Culturally Adaptation and Validation of the Hamilton Anxiety Scale (HAM-A) in Urdu Language: A Research Study on Pakistani Population

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Abstract

Indent of the research was to translate and validate the Hamilton anxiety scale in Pakistan in Urdu language. In current study through mixed sampling technique accessed (N=200) participate. For translation utilized forward and back translation method with help of bilingual experts and psychologists, psychiatric through committee approach. Descriptive statistics, exploratory analysis, reliability analysis and co relation co efficient statistical techniques utilized for analysis of collected data. There was assumed to develop a valid and reliable Urdu translated version of Hamilton anxiety scale. To validate the Hamilton anxiety scale in Pakistani host culture. The findings of the study proved true all study hypotheses. Communalities of all factors in Principal factor analysis was (λ>0.5) x=1717.942, p.<.001 Alph co efficient (α=.85) and good inter items and inter factors matrices co relation co efficient. This is the multi dimensions anxiety scale Urdu version scale for Pakistani educated population. This is a reliable and valid construct in Urdu language for measuring the anxiety. This study scope able for clinical psychology, health psychology, community psychology and for Experimental psychology.

Keywords: Hamilton, anxiety scale, cross translation, adaptation, translation

Introduction

Anxiety disorders represent a significant concern within the realm of mental health in Pakistan, imposing substantial burdens on individuals, families, and the healthcare system. The Hamilton Anxiety Scale (HAM-A) serves as a widely utilized clinical assessment tool for the evaluation of anxiety symptoms. Nevertheless, its applicability in Pakistan has been constrained by the absence of a validated Urdu version.

This investigation pertains to the translation and validation of an anxiety scale selected by undergraduate students based on their personal interests and the relevance of the study within clinical contexts and the field of psychology in

Pakistan, necessitating the translation and adaptation of scales for practical utilization. This study is both feasible and multidimensional, aimed at the measurement of anxiety.

The primary objective of the study is to assess the 14 distinct dimensions of anxiety. The Hamilton Anxiety Scale (HAM-A) is recognized as a prevalent instrument for evaluating anxiety levels in both clinical and research environments. However, to ascertain its validity and applicability across various populations and cultural contexts, it is imperative to undertake the validation and translation of the scale. This abstract delineates a summary of the cross-validation and translation process of the HAM-A, emphasizing the significance of preserving its psychometric properties while adapting it for utilization in diverse languages and cultures. Cross-validation entails the evaluation of the consistency and reliability of the HAM-A across multiple samples within the same population. This methodological approach is fundamental in ensuring that the scale consistently and accurately measures anxiety, independent of individual differences or particular characteristics of the sample. Cross-validation studies typically encompass the collection of data from varied groups and the comparison of results to validate the scale's internal consistency, reliability, and construct validity. The translation of the HAM-A encompasses the adaptation of the scale for application in different languages and cultures while ensuring the retention of its original meaning and psychometric attributes. This process necessitates not only linguistic translation but also cultural adaptation to guarantee the relevance and comprehensibility of the scale items within the target population. The translation process involves a meticulous procedure of forward and backward translation, expert review, cognitive debriefing, and pilot testing to attain linguistic and cultural equivalence. The cross-validation and translation endeavors regarding the HAM-A aspire to establish its validity and reliability across diverse populations, rendering it a robust instrument for the assessment of anxiety across various cultures and languages. This initiative contributes to the overarching goal of advancing standardized and comparable measures of anxiety in international research and clinical practice, thereby facilitating cross-cultural comparisons and enriching our understanding of anxiety disorders on a global scale (Hamilton, 1988).

Anxiety disorders exhibit characteristics of excessive fear and anxiety, accompanied by related behavioral disturbances, and are often highly comorbid. Nonetheless, they can be distinguished through meticulous examination of the specific situations that elicit fear and the content of the associated cognitive patterns.

According to the DSM-5 criteria for anxiety disorders: A. There is the presence of excessive anxiety and worry, occurring more days than not for a minimum duration of six months, concerning various events or activities (such as work or academic performance). B. The individual experiences difficulty in controlling the worry.

