

ORIGINAL PAPER

Adaptation and Validation of the Malay Version of Daily Record of Severity of Problems (DRSP) among Undergraduate Students in a University in Malaysia

Siti Inarah Hasim and Jamilah Hanum Abdul Khaiyom

Department of Psychology, International Islamic University Malaysia,
Jalan Gombak, 53100 Kuala Lumpur, Malaysia

Abstract

Premenstrual Dysphoric Disorder (PMDD) is a newly categorized mental disorder in DSM-5. It impacted about 1.8% to 5.8% of women population in the United States. However, no information was found on the prevalence rate of PMDD in Malaysia context. This may be due to lack of reliable and valid instruments to assess the disorder for the local populations. Hence, current study aims to address this issue by validating the Malay adapted version of Daily Record of Severity of Problems (DRSP), one of the scale designed to assess the disorder. The current study protocol will inform the procedures of the exploratory-based validation study. Using survey research design, 350 samples of undergraduate students from a university in Klang Valley, Malaysia will be recruited for this research. The psychometric properties of DRSP in terms of reliability (internal consistency and test-retest reliability) and validity (concurrent, convergent, divergent, and factor structure) will be analysed. It is hoped the results of the study will facilitate further research on PMDD in Malaysia.

Keywords: Premenstrual Dysphoric Disorder, Premenstrual Syndrome, Daily Record of Severity of Problems, Psychometric Properties, Malaysia

Introduction

Premenstrual Dysphoric Disorder (PMDD) is the most severe form within the spectrum of Premenstrual Syndrome (PMS) [1]. This spectrum of disorders is a combination of psychological and physical symptoms that commence about a week before menstruation, subsides during the menses, and disappear after that [2]. Among the symptoms are irritability, anger, mood swings, depression, tension/anxiety,

abdominal bloating, breast pain and fatigue [3,4].

While PMS is manifested as more on physical symptoms[5], PMDD is characterized by prominently mood symptoms [3,6]. American Psychiatric Association has added the PMDD as one of the disorders in Diagnostic and Statistical Manual of Mental Disorders – 5 (DSM-5) under the category of Depressive Disorders [3]. Previously in the Diagnostic and

Statistical Manual of Mental Disorders - Text Revision (DSM-IV-TR), it was classified under Depressive Disorder Not Otherwise Specified because it does not meet the criteria for Major Depressive Disorder [7].

PMDD affects the daily functioning of approximately 3% to 8% of women within the reproductive age in the western population [3,8]. PMS treatment usually involves non-pharmacological treatments, as compared to PMDD which requires both pharmacological and non-pharmacological intervention (i.e. lifestyle changes, exercise, alternative medicines, dietary modification and cognitive behaviour therapies (CBT) [4,6]

Rapkin and Lewis concluded that 60%-80% of patient with PMDD responded to serotonergic antidepressant with improvements to daily functioning [9]. Jarvis and Morin suggested that dietary modification may include reduced caffeine, salt and refined sugar intake [10]. They also added exercise as part of the lifestyle modification intervention, while alternative medication includes reflexology, massage therapy, biofeedback and acupuncture. Relaxation and sleep hygiene as part of CBT may improve both physical and emotional symptoms [9].

Ussher and Perz in a randomized controlled trial proposed that CBT can improve premenstrual distress and coping among patients with moderate to severe PMS [12]. In addition to that, they also found that couple-based CBT (CBT for the patient and her partner) may increase behavioural coping, and improve partners' support and relationship as compared to one-to-one CBT and patients who did not receive CBT [11]. All in all, it was suggested that successful intervention involves these multimodal

approaches may at least contribute a 50% reduction in the disease severity [2]. Furthermore, Rapkin and Winer also explained that unless treated, areas of function and daily life involving interpersonal relationships, work productivity and absenteeism, even access to health-related services will be significantly affected [2].

