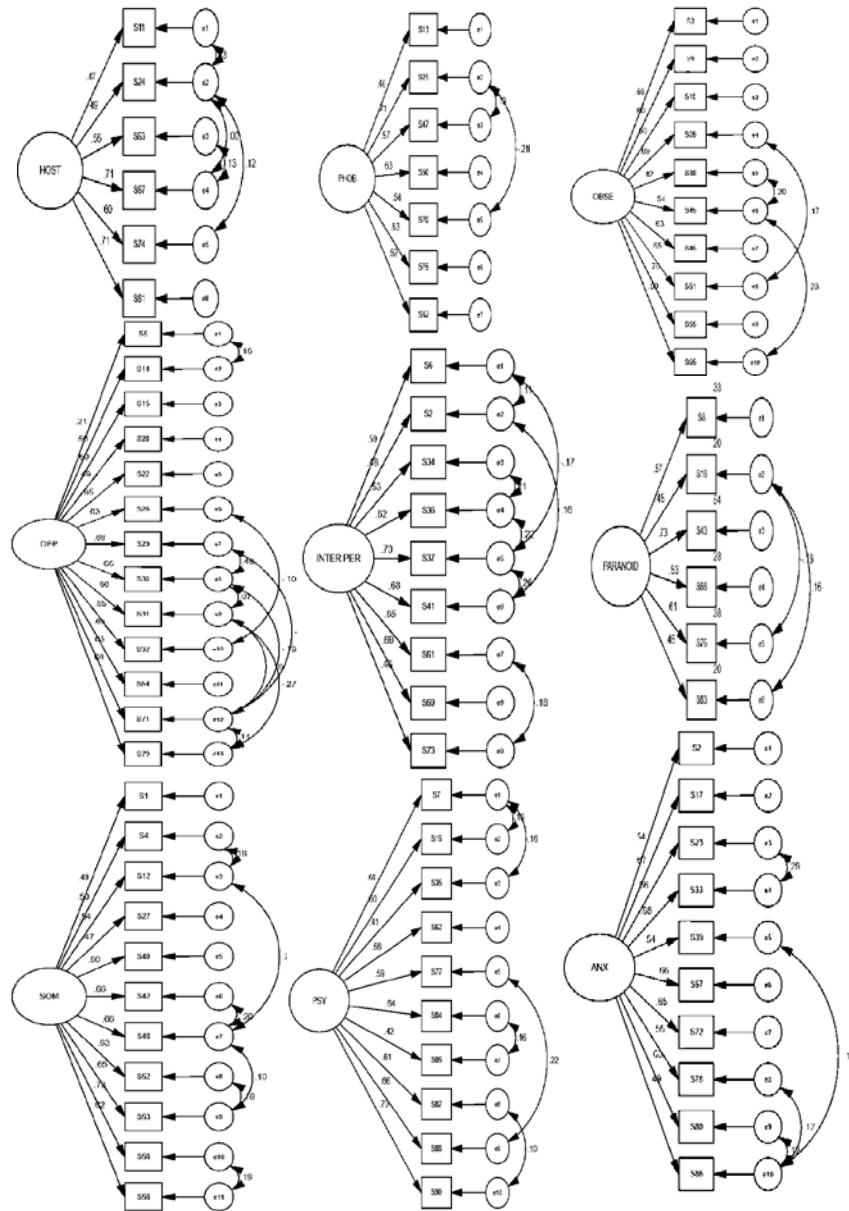


Figure 1. Confirmatory factor analysis of the nine-subscales of SCL-90.

Note. SOM = Somatization; OCD = Obsessive Compulsive; INT= Interpersonal; DEP = Depression; ANX = Anxiety; HOS = Hostility; PAR = Paranoid; PHOB = Phobic; PSY = Psychoticism.