Anxiety disorder DSM 5 criteria

A. The presence of excessive anxiety and persistent worry, occurring on more days than not for a minimum duration of six months, regarding a multitude of events or activities (such as performance in work or academic settings).

B. The individual experiences significant difficulty in exerting control over their worry.

C. The manifestations of anxiety and worry are correlated with three or more of the subsequent six symptoms (with at least some of the symptoms having been present for more days than not over the preceding six months):

Note: Only one symptom is necessary in pediatric populations.

Restlessness or a sensation of being keyed up or on edge

Experiencing a heightened sense of fatigue

Challenges in maintaining concentration or experiencing a blank mind

Irritability

Muscle tension

Disturbances in sleep patterns.

The anxiety, worry, or physical manifestations yield clinically significant distress or impairment in social, occupational, or other critical domains of functioning [American Psychiatric Association (APA). 2013].

According to the American Psychiatric Association, anxiety represents a normative response to stressors and can indeed serve beneficial purposes in certain contexts, such as enhancing attention and focus during tests or work-related tasks. Conversely, anxiety disorders are characterized by distinct differences from transient feelings of anxiousness or nervousness, manifesting as more profound feelings of fear or anxiety (Agarwal, et al., 2022).

The Diagnostic and Statistical Manual (DSM-5) delineates anxiety as excessive worry and anticipatory apprehensions, occurring more frequently than not for a minimum of six months, regarding various events or activities, such as performance in occupational or educational contexts (Abuse, & Administration, 2016). The anxiety and worry are associated with three or more of the following six symptoms, with at least some symptoms evident for more days than not over the past six months:

restlessness or a sense of being keyed up or on edge

Increased fatigue

Challenges in concentration or experiencing a blank mind

Irritability

Muscle tension

Sleep disturbances, including difficulties in initiating or maintaining sleep, or experiencing restless and unsatisfactory sleep. The anxiety, worry, or physical manifestations induce clinically significant distress or impairment in social, occupational, or other critical domains of functioning (Abuse, & Administration, 2016).

Screening instruments are employed in both epidemiological and clinical research, which are frequently conducted across diverse population cohorts. This necessitates a culturally comprehensible and valid translation of the instrument (Sechrest et al., 1972; Bullinger et al., 1999). The process of translating an instrument from its original language may present challenges, as the translated iteration may inadvertently lose the intended significance embedded in the original version (Werner et al., 1970). This challenge associated with the translation of questionnaires into alternative languages has been extensively examined within the psychological literature (Mokkink et al., 2010).

The translated iteration of the questionnaire is anticipated to closely resemble the original and fulfill the same intended purpose. However, in practical application, a discord often arises between the two, as literal translation can yield a divergent meaning. Within the literature, a discourse exists regarding which of these two approaches should be prioritized (Werner & Campebell, 1970).

Anxiety disorders represent the most prevalent mental health issue in the United States, with estimates indicating that over 40 million adults, or approximately 19%, are affected. Additionally, around 7% of children aged 3 to 17 experience anxiety-related problems annually, with the majority of individuals exhibiting symptoms before reaching 21 years of age (Leichsenring et al., 2009). Research shows that women are more prone to anxiety disorders than men. Furthermore, while climate change anxiety has not yet been classified as a disorder in the DSM, its recognition may be forthcoming as studies on its impact continue to expand (Hickman et al., 2021).

Anxiety sensitivity (AS) is characterized by a fear of anxiety itself, stemming from concerns about negative beliefs and potential consequences. This fear arises from the perception that bodily sensations and symptoms could lead to adverse physical, psychological, and social outcomes (Vulić-Prtorić et al., 2008). Research has demonstrated that anxiety sensitivity plays a crucial role in the development of panic disorder (Taylor, 1996) and PTSD (Peterson & Reiss, 1992; Olatunji & Wolitzky-Taylor, 2009). It is increasingly recognized as a significant vulnerability factor contributing to the onset of anxiety disorders and depression. Zvolensky, Felder, Leen-Feldner, and McLeish (2005) identified anxiety sensitivity as a key predictor in the emergence of anxiety and related disorders, highlighting the need to consider its multifaceted role and complex interactions with various characteristics in understanding its implications for the development of these conditions. Anxiety sensitivity is described as a dynamic

cognitive structure, often referred to as "fear of fear" or "fear of anxiety" (Starcevic & Berle, 2006).

