

Research Paper

A Psychometric Study to Translate and Measure Validity of a Telugu Translation of the Kessler Psychological Distress Scale (K10)

Jahnvi Chowdary Gutta^{1*}, Bismirty Bhuyan²

ABSTRACT

The Kessler Psychological Distress Scale has been extensively used to evaluate psychological distress in both general and clinical populations. To enhance its cultural validity across various languages, this study aims to translate the original Kessler Psychological Distress Scale into Telugu, a language extensively spoken in Southern states of India. Target population for this study included bilingual or multilingual participants who are fluent in both Telugu and English languages. Using multiple forward and backward translation strategies, a telugu translated version of Kessler Psychological Distress Scale was created. With a week difference, each of the scales were sent to the participants to collect data. Data was analysed using Paired t-test, One-way ANOVA, and Cronbach alpha (α) to test its validity and reliability. Results showed that the Telugu translated version of Kessler Psychological Distress Scale had high validity and comparability to the original English version of Kessler Psychological Distress Scale. This study acts as a step forward in creating more translations of various scales to improve their cross-cultural validity.

Keywords: *Kessler Psychological Distress Scale, Telugu translation, Mental Health Assessment, Cultural Adaptation, Psychometric validation*

The Kessler Psychological Distress Scale has been extensively used to evaluate psychological distress in both general and clinical populations in a variety of cultural contexts (Easton et al., 2017) It is a clinical measure of psychological symptoms that is highly validated across various languages. It is characterised by its high factorial and construct validity, predictability, accessibility, and simplicity of use (Easton et al., 2017). Kessler Psychological Distress Scale K10 was initially developed by Professors Ron Kessler and Dan Mroczek in 1992 (Australian Bureau of Statistics, 2012). It consists of 10 questions assessing a general psychological distress in the range of anxiety and depression symptoms (Yiengprugsawan et al., 2014). In 2002, Kessler Psychological Distress Scale was revised and converted into a 6 item questionnaire. Both K10 and K6 used a 5 point likert scale to measure the extent of distress (Mitchell & Beals, 2011).

¹Student, Dept. of Psychology, Amity Institute of Behavioural and Allied Sciences (AIBAS), Bengaluru
<https://orcid.org/0009-0008-1512-6737>

²Assistant Professor, Dept. of Psychology, Amity University, Bengaluru

*Corresponding Author

Received: January 03, 2025; Revision Received: February 24, 2025; Accepted: February 28, 2025

A Psychometric Study to Translate and Measure Validity of a Telugu Translation of the Kessler Psychological Distress Scale (K10)

Mental health issues are a growing concern across the globe, predominantly in developing countries like India ("Mental health in developed vs developing countries," 2023). According to the World Health Organization, approximately 7.5% of India's population suffers from mental disorders contributing to a significant burden on individuals, families and health care systems (Iyer, 2017).

It is often used in population health surveys, particularly when a detailed diagnostic interview is not possible to evaluate mental disorders which makes it extremely important to have cultural validity as it is used across the world (Bougie et al., 2016). However, for psychological assessment tools like the K10 to be truly effective in diverse contexts, they must be culturally and linguistically relevant to the populations being assessed.

Though it was initially created to screen for serious mental illnesses and non-specific psychological distress of English-speaking populations, it was adopted by many Western and Non-Western countries to screen in mental health settings and primary care (Stolk et al., 2014). Many of these adaptations lack cultural validity (Bougie et al., 2016). To tackle this issue, Kessler Psychological Distress Scale was translated into almost 27 languages including Arabic, Chinese – traditional, Spanish, Thai, Bengali, and many more ("Kessler 10 (K10) Translations," 2015).

Language is fundamental for effective communication, and its nuances frequently convey cultural implications that might affect how people understand and react to psychological test items (Rabiah, 2018). For this reason, it is crucial for translating and culturally adapting tools like the K10 when conducting on populations that speak other languages than the one in which the tool was originally created.

In India, Kessler Psychological Distress Scale was translated into a few languages like Hindi and Bengali but our literature review revealed that it was not translated into Telugu. Telugu is one of the most widely spoken languages in India, is the native tongue of over 80 million people, primarily in the states of Andhra Pradesh and Telangana ("Most Spoken Languages in India," 2023).

Nevertheless, there is a lack of standardised psychological testing instruments in Telugu-language. This discrepancy emphasises the necessity to translate K 10 that can be utilised to assess psychological distress in Telugu-speaking communities. A linguistically and culturally adapted version of the K10 would enhance its accessibility, improve its validity and reliability in capturing the psychological distress of this population.