Table 1

Model Fit Indices for Nine Dimensions of SCL-90 (N = 367)

Models	$\chi^2(df)$	χ^2/df	Goodness of Fit Indices				
			GFI	AGFI	CFI	IFI	RMSEA
M1: Somatization (12 Items)							
	60.21** (38)	.58	.97	.96	.99	.99	.03
M2: Obsessive Compulsive (10 Items)							
	56.97** (32)	.78	.97	.96	.98	.98	.04
M3: Interpersonal Sensitivity (9 Items)							
	25.14** (20)	.25	.98	.96	.99	.99	.03
M4: Depression (12 Items)							
	92.25** (46)	.01	.96	.92	.96	.96	.06
M5: Anxiety (10 Items)							
	39.35** (31)	.26	.97	.97	.99	.99	.03
M6: Hostility (6 Items)							
	14.28** (5)	.85	.98	.94	.98	.98	.07
M7: Phobia (7 Items)							
	16.46** (12)	.37	.98	.97	.99	.99	.03
M8: Paranoid Ideation (6 Items)							
	14.12** (7)	.01	.98	.95	.97	.97	.06
M9: Psychoticism (10 Items)							
	38.10** (30)	.27	.97	.95	.99	.99	.03

Note. GFI = Goodness of Fit Index; AGFI = Adjusted Goodness of Fit Index; CFI = Comparative Fit Index; IFI = Incremental Fit Index; RMSEA = Root Mean Square Error of Approximation

** $p < .01$

Table 1, presented the goodness of fit of the CFA for nine subscales of SCL-90. According to the accepted measures of global fit indices such as the goodness of fit indices (GFI, AGFI, CFI) of .90 or higher and RMSEA of .06 or less indicates the close fit between the sample and theoretical model (Brown, 2015). Above mentioned description support that all scales had close fit ranged from .95 to .99 without any modification indices. Current findings significantly accorded with the previous study (see Tomioka et al., 2008). Moreover, the concurrent validity was determined by using the subscales of MMPI, DASS, and SCL-90.

Table 2, showed a high correlation between the subscales of MMPI and SCL-90 which supported the convergent validity. While subscales of Masculinity/Femininity and Social Introversion did not correlate with the subscales of SCL-90 which reflected the discriminant validity of SCL-90 as these subscales are non-clinical. Moreover, Hypomania only correlated with Psychoticism.

Table 2

Correlation Between the Subscales of MMPI and SCL-90 (N = 63)

Scales	SOM	OCD	INT	DEP	ANX	HOS	PAR	PHOB	PSY
D	.27**	.40***	.32**	.29**	.41***	.28**	.26**	.37***	.29**
Hs	.34**	.34**	.31**	.29**	.40***	.28**	.21*	.40***	.29**
Hy	.27**	.22*	.18	.28**	.29*	.25*	.06	.31**	.14
Pd	.22*	.39***	.36***	.38***	.31**	.25*	.32**	.30**	.37***
Mf	-.01	-.17	-.08	-.13	-.02	-.07	.05	-.03	-.03
Pa	.36***	.42***	.39***	.46***	.41**	.36**	.35**	.50**	.48***
Pt	.28*	.45***	.41***	.44***	.35**	.32**	.39***	.38**	.39***
Sc	.28*	.34*	.26*	.33**	.31*	.31**	.25*	.38***	.40***
Ma	.04	.12	.10	.12	.07	.16	.20	.10	.21*
SI	.13	.18	.20	.12	.20	-.06	.11	.08	.16

Note. SOM = Somatization; OCD = Obsessive Compulsive; INT = Interpersonal; DEP = Depression; ANX = Anxiety; HOS = Hostility; PAR = Paranoid; PHOB = Phobic Anxiety; PSY = Psychoticism; D = Depression; Hs = Hysteria; Hy = Hypochondriasis; Pd = Psychopath Deviate; Mf = Masculinity/femininity; Pa = Paranoia; Pt = Psychasthenia; Sc = Schizophrenia; Ma = Hypomania; SI = Social Introversion

* $p < .05$. ** $p < .01$. *** $p < .00$

Table 3

Correlation Between Subscales of SCL-90 and DASS-42 (N=140)

Scales	Depression	Anxiety	Stress
Somatization	.37**	.42**	.38**
Obsessive Compulsive	.54**	.48**	.54**
Interpersonal Sensitivity	.50**	.44**	.50**
Depression	.52**	.46**	.52**
Anxiety	.51**	.49**	.49**
Hostility	.35**	.32**	.29**
Phobia	.46**	.41**	.42**
Paranoid	.52**	.51**	.49**
Psychoticism	.57**	.48**	.46**

** $p < .01$

Table 3, signified the high correlations between the dimensions of SCL-90 with depression, stress, and anxiety which further elaborated the convergent validity.