There are limited studies that explore the perspectives of individuals with mental disabilities regarding their own anxiety. This may be attributed to the inadequacy of available assessments, which are often not well understood by this population. The current study aims to modify the Zung self-rating anxiety scale for application with individuals who have mental disabilities.

The Theoretical Framework

Classical test theory

Classical Test Theory (CTT), often referred to as the true score model, provides the mathematical foundation for the development and evaluation of tests and measurement scales. The primary objective of CTT is to enhance the quality of tests, focusing particularly on their reliability and validity. Reliability denotes consistency; for instance, if you were to take the ACT five times, your scores should be approximately the same each time. A test is considered valid if it accurately measures what it is intended to assess. The term "classical" is used because Item Response Theory represents a more contemporary approach.

True Scores
CTT posits that every individual possesses a fundamental true score. This concept can be expressed through the equation:
$X = T + E$,
where:
X represents the observed score,
T denotes the true score,
E signifies random error.
For instance, if you have a solid understanding of 70% of the material in a statistics course, this percentage reflects your true score (T). An ideal end-of-semester examination (which is theoretical) would accurately represent this true score. However, in practice, your score might range from 65% to 75%. The 5% variation from your true score is classified as the error (E).

It is assumed that these errors follow a normal distribution with a mean of zero; theoretically, if you were to take the test an infinite number of times, your observed score would converge with your true score (Traub, 1997).

Item Response Theory

In the field of psychometrics, item response theory (IRT), also referred to as latent trait theory, strong true score theory, or modern mental test theory, serves as a framework for the creation, analysis, and scoring of assessments, surveys, and similar tools that evaluate abilities, attitudes, or other variables. This theory focuses on the correlation between an individual's performance on a specific test item and their overall performance level on the ability that the item is intended to measure. Various statistical models are employed to depict both the characteristics of the items and those of the test takers. Unlike simpler methods for constructing scales and assessing questionnaire responses, IRT does not presume that all items possess the same level of difficulty. This sets IRT apart from approaches like Likert scaling, which assumes that all items are equivalent or parallel instruments. In contrast, item response theory acknowledges the

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varying difficulty of each item, represented by item characteristic curves (ICCs), as crucial information for scaling. The theory relies on the application of relevant mathematical models to testing data. Often considered more advanced than classical test theory, IRT is the preferred approach for scale development in the United States, particularly in high-stakes testing scenarios such as the Graduate Record Examination (GRE) and the Graduate Management Admission Test (GMAT).

Psychoanalytical theory
Anxiety is fundamental to the psychoanalytic theory of emotions and has been acknowledged since the inception of psychoanalytic thought as essential for comprehending mental conflict. This is because negative emotions are the means through which conflicts are experienced and understood. In his early writings, Freud, adhering to his initial model of mental functioning, viewed anxiety as a "toxic transformation" of unexpressed libido. This inability to discharge could manifest physiologically ("realistic"), as seen in interrupted coitus or other unsatisfactory sexual experiences, leading to "actual neuroses" or "anxiety neuroses." Alternatively, it could stem from repression (or its failure), serving as a symptom of the ongoing pressure from unacceptable desires, which resulted in "psychoneuroses" such as hysteria and obsessions.

Cognitive therapy
Cognitive therapy is a prevalent approach for addressing anxiety disorders. It is founded on Beck's tri-part model of emotion, which suggests that thoughts, feelings, and behaviors are interconnected. This theory posits that by modifying maladaptive thoughts, one can influence both emotional responses and behaviors. Cognitive therapy aims to address distorted thinking through various techniques, including identifying inaccurate thoughts, evaluating the evidence for and against automatic thoughts, challenging and modifying maladaptive beliefs, changing problematic behaviors, and fostering more adaptive interpersonal relationships. An essential component of cognitive therapy involves psychoeducation regarding the tri-part model of emotion, various types of distorted thinking (such as all-or-nothing thinking, jumping to conclusions, and disqualifying the positive), and cognitive restructuring. Patients are often assigned homework to practice these skills in their everyday lives, enabling them to master the techniques for application after treatment concludes. In the context of anxiety disorders, cognitive therapy is frequently combined with behavioral techniques, which may involve exposure exercises. Typically, cognitive therapy is time-limited to around 20 sessions or fewer and focuses specifically on the issues that the patient identifies as most pressing.

