

## Development, validation and psychometric evaluation of the Suicidality Scale

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**Objective:** The objective of the study was the development, validation and psychometric evaluation of the suicidality scale: suicidal ideation, intention and attempts.

**Methodology:** This cross sectional analytical study was carried out at Department of Psychology, University of Gujrat from January 15<sup>th</sup> to May 25<sup>th</sup> 2019. The data were collected from adolescents using the convenience sampling technique. Firstly, the translation of Suicide Scale for Adolescents was conducted in English. The forward-backward translation method was used for translation, which was followed by expert panel evaluation, linguistic and conceptual verification of measure and then a final English translated version was finalized. Further test retest administration was used for field administration of these items over 250 adolescents by self-report scale. For validation, samples of 70 adolescents

were selected by using convenient sampling.

**Results:** There was a correlation of test retest administration in between .312 to .688 of the 25 items. The model fit summary of Confirmatory Factor Analysis showed a p-value of 0.00 and the it was specified that if the p value is 0.05 or less, the departure of the data from the model is significant at the 0.05 level. Therefore, the structure of the questions was confirmed. The reliability of the scale was .918 with established convergent (.535\*\*) and divergent (-.054).

**Conclusion:** A reliable and valid translation of suicidality scale: suicidal ideation, intention and attempts English version was developed from already developed Urdu version. (Rawal Med J 202;45:314-317).

**Keywords:** Adolescents, English, Factor Analysis, Reliability, Suicide, Translation.

### INTRODUCTION

Adolescence is that stage of life where there is an onset of puberty in the age range of 12 to 18 years.<sup>1</sup> The changes in adolescent period create a feeling of restlessness and confusion among them and change their way of perceiving the world.<sup>2</sup> Among others, they may encounter different psychological problems that relate to mental disturbances. The issues may be depression, anxiety and schizophrenia, stress, frustration and aggression that leads to suicide and even death.<sup>3</sup>

Suicide is the major psychological issue. The process of suicide is based on the stages of suicidal ideation, intention and attempt. Ideation involves ideas related to suicide, or wish of dying. Further, suicidal intent is linked with consistent and strong ideas of dying and individuals with intent consistently thinks about suicide and imagine how their friends and family lives without them. Lastly, suicidal attempt or plan leads to a clear picture of how to perform suicide like the place, time, and strategy used to commit suicide.<sup>4</sup> Suicide is the

second leading cause of death in adolescents and young adults internationally<sup>5</sup> and few chances of suicide before the age of 12.<sup>6</sup> There were 13,377 suicides in Pakistan during 2012 among which 7085 females and 6021 males with the rate of 7.5 per 100,000 inhabitants.<sup>7</sup>

Psychological tests help the investigators to quantify a particular construct as for example recall, intellect or character.<sup>8</sup> The importance should not be underrated as many experiment and assessment cannot be done without psychological scales.<sup>9</sup> The scales must be truthful with consistency of scores and must be run time by time so the internal validity may be enhanced.<sup>10</sup> American Psychological Association has provided information on published scales information.<sup>11</sup> The psychological test can be available from print library, online database, university researchers, not-for-profit institutions, government organizations, advisors, supplement, journal articles, books, unpublished test directory and publishers.<sup>12</sup>

The first scale was Beck Scale for Suicide Ideation

and Intent<sup>13</sup> and the latest entitled as Scale for Impact of Suicidality–Management, Assessment and Planning of Care.<sup>14</sup> These scales were developed in western culture apart from eastern culture whereas only Beck Scale for Suicide Ideation was translated in Urdu.<sup>15</sup> These scales are difficult to use due to the differences in cultural values of the two population. There must be some guidelines to develop a cross cultural adaptation of tests.<sup>16</sup> We had earlier developed a scale for suicide for adolescents.<sup>17</sup> The current research focused on the development, validation and psychometric evaluation of the suicidality scale: suicidal ideation, intention and attempts.

## METHODOLOGY

This cross sectional analytical study was conducted at Department of Psychology, University of Gujrat from 15<sup>th</sup> January to 25<sup>th</sup> May 2019. Permission from the ethical committee of the department was taken written informed consent was taken from all participants. Initially, the permission for translation of the scale in English was taken from the author via email. In the first step, forward-backward translation was done by the group of mental health and language professionals independently. The experts found discrepancies between original and translated version with revisions in the statements and wording of the scale.

The data were collected in three phases from adolescents of government and private educational institutes of district Gujrat by using convenient sampling in the ages between 12 to 19 years. *Phase I:* The data were collected in test retest administration from the 250 respondents by using the English translated version by experts. The test-retest administration gap was 15 days. *Phase II:* To confirm the items and structure of the scale, the data of 250 adolescents were collected using the same scale as in phase I. *Phase III:* The data was collected from 70 respondents for validation as it is a different study due to addition of other scales.

To determine the psychometric properties of suicidality scale like suicidal ideation, intention and attempts for English speaking in Pakistan the Ask Suicide Screening Questions<sup>18</sup> was used to assess convergent validity and Generalized Self Efficacy Scale<sup>19</sup> was used to check divergent validity.

