

## RESEARCH COMMUNICATION

# Psychometric Properties of the Malay Version of the Hospital Anxiety and Depression Scale: A Study of Husbands of Breast Cancer Patients in Kuala Lumpur, Malaysia

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### Abstract

The main objective of this paper is to examine the psychometric properties of the Malay Version of the Hospital Anxiety and Depression Scale (HADS), tested on 67 husbands of the women who were diagnosed with breast cancer. The eligible husbands were retrieved from the Clinical Oncology Clinic at three hospitals in Kuala Lumpur, Malaysia. Data was collected at three weeks and ten weeks following surgery for breast cancer of their wives. The psychometric properties of the HADS were reported based on Cronbach's alpha, Intraclass Correlation Coefficients (ICC), Effect Size Index (ESI), sensitivity and discriminability of the scale. Internal consistency of the scale is excellent, with Cronbach's alpha of 0.88 for Anxiety subscale and 0.79 for Depression subscale. Test-retest Intraclass Correlation Coefficient (ICC) is 0.35 and 0.42 for Anxiety and Depression Subscale, respectively. Small mean differences were observed at test-retest measurement with ESI of 0.21 for Anxiety and 0.19 for Depression. Non-significant result was revealed for the discriminant validity (mastectomy vs lumpectomy). The Malay Version of the HADS is appropriate to measure the anxiety and depression among the husbands of the women with breast cancer in Malaysia.

**Keywords:** Depression and anxiety - Malay husbands of breast cancer patients - HADS - validation

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### Introduction

The Hospital Anxiety and Depression Scale (HADS) has been used widely in cancer research to measure the psychological morbidity of the cancer patients and their families (e.g. Pandey et al, 2006). In lieu to this, most studies in breast cancer showed that the partner or spouse of the patient experienced psychological morbidity throughout their spouse's cancer crisis (e.g. Fitch and Allard, 2007; Omne-ponten et al., 1993; Wagner et al., 2006). The Hospital Anxiety and Depression Scale (HADS) was developed by Zigmond and Snaith (1983) as a self-administered questionnaire which is able to detect the severity of emotional disorder. This scale can distinguish between anxiety and depression, and it can also be easily used in the hospital, out-patient and community settings. The reliability of HADS had been established by many researchers. Among others, Moorey et al. (1991) reported the Cronbach's alpha of 0.93 for the Anxiety sub-scale, and 0.9 for the Depression sub-scale. Other researchers also found the reliability of the HADS satisfactory (Clark and Fallowfield, 1986). The construct validity of the scale, as a measurement of the two factors, was confirmed in a factor analysis among cancer patients (Moorey et al., 1991). The concurrent validity data for the HADS had been reported in psychiatric patients

(Bramley et al., 1988), in heterogeneous group of patients with physical illness (Aylard et al., 1987) and in patients attending a genito-urinary clinic (Barczak, 1988).

There is no study that examining the psychometric properties of HADS-Malay Version among husbands of the women diagnosed with breast cancer in Malaysia. Thus, this study was implemented to determine the psychometric properties of the HADS-Malay Version as a reliable and valid tool to measure the anxiety and depression of the husbands of Malaysian women with breast cancer.

### Materials and Methods

#### Scale

The copyrighted scale of the Malay Version of HADS was purchased directly from the Nfer-NELSON company (thus, the back-translation procedure was not implemented in this study) and was administered under the Nfer-NELSON's regulation and policy. This scale contains 14 items and consists of two sub-scales; one measuring anxiety (A scale) and the other measuring depression (D scale) which are scored separately. Each item is rated on a four-point scale, giving a maximum score of 21 for anxiety and 21 for depression. The option for every item varies. Besides treating the scores as ordinal data, the

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**Table 1: Internal Consistencies, Intra-class Correlation Coefficient (ICC), Sensitivity and Discriminant Validity of the Malay Version of the Hospital Anxiety and Depression Scale (N=67)**

	Phase 1 (Mean±SD)	Phase 2 (Mean±SD)	Test-retest (ICC)	Internal consistency (Cronbach's alpha)	Sensitivity to change: Mean differences (Effect Size Index)	Discriminant Validity (Mastectomy vs Lumpectomy)
HADS-Anxiety	10.33 (±3.60)	11.82 (±3.29)	0.35	0.88	1.50 (0.21)**	Not Significant
HADS-Depression	11.51 (±3.17)	12.76 (±3.40)	0.42	0.79	1.26 (0.19)**	Not Significant

\*\*\*p<0.001; \*\*p<0.01; \*p<0.05

Phase 1 = Prior to 1st Cycle of Chemotherapy; Phase 2 = After 3rd Cycle of Chemotherapy

interpretation of HADS scores can also be as follows: 0-7 (normal), 8-10 (Mild), 11 to 14 (Moderate) and 15 to 21 (Severe).

*Procedures*

Husbands of the women who were diagnosed with breast cancer were sampled from three main hospitals in Klang Valley, the capital area of Malaysia i.e. The University of Malaya Medical Centre (UMMC), The Kuala Lumpur General Hospital (KLGH) and The Hospital Universiti Kebangsaan Malaysia (HUKM). These hospitals were chosen because they are the major hospitals in Klang Valley, Malaysia that have a capacity for cancer treatment such as an oncology unit. The recruitment of the husbands of the women with breast cancer were based on the rule of purposive sampling, restricted to the inclusion (i.e. new cases of breast cancer in their wives, who had undergone breast cancer surgery and were planned for adjuvant chemotherapy, and husbands with no current major diseases or chronic psychiatric condition) and exclusion criterion (i.e. past history of breast cancer surgery and had received neo-adjuvant therapy before the surgery) of the study. Ethical approval was obtained from the Ministry of Health Malaysia and from the hospitals involved in this study.

