

Translation and Validation of Global Deterioration Scale

Huma Hassan^{1*}, Najma Najam²**Abstract**

The current study aimed to translate and validate the Global Deterioration Scale (Reisberg et al., 1982) into Urdu language to be used in Pakistan as it is the national language and easily understandable among population of Pakistan. Therefore, it was important to translate and validate this tool to break the language barrier. The purposive sampling was carried out and dementia patients were identified. For the validation of the study, sample of ($N=210$) of dementia patients was taken and the translated version was administered on them. The patients were approached in the outdoor patient ward of Neurology at General Hospital and Services Hospital Lahore. MAPI guidelines were used for the purpose of forward and backward translation. Findings showed that global deterioration scale has significant positive relationship with cognitive brief rating scale. It revealed that translated version of the scale has good convergent validity. The findings also revealed that there is a difference of global deterioration scale scores between males and females.

Keywords: Global Deterioration Scale, Urdu Translation, Validation

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Introduction

To evaluate primary degenerative dementia and identify its stages, the Global Deterioration Scale (Reisberg et al., 1982) was developed. An early "forgetfulness" phase, an intermediate "confusional" phase, and a late "dementia" phase are the three main clinical stages of cognitive loss linked to aging and compatible with a diagnosis of primary degenerative dementia. Seven clinically distinct and ratable stages could be created by further refining these phases. Based on these phases of the disease's occurrence, the authors developed the global deterioration

scale for primary degenerative dementia. Stage 1: No Cognitive Decline; Stage 2: Very Mild Cognitive Decline; Stage 3: Mild Cognitive Decline; Stage 4: Moderate Cognitive Decline; Stage 5: Moderately Severe Cognitive Decline; Stage 6: Severe Cognitive Decline; and Stage 7: Very Severe Cognitive Decline. The clinical characteristics and psychiatric concomitants were provided by the authors. The scale has been used successfully for over five years, according to the authors, who also validated it in a group of patients with primary degenerative dementia using behavioral, neuroanatomic, and neurophysiologic markers.

If a mental decline is severe enough to interfere with day-to-day activities, the word "dementia" is often employed. Alzheimer's a general word used to list the signs of memory loss or other cognitive deficits that are severe enough to interfere with a person's ability to carry out daily tasks. For dementia to be diagnosed, a number of basic brain functions must drastically decline, including memory, language and communication skills, attention span and focus, cognition and judgment, and

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visual perception (Mebane-Sims & Alzheimer's Association, 2009).

Dementia patients may have trouble with short-term memory, keeping track of their wallet or pocketbook, paying bills, organizing and cooking meals, recalling meetings, or getting lost in their neighborhood. If dementia is advancing, symptoms may appear gradually at first and get worse over time. Treatable disorders can be identified by specialized testing (Mebane-Sims & Alzheimer's Association, 2009). Deterioration in motivation, social conduct, or emotional regulation is frequently seen in conjunction with, and sometimes even precedes, cognitive performance deficits. The largest risk factor for dementia is age. The prevalence is 2% in those 65 to 69 and 20% in people 85 to 89 (Mebane-Sims & Alzheimer's Association, 2009).

A variety of underlying illnesses, including Alzheimer's disease, vascular disorders, infections, or metabolic and nutritional deficits, can cause dementia, a broad clinical syndrome characterized by a decline in memory, thinking, reasoning, and the capacity to do daily tasks. It is an umbrella word that refers to a variety of problems rather than a single disease, and if the underlying cause is addressed, the symptoms may occasionally be somewhat treatable. In contrast, 60–70% of dementia cases are caused by Alzheimer's disease, a particular neurological condition. It is characterized by a slow and progressive onset, with early episodic memory impairment followed by deficiencies in language, behavior, judgment, and visuospatial skills. Amyloid plaques and neurofibrillary tangles in the brain are pathologically linked to Alzheimer's disease, which is usually progressive and irreversible. Therefore, Alzheimer's disease refers to specific disease process which results in dementia, whereas dementia represents a collection of cognitive and functional symptoms (Alzheimer's Association, 2024;

World Health Organization & Alzheimer's Disease International, 2012).