The current research aims to translate the Kessler Psychological Distress Scale (K10) into Telugu and assess its linguistic and cultural validity. The study will employ a rigorous translation process, involving bilingual experts and input from native Telugu speakers, to ensure the tool's accuracy and appropriateness. Additionally, the translated version will be pretested with a sample of Telugu-speaking participants to evaluate its clarity, comprehension, and reliability.

This study is a practical step toward addressing mental health challenges among Telugu-speaking populations. This translated scale will serve as a valuable resource for researchers and clinicians working towards improving mental health outcomes in Andhra Pradesh and Telangana. Furthermore, the availability of a standardized tool in Telugu can facilitate large-

A Psychometric Study to Translate and Measure Validity of a Telugu Translation of the Kessler Psychological Distress Scale (K10)

scale mental health surveys in marginalised communities, inform evidence-based interventions, and in turn contribute to reducing the stigma associated with mental health issues in these communities.

The significance of translating and validating psychological tools for use in diverse communities has been emphasised in a number of studies. For instance, Bhugra and Mastrogianni (2004) highlighted the influence of language and culture on mental health experiences and opinions, while Patel and Prince (2010) stressed the necessity of culturally relevant assessments of mental health in India. These results underline the need for a Telugu version of the K10 in order to ensure that psychological distress is appropriately measured and treated in this linguistic and cultural setting (Bhugra & Mastrogianni, 2004; Patel & Prince, 2010).

The significance of this research contributes to the broader field of cross-cultural psychology by demonstrating the importance of linguistic and cultural adaptation in mental health assessments. Moreover, the findings of this study can inform similar efforts to adapt psychological tools for other Indian languages to enhance mental health research and practice across the country.

In conclusion, the Kessler Psychological Distress Scale translation and cultural adaptation into Telugu mark a significant advancement in the evaluation and treatment of mental health issues among Telugu-speaking communities. In order to promote a more inclusive and successful approach to mental health care, this research attempts to offer a reliable and culturally relevant tool to bridge the gap between mental health needs and resources.

METHODOLOGY

Target population for this study are people who are fluent in reading and comprehending both English and Telugu languages. Snowball sampling was used to acquire participants for the study. Study included 150 participants from the age group ranging from 19 to 50 years old. Out of 150 participants, 115 participants are female and 35 participants are male.

Kessler Psychological Distress Scale was first translated from English to Telugu. Forward translation of this scale was independently done by two native Telugu speakers with over 15 years of proficiency in English. Their individual translations were carefully reviewed, and compared over a meeting and consolidated into a single version. This primary translation was then reviewed by professional freelance translators with more than 10 years of experience in English-to-Telugu translation. To ensure accuracy and consistency, a back translation of the consolidated version was performed. Based on the feedback provided by the translators, additional refinements were made to the Telugu version of the scale. As a final step, both English and Telugu versions of the scale were sent to five native Telugu speakers with English proficiency to check if any further changes need to be made. Since, there was no change needed, the scale was sent to participants.

To measure the test-retest reliability of Telugu translated scale, Telugu scale was sent a week after the English scale results were obtained from the participants. To statistically test the results, Initially a Paired t-test was done. Followed by one-way ANOVA, and Cronbach α .

A Psychometric Study to Translate and Measure Validity of a Telugu Translation of the Kessler Psychological Distress Scale (K10)

RESULTS

Table 1: Descriptive statistics

	N	Mean	Median	SD
Telugu	150	24.9	24.0	7.84
English	150	24.1	24.0	7.43

Table 1 provides descriptive statistics for scores on the Telugu and English versions of Kessler’s Psychological Distress Scale. The Telugu version yielded a mean score of $M=24.9$ with a standard deviation of $SD=7.84$, while the English version produced a mean score of $M=24.1$ and $SD=7.43$. Medians for both versions are the same ($Mdn=24.0$), indicating a central value consistent across versions.

The similarity in medians suggests that the distribution of scores are comparable between the Telugu and English versions. The slightly higher mean score for the Telugu version indicates a slightly higher level of psychological distress reported on this version. The standard deviations for both versions are almost similar, reflecting comparable variability in participant responses but a slight increase in standard deviations scores for Telugu version captures a slightly greater spread of psychological distress in the sample compared to English version.

Table 2: Paired samples T-test

	Statistic	df	p
t	2.51	149	0.013

A paired-samples t-test was conducted to determine whether the scores from the Telugu and English versions differed in a way that was statistically significant. The results indicated a significant difference between the mean scores of the two versions ($t(149)=2.51, p=.013$).

In relation to the variability in the differences, the t-statistic measures the standardised difference between the two versions' means. According to the t-value of 2.51, the observed difference is statistically significant and unlikely to have occurred by chance alone.