Medical model approaches. This model considers anxiety an innate process, in the same time it emphases on physiological causes that resulting anxiety. Some of these causes might include (a) a chemical imbalance (imbalance in the secretion of neurotransmitters and hormones), (b) disruption in nervous system caused by abnormalities in size or functioning of anatomical structures, or (c) improper parenting styles, such as over-protectiveness or over-controlling (Rice, 2008). In addition, research found the impact of maternal drug ingestion on developing anxiety among their children (Huang et al., 2007).

Behavioral Inhibition. It is a concept that refers to a temperamental tendency

to avoid or withdraw from non-social and novel social situations (Morgan, 2006). Behavioral inhibition results in restraint, fearfulness, withdrawal, and reticence after exposure to novel or unfamiliar experiences (Rice, 2008). This response emerges "differently at different ages, with young children possibly being clingy to parents or more solitary in play, and in older children may present as exhibiting restraint in groups of unfamiliar peers, or hesitating to smile, approach others, or initiate conversations (Rice, 2008, p. 71). Consequently, anxiety occurs when an individual is not used to being exposed to new and unfamiliar situations or stimuli. Furthermore, inhibited children probably belong to shy or anxious parents those w ho are considered as modeling for their children (Rice, 2008)

Behavioral Genetics: This perspective focuses on the genetic basis of anxiety development, where genetic research of anxiety is conducted through the study of the disease history of the family, that to determine the impact of heredity on children's anxiety (Clément, Calatayud, & Belzung, 2002; Gregory & Eley, 2011). However, it cannot be certain that children with anxiety are due to genetic factors from their parents since environmental factors could play role in anxiety development (Rapee, 2012).

Psychodynamic theory. Internalized disorder such as anxiety is caused by the suppression of innate or instinctive desires, drives, wishes, and impulses, which are unacceptable or forbidden to express, consequently 31 causing discomfort. This discomfort is repressed and transforms into the unconscious, and defense mechanisms are developed to overcome anxiety (Engler, 2013).

Rational of the study
This scale was created by Hamilton in 1988 and has since been translated into several languages. However, it had not been translated into Urdu until now. Consequently, this study aims to develop an Urdu version of the Hamilton Anxiety Scale, a general anxiety assessment tool suitable for both clinical and research environments. This distinctive scale evaluates fourteen symptoms of anxiety and encompasses two domains. Previously, in Pakistan, there were few translated anxiety scales that catered to individuals across all life stages, unlike the Hamilton Anxiety Scale. This scale specifically assesses severe anxiety in individuals, whereas previously translated and adapted scales were primarily designed for children and adults, not for all age groups.

Cross-validation plays a crucial role in establishing standardized criteria for interpreting HAM-A scores across various populations, ensuring consistency in anxiety level assessments. This consistency allows clinicians and researchers to accurately compare and interpret results, irrespective of the population under study.

Cultural sensitivity is enhanced through cross-cultural validation studies, which help identify potential cultural biases or differences that may influence the interpretation of anxiety symptoms. This understanding can guide the creation of culturally sensitive assessment tools, enabling healthcare professionals to provide appropriate care to individuals from diverse cultural backgrounds.

Furthermore, cross-validation studies are instrumental in evaluating the effectiveness of anxiety treatments across different populations. By validating the HAM-A in various cultural contexts, we can ascertain whether the scale effectively captures treatment responses and outcomes, facilitating better evaluation of therapeutic interventions and the formulation of culturally appropriate treatment protocols.

Translating the HAM-A also promotes its application in global research collaborations and clinical trials. By making the scale available in multiple languages, researchers can enhance its accessibility and usability in diverse settings.

