Reliability and Validity of a Nepali-language Version of the Hospital Anxiety and Depression Scale (HADS)
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ABSTRACT

Background
In several languages and settings, the Hospital Anxiety and Depression Scale (HADS) has demonstrated reliable and valid screening properties in psychiatry.

Objective
To develop a Nepali version of HADS with acceptable reliability and construct validity for use among hospital patients and in the general population.

Method
The original English version was translated into Nepali using a forward-backward translation protocol. Psychometric properties were tested by factor analysis and Cronbach’s alpha. The translated scale was administered to three groups of adult in-patients in a university hospital in three trials, and to a sample of adults from the community in a fourth trial. Some of the 14 items were reworded reiteratively to achieve viable semantic and statistical solutions.

Result
The two-factor solution with anxiety and depression subscales eventually explained 40.3% of the total variance. Cronbach’s alpha was 0.76 for anxiety (HADS-A) and 0.68 for depression (HADS-D). All seven HADS-A items showed at least acceptable item-to-factor correlations (range 0.44-0.74), and full construct validity was achieved for this subscale. Item-to-factor correlations for six HADS-D items were also at least acceptable (range 0.42-0.70); one item (D4) had persistently low correlations throughout all trials, although construct validity was still satisfactory.

Conclusion
Reiterated rewording of items guided by statistical testing resulted in a Nepali version of HADS with satisfactory psychometric properties.

KEY WORDS
Item translation, psychometrics, psychopathology, screening, transcultural psychiatry
INTRODUCTION

Many studies have consistently shown high rates of anxiety and depression among patients with a long list of diverse medical conditions such as chronic obstructive pulmonary disease (COPD), cancer, HIV-AIDS, cardiac illnesses and end stage renal disease (ESRD) identifying mental disorders in the background of medical conditions is important, particularly when the latter are chronic, because they may affect prognosis.

The Hospital Anxiety and Depression Scale (HADS), developed by Zigmond and Snaith in 1983, is recognised as a reliable, valid and practical tool in hospital populations for identifying and quantitatively evaluating the two most common mental health conditions. Absence from the scale of items reflecting physical indicators, somatic symptoms or severe psychopathological symptoms makes HADS acceptable to both patients and non-patients. Hence, it is an adequate psychiatric screening instrument. It has also been found sensitive to changes in symptom severity and may thus serve as a predictor of the psychiatric aspect of somatic conditions.

Despite contrasting opinions about the factor structure of HADS, the bi-dimensional model encompassing anxiety and depression put forward by the original authors is the version that makes comparative psychiatric studies possible. In addition to hospital settings, HADS has been found useful for psychiatric screening in the general population. It has been translated and recommended by researchers of various nations for large-scale prevalence studies. However, no Nepali-language version of HADS has been published, so far.

Aims of study

Our objective was to develop a Nepali version of HADS for use among patients with somatic diseases as well as in the general population. We adopted a stepwise approach using different population samples, with item rephrasing and statistical checking of the psychometric properties at each step. It was our goal to keep the original bimodal or two-factor solution represented in anxiety and depression subscales. We aimed for internal consistencies expressed by Cronbach’s alpha >0.6 and for sound construct validities demonstrated by items clustering statistically, as in the original version, with high inter-correlations between items within each subscale and low correlations to items of the other subscale. Furthermore, we sought to check whether employing the original screening thresholds would yield prevalence of anxiety and depression similar to those reported elsewhere in the world. However, should this not be so, and we found major deviations, we would endeavour to establish different workable thresholds for the Nepali version.

METHODS

Ethics

This study was part of a larger research project addressing the major disorders of the brain in Nepal, which had been approved by the Nepal Health Research Council (NHRC), the Institutional Review Committee of Kathmandu University School of Medical Sciences, Dhulikhel Hospital (IRC-KUSMS), and the Central Regional Committee for Health and Research Ethics in Norway. Informed consent was obtained from all participants indicated by signature or fingerprints.