DRSP is one of the most widely used assessment tool to measure both PMS and PMDD [1, 3]. Endicott, Nee and Harrison developed DRSP to cater for diagnostic criteria and evaluation of PMDD in DSM-IV [13]. Apart from DRSP, there are other instruments available to assess PMDD namely Calendar of Premenstrual Experiences (COPE) [14], Moos' Menstrual Distress Questionnaire [15], Premenstrual Tension Syndrome Observer (PMTS-O) and Self-Rating Scales (PMTS-SR) [16], Self-Rating Scale for Premenstrual Assessment Form [17], and Prospective Record of the Impact and Severity of Systems of Menstruation (PRISM) [18]. However, it is noted that only DRSP [13] contains items which were developed based on the diagnostic criteria of PMDD as in DSM-5.

The items in DRSP measure physical and psychological symptoms, and dysfunctionality related to daily routine, hobbies or social activities, and relationship with others, related to the menstrual cycle. Six-point scales ranging from 1 (Not at all) to 6 (Extreme), are used to rate the symptoms. Despite its' wide use in both clinical and research practices[18,19,28] only two studies analyzing the DRSP's psychometric properties are available. The first is the original study which used the samples in the United States for its development [13], and the second is the adaptation and validation study conducted

among the nursing students in China by Wu and colleagues [20].

Both studies generally demonstrated good reliability indexes. For first study, the internal consistency ranged between 0.88 to 0.96 [13], while second study demonstrated values ranged from 0.96 to 0.97 [20]. For test-retest reliability, first study value ranged from 0.86 to 0.99 [13], while second study is 0.84 [20]. In terms of factor structure, Endicott and colleagues did not report the factor structure of the original version of DRSP [18]. Whereas, Wu and colleagues conducted exploratory factor analysis (EFA) and found four factors accounting for 75.6% variance (Factor 1: Mood - 12 items (34.5%), Factor 2: Behaviour - 5 items (18.51%), Factor 3: Pain - 2 items (11.81%), and Factor 4: Physical - 2 items (10.80%)) [20]. Concurrent validity with other depressive measures were established in both the original version [13] and Chinese version [20] of DRSP. Endicott and colleagues utilized Hamilton Depression Rating Scale (HDRS), and the correlation with the scores of DRSP is ranged between 0.39 to 0.75 [13]. Wu and colleagues established the correlation values between 0.25 to 0.55 with the Zung Self-Rating Depression scale (SDS) [20]. The divergent validity of DRSP was established in the study by Endicott and colleagues using Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q) with r ranged between -0.34 to -0.44[13]. Meanwhile, Wu and colleagues established the convergent validity of the Chinese version of DRSP using Premenstrual Tension Syndrome self-rating (PMTS-SR), r ranged between 0.24 to 0.45 [20]. As a summary, the psychometric properties were satisfactory and correlations with the criterion scales yielded significant results which enable both versions to be used in respective populations.

In Malaysia, there are five studies on PMS found [21–25], but none focused on PMDD. Two studies reported on the prevalence of PMS among university and college students [21,23]. Another study reported the prevalence of PMS among a sample of women in rural areas and their methods of remedying their PMS symptoms [22]. Two more studies were conducted on adolescent populations and the focus of the studies were on attitude and perceptions towards menses and PMS in general [24,25]. It was found that the first three studies were utilizing different measures to assess PMS among their samples [21–23]. These measures are based on American College of Obstetrics and Gynaecology (ACOG) PMS diagnostic criteria, and no psychometric properties or any validation procedures were reported in these studies.

It was noted that Endicott and colleagues [13] did not report convergent validity and factor analysis, while divergent validity was not being conducted in Wu and colleagues study [20]. In order to bridge this gap, the methodology proposed in the current study will utilized these analyses and adding another criterion validator using an anxiety measure. It is believed that the current study may provide more comprehensive view of psychometric properties of DRSP.