Objectives
To translate Hamilton anxiety scale for source language English to target language urdu
To validate the Hamilton anxiety scale
To develop a reliable and valid urdu Hamilton anxiety scale
To translation and validation of Hamilton anxiety scale

Hypotheses
H1: The Urdu translation and adaptation of the Hamilton Anxiety Scale (HAM-A) will be a linguistically and culturally valid measure for assessing anxiety in the Pakistani population.
H2: The Urdu version of the HAM-A will demonstrate adequate psychometric properties, including reliability and validity, for use in clinical and research settings.
H3: The developed Urdu version of the HAM-A will be a reliable and valid measure of anxiety, suitable for use in assessing anxiety symptoms in Pakistani individuals.

Method
Research Method
For current study was adopted survey research method

Research design
The current study research design was the explanatory.

Participants
Clinical patients of anxiety were approached for data collection from Haripur district hosptal,Ayub Medical complex, Haripur psye clinic, Peshawar Hayat Abad Medical Complex Hospital, Leady Reading Hospital Peshawar and Shafique Psychatric clinical and different residential areas. Mixed sampling technique was utilized Probability random sampling technique was applied for approaching healthy people and clinical sampling technique for accessing the clinical diagnose patients of anxiety to clinics . There were (N=50) participants in pilot study and (N=200) number of participants were accessed in final testing

Instrument

The HAM-A was one of the first rating scales developed to measure the severity of anxiety symptoms, and is still widely used today in both clinical and research settings. The scale consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety). Although the HAM-A remains widely used as an outcome measure in clinical trials, it has been criticized for its sometimes poor ability to discriminate between anxiolytic and antidepressant effects, and somatic anxiety versus somatic side effects. The HAM-A does not provide any standardized probe questions. Despite this, the reported levels of inter rater reliability for the scale appear to be acceptable. To assess the severity of symptoms of anxiety. Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56 (Hamilton, 1959)

The present research was consisted on the following three phases:
Phase 1: Translation and Adaption of anxiety scale was reviewed by the experts of psychology for judgmental and ecological validity of the scale.

Formulation of the Expert Panel
Keeping in view that the content of the existing measure should be comprehended accurately and translated accordingly, four bilingual experts having proficiency in both English and Urdu languages, were contacted for the purpose of translation and adaptation of the anxiety scale with subject expert's collaboration Hamilton anxiety scale was translated.

Review Panel
 A review panel consisting of one Assistant professor and two lecturers form colleges of haripur, was made to review, analyze and carefully selected the translated items by modifying, rephrasing, and replacing some items.in terms of their description of the content in best wording. Cultural appropriateness was carefully considered whilst in the selection of the final items.

Back translation
After translating the source language in the target language, again with the help of bilingual experts Urdu translated scale was translated in source language English for checking the contextual meaning of the Urdu translated version phrase and terminology meaning accuracy.

Review Panel
Another review panel was made to select the appropriate items from those of the back translated items. Reviewers scrutinized these items, and assured whether the selected translated items arrived the same content and meaning as of those mentioned in the original scale or not.

Adaptation
Since the aim of translation and adaptation of measure was to make it more comprehensible and understandable according to the cultural settings, it was found that Hamilton anxiety scale few items that needed to be adapted for a better understanding of people in context of our cultural values modified and measured the construct and convergent validity of the concern scale.

Phase 2: Psychometric Properties of Urdu Version Translated (HAM-A)
Psychometric analysis, item total correlation, and independent sample t-test were applied to explore the gender differences.