Statistically, the difference between the Telugu and English versions' scores is significant, as indicated by the p-value of .013 being below the widely accepted significance criterion of $\alpha = .05$.

Table 3: Cohen’s d calculated through Paired samples T-test

	Effect size
Cohen’s d	0.205

The effect size calculated using Cohen’s d was $d=0.205$. Cohen’s d provides an estimate of the practical significance of the difference by representing the size of the effect as independent of sample size. A value of 0.205 is considered a small effect, based on conventional benchmarks (small = 0.2, medium = 0.5, large = 0.8).

This small effect size indicates that, although there is a difference between the scores of different versions, it is still statistically significant because its magnitude is small and may not have a meaningful practical impact. Thus, while the translation process may have

A Psychometric Study to Translate and Measure Validity of a Telugu Translation of the Kessler Psychological Distress Scale (K10)

introduced minor differences, the scales are overall comparable in measuring psychological distress.

Table 4: One-way ANOVA

	F	df1	df2	p
Telugu	3.958	1	55.4	0.052
English	0.377	1	57.9	0.541

Table 4 presents the results of the one-way ANOVA. The purpose of this analysis was to examine the mean group differences between the English and Telugu versions of the Kessler scale.

The F-statistic for the Telugu version is 3.958 with degrees of freedom ($df1 = 1, df2 = 55.4$). The corresponding p-value is 0.052, which is marginally above the conventional threshold for significance ($p < .05$). This suggests that while there is some variability between groups, the difference is not statistically significant at the 5% level.

The F-statistic for the English version is 0.377 with degrees of freedom ($df1 = 1, df2 = 57.9$). The p-value is 0.541, indicating no significant differences between groups for the English version.

These findings imply that the translated Telugu scale exhibits slightly more variation in responses compared to the original English scale.

For the English version, the analysis revealed no statistically significant differences, $F(1,57.9)=0.377, p=.541$, indicating that the groups did not differ meaningfully in their scores. In contrast, the results for the Telugu version approached statistical significance, $F(1,55.4)=3.958, p=.052$. While the p-value for the Telugu version did not meet the conventional threshold of $p < .05$, it suggests weak evidence for group differences that needs further exploration.

Table 5: Scale Reliability Statistics

	Cronbach's α
Scale	0.933

Table 5 reports Cronbach's alpha (α) used to measure internal consistency is used as an overall reliability statistics of the Kessler scale. The value for the entire scale is 0.933, indicating high reliability ($\alpha > 0.9$). This suggests that the items on the scale regardless of language measure a consistent construct suggesting the Telugu translated version is highly similar to the English version of Kessler's Psychological Distress scale.

Cronbach's alpha for the overall scale was excellent ($\alpha = .933$). But as mentioned in Table 6, The Telugu version exhibited slightly higher reliability ($\alpha = .923$) compared to the English version ($\alpha = .830$).

Table 6: Item Reliability Statistics

	Cronbach's α
Telugu	0.923
English	0.830

A Psychometric Study to Translate and Measure Validity of a Telugu Translation of the Kessler Psychological Distress Scale (K10)

Table 6 presents the Cronbach's alpha for the individual language versions:

- Cronbach's alpha for Telugu scale is 0.923, indicating high internal consistency. This suggests that the translated Telugu version of the Kessler scale is highly reliable.
- Cronbach's alpha for the English scale is 0.830, indicating good internal consistency. While slightly lower than the Telugu version, it is still within an acceptable range for psychological scales.
- The higher reliability of the Telugu version suggests that the translation process maintained the integrity of the scale's items and their ability to consistently measure the intended construct.

DISCUSSION

The mean score for the Telugu version (24.9) is slightly higher than that of the English version (24.1) indicating a slightly greater level of psychological distress reported in the Telugu version. This difference could be attributed to the intensity of wording used in the Telugu version which could have evoked stronger emotional responses. Alternatively, it could also be a potential misunderstanding of the intensity conveyed by certain words in the English version, as language shapes our perception and interpretation of situations.

T-test statistic of t-value being 2.51, the observed difference is statistically significant and unlikely to have occurred by chance alone. However, it is possible that extraneous variables like the change in personal experiences over a week's time, changes in the level of college or work stress work could have influenced the observed difference in mean values between both the versions.

The one-way ANOVA results show that the Telugu version exhibits a trend toward significant differences ($p = 0.052$), whereas the English version does not ($p = 0.541$). This could indicate cultural or linguistic nuances in the Telugu-speaking population affected their responses. However, the lack of statistical significance suggests that the translated scale is comparable to the original in terms of group mean differences indicating the validity of the Telugu translated version of the Kessler scale.