HADS

The original, English version of HADS contains 14 items in two subscales: anxiety (HADS-A) and depression (HADS-D), each with seven items (A1 to A7; D1 to D7). Its administration is usually completed in 2-6 minutes. Each item is rated on a four-point scale from 0-3 (3 indicating maximum symptom severity), and the scores are summed (five items on the depression subscale and one on the anxiety subscale are reversed before summing). Each subscale therefore has a summed score with a potential range from 0 to 21. As for the thresholds of the original English version, a summed score of ≥11 on either subscale indicates caseness with regard to the relevant psychiatric morbidity. Summed scores from 8-10 are “borderline” cases, and 0-7 signifies the normal range. Both Western and non-Western studies have used these thresholds in estimating the prevalence of anxiety and depression, but few studies have re-evaluated whether the prevalence rates are reasonable in their cultural context.

Participants and procedures

Three samples of hospital patients were recruited by convenience sampling. The first included COPD patients admitted to Dhulikhel Hospital (N=84; males 43, females 41). The second also consisted of COPD patients (N=73; males 30, females 43). The third (N=110; males 38, females 72) enrolled 100 patients with COPD but also seven with diabetes mellitus and three with cancers. A fourth study enrolled a representative sample (N=210) of the adult general population, randomly selected and contacted by door to door survey of three convenience-selected localities in the Kavre district, two rural and one urban.

Translation and cultural adaptation

HADS was first translated from the original English into Nepali using a forward-backward translation method. The cultural and semantic adaptation of the items was done in two stages. First, the metaphors that are not in use in Nepali were replaced. Second, statistical explorations by means of factor analyses with the principal component extraction and internal consistency computations were carried out to identify items with poor fit in relation to their original subscales. In any such instance, the verbal content of the item was modified, and the item retested in a new
population. The process was continued until an acceptable overall fit was achieved for both subscales.

Data analysis
The data were analyzed using SPSS-20. For each trial, factor analysis with the principal component analysis was done with a Varimax rotation to explore how the items were distributed in relation to the original set of items in both the anxiety and depression subscales. We aimed for correlations of ≥0.40. Cronbach’s alpha was employed as a reliability measure. Construct or criterion validity was sought by simple counting of how many of the seven items concurred with the original English distribution of anxiety and depression items. If all seven items in Nepali of HADS-A correlated well with the anxiety factor, and at the same time correlated less well with the depression factor, our criterion validity was achieved; the reverse applied for the seven items of HADS-D. In our efforts to improve reliability and construct validity and to optimize the psychometric properties of the two subscales, several steps of rephrasing selected items were made. Changing one or more items led to changes in the correlations of the remaining items, demanding several steps of re-adjustments.

RESULTS

Changing metaphors
We encountered two major difficulties when adapting the original English version of HADS to Nepali. The fifth anxiety item (A5: I get a sort of frightened feeling like butterflies in stomach) was challenging; the metaphor butterflies in stomach has no corresponding idiom associated with anxiety in Nepali. Accordingly, a literal translation was not appropriate. In Nepali, it was first reformulated into heart shivering terribly out of fear (ma dar lagera mutu siringa gariraheko anubhav gardachhu).

A similar problem arose with the fifth depression item (D5: I have lost interest in my appearance). The word appearance in Nepali has many uses; it was difficult to pinpoint which of them would be understood in the same way as in English. After thorough discussion with the translators, it was decided that appearance needed to signify facial appearance (ma afno rangarupama ruchi rakhdina).

Item changes after statistical explorations
Attempts at rewording items as a result of low correlations in the statistical explorations of the three hospital trials and the general population study are presented in Table 1. Those items with poor correlations were reworded in the subsequent trials.

Below, we report some of the details from the work in each of the four trials.

Hospital studies
First trial
Correlations of ≥0.40 were obtained on 12 of the 14 items in the first trial, with Cronbach’s alpha of 0.83 for anxiety and 0.72 for depression. The two-factor solution explained 47% of the variance. However, correlations were inadequate for A5 and D5: A5 showed better correlation with depression and D5 with anxiety.

