Reliability & validity of the Malayalam hospital anxiety & depression scale (HADS) in cancer patients

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Received January 7, 2005

Background & objectives: The hospital anxiety and depression scale (HADS) has been widely used on cancer patients as an indicator of psychological morbidity. Though the scale has been used in India, no reports are available on translation of HADS in any Indian language and testing the reliability. The present study describes the translation process of HADS into Malayalam and testing its reliability and validity on psychological morbidity in cancer patients.

Methods: The English version of the HADS was translated into Malayalam and was used in this study. The questionnaire was administered to 240 cancer patients and statistical analysis was carried out using Cronbach’s alpha to test the internal consistancy of the HADS scale while confirmatory factor analysis was carried out using principal axis factoring with equimax rotation and Kaiser Normalization to test its construct validity.

Results: The Cronbach’s alpha was found to be 0.81 for the HADS anxiety subscale, 0.71 for the HADS depression subscale, and 0.85 for HADS tool. Confirmatory factor analysis (CFA) indicated two depression items (i.e., enjoyment and anhedonia) loading onto the anxiety subscale. Clinical caseness for anxiety was observed in 8 per cent, while 11 per cent of the patients had borderline mood disorder. Clinical caseness for depression was identified in 7.6 and 13 per cent of patients were found to have borderline mood disturbances.

Interpretation & conclusion: This preliminary validation study of the Malayalam version of the HADS showed it as an acceptable, and reliable measure of psychological morbidity among cancer patients. The prevalence of anxiety and depression in Indian population was low and enjoyment and anhedonia might present as anxiety initially.

Key words Cancer patients - HADS - psychological morbidity - validity

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Indian J Med Res 122, November 2005, pp 395-399
The need for identifying psychological morbidity and patient reported outcomes along with conventional cancer treatment is well known. In India, cancer care facilities are few and far-flung with heavy patient burden that stretches the valuable resources. The focus is still at attaining longevity, and in this pursuit the psychological needs and morbidity are often overlooked.

The hospital anxiety and depression scale (HADS) was originally designed to assess psychological distress of patients in medical and surgical settings. Several studies have documented and confirmed its validity in varying clinical settings, and the translations are found to be cross-culturally stable as the original tool. It has also been pointed out that the HADS does not perform well in patients with progressive disease. Earlier studies on rates of prevalence of psychological morbidity using HADS reported a range from 13.5 to 39.4 per cent for anxiety and 7.5 to 33 per cent for depression in varied patients populations. However, Smith et al pointed out that these studies had varied from the advocated cut-offs of between 8 and 10 as ‘possible cases’ for anxiety or depression or in other words - borderline mood disorder, and scores 11 or more for ‘depression cases’ or having clinical caseness of depression or anxiety.

Two Indian studies have reported the use of HADS earlier, one of these used HADS to identify prevalence of depression and anxiety in cancer patients while the other was on HIV-infected persons. No reports on translation or validation of HADS to any Indian language has been reported earlier. The present study was done to translate the HADS into Malayalam and to test the reliability and validity on psychological morbidity in cancer patients.

Material & Methods

The HADS was translated from the original English source tool to Malayalam using standard forward-backward-forward translation process. A professional translator and a Research Officer independently translated the tool into Malayalam. The translations were then back translated to English by two other independent translators. The investigators then examined the two translations, and statements that came closest to the original tool were selected for the draft Malayalam tool. The draft tool was then back translated to English by an oncology health professional. The final tool and its back translated were sent to tool’s copyright owner, nferNelson, UK, and the Malayalam version was finalised on a consensus, and was approved by nferNelson, UK.

The HADS contains 14 items and consists of two subscales: anxiety and depression. Each item is rated on a four-point scale of 0-3, giving maximum scores of 21 for anxiety and depression respectively. Scores of 11 or more on either subscales are considered to be a significant ‘case’ of psychological morbidity (clinical caseness), while scores of 8-10 represent ‘mood disorder’. A score of 7 or below is considered as normal. The same cut-offs for HADS in Indian population were found to be nearly 85 per cent sensitive and 88 per cent specific. The translated tool was administered to all 240 cancer patients who underwent or were undergoing treatment with curative intent at the Regional Cancer Centre, Thiruvananthapuram, India. Patients were approached by two female investigators on specific outpatient days between January and March 2004, and the tool was administered after obtaining written informed consent to those who were willing to participate in the study. The HADS was used as a self-report tool, however, for patients who had difficulty in reading, a structured interview was carried out. The study was approved by the Institutional review board and ethics committee. Internal consistency was estimated using Cronbach’s alpha and Inter-rater reliability of the tool was also estimated. The item scores were subjected to a confirmatory factor analysis (CFA) using the principal axis factoring and equimax rotation and Kaiser Normalization. Factor extraction was restricted to two factors to test construct validity.