The prevalence, risk factors, clinical presentation, and caregiver burden of dementia exhibit significant gender disparities. Due in part to the fact that women typically live longer than men and since becoming older is the biggest risk factor for dementia, women are more likely than men to develop the condition globally. However, biological variables including hormonal changes following menopause, especially lower levels of estrogen, may also make women more susceptible to neurodegenerative processes. Men are more likely to get certain kinds of dementia, notably vascular dementia, which is closely linked to cardiovascular risk factors, whereas women are more likely to suffer Alzheimer's disease, the most common cause of dementia. When it comes to symptoms, men may have more noticeable behavioral or executive dysfunction, whereas women with dementia frequently show more memory impairment. Furthermore, women are disproportionately responsible for providing care for those who have dementia, which has serious psychological and financial ramifications. Developing focused preventative initiatives, enhancing diagnosis, and offering gender-sensitive care and support all depend on an understanding of these gender variations (Alzheimer's Association, 2024; World Health Organization & Alzheimer's Disease International, 2012).

The cause of late-onset dementias, which shorten life, is mostly unknown. Alarming headlines predicting a "tsunami" of dementia cases that will overwhelm families and health care systems and impose intolerable financial loads have resulted from projections of the number of people living with dementia by 20509 (Khatri & Wasay, 2013).

Kim et al. (2021) examines the association between behavioral and psychological symptoms of dementia, cognitive function,

and caregiver burden in Alzheimer's patients. With a mean total Behavioral & Psychological Symptoms in Dementia (BPSD) score of 17.66 and a mean score for family caregiver burden of 9.65, the study discovered that BPSD had a substantial impact on caregiver burden.

The global deterioration scale, the clinical dementia rating, the mini mental status examination and the Minimum Data Set are the most popular rating scales used to assess the severity of dementia. These instruments are frequently employed as standards for assessing the severity of dementia in clinical studies and the effectiveness of dementia medications in clinical trials. Cognition, function, and behavioral symptoms are just a few of the domains that the deterioration scale, the clinical dementia rating assess. The National Health Insurance covers the deterioration scale, the clinical dementia rating for dementia-related prescription medications. 15. One benefit of the Global Deterioration Scale is its ease of usage (Huang et al., 2021).

Method

Purpose of Translation

For educational purposes, the Global Deterioration Scale was translated into Urdu. Furthermore, scale was translated into Urdu in order to overcome linguistic hurdles, making it potentially useful for Pakistan population. The MAPI criteria were followed to while translating the scale.

Sample

The purposive sampling was carried out and dementia patients were identified. The initial translation was given to a sample of 210 people in order to validate the study. The dementia patients at General Hospital and Services Hospital's outdoor neurology patient unit were approached. They were referred by the neurologist working in the outdoor patient ward. The patients were first examined after being referred to ensure they

fulfilled the research's participation requirements.

Inclusion Criteria

The inclusion criteria for the study consisted of dementia patients who were referred by neurologists. Additionally, only patients aged 60 years and above were included in the study.

Exclusion Criteria

The exclusion criteria included dementia patients who were not referred by or diagnosed by a neurologist. In addition, patients younger than 60 years of age were excluded from the study.

Analysis

MAPI guidelines (2019) were used to translate the data. Pearson Correlation and test was run on SPSS 29 to analyze data.

Results

Forward Translation

The authors of the scales were first asked for permission to translate them into Urdu. Two multilingual experts were given the global degradation scale to translate forward after receiving permission from the relevant authors. The MAPI Research Institute established the requirement to use two bilingual specialists (MAPI Institute, 2019).

In the forward translation process, Scale was translated from English, the source language, to Urdu, the target language. The forward translation process employed two bilingual experts. Two students from the Department of Applied Psychology, University of the Punjab, Lahore were bilingual experts. Following their translation, the two forward translations were compared.

Observations were made and discrepancies between the two translations were recorded. Five raters then evaluated both translations with observations based on discrepancies between forward translations; the translation with the highest scores was chosen for the final forward version. Improvements were made with the supervisor's assistance after issues encountered during forward

translation were reviewed. This final version was back translated once forward translation was completed.

