Validation of the Polish version of the Hospital Anxiety and Depression Scale in three populations of gynecologic patients

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Abstract

Introduction: We analyzed the psychometric properties of the Polish version of the Hospital Anxiety and Depression Scale (HADS) in gynecologic patients.

Material and methods: A total of 252 patients, consisting of three subgroups – endocrinologic gynecology (n = 67), high-risk pregnancy (n = 124), and outpa-tient gynecologic clinic (n = 61) – responded to the HADS, the 12-item Well-being Questionnaire (W-BQ12), the Spielberger State-Trait Anxiety Inventory (STAI), the Beck Depression Inventory-II (BDI-II), and the Hamilton Depression Scale (HAMD). Socio-demographic data were obtained by self-report and interviews.

Results: The HADS presented good internal consistency with Cronbach’s α at 0.84 and 0.78 for depression and anxiety subscales, respectively, and 0.88 for the whole questionnaire. The principal component analysis with Eigenvalues > 1 revealed a three-factor structure. Factors 1 (“depression”), and 2 (“anxiety”), as well as the separate Factor 3, explained 23.48%, 21.42%, and 12.07% of the variance, respectively. The items with shared loadings were A1, A3, and A6. The HADS scores correlated strongly with other depression and well-being scales, but not with STAI-X1/X2.

Conclusions: The Polish HADS revealed a three-factor structure, and 3/7 HADS-A items showed ambiguous factor loadings. All other psychometric properties were satisfactory. The HADS seems to be suitable for use in gynecologic patients, preferentially as an indicator for global psychological distress.

Key words: anxiety, depression, gynecologic psychosomatics, health-related quality of life, psychometric scales.

Introduction

Anxiety and depression are very common, with lifetime prevalences of up to 30% [1, 2]. Only 40% of people suffering from depression or anxiety disorder are correctly diagnosed, and only 5% to 20% of depressed or anxious patients receive some form of treatment [3, 4]. The comorbidity between anxiety and depression is high (50–80%), and anxiety is often antecedent to depression [5, 6]. Undiagnosed depressive disorder can be fatal, because psychiatric comorbidity remains the main risk factor for suicide, regardless of ethnic and cultural background [7]. In women, the risk for depressive or anxiety disorders is up to three-fold higher than in men [8, 9]. Almost every second gynecologic patients presenting with somat-
ic complaints suffers from mood disorders [9, 10]. The psychiatric comorbidity usually remains overlooked by gynecologists-obstetricians [10, 11]. Gynecologists are more likely to screen for mood disturbances if they have brief, easy-to-use and validated measures [12].

The Hospital Anxiety and Depression Scale (HADS) is a widely used self-report instrument for measuring anxiety and depression in somatically ill patients [13]. It was published in 1983 and addressed to general hospital outpatient patients [14]. The HADS consists of depression (HADS-D) and anxiety (HADS-A) subscales. The HADS-D focuses on anhedonia, and the HADS-A refers primarily to panic and to generalized anxiety. Somatic symptoms, such as dizziness, headaches, insomnia, anergia, and fatigue, as well as severe psychotic symptoms, are excluded [15]. The authors discourage summarizing the HADS-A and HADS-D scores to the total score (HADS-T) [16]. Nevertheless, the summary score has been repeatedly proposed as a measure for overall emotional distress [17] or health-related quality of life (HRQoL) [18–20]. As a measure for negative affect, the HADS has been proposed for assessing the dimension “subjective evaluations and reactions” in Dijker’s quality-of-life-model [19]. The HADS has often been applied to different patient collectives beyond internal medicine (e.g. gynecology), without renewed psychometric validation in those collectives. It could lead to misleading results, as each scale in a new translation or in a new field of application should be proven for its psychometric performance [21]. A recent systematic review (up to 2012) showed that only 50 from 199 potentially relevant studies regarding the factor structure of the HADS delivered sufficient data. From those 50 studies, only two studies were conducted in obstetrical collectives, one in women with breast cancer and none in gynecologic patients [17]. There exist two Polish translations of the HADS. In 1996, Karakula et al. published the Polish adaptation of the HADS as an appendix to a study about anxiety and depression in psychosomatic-medical disorders. No data about the translation process or psychometric properties were presented [22]. This translation has been used in our pilot validation [23] and – without validation – in three studies concerning anxiety and depression in orthopedic patients [24–26]. In 2000, Majkowicz published his own translation of the modified HADS (the original scale was expanded with items concerning aggression) as the “Polish HADS-M”. Unfortunately, the author reported only on internal consistency and convergent validity [27]. The first validation data of the modified “Polish HADS-M” were published in 2011, in a study concerning stroke patients [28]. Our Medline, Scopus and manual searches identified 28 studies using one of the Polish HADS adaptations (remarkably, 23 of them applied the HADS-M).