In Malaysia context, it was found that previous studies were looking at PMS rather than focusing on PMDD, as supported by their usage of ACOG based PMS tests. It is also noted that these studies did not report any validation process or psychometric properties of their tests, hence may results to unconfirmed prevalence rate of PMS and PMDD. Besides, these studies also suggested the lack of knowledge about the disorder (PMDD or PMS) among the local samples, which reinforces the need to conduct the current study. Hence, the

discussions in this section gave sufficient arguments based on the past literatures, which support the needs to carry out the current study as proposed.

Statement of the Problem

Despite the high prevalence rate of PMDD [3,8] and its negative impact on individual functioning, there are still many patients who were unrecognized or untreated [26].

In Malaysia, the problem of unrecognized and untreated (or undertreated) patients with PMDD could be due to poor assessment of this disorder. Lack in practices in the validation of Western-based psychological assessment added to the shortage of culturally appropriate assessment tools in many developing countries [27], including Malaysia. As proper intervention or treatment can reduce the burden of PMDD [2,9], it is important to validate a Western-based psychological instrument which can assess PMDD prior to its' first use in Malaysia. Previous local studies implied a significant number of prevalence of PMS among the local population (37% to 63.1%) [21–25]. There is a possibility that those classified as having severe PMS in these studies were having PMDD. Since there is no valid psychological tool to assess PMDD, the exact prevalence rate among local samples cannot be estimated.

Looking at the local prevalence of PMS, with a possibility of these individuals having negative effects as consequences to having PMDD, in addition with lack of research in this area, validation for this psychological instrument to assess PMDD is worth for consideration.

Research Objectives

1. To adapt DRSP into Malay language.

2. To validate the psychometric properties of DRSP in terms of its reliability (internal consistency and test-retest reliability) and validity (criterion – through concurrent validity; and construct – through convergent, divergent, and discriminant validity) among university students.

3. To explore the factor structure of the Malay version of DRSP.

Research Questions

1. What are the reliability indexes of the Malay adapted DRSP among university students?

2. What are the validity indexes of Malay adapted DRSP when compared to other criterion measures among university students?

3. What is the factor structure of Malay adapted DRSP among the university students?

Methods and Procedures

Study Designs

This research is divided into Study A and Study B. Both studies used survey method to obtain the psychometric properties of DRSP among the sample of university students.

Participants

For both Study A and Study B, the inclusion criteria are; the participants are female, undergraduate student, Malaysian nationals and proficient in Malay language.

Study A

G*Power Software [28] analysis has yielded a minimum of 134 samples to achieve a small effect size of 0.3. Whereas, according to Tabachnick & Fidell, five participants per item should be obtained to enable factor

analysis [29]. Since DRSP has 24 items, this study targeted a minimum of 120 sample size. However, the same authors also suggested that to be comfortable, at least 300 samples should be acquired in order to conduct factor analysis. Considering the response rates on the three previous validation studies in Malaysia which were 85% [30], 99.1% [31], and 86% [32], missing values, and outliers that will be deleted, 400 participants will be approached for Study A.

Stratified random sampling design is utilized for this study. The sampling will involve undergraduate students in one of the government university in Klang Valley with its two branches in the southern and northern area of Malaysia. This sampling design is chosen in order to reduce sampling error and to ensure participants are represented from all the faculties [33]. The first stratified stage involved the fourteen faculties which inclusive of both sciences and arts discipline. Subsequently, the list of departments in each faculty will be obtained which randomization using fish bowl technique is utilized. At the last stage, a proportion of the students was recruited from the randomly selected departments.

Study B

This study will recruit 100 participants among the undergraduate students of Psychology major in the same university.

Measures

Sociodemographic profile

Participants was required to complete the sociodemographic profile which consists of information on their personal background including age, gender, ethnicities, marital status, and academic background. Their

academic background included their respective faculty, study major/department, current levels of study, and their latest Cumulative Grade Point Average (CGPA). Information on their medical and mental health status, regularity of menstrual cycle, medication or hormonal pills intake was also noted.