Rating by the Experts

A committee of three multilingual translators was established after the completion of two translations by two translators. They were all three PhD candidates at the Institute of Applied Psychology. The raters were given both translated versions of the scales and asked to rank the items that they thought were most appropriate. Cross-cultural equivalency of the scale was also considered during the translation assessment. There was also discussion of the items' content, clarity, precision, and difficulty. Items that were conceptually equivalent to the original scale were chosen for the final translated version. This was followed by the preparation of a final translation and a back translation.

Discrepancies of Two Forward Translations (Urdu Version)

After discussing the differences between the two forward translated versions, the supervisor tried to sort out the differences by offering her opinions on both translations and choosing the best one after consulting with both translators.

This process was repeated until both translators agreed on the translated version. Despite the fact, both translators did a good job translating every item, there were some discrepancies in their translations, which are detailed below.

Discrepancies between Forward Translated of Global Deterioration Scale

Though, both translators did a good job translating every item on the global deterioration scale, there were a few discrepancies in their translations, which are shown in Table 1.

Table 1

Original Word / Term	Translation 1	Translation 2	Final Translation
Deficit	خسارہ	کمی	کمی
Cognitive	وقوف	ادراک	ادراک
Age associated	متعلق سے عمر	وابستہ سے عمر	متعلق سے عمر
Familiar	پہچانی جانی	معروف	پہچانی جانی
Clinical interview	سوالنامہ طبی	انٹرویو طبی	انٹرویو طبی
Social	سماجی	جلنا ملنا	جلنا ملنا
Unfamiliar	معروف غیر	انجانے	انجانے
Co-workers	کارکن ساتھی	والے کرنے کام ساتھ	والے کرنے کام ساتھ
Retain	رکھنا برقرار	رکھنا یاد	رکھنا یاد
Denial	انکار	کرنا نہ تسلیم کو حقیقت	کرنا نہ تسلیم کو حقیقت
Survival	بقا	رہنا زندہ	رہنا زندہ
Generally	پر طور عام	عموماً	پر طور عام
Require	ضرورت	درکار	درکار
Variable	متغیر	والی بدلنے	والی بدلنے
Obsessive symptoms	علامات جنونی	علامات خبطی	علامات خبطی
Cognitive Abulla	اہلہ وقوفی	کمی ادراکی	کمی ادراکی
Rare emergence	ظہور نادر ہونا ظاہر کبہار کبھی	ظہور نادر ہونا ظاہر کبہار کبھی	ظہور نادر ہونا ظاہر کبہار کبھی
Psychomotor	حرکی نفسی	حرکی نفسیاتی	حرکی نفسیاتی

The Table 1 displays differences found between two independent translators and the final Urdu translation decided upon following expert debate. The best formed sentence was chosen because, in addition to the aforementioned differences, there were certain differences pertaining to sentence formation structure. Following the aforementioned modifications to the two forward translations, a final forward translation version was created and is included in the appendices with the translators' ratings.

Backward Translation

When a document that has been translated forward is translated back into the original language, this is called a backward translation (MAPI Institute, 2019). Two bilingual specialists were asked to translate the Urdu version of the global deterioration scale back into English without viewing the original English form after a forward translation was selected. Both versions were

compared when the backward translation was finalized.

Rating by the Experts

A committee of three bilingual translators was established after two translations into English were completed by two translators. All three of them were PhD and MPhil. candidates. The raters were given both backward translated versions of the global degradation scale and asked to rank the items that best suited. Cultural variations were also taken into consideration when reviewing the translation. There was also consideration of the items' content, clarity, precision, and difficulty. For the final version of the reverse translation, the items that received more ratings were chosen.

The correlation of translated version of global deterioration scale and cognitive brief rating scale was assessed to find out the convergent validity of the scale, based on the reason that cognitive brief rating scale assesses the same construct for which global deterioration scale was constructed.