**Statistical Analysis:** The data were analyzed using Confirmatory Factor Analysis (CFA), reliability test and correlation by using AMOS-21 and SPSS version 22.

## RESULTS

The demographic details are shown in Table 1. Further, the test-retest administration gave a correlation in between .312 to .688, which is on the moderate to strong continuum in establishing the statistical significance of items. The CFI value is .875 that is quite acceptable. The other indices of CMIN/DF, GFI, AGFI and RMSEA were as follows. The CMIN/DF ratio is 2.331 and the it was suggested that ratio should not exceed 3 for the acceptance of the model. The acceptable value of GFI is considered to be 0.90 or greater. In the current study, the values are approximately near to the standard value. Further, the value of RMSEA is good, if it is less than 0.05. In this study RMSEA value is near to what is suggested value.

**Table 1. Frequency and percentage of demographic variables of sample (n=250).**

|               | Categories    | F   | %     |
|---------------|---------------|-----|-------|
| Age           | 12-15         | 99  | 39.60 |
|               | 16-19         | 151 | 60.40 |
| Education     | Under matric  | 117 | 46.80 |
|               | Matric        | 18  | 7.20  |
|               | FA/F.Sc       | 99  | 39.60 |
|               | BSc           | 16  | 6.40  |
| Gender        | Male          | 151 | 60.40 |
|               | Female        | 99  | 39.60 |
| Area          | Urban         | 105 | 42.00 |
|               | Rural         | 145 | 58.00 |
| Social Status | Average       | 200 | 80.0  |
|               | Above average | 41  | 16.4  |
|               | Below average | 9   | 3.60  |

**Table 2. Correlation between Suicide Scale for Adolescents, Ask Suicide Screening Questions and Generalized Self Efficacy Scale (N=70)**

| Measures                        | 1      | 2     | 3 |
|---------------------------------|--------|-------|---|
| Suicide scale                   | -      |       |   |
| Ask suicide screening Questions | .535** | -     |   |
| Generalized self-Efficacy scale | -.070  | -.054 | - |

\*\* P<.01

The full scale Cronbach alpha reliability was .918. It indicates high reliability. Prior literature indicated that the value of Cronbach's alpha coefficient is 0.70 or greater than it is considered statistically appropriate. The result confirmed that there is positive correlation between the newly translated Suicide Scale for Adolescents and Ask Suicide Screening Question (ASQ), thus establishing the convergent validity of the scale (Table 2). For appropriate or recommended convergent validity, the correlation value must be in the range of not less than 0.50 to above 0.70. In case of divergent validity, if there is little or no relation in the two constructs than the validity is said to be established. There was no significant correlation between suicide scale for adolescents and generalized self-efficacy scale. So, the result confirmed the divergent validity of the scale.

## DISCUSSION

In the context of Pakistan, the construct of suicide was not well developed. Furthermore, there were many English scales available to measure the suicide but in western culture, so this sort of condition may raise the chances of biasness. So, the current study focused to fill the gap by the development, validation and psychometric evaluation of the suicidality scale: suicidal ideation, intention and attempts.<sup>17</sup> The test-retest administration gives a correlation in between .312 to .688 of the 25 items hence, establishing the statistical significance.

The structure of suicidality scale: suicidal ideation, intention and attempts English version was confirmed using confirmatory factor analysis. The model fit summary had given the p-value of 0.000 hence, confirmed the appropriateness of the structure of the English version as based on Urdu version. The CFI in the model was .875 that is near to 0.900, that was acceptable limit for model fit in literature.<sup>20</sup> As the scale was already developed and after running the modification indices the value of 0.875 was achieved and it was not far away from 0.90.<sup>20</sup> The indices of CMIN/DF<sup>21</sup> and RMSEA<sup>22</sup> were reasonable for good model. Whereas in case of GFI<sup>23</sup> the value was near to the limit. With all these golden rules of thumbs in suggesting the cutoff, it

was also mentioned that these cutoffs are not the compulsion. Researchers putting more emphases on it are creating a significant amount of type II errors.<sup>20</sup> The reliability of the scale was 0.918 and literature established that the reliability value of .70 or greater was considered as statistically significant.<sup>24</sup> To check the validity of scale data was collected from 70 respondents. The Ask Suicide Screening Questionnaire had a strong correlation with Suicide Scale for Adolescents (.535\*\*) while indicating a low and non-significant alliance with Generalized Self Efficacy Scale (-.070). The values confirmed the convergent and divergent validity of the scale. According to statistically sufficient limits the value of translated, adapted and validated suicidality scale: suicidal ideation, intention and attempts Suicide was in significant ranges.

## CONCLUSION

A reliable and valid translation of suicidality scale: suicidal ideation, intention and attempts English version was developed from already developed suicidality scale: suicidal ideation, intention and attempts Urdu version.

### Author contributions:

Conception and design: Zaqia Bano, Mehreen Mukhtar  
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Analysis and interpretation of the data: Zaqia Bano, Mehreen Mukhtar, Iram Naz  
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**Conflict of Interest:** None declared

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