Adapted Malay version of Daily Record of Severity of Problems (DRSP)

Adapted Malay version of DRSP contains 24 items to rate psychological and physical symptoms, and daily life functions for assessment of PMDD [13]. The items are rated using a 6-points scale ranging from 1 (Not at All) to 6 (Extreme). In the previous two validation studies, reliability indexes were excellent as the internal consistency range between 0.76 to 0.97, while test-retest reliability ranged from 0.7 to 0.84 [18,19]. These studies also found that the test correlates well with similar construct (r range from 0.24 to 0.45) and have a good concurrent validity (r_s range from 0.25 to 0.75), while divergent validity index revealed to be from 0.34 to 0.44. Four components were revealed from EFA in the study among the Chinese sample (variance accounted 75.6%) [20].

Adapted Malay version of The Premenstrual Tension Syndrome Rating Scales – Self Rating (PMTS-SR)

Adapted Malay version of PMTS-SR consists of 36 dichotomous items (Yes or No) used to assess PMS symptoms [34]. Internal consistency of this test was found to be good (ranging from 0.89 to 0.93) [41,42]. Haskett suggested that PMTS-SR alone is sufficient to identify patient with severe PMS [37]. This instrument also correlated well with the Prospective Record of the

Impact and Severity of Menstrual Symptomatology (PRISM) Calendar [38].

Beck Depression Inventory-Malay (BDI-Malay)

BDI-Malay [39] is the adapted Malay version of the original 21-items version of BDI [40]. This test contains 20 items to measure level of depressed mood over the past week. The higher the score the more severe the symptoms. The internal consistency of BDI-Malay is 0.91. In terms of validity, BDI-Malay has established its concurrent (r s range from 0.52 to 0.65), convergent ($r=0.8$), and divergent ($r=-0.79$) validity with its criterion measures [46]. Two factors were confirmed through CFA (Factor 1: Cognitive / Affective, and Factor 2: Somatic / Vegetative), while item number 21 (changes in interest in sex) was dropped due to cultural differences [41].

Beck Anxiety Inventory-Malay (BAI-Malay)

BAI-Malay consists of 21 items measuring the severity of anxiety symptoms. This test is the validated Malay language version of the original BAI [42]. The items are to be rated on a four-point scale, ranging from 0 to 3 (not at all to most severe). Internal consistency is good ($\alpha = 0.91$) while for concurrent validity with other anxiety measures were within acceptable ranges ($r = 0.22$ to 0.67) [36,48]. EFA also revealed three factors which are subjective anxiety, autonomic, and neurophysiology, accounting for 48.01% of variance [43].

World Health Organization Quality of Life-BREF (Malay) (WHOQOL-BREF-Malay)

WHOQOL-BREF-Malay was validated by Hasanah, Naing, and Rahman among both

healthy and ill participants [44]. This instrument consists of 26 items involving four domains (physical health, psychological, social relationship and environment) in measuring the patient's quality of life. The items are rated from 1 to 5, the higher indicating the more satisfied each participant was on areas related to the item. The WHOQOL-BREF-Malay has good internal consistency ($\alpha=0.89$), while test re-test reliability range between 0.49 to 0.88 across all domains [44]. The concurrent validity index (correlation with respondent's health status) range between 0.32 to 0.65, while criterion validity index (correlation with WHOQOL-100) is between 0.66 – 0.74 [44]. Discriminant validity showed that this test is able to differentiate between ill and healthy participants in all of the four domains [44].

Permission to use, adapt, and validate the instruments

For each instrument as described, the researcher has contacted the author or publisher for permission to use, adapt in the Malay language, and to validate the psychometric properties of the test among the student sample.

Procedure of adaptation and validation of instruments

In adapting a Western-based measure, the procedures followed international guidelines [50,51], and local empirical validation studies [36,52,53]. DRSP and PMTS-SR were back-translated according to the Brislin procedures [49] by two independent clinical psychologists with doctoral qualifications and bilingual abilities (i.e., proficient in both Malay and English language).