The purpose of our study was a psychometric analysis of the Polish, non-modified version of the HADS in gynecologic patients.

Material and methods

The study population (n = 252) consisted of three collectives of the Medical University of Poznan: 67 consecutive patients of the Division of Gynecological Endocrinology (GE), 124 patients hospitalized because of high-risk pregnancy (HRP) at the Division of Perinatology, and 61 patients of the outpatient clinic (OUT) of the 1st Division of Gynecology, participating in a study about psychosomatics of pelvic examination. Our study project followed principles in the Declaration of Helsinki. The research project was approved and the publication of the data was permitted by the President of the Poznan University of Medical Sciences. All patients gave informed consent to the study, were young (< 40), had no severe comorbidities (especially no psychiatric or oncologic disease), no planned surgery, and Polish was their native language. In the GE, all individuals completed the HADS and the W-BQ12; 66/67 and 37/37 patients also answered the BDI and the HAMD, respectively. In HRP, all participants answered the HADS, the W-BQ12, and a questionnaire about the pregnancy course and socio-demographic data. In OUT, the psychometric evaluation consisted of the HADS, the STAI-X1 and the STAI-X2.

Psychometric instruments

Hospital Anxiety and Depression Scale

The HADS is a 14-item self-report scale measuring the presence of symptoms of both anxiety (seven items) and depression (seven items) during the past week. Each item is scored from 0 to 3, so the final score for each subscale is between 0 and 21. The majority of the studies use the cutoffs of 7/8 for possible and 10/11 for probable anxiety or depression [29].

12-Item Well-being Questionnaire

The W-BQ12 is a generic measure of emotional well-being, designed for use in somatic patients [30]. Similar to the HADS, complaints thought to be somatic were ruled out. Each of the three W-BQ12 subscales consists of 4 items (0-3) and is dedicated to positive well-being (PWB), negative well-being (NWB), and energy (ENE). Subscale scores and a general well-being (GWB) score can be calculated by adding and – if appropriate – reversing the item values. The Polish W-BQ12 was validated by Watrowski and Rohde (submitted for publication) and showed satisfactory psychometric properties.
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Beck Depression Inventory

The BDI is a 21-question self-report inventory, relating to cognitive, affective, and somatic symptoms of depression. Each response is scored from 0 to 3, indicating the severity of the symptom and at least the severity of depression (range 0 to 63). In the present study, the 1996-revised form (BDI-II) was applied. Because of items addressing somatic symptoms (tiredness or fatigue, sleep loss, appetite loss) the use of BDI has been considered less suitable for screening for mood disorders in pregnant women [31].

Hamilton Depression Scale

The Hamilton Depression Scale (HAMD) is a 17-item, observer-rating measure of depression. Nine of the items are scored from 0 to 4. The remaining eight items are scored from 0 to 2. Total scores range from 0 to 54. For more than 40 years considered as the “gold standard”, the HAMD recently became the focus of criticism because of the unstable factor structure and conceptual doubts [32].

State-Trait Anxiety Inventory

The State-Trait Anxiety Inventory (STAI) consists of two 20-item forms and is intended to measure the state anxiety (STAI-X-1), defined as a transitory emotional response to a stressful situation, and the trait anxiety (STAI-X-2), understood as an enduring personality characteristic. Strong positive correlations between STAI scores, BDI and other depression scales suggest construct overlapping [33].