Comparison between healthy and non-healthy individuals on the dimensions of SCL-90. In order to assess the screening utility of the SCL-90, the comparison was made between the two groups comprised of 100 healthy people and 100 diagnosed with mood and anxiety disorders. Both groups were matched by gender and age

ranged from 18 to 36 ($M = 25.21$, $SD = 4.08$). The patients with intellectual disability, frantic, and having severe psychiatric disorders such as psychosis were excluded from the study. The independent sample t -test was performed to examine the difference between the scores of healthy individuals and psychiatric patients on SCL-90.

Table 4

Differences on Subscales of SCL-90 among Healthy People and Psychiatric Patients (N = 200)

Variables	Healthy Individuals ($n = 100$)		Psychiatric Patients ($n = 100$)		$t(198)$	95% CI		Cohen's d
	M	SD	M	SD		LL	UL	
SOM	13.81	8.90	21.25	10.32	5.31***	-10.0	-4.65	.76
OCD	15.34	8.94	21.13	7.91	4.85***	-8.22	-3.47	.69
INT	12.68	7.73	18.92	7.56	5.82***	-8.43	-4.22	.82
DEP	18.27	10.72	27.44	10.77	6.01***	-12.10	-6.18	.85
ANX	11.94	8.31	19.91	9.53	6.30***	-10.42	-5.45	.89
HOST	8.56	5.34	11.90	5.82	4.36***	-5.03	-1.93	.61
PHOB	7.69	5.90	12.92	5.80	6.01***	-7.11	-3.62	.86
PAR	8.91	4.72	11.87	5.34	4.07***	-4.35	-1.57	.57
PSY	11.22	7.81	18.54	9.01	6.06***	-9.50	-4.86	.85

*** $p < .001$

Table 4 illustrates the significant mean differences between the scores of healthy individuals and psychiatric patients on all the subscales of SCL-90, Somatization, Obsessive-Compulsive, Interpersonal, Depression, Anxiety, Hostility, Phobia, Paranoia, and Psychoticism.

Discussion

The present study was sought to translate and validate the SCL-90 in Urdu. The findings demonstrated the adequate reliability of the nine dimensions of the SCL-90 ranged from .71 to .98 (see Table 1). Hence, the results highlighted the equivalency of SCL-90 Urdu with the original one. Further, CFA was used to examine the construct validity through covariance matrix and to explain the variances and covariances among observed scores. The factor loadings of all subscales of SCL-90 and the fit indices encountered the pre-established criterion values and designated an excellent model fit. These findings are in line with the study of reliability and validity of the SCL-90 in Japanese. There was a high correlation among all the items, and each value of GFI was over .90, which added validity of the findings of the present study (Tomioka et al., 2008).

Similarly, a study by Urban et al. (2014) assessed the SCL-90-R on a large community sample and found that all nine factors yielded a close fit through CFA. This bifactor model significantly described the psychological symptoms to load on overall primary factor such as global severity and also to have a secondary loading on a particular dimension of symptoms. The outcome of this study partially supports the measurement model of the present study. In this study, all subscales displayed an adequate fit when examined as distinct constructs. A study by Paap et al. (2011) provide further support by applying the item response theory establishing the multidimensionality of SCL-90-R. However, few empirical studies observed the clinical profile of nine symptoms as predictors of psychological distress (Bonynges, 1993).