Subsequently, the back-translated items were reviewed independently by another

clinical psychologist with a doctoral degree. This was to ensure the translated items reflect the original items conceptually and the feedback was noted whether the items are accepted or should be revised. A psychologist with a certificate of translation from the Institute of Translation & Books Malaysia (ITBM) was asked to edit and harmonize the accepted back-translated items. This was to ensure the items are semantically and contextually relevant [50,54].

Ethics approval

Ethics approval will be obtained from the university's Institutional Research Ethics Committee (IREC) before the data collection.

Informed consent and administration of the questionnaire battery

All of participants will be briefed prior to the questionnaire administration. Informed consent will be requested and administration will involve paper and pencil.

Data collections

For study A, participants will be requested to answer a questionnaire which consists of the adapted Malay version of DRSP and PMTS-SR, BDI-Malay, BAI-Malay and WHOQOL-BREF-Malay. Participants rated the items based on their symptoms a week before and a week after their latest menses.

In study B, participants will be requested to rate their symptoms daily in the adapted Malay version of DRSP via online forms using Questionpro software [50]. This procedure will be repeated daily for 90 days (i.e., in between two – three menses cycles). The researcher will send an email every

afternoon to remind the participants to do their daily ratings.

Statistical Analyses

IBM SPSS Statistics for Windows version 23.0 [51] will be used to analyze the data for both studies. Assumptions of testing (i.e., missing values, the normality of the distributions, and outliers) will be examined. Descriptive statistics will be used for data screening.

For study A, Cronbach's alpha coefficient (α) will be computed to examine the internal consistency of the scale. Pearson product-moment correlation coefficient (r) will be calculated to examine (a) the relationship between the adapted Malay version of DRSP and the criterion scales, and (b) the inter-correlations between the criterion self-reported scales. EFA will be performed to explore the factor structure.

While for study B, Pearson product-moment correlation coefficient (r) will be calculated to examine the stability of the Malay version of DRSP through test-retest reliability analysis between the two menstrual cycles. Cronbach's alpha coefficient (α) will be computed to examine the internal consistency for each luteal and follicular phase.

Expected Outcomes

1. The reliability index of the DRSP-Malay will be within acceptable range.
2. The validity indexes of the DRSP-Malay when compared to the criterion measures will be within acceptable range.
3. The factor structure of DRSP-Malay is meaningful.

Significance of the Study

This validation study will contribute to the body of knowledge by adding another language version of DRSP. Apart from this proposed study and the original study [13], there is only one other validation study conducted among Chinese nursing students on DRSP [20].

This validation study is also necessary in comparing the cultural differences in PMDD manifestation among the locals and other populations. It was found in previous studies that the way Malay community manifests depression is more towards somatic or physical complaints [20–22]. Hence, PMDD as a type of unipolar mood disorder may have different local manifestations as compared to other populations, thus necessitate this research based on empirical comparison.

From a clinical perspective, this study may provide a validated instrument to assess PMDD among Malaysian. DRSP is selected as a tool to be validated in this study due to the nature of its items which were constructed based on the DSM-5 diagnostic criteria of PMDD [13]. This will minimize errors in the assessment of PMDD during its' clinical application.

From a research perspective, this research will serve as the first local validation study for psychological tool to measure PMDD. Hence, this study can be the basis for future research on PMDD in Malaysia or Asia context. The robustness of the procedures to validate the questionnaire will bring more confidence to test users, be it researchers or clinicians, when they are aware that the outcomes are semantical, contextual, and conceptually relevant. It is hoped that this study will open more doors for future local research in this field.

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Corresponding Author

Siti Inarah Hasim

Address: Department of Psychology,
International Islamic University Malaysia,
53100 Gombak, Malaysia

Tel: +60126608680

Email: narahashim82@gmail.com