First modification
Item A5 was reworded to incorporate the affective component (feeling) of fear, so the heart shivering was replaced with trembling of mind due to fear.

Considering that the wording of D5 might not have emphasized sufficiently the anhedonia component of depression, we modified it to indicate decrease in the interest of facial appearances. While changing item D5, we anticipated some negative effect on other depression items as well, so we modified D3 (I feel cheerful), giving more emphasis to feelings of cheer rather than simple cheerfulness as in the earlier version.

Second trial
In the second trial, only one anxiety item (A1) but five depression items (D2, D3, D4, D5, D7) showed low correlations. Cronbach’s alpha was good (0.82) for anxiety but unacceptably low for depression (0.45). The two-factor solution explained 42% of the variance.

Second modification
Based on the initial outcome of the second trial, we thought A1 (I feel tense or ‘wound up’) would probably benefit from more emphasis on the anxiety part. Similarly, for D2 (I can laugh and see the funny sides of things), we incorporated a sense of humour, and for D3, we aimed for more positive emotions. We decided D4 (I feel as if I am slowed down) would require documenting less energy, and D5 should demonstrate a broader aspect of appearance. D7 (I can enjoy a good book or radio or a TV programme) also needed change to capture the typical kinds of entertainment and recreational activities of Nepalis. Therefore the items were revised as follows (Nepali translations within parenthesis):

A1: I feel tense and close to a breaking point (ma afulai tanabma pauchhu)

D2: I have a good sense of humour; I often see the funny side of things (ma kunai pani kurako ramailo pakchhalai dekhera hasna sakchhu)

D3: I feel happy and positive (ma anandit mahasus garirahechhu)

D4: I have much less energy for getting things done (ma sharirma jangar nabhaeko mahasus gardachhu)
D5: I have lost interest in how I look and in how I dress and in the things around me (mero lawaikhawaima ruchi ghatirahechha)

D7: I can enjoy social chat, radio, books, TV and video programs (ma gafgaaf, radio, kitab, TV, videojasta karyakramma ramauchhu)

Table 1. Item-to-factor correlations from reiterative factor analyses of HADS items translated into Nepali (items tested on three hospital samples and one from the general population)

