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ADAPTATION AND PSYCHOMETRICS OF POSITIVE AND NEGATIVE SUICIDE IDEATION INVENTORY

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ABSTRACT

Objective: *Positive and negative suicide ideation inventory (PANSI) assess both protective and risk factors of suicidal ideation simultaneously. The current study aimed to translate/ adapt, and establish the psychometric properties of PANSI comprised of two subscales named as positive ideation (PI) and negative suicide ideation (NSI).*

Place of study: *Institute of Clinical Psychology, University of Karachi*

Sample and Method: *For the translation / adaptation of PANSI into Urdu, methods of forward and back-translation were followed. Psychometric properties were assessed by administering Urdu version of PANSI on adolescents aged 16 to 19 years old. To estimate reliability, Cronbach's alpha was applied and Convergent validity was assessed through the correlation with Aga Khan Anxiety-Depression scale (Ali, Jehan, Reza & Khan, 1998) and Beck Hopelessness scale (Ayub, 2009).*

Results: *Cronbach's alpha for PANSI-PI (.73) and PANSI-NSI (.89) found adequate. Significant association of PANSI-NSI was found with Aga Khan Anxiety Depression scale (.44) and Beck Hopelessness scale (.25). PANSI-PI was found to be negatively correlated with Aga Khan Anxiety Depression scale (-.15) and Beck Hopelessness scale (-.28). In addition, construct validity was supported by principal component analysis.*

Conclusion: *The Urdu version of PANSI is found to be reliable, valid, equivalently useful for measuring suicidal ideation and protective factors compared to the original inventory among Pakistani population.*

Keywords: *Suicidal Ideation, adolescents, Validity, Reliability, Psychometrics*

INTRODUCTION

Suicide is major public health problem which is increasing steeply around the world. Almost one million people die from suicide every year (World

Health Organization, 2011) and it is the fourth leading cause of death among youth of 15 to 19 years of age (Wasserman, Cheng, & Jiang, 2005). Suicidal ideation which is important precursor of suicide is more prevalent than attempted suicide and completed suicide (Centre for Disease Control and Prevention, 2007; Eaton et al., 2008). Suicidal ideation rate among youth living in low to moderate income countries is significantly high (Palmier, 2011) as suicidal ideation rate in African countries among students is; Zambia (31.9%), Kenya (27.9%), Botswana (23.1%), Uganda (19.6%), Tanzania (11.2%). Prevalence in other different countries is also as high as 17.8% in China (Tian et al., 2007), 23.2% in Benin (Randall, Doku, Wilson, & Peltzer, 2014), 9.7% in Jamaica (Abel, Sewell, Martin, Bailey-Davidson, & Fox, 2012), 7% in Malaysia (Chen, Lee, Wong, & Kaur, 2005) and 16.0% in Lebanon (World Health Organization, 2005). In Pakistan, Khokher and Khan (2005) reported 31.4% prevalence of suicidal ideation in College students. A study conducted on student population to analyze ethnic differences in suicidal ideation, thoughts about suicide in the past 2 weeks, suicide plans, and suicide attempts. Results have suggested that Pakistani youth had higher risk for thoughts about suicide and suicidal plans in the past 2 weeks (Roberts, Chen, & Roberts, 1997). Beside reported rate of suicidal ideation, there may be possibility that prevalence of suicidal ideation may be higher (Osman et al., 2003).

Suicide or suicidal behaviors is an umbrella term that encompasses the behaviors of suicidal ideation, deliberate self-harm, attempts, and completed suicide (Steele & Doey, 2007). Lewinsohn, Rohde and Seelay (1996) have defined suicidal ideation as thoughts and desire to end one's life or to be dead. O'Carroll, Berman, Maris, Mosckicki, Tanney and Silverman (1996) explained suicide as harm or injury, that can result in death, are self-inflicted with the intent to kill one' self and regarded suicidal ideation as self-reported thoughts, wishes or desire to end one's own life. Beck, Kovacs and Weissman (1979) regarded ideation as ''plans and wishes to commit suicide''. Suicidal ideation is important marker that leads towards suicide or parasuicide and also increases the likelihood of suicide attempts (De Wilde & Kienhorst, 1998).

Particularly in Pakistan potent risk factors such as lawlessness, poverty, unemployment, poor access to mental health services are prevailing that make people vulnerable for mental health problems and makes future foreseeable regarding magnitude of suicide. These endemic factors and limited available data about prevalence rates call for mental health professionals to take necessitate or timely steps. In establishing suicide prevention policies, first step is to get robust

information about magnitude of suicidal behaviors by using culturally sensitive and valid tools to assess suicidal ideation or other suicidal behaviors. Among suicidal behaviors, assessment and screening of suicidal ideation is considerably important as it is robust precursor of attempted or completed suicide. Unfortunately in Pakistan there is paucity of scales to screen the suicidal ideation. Knowing this impeding factor, aim of current study is to translate/adapt and establish the psychometrics of inventory for the screening of suicidal ideation.