Statistical analysis

We considered all results as significant at p < 0.05. We tested the differences between scale scorings with the U-test, and the correlations with Spearman’s rho (r) coefficient. We analyzed correlations of the (sub)scores of the HADS, BDI, STAI, HAMD, and the W-BQ12 for testing discriminant, convergent and concurrent validity. For examination of inner scale consistency, we used Cronbach’s α and related coefficients. For studying the factor structure we applied the principal component analysis with Varimax rotation. The substantial threshold of the factor loading in each item was determined as 0.40 or greater. All statistical analyses were performed with the software package Statistica 5.0 PL (StatSoft Inc.).

Results

The sociodemographic characteristics of the patients are shown in Table I. All women were young (median age of 22, 24 and 27 years in GE, OUT, and HRP, respectively). The only significant age difference was between GE and HRP. In all groups, most women reached at least the secondary level of education and were satisfied with their material status. The majority of patients in HRP were married, whereas most women in GE were single. Depression, anxiety, and total HADS scores were highest in HRP, followed by OUT and GE, but lower than in other clinical populations studied with the same HADS translation (Table I). The HADS-A and HADS-D scores correlated strongly with each other (r = 0.69), and with the HADS-T (r = 0.89–0.94) (Table III). No or barely significant (p = 0.04–0.21)

Table I. Sociodemographic data of study populations

| Parameter                              | Gynecologic endocrinology (GE) | High-risk pregnancy (HRP) | Outpatient clinic (OUT) | Total (n) |
|----------------------------------------|--------------------------------|---------------------------|------------------------|-----------|
| No. of patients, n (%)                 | 67 (26.6)                      | 124 (49.2)                | 61 (24.2)              | 252 (100) |
| Age [years]                            | 21.94 (4.03)                   | 27.13 (5.47)              | 23.83 (4.51)           | 24.96 (5.38) |
| Marital status, n (%)                  |                                |                           |                        |           |
| Single (without partner, or partner not living in the same household) | 49 (73.13)                     | 16 (12.90)                | 28 (45.9)              | 93 (36.9) |
| Married (or living with partner)       | 18 (26.87)                     | 108 (87.10)               | 31 (50.82)             | 157 (62.30) |
| Missing data                           | 0 (0)                          | 0 (0)                     | 2 (3.28)               | 2 (0.79)  |
| Educational level, n (%)               |                                |                           |                        |           |
| Elementary                             | 18 (26.87)                     | 34 (27.42)                | 8 (13.11)              | 60 (23.81) |
| Secondary                              | 38 (56.72)                     | 56 (45.16)                | 30 (49.18)             | 124 (49.21) |
| University                             | 11 (16.42)                     | 30 (24.19)                | 21 (34.43)             | 62 (24.60) |
| Missing data                           | 0 (0)                          | 4 (3.23)                  | 2 (3.28)               | 6 (2.38)  |
| Self-perceived material status, n (%)  |                                |                           |                        |           |
| Good or very good                      | 53 (79.10)                     | 107 (86.29)               | Not available          | 160 (63.49) |
| Poor or very poor                      | 14 (20.90)                     | 17 (13.71)                | Not available          | 31 (12.3)  |
| Missing data                           | 0 (0)                          | 0 (0)                     | 61 (100)               | 61 (24.21) |

Numbers in brackets indicate percent within the (sub)group or standard deviation (SD). Differences between means studied with the t-test: αp (GE vs. HRP) = 0.007, βp (GE vs. OUT) = 0.36, γp (HRP vs. OUT) = 0.097. The missing data in OUT are not reported due to a different study protocol
discriminative concurrent validity of the HADS. The internal consistency, measured as Cronbach’s α, was representative for the area of non-oncologic, conservative gynecology. The HADS allowed clinically comprehensible comparisons between different subgroups of gynecological patients. Furthermore, as shown in Table II, the scale scorings differed from those provided with the same HADS translation in patients with severe orthopedic conditions (patients before hip replacement or after limb amputation), confirming the differentiation potential of the scale [25, 26]. Stronger correlations of the HADS-scores with W-BQ12 as compared with BDI or HAMD, no correlation with STAI-X1/X-2, the ambiguous assessment of 3 from 7 anxiety items, and a non-bipartite factor structure suggested the better suitability of the HADS as a general distress

| Variable | GE | HRP | OUT | Total |
|----------|----|-----|-----|-------|
| number of patients | 67 | 124 | 61 | 252 |
| mean age | 21.94 (4.03) | 27.13 (5.47) | 23.83 (4.51) | 24.96 (5.38) |
| HADS-A | 6.31 (3.68) | 8.67 (4.37) | 7.64 (3.77) | 7.73 (4.16) |
| HADS-D | 2.87 (2.32) | 5.60 (3.61) | 3.64 (2.70) | 4.40 (3.32) |
| HADS-Total | 9.18 (5.44) | 14.27 (7.44) | 11.28 (5.81) | 12.19 (6.91) |