Table 2

Correlation between Translated Version of Global Deterioration Scale and Cognitive Brief Rating Scale (N=210)

Item	1	2	3	4	5	6
Concentration		.71***	.71**	.83**	.79**	.73***
Recent memory			.91**	.66*	.75**	.67**
Past memory				.67	.78***	.66*
Orientation					.77***	.73**
Functioning and Self-care						.82**
Global Deterioration Scale						

The findings indicated a strong positive correlation between the global deterioration scale and the cognitive brief rating scale. It demonstrated the strong convergent validity

of the translated version of the scale. It was hypothesized that there will be significant difference of global deterioration scale scores on gender.

Table 3*Independent Sample t test Comparing Males and Females on Global Deterioration Scale (N=210)*

	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Males	87.12	12.45	4.31	209	.02
Females	72.31	11.04			

Note: *** $p < .001$, *SD*= standard deviation, *M*=mean

Findings revealed that there is a difference of global deterioration scale scores between males and females.

Discussion

The findings of the present study support the use of translated version the Global Deterioration Scale as a valid measure for assessing the severity of cognitive decline in individuals with dementia. The global deterioration scale has been widely validated and is recognized for its ability to clearly differentiate stages of cognitive and functional deterioration from normal aging to severe dementia. Previous research has also demonstrated strong concurrent validity of the global deterioration scale with other established cognitive and clinical measures, including the Mini-Mental State Examination and Clinical Dementia Rating, confirming its effectiveness in staging dementia progression (Auer & Reisberg, 1997; Reisberg, 1988).

The present study identified a significant difference in dementia between men and women, indicating that gender plays an important role in the occurrence of dementia. This finding is consistent with existing research showing that dementia, particularly Alzheimer's disease, is more prevalent among women than men (Alzheimer's Association, 2024).

One major explanation for this difference is women's longer life expectancy, as advancing age is the strongest risk factor for dementia (World Health Organization & Alzheimer's Disease International, 2012). Additionally, biological factors such as hormonal changes after menopause, especially reduced estrogen levels, may increase women's vulnerability to

neurodegeneration (Ferretti et al., 2018). In contrast, dementia in men has been more strongly associated with vascular and lifestyle-related risk factors.

Social and educational factors may also contribute to gender differences in dementia. Women from older generations often had limited access to education and employment, which may result in lower cognitive reserve and increased dementia risk in later life (Stern, 2012). These findings emphasize the need for gender-sensitive screening, prevention, and intervention strategies.

In conclusion, the significant gender difference observed in this study aligns with prior research and highlights the importance of considering gender-specific biological and psychosocial factors in dementia research and clinical practice.

Implications

The current study has made the dementia rating in patients of dementia in Pakistani society as it is translated in Urdu. Hence, making the assessment of dementia easier. The current translated version of global deterioration scale is a valid tool to provide validation of dementia assessment in much shorter time than the other tools. The current study has also explored the gender differences in dementia stressing the importance of future research work on finding factors that contribute in dementia.

Limitations and Suggestions

The sample was small in size; however, this was due to the sample's limited availability and timing constraints. Future researchers

could also gather larger samples from other provinces. There is also a need to test validity of the scale on population of other cities in Pakistan.

Conclusion

Henceforth, this research was conducted to translate and validate Global Deterioration Scale in Urdu Language. The findings of the current study revealed that the translated version of the scale is reliable and has good internal consistency. The findings indicated a strong positive correlation between the global deterioration scale and the cognitive brief rating scale. It demonstrated the strong convergent validity of the translated version of the scale. The findings also revealed that there is a difference of global deterioration scale scores between males and females.

Ethics Statement

The study was conducted in accordance with the APA Ethical guidelines. Informed consent was obtained from all participants.

Contribution of Authors

Huma Hassan: Conceptualization, Investigation, Methodology, Data Curation, Formal Analysis, Writing – Original Draft, Najma Najam: Methodology, Writing - Reviewing & Editing, Supervision

Conflict of Interest

There is no conflict of interest declared by the authors.

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The authors declared no source of funding.

Data Availability Statement

The datasets of the current study are not available publicly due to ethical reasons but are available from the corresponding author [H.H.] upon the reasonable request.

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