Recently developed positive and negative suicide ideation inventory is a 14-item brief and comprehensive screening instrument that assesses both risk and protective factors of suicidal ideation simultaneously. Osman et al. (2003) defined suicidal ideation as ‘‘self-reported wishes, thoughts, or desire to take one’s own life’’ that is assessed by PANSI. It includes questions to tap risk factors (conditions that persuade towards self-harmful behaviors) and also protective factors (conditions or buffering factors that help to prevent in engaging self-harmful behaviors). The internal consistency estimates for the PANSI-PI (.81) and PANSI-NSI (.94) were excellent (Osman et al., 2002). Confirmatory factor analyses (CFA) confirmed two factor structure and indicate good evidence of construct validity by conducting studies on the sample of undergraduate students and adults (Osman, Gutierrez, Kopper, Barrios, & Chiros, 1998), adolescent psychiatric inpatients (Osman et al., 2002) and young adults (Muehlenkamp, Gutierrez, Osman, & Barrios, 2005). PANSI also distinguished the groups of suicide attempters and the control that provide the evidences of criterion validity (Osman et al., 2002).

In Pakistan, there is dearth of information related to rate of suicide, its casual factors and ultimately about prevention of this problem. Prevalence of suicidal behavior prompted the need to recognize suicidal ideation and other factors that leads towards the thought to end one’s life. Considering the importance of this problem, the purpose of current study is to translate/adapt positive and negative suicidal ideation scale in Urdu language and extended to the establishing the psychometric properties on sample aged 16 to19 years old. Adaptation of this scale will help to detect the thoughts of death on time, reveal about the magnitude of suicidal ideation in Pakistan and in making right interventions to control its prevalence. Doing this research bring one step closer to understand the suicidal phenomena with adapted/translated version of suicidal ideation in Pakistan.

METHOD

Participants

The psychometric properties of PANSI were established in a sample of 300 adolescents (ages 16–19) with the mean age of 17.3 (*SD* 1.03). Participants were selected randomly from both private and government educational institutes situated different areas in Karachi.

Measures

Positive and Negative Suicide Ideation Inventory

The PANSI is a brief 14-item self-report inventory, designed to measure the frequency of risk and protective factors related to suicidal ideation. It comprised of two subscales named as positive ideation (six items) and negative suicide ideation (eight items). Respondents are asked about the frequency of suicide ideation over a 2 weeks and each item scored on 1(none of the time) to 5 (most of the time). Score on the questionnaire was the sum of the responses obtained on each item, the highest scores indicated the highest level of ideation.

Beck Hopelessness Scale

Beck Hopelessness Scale is 20-item self-report measure, originally developed by Beck, Weissman, Lester, and Trexler (1974) to measure expectations about the future. Each item is scored 0 or 1 and total score obtained by summing the scores on each item, ranging from 0 to 20. Urdu version of the scale was used in this study.

Aga Khan Anxiety and Depression Scale

This is an indigenously developed screening instrument developed by Ali, Reza, Khan, and Jehan (1998) to measure anxiety-depression syndromes. This scale consists on 25 items, 13 items assess psychological complaints and 12 items cover somatic symptoms. At a score of 20 it has a sensitivity of 66%, a specificity of 79%, a positive predictive value of 83 and a negative predictive value of 60.

Procedure

Standard methods for the translation and adaptation of inventory were followed (Hambleton, Merenda, & Spielberger, 2005). Urdu translation of PANSI was carried out by two independent translators with expertise in research, having knowledge about cultural issues, proficiency in source and target language. Next, translation was further discussed with two other experts, one who had expertise in scale development, adaptation and psychological researches, second having an expertise in Urdu language, to adjust any inconsistency in translation. After eliminating inconsistencies, analyzing conceptual equivalence and making it more comprehensible for target population, direct translation was given for Back Translation to subject and language expert, who had no knowledge about original version. Translated scale was further discussed with subject expert to compare with original English version and to identify discrepancies. They compared the items to original inventory and made some necessary amendments to reduce ambiguity. After making few amendments to make it comprehensible for target population, pre-final version was tested on college students. Based on their responses and feedback regarding wording and comprehension of meanings on each item of PANSI, pre-final version was finally revised and ready for data collection to establish the metric equivalence.

RESULTS

Demographic characteristics

Demographic characteristics of sample are presented in Table 1. 47. 3% were males and 52.7% were female with the mean age of 17.3(*SD* 1.05).

Table 1
Descriptive statistics of demographic variables

Variables	***N***	***%***
Gender		
Males	142	47.3
Female	158	52.7
Mean age + *SD*	17.3+ 1.05	
Family Structure		
Nuclear	167	66.8
Joint	83	33.2

Reliability of positive and negative suicide ideation inventory

After following standard process of translation, item total correlation coefficients obtained from the scores of each item that varied between .51 (item 8) and .74 (item 10) and shows the strong correspondence between each item and sum score of subscales, presented in Table.2. Cronbach's Alpha coefficient of 6-items of PANSI-PI (.73) and 8-items of PANSI-NSI (.89) was computed given in Table 3.