<table>
<thead>
<tr>
<th>Items</th>
<th>Text of items</th>
<th>Correlations with factor containing most anxiety or depression items</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Hospital samples</td>
</tr>
<tr>
<td></td>
<td></td>
<td>First trial (N=84)</td>
</tr>
<tr>
<td>A1</td>
<td>I feel tense or ‘wound up’</td>
<td>a) Ma afulai chintit pauchhu</td>
</tr>
<tr>
<td></td>
<td>Nepali versions</td>
<td>b) Ma afulai tanabma pauchhu</td>
</tr>
<tr>
<td>D1</td>
<td>I still enjoy the things I used to enjoy</td>
<td>a) Ma ajhai pani afulai man parne chijma khushi pauchhu</td>
</tr>
<tr>
<td>A2</td>
<td>I get a sort of frightened feeling as if something awful is about to happen</td>
<td>a) Ma kehi darlagdo ghatana ghatli ka bhanera darauchhu</td>
</tr>
<tr>
<td>D2</td>
<td>I can laugh and see the funny sides of things</td>
<td>a) Kunai hasouthdo kuro deekhepachi ma hasna sakchhu</td>
</tr>
<tr>
<td>Nepali versions</td>
<td>b) Ma kunai pani kurako ramlai pakhityalai dekhera hasna sakchhu</td>
<td></td>
</tr>
<tr>
<td>A3</td>
<td>Worrying thoughts go through my mind</td>
<td>a) Chintajanak bicharharu mero dimagma auchhan</td>
</tr>
<tr>
<td>D3</td>
<td>I feel cheerful</td>
<td>a) Ma khushi hunchhu</td>
</tr>
<tr>
<td>Nepali versions</td>
<td>b) Ma afulai khushi anubhav garirahechhu</td>
<td>0.55</td>
</tr>
<tr>
<td></td>
<td>c) Ma anandit mahasus garirahechhu</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alternative c) Ma afulai santushta anubhav gariraheko chhu</td>
<td></td>
</tr>
<tr>
<td>A4</td>
<td>I can sit at ease and feel relaxed</td>
<td>a) Ma dhukka ebam nishchinta basna sakchhu</td>
</tr>
<tr>
<td>D4</td>
<td>I feel as if I am slowed down</td>
<td>a) Ma shithil bhaeko mahasus gardachhu</td>
</tr>
<tr>
<td>Nepali versions</td>
<td>b) Ma sharirma jangar nabhaeko mahasus gardachhu</td>
<td></td>
</tr>
<tr>
<td>A5</td>
<td>I get a sort of frightened feeling like butterflies in stomach</td>
<td>a) Ma dar lagera mutu siringa gariraheko anubhav gardachhu</td>
</tr>
<tr>
<td>Nepali versions</td>
<td>b) Ma dar lagejasto bhaera man siringa gariraheko anubhav gardachhu</td>
<td>0.79</td>
</tr>
<tr>
<td>D5</td>
<td>I have lost interest in my appearance</td>
<td>a) Ma afno rangarupama ruci rakhdrina</td>
</tr>
<tr>
<td>Nepali versions</td>
<td>b) Mero afno rangarupama ruci ghatiraheko chha</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>c) Mero lawaikhawaima ruchi ghatirahechha</td>
<td></td>
</tr>
<tr>
<td>A6</td>
<td>I feel restless as I have to be on the move</td>
<td>a) Ma sadhai chhatpati/ ashanta jasto anubhav gardachhu</td>
</tr>
<tr>
<td>D6</td>
<td>I look forward with enjoyment to things</td>
<td>a) Ma jahile pani ramlai garna manoranjanko pratikshyama hunchhu</td>
</tr>
<tr>
<td>A7</td>
<td>I get sudden feelings of panic</td>
<td>a) Ma kahilekahi ekdamai attalinchhu</td>
</tr>
<tr>
<td>D7</td>
<td>I can enjoy a good book or radio or a TV program</td>
<td>a) Ma ramro kitab, radio athawa TV karyakramma ramauchhu</td>
</tr>
<tr>
<td>Nepali versions</td>
<td>b) Ma gafgaaf, radio, kitab, TV, videojasta karyakramma ramauchhu</td>
<td></td>
</tr>
<tr>
<td>Explained variance (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cronbach’s alpha of anxiety items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cronbach’s alpha of depression items</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a), b), c) etc indicate consecutive changes to Nepali versions; *when D3 is ‘I feel satisfied’; †when D3 is ‘I feel cheerful’
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There was a slight improvement in the internal consistency, but Cronbach’s alpha was relatively low for depression (0.62; for anxiety 0.85). The two factors, however, now explained 46% of the variance.

Third modification
For depression, we decided to use those items with the highest correlations in the three prior trials. Earlier versions of D4 and D5 had better correlations, so those were kept. In D3, the term cheerful (anandit) had less association with the inverted notion of anhedonia so it was replaced with satisfaction (santushta). Later, we decided to test both anandit and santushta in two alternative versions of D3 to check which of the two had the higher correlation with the depression-related factor. We maintained D7 unchanged and decided to observe it in the general population study.

Since the anxiety items showed acceptable correlations, no further changes were made to them.

General population study
In the general population sample, the anxiety items maintained their good score (Cronbach’s alpha=0.76), and there was a satisfactory improvement in the depression items. In D3, satisfaction (santushta) gave an acceptable Cronbach’s alpha of 0.68 whereas cheerful (anandit) gave 0.62; accordingly, we kept the former. All of the HADS-A items showed item-to-factor correlations in the range 0.44-0.74. Except for D4, all HADS-D items showed item-to-factor correlations in the range 0.42-0.70.