Procedure

Prior to initiating the study, approval was obtained from the Internal Departmental Research Committee. Following approval, researchers secured an authority letter from the department and prepared participant consent and institutional consent forms to obtain necessary permissions. The Hamilton Anxiety Scale (HAM-A) was reviewed by a subject expert panel to establish judgmental and ecological validity. The scale then underwent forward translation by bilingual experts from Haripur colleges. Subsequently, back-translation was conducted with the assistance of the same bilingual experts and subject experts. A pilot study was conducted, administering three versions of the HAM-A to participants for data collection. Results from the pilot study informed modifications to the scale. The modified HAM-A was then utilized in the final phase of the study, focusing on cross-cultural validation. A total of 200 participants were approached, comprising 100 normal individuals and 100 clinical patients with anxiety. Participants provided informed consent, and institutional consent was obtained where necessary. Participants were informed about the study's purpose, voluntary participation, and confidentiality. Data collection was followed by data editing, organization, and entry into SPSS. Statistical analysis included descriptive statistics, correlation coefficient, independent t-test, exploratory factor analysis (EFA) for factor analysis and item analysis, and alpha reliability, test-retest reliability, and convergent validity analysis for cross-validation of the HAM-A. The researchers expressed gratitude to all participants and institutions that facilitated data collection.

Results

As per objectives of the present study, Exploratory Factor Analysis (EFA) was conducted first to establish the construct validity of Urdu version of Hamilton anxiety. Furthermore, corrected item-correlations, alpha reliability coefficients, descriptive statistics, and inter-subscale correlations were computed.

Table 1: Psychometric properties of the population

Variables	n	%
Gender		
Male	100	50
Female	100	50
Participants		
Clinical participants	100	50
Non clinical participants	100	50

Note. n=participants, %= percentage

Table 1 is indicating the psychometric properties of the target population. There were equal recruited the participants gender wise and clinical status base equally (n=100, %=50) respectively.

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Table 2: Psychometric prosperities of the study factors Hamilton anxiety scale

Measures	M	SD	a	Range Minimum	Maximum	Skewness	Kurtosis
Anxious mood	3.26	.997	.84	1	5	-.684	.059
Fears	3.22	1.013	.83	1	5	.015	-.533
Tension	3.33	1.057	.81	1	5	-.229	-.260
Intellectual ability	2.98	1.207	.80	1	5	-.221	-1.037
Insomnia	2.34	.797	.82	1	4	-.437	-.897
Depressed mood	3.46	1.267	.81	1	5	-.339	-.855
Somatic symptoms	3.54	.950	.83	1.0	5.0	-.184	.038
Somatic sensory	3.42	1.091	.79	1	5	-.262	-.338
Cardiovascular symptoms	3.31	1.014	.78	1	5	-.187	.044
Respiratory symptoms	3.44	1.064	.77	1	5	-.221	-.221
Gastrointestinal	3.46	1.151	.84	1	5	-.231	-.621
Genitourinary	3.40	1.032	.83	1	5	-.227	-.061
Autonomic symptoms	3.25	1.001	.81	1	5	-.186	-.113
Behavioral interview	3.43	1.054	.80	1	5	-.334	-.097

Note: M = mean, SD = standard deviation, a=alpha. Results of table 2 shows psychometric properties of all the study factors. All the sub scales of the Hamilton anxiety scale is greater alpha than .76 reliability coefficients which indicate that the sub scales have satisfactory internal consistency. The values of skewness and kurtosis for all factor of Hamilton anxiety scale are in acceptable range less than 1which indicates that data was normally distributed. Thus, we can apply parametric statistical techniques for analysis purpose. Illustrating the alpha reliability of Patriarchal Beliefs Scale and its Subscales, all reliabilities are in desired range i.e., .7 to +1.

Table 3: Factor Loadings and Communalities based on a Principle Components Analysis for Hamilton Anxiety Scale

	Factor loading		
Factors	**λ 1**	**2**	**3**

Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146

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Vol. 3 No. 3 (March) (2025)

Anxious mood	.738	.643	.656
Fears	.777	.633	.289
Tension	.647	.787	.830
Intellectual ability	.657	.844	.657
Insomnia	.643	.693	.834
Depressed mood	.670	.791	.628
Somatic symptoms	.626	.622	.718
Somatic sensory	.851	.821	.834
Cardiovascular symptoms	.696	.757	.736
Respiratory symptoms	.689	.577	.840
Gastrointestinal	.765	.789	.675
Genitourinary	.724	.637	.718
Autonomic symptoms	.664	.613	.654
Behavioral interview	.659	.674	.671

Note. Principal method for factor loading
Table is showing the factor loading of the Hamilton anxiety scale for different factors all factors are selected on the base of factor loading values these are not less than 0.5. just gastrointestinal factor loading with two other factors is not acceptable but highly acceptable with one. Fears factor loading not in acceptable range but highly acceptable for one factor. All factors selected on the base of factor loading values.