Table 2
Item-Total Correlation of Urdu version of PANSI

Item No	Pearson *r*	Sig
1	.53	.000
2	.51	.000
3	.63	.000
4	.55	.000
5	.71	.000
6	.58	.000
7	.62	.000
8	.51	.000
9	.62	.000
10	.74	.000
11	.71	.000
12	.57	.000
13	.56	.000
14	.61	.000

Table 3
Cronbach Alpha of Urdu version of PANSI (*N*=300)

Scale	No of items	Cronbach's Alpha
PANSI-PI	6	.73
PANSI-NSI	8	.89

Note. N = 300

A principal components analysis revealed a two-factor structure in the PANSI included PANSI-NSI and PANSI-PI, as in Osman, Gutierrez, Kopper, Barrios, and Chiros (1998). The Kaiser-Meyer-Olkin measure of sampling

adequacy and Bartlett's test of sphericity were used to confirm the assessment of the factor analysis for items of PANSI. Varimax rotation with Kaiser Normalization (*KMO* = .78, $p < .001$) was appropriate because it was assumed that the factors would be correlated with one another. The item loadings in the PANSI- NSI subscale ranged from .62 to .84, and on PANSI-PI subscale ranged from .55 to .69 as illustrated in Table 4.

Table 4
Principal components analysis

Items		**Mean**	***SD***	**Factor Loading**
PANSI-NSI	item1	1.38	0.88	.63
	Item3	1.33	0.88	.73
	Item4	1.42	1.01	.62
	Item5	1.36	0.89	.83
	Item7	1.44	1.04	.71
	Item9	1.32	0.79	.70
	Item10	1.27	0.86	.84
	Item11	1.42	1.04	.82
PANSI-PI	Item2	2.92	1.38	.56
	Item6	3.43	1.31	.61
	Item8	3.61	1.26	.55
	Item12	3.53	1.31	.65
	item13	4.08	1.27	.65
	item14	3.82	1.29	.69

Extraction Method: Principal Component Analysis (2 components extracted) Kaiser-Meyer-Olkin measure of sampling adequacy (.844); Bartlett's test of Sphericity ($p< 0.001$)

Relationship of PANSI Scales with the Other Risk Measures

Convergent validity was assessed by using Aga khan university anxiety-depression scale and Beck hopelessness scale. Obtained results showed significant negative correlation of PANSI-PI with AKUADS (-.15) and BHS (-.28). In addition, PANSI-NSI found to be positively correlated with AKUADS (.44) and BHS (.25), as presented in Table 4.

Table 5
Convergent validity of PANSI with AKUADS and BHS (Urdu version)

Scales	PANSI-PI	PANSI-NSI
AKUADS	-.15	.44
BHS	-.28	.25

DISCUSSION

To translate/adapt the PANSI in Urdu, national language of Pakistan, standard process of translation and cross-cultural adaptation was followed, which showed PANSI as feasible and comprehensible for Pakistani target sample of adolescents. Obtained findings also highlighted that Pakistani version of PANSI is consistent with original version of PANSI which confirms that Urdu version is conceptually and metrically equivalent to original version.

Regarding reliability, Cronbach's alpha coefficient was found to be high on both PANSI-PI (.73) and PANSI-NSI (.89), indicating good internal consistency. The construct validity of the PANSI was evaluated by using the method of convergent validity and PANSI-NSI found to be positively correlated with constructs that assess mixed anxiety-depression (.44) and hopelessness (.25) while PANSI-PI was negatively correlated with anxiety-depression syndrome (-.15) and hopelessness (-.28). Results confirmed that adolescents who had positive ideation experienced lower levels of anxiety or depression and hopelessness. While who had suicidal ideation were experienced higher symptoms of anxiety and depression with hopelessness. The principal components analysis showed that the Urdu version of PANSI has the same subscales indicated by Osman et al. (1998) and supported construct validity.

Urdu is national language of Pakistan and people use it as a medium of communication with each other. Accordingly, translation/adaptation of this scale in Urdu would be more comprehensible and applicable for people. Practically, positive and negative suicide ideation inventory is implementable marker for clinicians to assess suicidal ideation quickly and also to get actual rate of suicide ideation, recognize casual and protective factors simultaneously that help to design the prevention strategies in the context of Pakistani culture.

Despite having satisfactory results, the present study has certain limitations. PANSI was assessed for reliability and validity on adolescent sample specifically college students that limit its generalizability. It highlights the need to assess by conducting study on other age groups and psychiatric patients to increase its feasibility. This study lacks test retest reliability and predictive validity which can be overcome in future researches.

Conclusion

This study demonstrated PANSI as valid and reliable inventory to screen suicidal ideation and protective factors simultaneously with brief inventory.

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