Table 2. Frequency and percentage (with 95% CI) of anxiety and depression cases in various trials with the HADS-Nepali version using the same thresholds as the original English version

<table>
<thead>
<tr>
<th>HADS subscale</th>
<th>Thresholds</th>
<th>Hospital-based trials</th>
<th>General population study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>First trial (N=84) n (%) [95%CI]</td>
<td>Second trial (N=73) n (%) [95%CI]</td>
</tr>
<tr>
<td>HADS-A</td>
<td>No anxiety (0-7)</td>
<td>23 (27.4) [17.86-37.94]</td>
<td>33 (45.2) [33.78-56.62]</td>
</tr>
<tr>
<td></td>
<td>Borderline anxiety (8-10)</td>
<td>23 (27.4) [17.86-37.94]</td>
<td>16 (21.9) [12.41-31.39]</td>
</tr>
<tr>
<td></td>
<td>Anxiety caseness (≥11)</td>
<td>38 (45.2) [34.56-55.84]</td>
<td>24 (32.9) [22.12-43.68]</td>
</tr>
<tr>
<td></td>
<td>No depression (0-7)</td>
<td>20 (23.8) [14.69-32.91]</td>
<td>16 (21.9) [12.41-31.39]</td>
</tr>
<tr>
<td></td>
<td>Borderline depression (8-10)</td>
<td>30 (35.7) [25.45-45.95]</td>
<td>33 (45.2) [33.78-56.62]</td>
</tr>
<tr>
<td></td>
<td>Depression caseness (≥11)</td>
<td>34 (40.5) [30.00-51.00]</td>
<td>24 (32.9) [22.12-43.68]</td>
</tr>
</tbody>
</table>
|               | *D3: “I feel cheerful”; †D3: “I feel satisfied”

Screening thresholds
Table 2 illustrates the results of the screening for definite and borderline cases of anxiety and depression by using the final Nepali version, but applying the thresholds of the original English version. Their prevalence in Nepal was comparable to those found in studies of various population samples elsewhere using both English and non-English versions of HADS (see Table 4). Accordingly, we decided to keep the original thresholds for caseness of both anxiety and depression for the Nepali version.

DISCUSSION
Through several trials in diverse samples, and applying both semantic and statistical methods, we arrived at a Nepali version of HADS that coincided well with the original English version while maintaining its two-factor solution. The challenges were not simply linguistic, although these were considerable because of the highly metaphorical language of the original, but also very much cultural, which was to be expected. All anxiety items showed acceptable correlations, and there was a good internal consistency between them. One of the depression items (D4) persistently correlated better with anxiety than with depression despite several rewordings. Internal consistency between the depression items was nonetheless acceptable. Internal consistency was reflected in an acceptable construct validity. In our view, the translation of the two HADS subscales into Nepali is good for anxiety and acceptable for depression; it is able to capture symptom severity and to serve as a screening...
Table 3. Reliability and validity studies in various languages of HADS

<table>
<thead>
<tr>
<th>Language of translation</th>
<th>Participants</th>
<th>Cronbach’s α</th>
<th>Explained variance (when given) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Physical illness</td>
<td>HADS-A</td>
</tr>
<tr>
<td>Japanese&lt;sup&gt;31&lt;/sup&gt;</td>
<td>128</td>
<td>Cancer (head and neck, pulmonary)</td>
<td>0.77</td>
</tr>
<tr>
<td>Chinese (Cantonese)&lt;sup&gt;32&lt;/sup&gt;</td>
<td>93</td>
<td>In-patient referrals</td>
<td>0.77</td>
</tr>
<tr>
<td>Chinese (Mandarin)&lt;sup&gt;2&lt;/sup&gt;</td>
<td>314</td>
<td>Coronary heart disease</td>
<td>0.79</td>
</tr>
<tr>
<td>Malayalam&lt;sup&gt;33&lt;/sup&gt;</td>
<td>240</td>
<td>Cancer</td>
<td>0.81</td>
</tr>
<tr>
<td>Persian (Iranian)&lt;sup&gt;24&lt;/sup&gt;</td>
<td>167</td>
<td>Breast cancer</td>
<td>0.78</td>
</tr>
<tr>
<td>Arabic&lt;sup&gt;26&lt;/sup&gt;</td>
<td>217</td>
<td>Primary health-care patients</td>
<td>0.78</td>
</tr>
<tr>
<td>Norwegian&lt;sup&gt;34&lt;/sup&gt;</td>
<td>51,930</td>
<td>General population (HUNT survey)</td>
<td>0.80</td>
</tr>
<tr>
<td>Spanish&lt;sup&gt;35&lt;/sup&gt;</td>
<td>385</td>
<td>General medical out-patients</td>
<td>0.85</td>
</tr>
<tr>
<td>Greek&lt;sup&gt;27&lt;/sup&gt;</td>
<td>521</td>
<td>246 medical or surgical patients 275 controls</td>
<td>0.89</td>
</tr>
<tr>
<td>Ethiopian/Amharic&lt;sup&gt;28&lt;/sup&gt;</td>
<td>302</td>
<td>HIV/AIDS</td>
<td>0.78</td>
</tr>
</tbody>
</table>