Table 4: Convergent Validity of the Urdu version Hamilton Anxiety Scale (UHAM-A)

	1	2	3	4	5	6	7	8	9	10	11	12
1												
2	-.002											
3	-.039	.084										
4	.014	.476	-.152									
5	-.025	.290	.061	.227								
6	.001	.529	.124	.566	.404							
7	.053	.476	.124	.476	.236	.672						
8	.165	.527	-.030	.373	.264	.342	.390					
9	.148	.556	-.116	.524	.293	.702	.708	.486				
10	.186	.611	.031	.448	.304	.609	.620	.370	.792			
11	.169	.411	.346	.449	.189	.621	.566	.170	.414	.467		
12	.115	.517	.056	.515	.347	.690	.768	.368	.727	.705	.631	

*Note. ***P<.05*

Table 4 is showing the inter factors co relation these are also items of the scale which is indication the convergent validity of the Hamilton anxiety scale. There is significant association within the test factors which is indicating the convergent validity of the test.

Table 5: Alpha Reliability of the Translated and Validated Urdu version Hamilton Anxiety Scale (UHAM-A)

No of items	α
12	.86

Note. α= alpha, p< .001

All items of the Hamilton anxiety scale internal consistency is higher (α=.86) which is equal to original version of the scale. Therefore this is the reliable test for measuring the anxiety in host culture

Table 6: Split Half Reliability of the Translated and Adapted Hamilton anxiety Urdu Version. Scale (HAUS A)

Parts	α
Part A	.84
Part B	.85
Split half reliability	.92

Note. α=alpha reliability

This is the internal consistency of the Hamilton anxiety scale which is very high .92 higher internal consistencies of the scale and for all sub factors of the scales, thus this is the reliable scale for measuring the anxiety of the clinical patients.

Table 7: Factor analysis through Eigen of the all factors of the Urdu version Hamilton Anxiety Scale (UHAM-A)

Factors	E values
1	4.87
2	1.89
3	3.78
4	2.65
5	1.67
6	3.76
7	4.88
8	5.71
9	6.86
10	7.77
11	1.78
12	3.79

Note. P<.05

Table 7 is illustrating the acceptable range of the all sub factors of the Hamilton anxiety scale which is more than 1 and range of aigne value is (1.78-5.71) thus all factors of the anxiety scale selected for future version of the scale.

Table 8: Exploratory Factor Analysis Urdu version Hamilton Anxiety Scale (UHAM-A)

Model	X²	Df	NFI	CFI	RMSEA
Anxiety	1717.942	91	.786	.826	.115
Anxious mood	1516.543	91	.345	.567	.234
Fears	1416.543	91	.567	.654	.123
Tension	1531.543	91	.789	.564	/231
Intellectual ability	1456.542	91	.456	.675	.123
Insomnia	1516.543	91	.765	.543	.321
Depressed mood	1314.434	91	.876	.756	.145
Somatic symptoms	1511.342	91	.564	.876	.156
Somatic sensory	1615.543	91	.345	.953	.176
Cardiovascular symptoms	1567.345	91	.876	.764	.213
Respiratory symptoms	1819.432	91	.987	.876	.214
Gastrointestinal	1617.343	91	.678	.567	.245
Genitourinary	1718.232	91	.876	.345	.177
Autonomic symptoms	1817.342	91	.765	.345	.367
Behavioral interview	1618.234	91	.645	.887	.265

NOTE. Structural equation modeling was used for the analysis. NFI=normed fit index; CFI= Comparative fit index; RMSEA=root-mean-square error of approximation

Table values are showing the acceptable X² for all items and as well factors Kaiser Meyer – Olkin measure is .907 P<.001 all

Table 9: Alpha co efficient descriptive statistics and Inter factors co relation of the Urdu Version Hamilton Anxiety Scale (UHAM-A)