SD – standard deviation, NA – not available, GE – gynecologic-endocrinologic group, HRP – patients with pregnancy complications, OUT – patients of a university outpatient clinic. SD in brackets. Differences between GE and HRP (p = 0.001), GE and OUT (p = 0.001), HRP and OUT (p = 0.001) studied with the U-test (p < 0.001, p < 0.05, p = 0.12 NS, p < 0.001, p < 0.08 NS, p < 0.001, p < 0.05, p < 0.01)

Discussion

The composition of our study collective (gynecologic endocrinology, obstetrics, outpatient clinic) was representative for the area of non-oncologic, conservative gynecology. The HADS allowed clinically comprehensible comparisons between different subgroups of gynecological patients. Furthermore, as shown in Table II, the scale scorings differed from those provided with the same HADS translation in patients with severe orthopedic conditions (patients before hip replacement or after limb amputation), confirming the differentiation potential of the scale [25, 26]. Stronger correlations of the HADS-scores with W-BQ12 as compared with BDI or HAMD, no correlation with STAI-X1/X-2, the ambiguous assessment of 3 from 7 anxiety items, and a non-bipartite factor structure suggested the better suitability of the HADS as a general distress
measure than as a differentiating tool between anxiety and depression. It is in accordance with the understanding of the HADS as a case finding instrument for overall psychological distress [17, 18]. The importance of HRQoL is increasingly perceived in somatic diseases, including in the field of gynecology [34]. The eligibility of the HADS in this field is controversial, but a recent European study confirmed the suitability of the HADS as a tool for assessing HRQoL [20]. The Polish HADS showed high internal consistency. Cronbach’s α values for each subscale (0.78–0.84) and for the whole HADS (0.88) lay within the optimal range. The principal component analysis indicated a three-factor structure. However, although a three-factor structure was seen in several studies [35, 36], the item assignment in our study showed some peculiarities. Firstly, Factor 1 (depression) comprised five items from the HADS-D, resulting in fact in an abbreviation of the HADS-D with one additional item 7 (A4) from the HADS-A. Item 7 (addressing psychomotor agitation) is probably the most unstable item within HADS [17]. The most ambiguous item 11 (= A6, “I feel restless as I have to be on the move”) shared
Table V. Principal component analysis of the HADS with Varimax rotation (normalized)

| Variables | Factor 1 (Depression) | Factor 2 (Anxiety) | Factor 3 |
|-----------|-----------------------|--------------------|----------|
| A1 (Item 1) | 0.230                 | 0.504              | 0.410    |
| A2 (Item 3) | 0.187                 | 0.647              | 0.076    |
| A3 (Item 5) | 0.477                 | 0.655              | 0.139    |
| A4 (Item 7) | 0.626                 | 0.324              | 0.252    |
| A5 (Item 9) | 0.116                 | 0.750              | 0.077    |
| A6 (Item 11) | 0.347                | 0.541              | 0.401    |
| A7 (Item 13) | 0.259                | 0.757              | 0.082    |
| D1 (Item 2) | 0.687                 | 0.093              | 0.286    |
| D2 (Item 4) | 0.793                 | 0.131              | 0.128    |
| D3 (Item 6) | 0.761                 | 0.294              | 0.074    |
| D4 (Item 8) | 0.146                 | 0.311              | 0.685    |
| D5 (Item 10) | 0.183                | −0.032             | 0.819    |
| D6 (Item 12) | 0.542                | 0.344              | 0.070    |
| D7 (Item 14) | 0.592                | 0.194              | 0.110    |
| Explained variance (eigenvalue > 1) | 3.287 | 2.999 | 1.690 |
| Proportion of variance explained by the given principal component | 23.48% | 21.42% | 12.07% |

The highest value for each item is bold typed. Additional item loadings > 0.4 (suggesting an ambiguous factor assessment) are underlined in italics.
total score could serve as an indicator for global emotional distress. The major limitation of our study is that it addressed only a particular collective of young, non-surgical, non-oncologic gynecologic patients. Because the HADS is a world-wide used instrument, we need firstly normative HADS data for the healthy Polish population, and secondly, we need extensive HADS validation across many clinical populations.