Table 4. Prevalences of anxiety and depression (probable or definite) according to various versions of HADS

<table>
<thead>
<tr>
<th>Language</th>
<th>Sample (N)</th>
<th>Prevalence of anxiety</th>
<th>Prevalence of depression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HADS-A thresholds</td>
<td>%</td>
<td>HADS-D thresholds</td>
</tr>
<tr>
<td>English&lt;sup&gt;31&lt;/sup&gt;</td>
<td>Cancer patients (1,474)</td>
<td>“possible” (&gt;8)</td>
<td>33.3</td>
</tr>
<tr>
<td>Norwegian&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Cancer patients (716)</td>
<td>probable (8-10) definite (≥11)</td>
<td>18</td>
</tr>
<tr>
<td>English&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Cancer patients (809)</td>
<td>probable (8-10) definite (≥11)</td>
<td>23.6</td>
</tr>
<tr>
<td>Greek&lt;sup&gt;28&lt;/sup&gt;</td>
<td>Patients (246) and controls (275)</td>
<td>probable (8-10) definite (≥11)</td>
<td>16.3</td>
</tr>
<tr>
<td>Malayalam&lt;sup&gt;33&lt;/sup&gt;</td>
<td>Cancer patients (240)</td>
<td>probable (8-10) definite (≥11)</td>
<td>11</td>
</tr>
</tbody>
</table>

The internal consistencies of both HADS-A and HADS-D in the general population sample were comparable to those of other translations from non-Western countries (Table 3). Generally, the HADS anxiety sub-scales tend to obtain better psychometric properties than depression sub-scales in hospital as well as in general population trials. In the Nepali version, items distributed within the two-factor solution exactly as in the original English-language version with one exception in the depression subscale (item D4). Correlations of some depression items towards anxiety have also been observed in the Malayalam translation, with the authors claiming that “early anhedonia” may be expressed in the form of anxiety by people in the East. Anxiety item A4 (I can sit at ease and feel relaxed) has been found to have a similarly poor correlation with anxiety both in Eastern<sup>30,34</sup> and Western studies. A review of the validity of HADS also found this weak relationship. However, a study of cancer patients claimed item A4 correlated well with both anxiety and depression<sup>24</sup>; the authors tried to explain this by linking it to the multidimensional nature of depression. Likewise, A5 has been found problematic in many Asian translations: Iranian<sup>30</sup>, Malayalam<sup>33</sup>, Urdu and Arabic<sup>35,36</sup>. In contrast to our experience with the Nepali version, terms like panic (A7) and to be on the move (A6) were found problematic in their translations<sup>31,35,36</sup>. Complications of this kind seem unavoidable when translating English metaphors and everyday language into other languages without similar semantic constructs.<sup>31,35</sup>