Cronbach's alpha values for both scale versions are higher than the acceptable threshold of 0.7, indicating strong internal consistency. The Telugu version's slightly greater reliability ($\alpha = 0.923$) indicates that the translation successfully captured the intricate details of the original items while preserving its coherence.

The results support the use of the Telugu version of the Kessler scale in research and clinical settings. Its high reliability and comparability to the English version make it a valid tool for assessing psychological distress in Telugu-speaking populations.

CONCLUSION

This study aimed to translate and measure the validity of the Telugu translated version of Kessler Psychological Distress Scale. As shown by the results, Telugu translated version shows high reliability and comparability to the English version making it a valid tool for assessing psychological distress in Telugu-speaking populations.

For further studies, it is important to conduct the same study on various participants from diverse parts of Andhra Pradesh and Telangana as Telugu dialects differ from place to place,

A Psychometric Study to Translate and Measure Validity of a Telugu Translation of the Kessler Psychological Distress Scale (K10)

to ensure its validity across both the states, it is important to consider the differences in dialects and conduct the same study on people from different parts of Andhra Pradesh and Telangana. Maximum people in the sample were college students. To avoid sampling bias in the future studies, it is important to consider an equal number of participants from different genders and different backgrounds.

Considering this study as the beginning to the adaptation of Kessler Psychological Distress Scale into Telugu, it is highly important to test this scale on a larger sample size before effectively using this in psychological settings.

REFERENCES

- Australian Bureau of Statistics. (2012). Information paper: Use of the Kessler Psychological Distress Scale in ABS health surveys, Australia, 2007-08 (4817.0.55.001). <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4817.0.55.001Chapter22007-08>
- Bhugra, D., & Mastrogianni, A. (2004). Globalisation and mental disorders. *British Journal of Psychiatry*, 184(1), 10–20. <https://doi.org/10.1192/bjp.184.1.10>
- Bougie, E., Arim, R. G., Kohen, D. E., & Findlay, L. C. (2016). Validation of the 10-item Kessler Psychological Distress Scale (K10) in the 2012 Aboriginal Peoples Survey. *Statistics Canada*. <https://www150.statcan.gc.ca/n1/pub/82-003-x/2016001/article/14307-eng.htm>
- Easton, S. D., Safadi, N. S., Wang, Y., & Hasson, R. G. (2017). Kessler Psychological Distress Scale--Arabic version. *PsycTESTS Dataset*. <https://doi.org/10.1037/t68043-000>
- Iyer, M. (2017, February 25). 7.5% Indians suffer from mental disorders: WHO report. *The Times of India*. <https://timesofindia.indiatimes.com/india/7-5-indians-suffer-from-mental-disorders-who-report/articleshow/57344807.cms>
- Kessler 10 (K10) Translations. (2015). https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/IB2015_001.pdf
- Mental health in developed vs developing countries. (2023). *Jacinto Convit World Organization*. <https://www.jacintoconvit.org/social-science-series-5-mental-health-in-developed-vs-developing-countries/>
- Mitchell, C. M., & Beals, J. (2011). The utility of the Kessler screening scale for psychological distress (K6) in two American Indian communities. *Psychological Assessment*, 23(3), 752–761. <https://doi.org/10.1037/a0023288>
- Most Spoken Languages in India. (2023). <https://testbook.com/ias-preparation/most-spoken-languages-in-india>
- Patel, V., & Prince, M. (2010). Global mental health. *JAMA*, 303(19), 1976. <https://doi.org/10.1001/jama.2010.616>
- Rabiah, S. (2018). Language as a tool for communication and cultural reality disclosure. <https://doi.org/10.31227/osf.io/nw94m>
- Stolk, Y., Kaplan, I., & Szwarc, J. (2014). Clinical use of the Kessler Psychological Distress Scales with culturally diverse groups. *International Journal of Methods in Psychiatric Research*, 23(2), 161–183. <https://doi.org/10.1002/mpr.1426>
- Yiengprugsawan, V., Kelly, M., & Tawatsupa, B. (2014). Kessler Psychological Distress Scale. *Encyclopedia of Quality of Life and Well-Being Research*, 7070. https://link.springer.com/referenceworkentry/10.1007/978-94-007-0753-5_3221

A Psychometric Study to Translate and Measure Validity of a Telugu Translation of the Kessler Psychological Distress Scale (K10)

Acknowledgment

The author(s) appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interest

The author(s) declared no conflict of interest.

How to cite this article: Gutta, J.C., & Bhuyan, B. (2025). A Psychometric Study to Translate and Measure Validity of a Telugu Translation of the Kessler Psychological Distress Scale (K10). *International Journal of Indian Psychology*, 13(1), 1404-1411. DIP:18.01.134.2025 1301, DOI:10.25215/1301.134