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References

1. Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry 2005; 62: 593-602.
2. Kessler RC, Petukhova M, Sampson NA, Zaslavsky AM, Wittchen HU. Twelve-month and lifetime prevalence and lifetime morbidity risk of anxiety and mood disorders in the United States. Int J Methods Psychiatr Res 2012; 21: 169-84.
3. Puzyński S. Depressive disorders in general medical practice, particularly in basic health care [Polish]. Psychiatr Pol 2006; 34: 47-58.
4. Baleztrieri M, Bisoffi G, Tansella M, Martucci M, Goldberg DP. Identification of depression by medical and surgical general hospital physicians. Gen Hosp Psychiatry 2002; 24: 4-11.
5. Wittchen HU, Beesdo K, Wittner A, Goodwin RD. Depressive episodes – evidence for a causal role of primary anxiety disorders? Eur Psychiatry 2003; 18: 384-93.
6. Lammers F, van Oppen P, Comijs HC, et al. Comorbidity patterns of anxiety and depressive disorders in a large cohort study: the Netherlands Study of Depression and Anxiety (NESDA). J Clin Psychiatry 2011; 72: 341-8.
7. Khan TM, Sulaeman SA, Hassall MA. Factors associated with suicidal behaviour among depressed patients in Penang, Malaysia. Arch Med Sci 2012; 8: 697-703.
8. Williams JB, Spitzer RL, Linzer M, et al. Gender differences in depression in primary care. Am J Obstet Gynecol 1995; 173: 654-9.
9. Yonkers KA, Chantilis SJ. Recognition of depression in obstetric-gynecology practices. Am J Obstet Gynecol 1995; 173: 632-8.
10. Bixo M, Sundström-Poromaa I, Björn I, Aström M. Patients with psychiatric disorders in gynecologic practice. Am J Obstet Gynecol 2001; 185: 396-402.
11. Buekens P, van Heeringen K, Boutsen M, Smekens P, Mattelaer P. Depressive symptoms are often unrecognized in gynaecological practice. Eur J Obstet Gynecol Reprod Biol 1998; 81: 43-5.
12. LaRocco-Cockburn A, Melville J, Bell M, Katon W. Depression screening attitudes and practices among obstetrician-gynecologists. Obstet Gynecol 2003; 101: 892-8.
13. Brennan C, Worrall-Davies A, McMillan D, Gilbody S, House A. The Hospital Anxiety and Depression Scale: a diagnostic meta-analysis of case-finding ability. J Psychiatr Res 2010; 46: 386-92.
14. Ziggmond AS, Snatch RP. The Hospital Anxiety and Depression Scale. Acta Psychiatr Scand 1983; 67: 361-70.
15. Bjelland I, Dahl AA, Haug TT, Neckelmann D. The validity of the Hospital Anxiety and Depression Scale. An updated literature review. J Psychiatr Res 2002; 52: 69-77.
16. Snatch RP. The hospital anxiety and depression scale. Br J Gen Pract 1990; 40: 305.
17. Cosco TD, Doyle F, Ward M, McGee H. Latent structure of the Hospital Anxiety And Depression Scale: a 10-year systematic review. J Psychiatr Res 2012; 46: 180-4.
18. Hinz A, Brähler E, Schwarz R, Schumacher J, Sten A. How useful is the calculation of total scores for questionnaires concerning health related quality of life [German]? Psychother Psychosom Med Psycho 2005; 55: 221-8.
19. The Participation and Quality of Life (PAR-Qol) project. Hospital Anxiety and Depression Scale (HADS). http://www.parqol.com/page.cfm?id=80. Accessed 26.3.2013.
20. De Smelt D, Clays E, Doyle F, et al. Validity and reliability of three commonly used quality of life measures in a large European population of coronary heart disease patients. Int J Cardiol 2013; 167: 2294-9.
21. Grzesiak M, Kiejna A. Diagnostic questionnaires and their use in epidemiological studies in psychiatry [Polish]. Psychiatr Pol 1999; 33: 519-33.
22. Karakula H, Grzywa A, Spila B, et al. Use of Hospital Anxiety and Depression Scale in psychosomatic disorders [Polish]. Psychiatr Pol 1996; 30: 653-67.
23. Wratrowski R, Rohde A. WHO (Bradley) Well-being Index and Hospital Anxiety and Depression Scale (HADS) in gynecologic and obstetric patients. In: Proceedings of the 31st Congress of Gynecologic Psychosomatic, Hanover 2002 [German]. Neises M, et al. (eds.). Giessen, Psycho-sozial 2003; 566-73.
24. Badura-Brozoa K, Matusiakiewicz J, Piegaz M, Ryderski W, Hese RT. Sociodemographic data and their influence on anxiety and depression in patients after spine surgery [Polish]. Przegl Lek 2005; 62: 1380-3.
25. Badura-Brozoa K, Matusiakiewicz J, Piegaz M, Ryderski W, Niedziela U, Hese RT. Sociodemographic factors and their influence on anxiety and depression in patients after limb amputation [Polish]. Psychiatr Pol 2006; 40: 335-43.
26. Badura-Brozoa K, Zajac P, Matusiakiewicz J, et al. The association of quality of life with mental status and sociodemographic data in patients with total hip replacement [Polish]. Psychiatr Pol 2008; 42: 261-9.
27. Majkowicz M. Praktyczna ocena efektywności opieki paliatywnej – wybrane techniki badawcze. In: de Walden-Galuszko K, Majkowicz M (eds.). Ocena jakości opieki
paliatywnej w teorii i praktyce [Polish]. Akademia Medyczna, Gdańsk 2000; 34-6.