Results

Problems were encountered in translating certain words and phrases such as ‘slowed down’, ‘butterflies in the stomach’, ‘have to be on the move’, and ‘panic’. The closest possible phrases without losing the intent of the items were retained after reaching a consensus amongst the investigators. However, in case of the phrase ‘butterflies in the stomach’ the word for word translation was used, as no similar phrase existed in the
local vernacular and a consensus could not be reached. Generally, none of the patients had any difficulty in comprehending the tool. However, they did remark that they could not relate to the phrase 'butterflies in the stomach', but were able to respond to the first part of the item without any difficulty. This phrase was thought to be redundant by the patients and authors when translated in the Indian context, however the copyright owners insisted it to be retained as it is.

Of the 240 patients recruited in the study, scoring sheets of four were discarded as one was incomplete, one patient had a benign disease condition, and records of the other who were incomplete. Hence, the final sample consisted of 236 patients (155 males, 81 females). The mean age of the patients was 49.5 yr (range 15 to 81 yr) [males with mean age 52.2 yr (range 15 to 81 yr) females 44.4 yr (range 15 to 74 yr)]. Majority of the patients (n=159) had solid tumours of which over 60 per cent (n=101) had cancer of the head and neck region. Over 32 per cent had haematological, lymphoproliferative diseases or myeloma. Nearly 30 per cent had stage III disease while 27.5 per cent had stage II disease, 17 per cent had stage IV disease and rest stage I disease. Nearly 72 per cent of the study sample had received multi-modality treatment, and the rest a single modality treatment.

The first factor extracted by the principal axis factoring explained 21.5 per cent of the variance, and the second factor accounted for 14.6 per cent of the variance. The rotated factor structure revealed two factor structures corresponding closely to the anxiety and depression scales. Nine items loaded onto the first component in the factor analysis (factor loading range 0.75 to 0.03) (Table). This included all seven items of the anxiety subscale, and two items from the depression subscale, viz., 'I can enjoy a good book or TV programme' (factor loading=0.44) and 'I have lost interest in my appearance' (factor loading=0.325). The remaining five items from the depression subscale loaded on to the second component (factor loading range 0.76 to 0.34) (Table). Cronbach's alpha for the tool was 0.85, while for the anxiety and depression subscales it was 0.81 and 0.71, respectively.

The mean anxiety score was 3.9 (median 2, SD=4.33; range=0-19). Caseness for clinical anxiety was observed in 8 per cent while 11 per cent were found to have a borderline mood disorder. The mean depression score was 4.5 (median 4, SD=3.75; range=0-20). Clinical caseness was found in 7.6 and 13 per cent were found to have borderline mood disorder.

**Table.** Principal axis factoring of HADS items extracted to two factors, rotated using Equamax with Kaiser normalisation