Psychiatric symptoms related to anxiety and depressions appear to be universal and present in various degrees in every population. These so-called non-psychotic illnesses tend to be distributed in the community along a continuum, with a point that separates caseness from non-caseness. To accommodate uncertainty, two boundaries define a “borderline” area; above the upper boundary are definite cases; below the lower are non-cases. HADS, as a screening instrument, applies threshold scores marking these boundaries.<sup>12,32</sup> We found ample reasons to keep the same threshold scores for the Nepali version as those proposed by the original authors of HADS<sup>12,13</sup>. Doing so, we obtained prevalence estimates for borderline and definite depression and anxiety cases among our hospital patient and general population groups comparable to those found in other studies, three with the non-English versions (Table 4). In order to maintain a high level of specificity,<sup>12,39</sup> we recommend maintaining the threshold score of ≥11 to designate caseness for both anxiety and depression. In other words, there is support for keeping the original thresholds and using them in the Nepali version of HADS, which thus can serve as a case-finding instrument among hospital patients as well as in the general population. This being so, and since our Nepali version of HADS demonstrates both acceptable reliability and acceptable construct validity,<sup>38</sup> we have achieved the principal goal of this study (see Appendix for the Nepali scale in Devanagari script). Nevertheless, it should be kept in mind that HADS is primarily a screening instrument,<sup>14</sup> and is not sufficient for making specific diagnoses of anxiety and depressive disorders. In psychiatric practice, this is possible only by face-to-face diagnostic interviews.
Still, there were some limitations to the study. The populations studied in each trial were small. The hospital samples were not randomized but recruited by convenience, although the final general population sample was randomly selected and representative. However, the testing of several samples and the step-wise modifications process may have reduced this risk, and have resulted in robust findings, and thus augmented the strength of the two subscales. Owing to time and personnel constraints, we did not attempt a validation against well-trained consultant psychiatrists’ expert clinical diagnosis. Accordingly, the sensitivity and specificity of the Nepali version of HADS await investigation. Likewise, time and resource limitations prevented us from carrying out a test-retest study with brief intervals of a week or less, which is desirable to establish an even broader foundation for the psychometric qualities of our Nepali version. We should point out that HADS is essentially a self-rating instrument, whereas it was administered in our study as a structured interview. This was justified – in fact necessary – because many of the participants were illiterate. While we presume this was not in itself disadvantageous, arguably it would not impair the basis for comparison with other studies.

Our reformulations of items, driven by our seeking an optimal fit with the two-factor solution, may have followed shifts in the concepts of “anxiety” and “depression” away from their original formulations. This would have been against our intentions, but a consequence of the process of adapting a psychiatric screening instrument for application in an entirely different culture.

There are studies suggesting factor solutions to HADS other than the bimodal one. A French study, and one more recently from Ethiopia, both found single-factor solutions, while two other studies supported a tripartite structure importing a “general distress factor” in addition to the two specific anxiety and depression (anhedonia) factors. One study of patients with chronic renal disease, even found four factors, adding “body image” and “self-perception” to anxiety and depression. None of these studies looked at the prevalence of anxiety and depression in the general population. When studies propose a factor structure deviating considerably from the two-factor solution, the statistical concepts relating to anxiety and depression may no longer coincide well with the original, and comparing prevalence becomes difficult. Moreover, poor translations of some items might lie behind findings of only one or more than two factors, making them entirely spurious. Conversely, it may be that the original bimodal concept of HADS is not universal: cultural variations may exist, and become apparent when it is used.

This study was based on the assumption that anxiety and depression are universal psychiatric phenomena, distributed more or less similarly among human beings in all parts of the world. Even so, these expressions of human suffering may have local variations without violating the overriding assumption of their ubiquity and universality.

**CONCLUSION**

By using a stepwise translation, trial and modification process that involved semantic and statistical approaches, an acceptably reliable and valid bi-modal Nepali version of HADS has been achieved that will serve as a psychiatric measure of symptom severity and as a screening instrument for case-finding. It meets psychometric requirements for use both among hospital patients and in the general population.