28. Wichowicz HM, Wieczorek D. Screening post-stroke depression using the Hospital Anxiety and Depression Scale [Polish]. Psychiatr Pol 2011; 45: 505-14.

29. Herrmann C. International experiences with the Hospital Anxiety and Depression Scale – a review of validation data and clinical results. J Psychosom Res 1997; 42: 17-41.

30. Riazi A, Bradley C, Barendse S, Ishii H. Development of the Well-being questionnaire short-form in Japanese: the W-BQ12. Health Qual Life Outcomes 2006; 4: 40.

31. Čuržik D, Begić NJ. The utility of BDI-II in assessment of pre- and postpartum depression symptoms and their relation to labor pain. Psychiatr Danub 2012; 24: 167-74.

32. Bagby RM, Ryder AG, Schuller DR, Marshall MB. The Hamilton Depression Rating Scale: has the gold standard become a lead weight? Am J Psychiatry 2004; 161: 2163-77.

33. Kennedy BL, Schwab JJ, Morris RL, Beldia G. Assessment of state and trait anxiety in subjects with anxiety and depressive disorders. Psychiatr Q 2001; 72: 263-76.

34. Bączyk G, Opala T, Kleka P. Quality of life in postmenopausal women with reduced bone mineral density: psychometric evaluation of the Polish version of QUALEFFO-41. Arch Med Sci 2011; 7: 476-85.

35. Dunbar M, Ford G, Hunt K, Der G. A confirmatory factor analysis of the Hospital Anxiety and Depression scale: comparing empirically and theoretically derived structures. Br J Clin Psychol 2000; 39: 79-94.

36. Bramley PN, Easton AM, Morley S, Snaith RP. The differentiation of anxiety and depression by rating scales. Acta Psychiatr Scand 1988; 77: 133-8.

37. Arapaslan B, Soykan A, Soykan C, Kumbasar H. Cross-sectional assessment of psychiatric disorders in renal transplantation patients in Turkey: a preliminary study. Transplant Proc 2004; 36: 1419-21.

38. Martin CR, Thompson DR, Barth J. Factor structure of the Hospital Anxiety and Depression Scale in coronary heart disease patients in three countries. J Eval Clin Pract 2008; 14: 281-7.