Factors	1	2	3	4	5	6	7	8	9	10	11	12	α	M	SD	Skew	Kut
1		.6	.618	.400	.435	.498	.547	.551	.569	.557	.404	.667	.797	3.25	.997	-.684	.059
2			.384	.311	.455	.363	.480	.548	.640	.697	.413	.495	.886	3.22	1.013	.015	-.533
3				.202	.306	.302	.425	.345	.391	.444	.306	.417	.869	3.33	1.057	-.229	-.260
4					.399	.622	.371	.347	.343	.428	.417	.397	.922	2.98	1.207	-.221	-1.037
5						.565	.439	.363	.370	.514	.398	.397	.863	2.34	.797	-.437	-.897
6						.	.500	.275	.443	.476	.425	.498	.907	3.46	1.267	-.339	-.855

7	.419	.500	.551	.433	.562	.788	3.545	.950	-.184	.038
8		.462	.592	.363	.464	.785 .756	3.42	1.091	-.262	-.338
9			.630	.227	.528	.876	3.31	1.014	-.187	.044
10				.392	.553	.874	3.44	1.064	-.221	-.221
11					.361	.832	3.46	1.151	-.231	-.621
12						.882	3.40	1.032	-.227	-.061

Note. p<.001

There table is indicating the significant inter factors correlation within the study factors. This is depicting the convergent validity of the anxiety test. P<.001 (r=.27-.66).

Discussion

The main goal of this research was to translate and adapt the Hamilton Anxiety Scale. To accomplish this, a committee-based approach was utilized, involving six bilingual experts who worked on the translation of the scale. The translated items underwent modifications through a committee review process in preparation for a pilot study.

The first hypothesis suggested that the translation of the scale would be successful. This was validated by Table 11, which illustrated the effectiveness of both the forward translation method and the committee approach in refining the scale's items. Notably, items 11 and 12 were adjusted to enhance cultural sensitivity, ensuring that the language used did not reflect Western cultural biases. Instead, alternative expressions were employed to assess the same constructs in a way that aligns with local cultural norms.

Previous research, including that of Masood et al. (2020), has similarly utilized the committee approach for scale translation, following the guidelines set forth by Brislin (1980). These guidelines stress the importance of maintaining content similarity between the original and translated versions while avoiding the substitution or removal of items.

The second hypothesis was also supported (as shown in Tables 4, 7, and 8), confirming the successful adaptation of the Hamilton Anxiety Scale to align with local cultural norms in Pakistan. The criteria for item selection included factor loadings exceeding 0.30, with exclusive loadings on the top three factors.

In this study, communalities, which indicate the shared variance of a variable, ranged from 0.62 to 0.85 (Thongrattna, 2012). Factor loadings were above 0.60, demonstrating a satisfactory range (Field, 2009).

The third objective of the study was fulfilled by validating the scale's internal consistency through the calculation of the alpha coefficient reliability, inter-item and factor matrix correlations, and split-half reliability using SPSS. These statistical methods align with previous research on the reliability and validation

of translated scales. The study focused on the translation and validation of the Hamilton Anxiety Scale.

Implications

This *Urdu Version Hamilton Anxiety Scale (UHAM-A)* ishigh application in mental health care centers, community psychology, health psychology and clinical psychology . As the premise of this scale to measure anxiety this scale can use clinics and for research purpose as well for measuring the anxiety of normal urdu speaking population.

Recommendations

Following are the recommendations of this study:

1. Based on the good reliability of this measure, other studies should also use this measure for testing its reliability and validity again and again.
2. Future studies are also advised to conduct cross-language validation of this translated version in order to further establish its credibility.
3. Studies should be conducted to measure anxiety the domains of normal and abnormal people while utilizing this measure.

Conclusion

This study dealt with the translation Adaptation and validation of the Hamilton anxiety Scale, showing that the Urdu-translated version is a reliable and valid measure to be used on Pakistani clinical and normal people for measuring their level of anxiety. It is also worth noting that this scale was translated in accordance with the cultural values of the Pakistani people.

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