Names of husbands of the women with breast cancer who were planned for chemotherapy, were retrieved from the breast surgeon or oncologist in each hospital. Their wives' (i.e. women with breast cancer) medical records were also examined to retrieve information on the medical background. All the husbands who were willing to take part in this study, signed the consent form prior to the commencement of the study. This consent form was enclosed together with the information sheet, based on the standard format set by the Ethical Committee of the University of Malaya Medical Centre.

For the purpose of psychometric analyses of the scale, the test-retest method was implemented prospectively at two points of evaluation: (1) Approximately two to three weeks following surgery (prior-to chemotherapy) and (2) Approximately ten weeks following surgery (during chemotherapy). Sample size was calculated by using two means formula, as proposed by Naing (2010) as below:

$$n = \frac{2\sigma^2}{\Delta^2} (Z_\alpha + Z_\beta)^2$$

Whereby:

- Significant level at two tailed,  $\alpha$  = 0.05
- Power of study,  $\beta$  = 80%

- Standard deviation of either group,  $\sigma$  = ±9.1
- Expected detectable difference between two groups,  $\Delta$  = ±5.0
- Value of standard normal distribution cutting off probability  $\alpha$  in one tail for one-sided alternative or  $\alpha/2$  in each tail for a two-sided alternative,  $Z_\alpha$  = 1.96
- Value of the standard normal distribution cutting off probability  $\beta$ ,  $Z_\beta$  = 0.84

The standard deviation of either group ( $\sigma$ ) and expected detectable difference between two groups ( $\Delta$ ) were referred to the study done by Pandey et al. (2006). The calculation is as below:

$$n = \frac{2 \times 9.1^2 (1.96 + 0.84)^2}{5^2}$$

$$n = 51 \text{ Husbands}$$

However, the sample size was adjusted upwards to allow the non-response of as much as 20%, resulting in the final sample size required for the study to be 61.

Socio-medical data was also documented such as age, ethnicity, education, occupation, monthly income, duration of marriage, type of surgery, time since diagnosis and stage of breast cancer of their wives.

**Results**

The mean age of the husbands was 51 (±7.8) years old. More than half their wives (62%, n=42) were pre-menopausal. Seventy eight percent of women had mastectomy and 22% had breast conserving surgery. Majority of their wives were diagnosed with Stage 2 breast cancer (54%, n=37), followed by Stage 3 (38%; n=26) and Stage 1 (7%, n=5). The time of diagnosis to their participation in the study was a mean of 52 (±2.5) days. The husbands had at least a secondary education (78%, n=53), with most of the husbands still working (69%, n=46). The average household monthly income was at least RM3000 or USD1000 (81%, n=55).

Table 1 shows the results of analyses of the psychometric properties of the Malay Version of HADS. The Cronbach's Alpha was 0.88 for Anxiety and 0.79 for Depression Subscale. In the meantime, the test-retest Intraclass Correlation Coefficient (ICC) was 0.35 for Anxiety and 0.42 for Depression Subscale. Sensitivity of the scale was presented by the mean differences and Effect Size Index (ESI). Mean difference was 1.5 with ESI of

0.21 for Anxiety, meanwhile, mean differences was 1.26 with ESI of 0.19 for Depression. In term of discriminant analysis, no differences were observed when comparison was made between the mastectomy group and the breast conserving surgery group.

## Discussion

The internal consistency of the HADS (Malay Version) was excellent as indicated by the Cronbach's alpha value which is more than 0.75. However, this value is a bit lower than the values obtained by Moorey et al. (1991), which were 0.93 and 0.90 for Anxiety and Depression, respectively. The Intraclass Correlation Coefficient (ICC) was found to range from fair to moderate for Anxiety and Depression Subscale, indicating that there was a fair to moderate agreement between the scores for prior-to and during-chemotherapy for both Anxiety and Depression Subscale, respectively (Bartko, 1996). Both subscales showed sensitivity to change with a small effect size. This small sensitivity may be related to the treatment situation itself, and not because of the inability of the scales to measure. In the analysis of the discriminant validity, the Malay Version of Anxiety-HADS did not demonstrate any difference in the husbands' anxiety score between the mastectomy and lumpectomy groups. Similarly, the husbands' depression score did not show any difference between the two groups. This is in line with the other studies in breast cancer (e.g. Bleiker et al., 2000; Ganz et al., 1992).

The short interval of time of data collection between baseline and follow-up phases (two weeks and ten weeks following surgery) as well as the effect of treatment phase itself might be a limitation of the study, as the results revealed fair to moderate Intraclass Correlation Coefficient and small sensitivity of the scale. However, this study is strengthened by the sample selection which is chosen from the specific population (i.e. husbands of the women with breast cancer who were planned for six cycle of adjuvant chemotherapy). Thus, the homogeneity of the respondents could be controlled.

This study has a significant implication on breast cancer research in Malaysia. This availability of HADS-Malay Version is very useful for researchers to measure anxiety and depression among those who can understand the Malay language. For future research, it is suggested that this HADS-Malay Version may possibly be tested between baseline (two weeks after surgery/prior to chemotherapy) and six months afterwards, in order to make a strong justification of the test-retest Intraclass Correlation Coefficient and the sensitivity of the scale.

the Malay language. For future research, it is suggested that this HADS-Malay Version may possibly be tested between baseline (two weeks after surgery/prior to chemotherapy) and six months afterwards, in order to make a strong justification of the test-retest Intraclass Correlation Coefficient and the sensitivity of the scale.

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