Principal component analysis of Finnish, Thai, Dutch, and Italian versions of SCL-90 yielded the single factor model and proved to be a measure of general distress (Holi et al., 1998; Prunas, Sarno, Preti, Madeddu, & Perugini, 2012; Smits et al., 2014; Wongpakaran et al., 2011). Chapman, Petrie, and Vines (2012) suggested that SCL-90 found an adequate measure of psychological distress in a community-based sample of 91 African-American women. Consistent with prior literature, the factorial invariance of the SCL-90 has relatively little or no agreement regarding the dimensionality of the SCL-90 but found to be a highly consistent measure (Carpenter & Hittner, 1995; Cyr, McKenna-Foley, & Peacock, 1985; Schmitz et al., 2000; Vassend & Skrandal, 1999). Nevertheless, many studies documented the unidimensionality of the SCL-90 which is controversial and not supported the original model of SCL-90 given by Derogatis (1983). Thus, results of the present study significantly replicated each subscale of SCL-90 for the Pakistani community.

Subsequently, MMPI and DASS were used to expound convergent reliability. It was found that most of the subscales of MMPI were correlated with the SCL-90 which are consistent with the previous literature. Initially, Derogatis et al. (1976) first took the initiative to replace the clinical scales of the MMPI with SCL-90 because of the considerable criticism on MMPI over the years due to a large number of items. The data of the study indicated that all subscales, as well as the content of MMPI and cluster scales, had shown strong correlations with SCL-90 (Derogatis et al., 1976; Dinning, & Evans, 1977; Tomioka et al., 2008). Moreover, the subscale of Social Introversion and Masculinity/Femininity corroborated the discriminant validity. Likewise, the Depression Anxiety Stress Scales were significantly correlated with the nine primary constructs of SCL-90. Thus, the substantial correlations of the

SCL-90 had been made with the other psychological instruments in different researches. For instance, Hamilton Depression Scale and General Health Questionnaires had been found to correlate with the depression scale and anxiety subscales of the SCL-90 (Koeter, 1992); while, Depression Subscale of SCL-90 had shown good convergence with the Depression Inventories (Aben, Verhey, Lousberg, Lodder, & Honig, 2002; Prinz et al., 2013).

Finally, discriminant function analysis of the Urdu SCL-90 was confirmed by comparing the healthy individuals with psychiatric outpatients. The findings designated that patients had high scores on all the dimensions of the SCL-90 as compared to healthy individuals. There is mounting evidence that the SCL-90 has good discriminatory power despite the high correlation among the nine primary scales (Holi et al., 1998). Correspondingly, Bonicatto et al. (1997) revealed sufficient sensitivity to perceive differences in all dimensions between patients and non-patients in Argentinian population. Likewise, Slovakian group of neurological patients had shown significantly elevated scores on the subscales of Interpersonal Sensitivity, Depression, and Somatization than the comparative control group of healthy individuals (Biescad, & Szeliga, 2006).

Consequently, Urdu SCL-90 was found to be a highly reliable and valid self-report measure for the assessment of psychological distress in clinical settings. Moreover, it has adequate convergent and divergent validity which is highly supported by the literature.

Limitations and Suggestions

Regarding the limitations of the study, SCL-90 by considering the fact is a unidimensional construct. In future, it is highly recommended to validate this model as a construct of psychological distress. Moreover, norms should be developed exclusively based on varying age groups, gender, and clinical population. The present study first time correlates the sub-scales of the SCL-90 with the DASS subscales to determine the criterion validity. However, non-analogous measures must be used to establish the discriminant validity.

Conclusion and Implications

To conclude the use of SCL-90 was found a useful tool for research in the context of clinical utility. The validation of Urdu SCL-90 would be helpful for clinicians to assess the general level of

psychological functioning. Results of Confirmatory Factor Analysis support the multidimensional aspects of SCL-90. Nevertheless, the firm interdependence of the original subscales and the goodness of fit of the models of the SCL-90 can be taken as a unidimensional measure of psychological distress as well (Schmitz et al., 2000). The present study has established a significant association between MMPI and SCL-90, and it can be predicted that the SCL-90 might be able to replace the MMPI. Moreover, DASS has been found highly correlated with the SCL-90, which is a substantial contribution to the literature. The discriminatory power of the SCL-90 between non-patients and patients has been verified, which highlights the importance of this tool in screening and determining the psychological functioning.

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Received September 9th, 2016

Revision received November 12th, 2017