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REFERENCES


सुचित भाषाली मान्यता पत्र

नेपालीसम्बन्धि HADS नामक मनोस्तोत्र अनेक भाषाको विद्वानीयता परिणामका लागि यो अध्ययन गर्न लागिएको छ। यस अध्ययनमा नेपाली अनेक भाषाको विद्वानको सहभागिता लागि सप्ताह पुन्याउँगेछ। HADS को मात्रमबाट तपाईलाई भएको ‘तनाव’ “Anxiety” र ‘उदासीनता’ “Depression” को मात्रा गविन्न गर्न सकिन्छ।

निम्नलिखित १४ प्रश्नहरूमा प्रत्येक प्रश्नका विद्वानको प्रतिक्रिया गर्नुपर्ने मात्रमबाट सहभागिता उद्देश्यमा तपाईलाई सुझाव दिन्छ । प्रत्येक प्रश्नका उत्तर तुरुत नै दिन्नुपर्न र उत्तरका साथी समयमा विचार गर्नु आवश्यक छ। तपाईलाई व्यवहारमा रहेको भावना नै प्रत्येक उत्तरको प्रतिक्रिया गर्नुपर्नुहोस्। यसको उत्तर दिन्नुपर्ने विभाग एक हल्लाताको सहयोगी मोर्चामा हुने साहित्यिक र भवनामा को प्रतिक्रिया गर्नु पुनःविचार गरिन्छ।

तपाईले प्रश्न गर्नुभएको जुनसुङ्गको उत्तर पनि ‘गोष्ठ’ रहेज्दै र वस्तुलाई बताउनुका अवसरको अनुकूल पनि प्रश्न पनि गर्नेछ।

यदि तपाइले वस अध्ययन कार्यको सशक्त हुन चाहनुभएको भने कुरा पनि तपाईले हरफ पंखे आफ्नो नाम लेखी सहित गरिन्छ गरिदिन्छ।

तपाईले सहयोगका लागि साहित्यिक प्रत्यय

“पैचले यस अध्ययनका बारेमा विद्वानको निर्दिष्टको पनि छू र भुनेको पनि छू यो अध्ययनमा सहभागीताका लागि आफ्नो स्विथिकमा मन्नु प्रतिक्रिया गर्दछ। मनायो यो बताइएको छ। कि जुनसुङ्गको समयमा पनि यस अध्ययनलाई कुनै कारण निर्दिष्टको परिश्चेत्य गर्नकाठ्य।”

सहित –

आवश्यक (निर्देशकको लागि मात्र) –

सहभागीको नाम –

साहित्य –

मिति –
Hospital Anxiety Depression Scale (HADS)

**A1**
- 통증/이로움
  1. 나의 신체
  2. 나의 정신

**A2**
- 내 기분이 어두운지 알 수 있는 증상
  1. 내 기분이 어두운지 알 수 있는 증상

**A3**
- 내 기분이 어두운지 알 수 있는 증상
  1. 내 기분이 어두운지 알 수 있는 증상

**D1**
- 내 기분이 어두운지 알 수 있는 증상
  1. 내 기분이 어두운지 알 수 있는 증상

**D2**
- 내 기분이 어두운지 알 수 있는 증상
  1. 내 기분이 어두운지 알 수 있는 증상

**D3**
- 내 기분이 어두운지 알 수 있는 증상
  1. 내 기분이 어두운지 알 수 있는 증상

**D4**
- 내 기분이 어두운지 알 수 있는 증상
  1. 내 기분이 어두운지 알 수 있는 증상

**D5**
- 내 기분이 어두운지 알 수 있는 증상
  1. 내 기분이 어두운지 알 수 있는 증상

**D6**
- 내 기분이 어두운지 알 수 있는 증상
  1. 내 기분이 어두운지 알 수 있는 증상

**D7**
- 내 기분이 어두운지 알 수 있는 증상
  1. 내 기분이 어두운지 알 수 있는 증상

**D8**
- 내 기분이 어두운지 알 수 있는 증상
  1. 내 기분이 어두운지 알 수 있는 증상