<table>
<thead>
<tr>
<th>No</th>
<th>Subscale</th>
<th>Item</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Anxiety</td>
<td>I get sudden feeling of panic</td>
<td>0.751</td>
<td>0.303</td>
</tr>
<tr>
<td>9</td>
<td>Anxiety</td>
<td>I get a sort of frightened feeling like 'butterflies' in the stomach</td>
<td>0.746</td>
<td>0.194</td>
</tr>
<tr>
<td>3</td>
<td>Anxiety</td>
<td>I get a sort of frightened feeling as if something awful is about to happen</td>
<td>0.553</td>
<td>0.270</td>
</tr>
<tr>
<td>1</td>
<td>Anxiety</td>
<td>I feel tense or wound up</td>
<td>0.535</td>
<td>0.172</td>
</tr>
<tr>
<td>11</td>
<td>Anxiety</td>
<td>I feel restless as if I have to be on the move</td>
<td>0.534</td>
<td>0.325</td>
</tr>
<tr>
<td>5</td>
<td>Anxiety</td>
<td>Worrying thought go through my mind</td>
<td>0.456</td>
<td>0.419</td>
</tr>
<tr>
<td>14</td>
<td>Depression</td>
<td>I can enjoy a good book or TV programme</td>
<td>0.440</td>
<td>0.274</td>
</tr>
<tr>
<td>10</td>
<td>Depression</td>
<td>I have lost interest in my appearance</td>
<td>0.325</td>
<td>0.230</td>
</tr>
<tr>
<td>7</td>
<td>Anxiety</td>
<td>I can sit at ease and feel relaxed</td>
<td>0.305</td>
<td>0.280</td>
</tr>
<tr>
<td>4</td>
<td>Depression</td>
<td>I can laugh and see the funny side of things</td>
<td>0.172</td>
<td>0.765</td>
</tr>
<tr>
<td>12</td>
<td>Depression</td>
<td>I look forward with enjoyment to things</td>
<td>0.452</td>
<td>0.502</td>
</tr>
<tr>
<td>2</td>
<td>Depression</td>
<td>I still enjoy the things I used to enjoy</td>
<td>0.159</td>
<td>0.451</td>
</tr>
<tr>
<td>6</td>
<td>Depression</td>
<td>I feel cheerful</td>
<td>0.272</td>
<td>0.415</td>
</tr>
<tr>
<td>8</td>
<td>Depression</td>
<td>I feel as if I am slowed down</td>
<td>0.289</td>
<td>0.342</td>
</tr>
</tbody>
</table>

Rotation converged in 3 iterations
Discussion

Cross-culture translation and validation of a tool is a challenging task. However, if the tool uses simple statement without culture-specific phrases, problems in translation may be substantially reduced. The HADS has straightforward wording of the items, keeping in mind its possible translation into different languages. However, phrases that are typical to the English language may not have a similar construct in the translated vernacular. This is best exemplified by the phrase 'butterflies in the stomach' for which there was no equivalent phrase in the local vernacular and a word for word translation was used. Similar problems were noted in others studies.

Prevalence of psychological morbidity in Malayalam speaking cancer patients was found to be 19 per cent for anxiety and 20 per cent for depression. However, clinical caseness or 'definitive cases' were only 8 per cent in both subscales. This prevalence was comparatively lower then earlier reported from other populations.

Prevalence of anxiety and depression, or just general psychiatric morbidity has been reported from other Indian patient populations as well. A study on prevalence of psychological morbidity in HIV-infected heterosexuals reported depression to be present in 40 per cent and anxiety in 36 per cent of the sample. Serious suicidal intent was seen in 14 per cent. Incidence of depression amongst those attending a primary health care facility was noted to be nearly 30 per cent (n=327 consecutive attenders) with low socio-economic status (being in debt, inability to buy food, having less than three square meals per day) and illiteracy as significantly associated with the caseness. A comparative study amongst patients suffering from psoriasis and vitiligo (n=30 patients each), using the Hindi version of the general health questionnaire (GHQ-H), identified prevalence of psychiatric morbidity to be 53.3 and 16.22 per cent respectively, depression at 23.3 and 10 per cent and anxiety was observed in 3.3 per cent of each group. A culture-specific study on ageing from the state of Goa noted that though depression was a common presentation in the primary care, it was infrequently diagnosed.

The CFA highlighted the holding together of all seven items in the anxiety subscale. However, two items from the depression subscale ‘I can enjoy a good book or TV programme’ and ‘I have lost interest in my appearance’, signifying anhedonia, loaded onto the anxiety domain. Though anhedonia is a hallmark of depression, repositioning of these two items could be attributed to the low prevalence of psychiatric morbidity in the study population. However, we feel that this could be indicative of the patient harbouring a fear as to whether or not he/she would be able to enjoy life's pleasures, rather than to express inability in enjoying life's pleasure and hence early anhedonia may present as anxiety in our population, indicating a cultural difference.

Findings from this study indicated that the Malayalam version of HADS was acceptably reliable and valid measure of psychological morbidity in cancer patients.

Acknowledgment

This work comprises part of the postgraduate (Psychology) dissertation works of Ms N Devi and Ms GP Sarita submitted to the University of Kerala in July, 2004. The HADS is under copyrighted product of nfer-Nelson, The Chiswick Centre, 414 Chiswick High Road, London W4 5TF, UK. Permission was obtained for its translation and use, the translation were approved by the copyright owners after examining the back translations. The authors acknowledge the partial financial support provided by the Indian Council of Medical Research (ICMR), New Delhi, India.

References


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