

ORIGINAL PAPER

Validation of the Malay Version of Eating Disorder Examination-Questionnaire 6.0 (EDE-Q 6.0) among Undergraduate Students: A Study Protocol

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Abstract

The present study aims to examine the reliability, validity, and factor structure of the Malay version of Eating Disorder Examination-Questionnaire 6.0 (EDE-Q 6.0). It is essential to have a locally developed instrument that can screen eating disorders for early detection. With proper screening, the individual with eating disorders will be able to receive early intervention. However, to develop a new screening test, a huge investment of time and resources is required. Thus, this study plans to adapt the latest EDE-Q 6.0 because it is in concordance with the ‘gold standard’ assessment for eating disorder. In order to reach the objective, this study will use survey research design and will recruit undergraduate students ($N=400$) from different faculties in one of the local public university in Klang Valley, Malaysia. The current study will adhere to procedure of the best practice for test adaptation as suggested by the International Test Commission (ITC) Guidelines Second Edition (2016) in validating Western based measure into different language or culture. The data will be analysed using IBM SPSS Statistics Software for descriptive and inferential statistics. Malay EDE-Q 6.0 is expected to have acceptable reliability and validity with similar factor structure to the theoretical four components of the EDE-Q 6.0. With the expected results, this study hopes to contribute to the body of knowledge in continuous empirical examination of psychometric properties of EDE-Q 6.0, at the same time, able to assist clinicians during their practical works in detecting eating disorders so that early intervention can be carried out.

Keywords: Eating Disorder Examination-Questionnaire 6.0, Eating Attitude, Psychometrics, Structural Validity, Malaysia

Introduction

Eating disorder is characterized by “a persistence disturbance of eating behaviours that result in altered consumption or

absorption of food that significantly impairs physical health or psychosocial functions” [1]. According to Diagnostic Statistical Manual-5 (DSM-5), there are six categories of eating disorder, some are; anorexia

nervosa, bulimia nervosa, and binge eating disorder. These categories are being classified as such due to different form of treatment available for each of the category [2]. Nevertheless, the psychopathology of eating disorders is remarkably similar, and they are essentially known as 'cognitive disorders' [2].

The global prevalence of eating disorder is between 0.4% to 1.6% for various types of eating disorders [2]. It is much rarer in Asia than the West [3]. However, studies have shown that abnormal eating attitudes are increasing in non-Western countries [4]. In Malaysia, it was reported that 0.05% of psychiatric patients were diagnosed with anorexia nervosa [5]. However, due to alarming consequences of eating disorders such as suicidal activities (i.e., 12 per 100,000 per year), this, thus, warrants for national attention [1]. Furthermore, in Malaysia, four deaths from eating disorder have been reported in the year 2016 [6]. Hence, it is crucial to develop an instrument that can screen and assess eating disorders to enable early detection and early intervention.

There are several types of screening tools available to assess for eating disorders. Some may cover general symptoms of eating disorders such as Eating Disorder Examination-Questionnaire (EDE-Q) [7], Eating Disorder Inventory-II (EDI-II) [8], and Eating Attitude Test-26 (EAT-26) [9]. While, some tools are developed to screen specific types of eating disorder for instance Binge Eating Scale (BES) [10]. Nevertheless, since EDE-Q has been derived from Eating Disorder Examination (EDE) interview—the 'gold standard' assessment for eating disorder, plus, it performs similarly to EDE, thus, it is highly essential to locally adapt and validate EDE-Q especially the latest version of EDE-Q (i.e.,

EDE-Q 6.0). Hence, current study would like to adapt EDE-Q 6.0 to help clinician adhere to the gold standard assessment, with a privilege of having an economical instrument since EDE-Q 6.0 can be administered in a group format and for its administration, scoring, and interpretation only little training is required [11].

EDE-Q 6.0 is a self-report questionnaire that only has 28-item with four main subscales which are restraint, shape concern, eating concern, and weight concern. It generates global score and four subscale scores [7]. EDE-Q 6.0 provided data on the frequency and severity of behavioural features of eating disorders with reference to the last 28 days. Psychometric properties of EDE-Q 6.0 have been studied in various populations and it also has been adapted into several languages and cultures (e.g., Japanese, Italian, and French) [12-14]. In Malaysia, a study has adapted and validated the older 36-items version of EDE-Q among school age children (i.e., age 12 to 17 years old) [3]. Nonetheless, since the latest and updated version of EDE-Q 6.0 has yet been culturally adapted into Malaysian population and yet studied for different age group, therefore, calls for its adaptation and validation.

EDE-Q 6.0 and its psychometric properties have been studied globally in various languages and cultures. In terms of reliability, all versions of EDE-Q 6.0 reported internal reliability ranging from .70 to .96 [12-20]. Due to high internal reliability coefficient of EDE-Q 6.0 across cultures, the present study would like to add on the findings on the internal reliability but focusing on Malaysian sample. Two literatures found have examined the test-retest reliability of EDE-Q 6.0, which are, on USA sample and Italian sample [13, 15]. Both studies globally scored EDE-Q 6.0 and

recorded a test-retest reliability coefficient in the range of .80 to .92 at the interval of seven to 10 days. Since both studies are from the Western countries, this study would like to conduct the test-retest reliability analysis in Malaysia at the interval of 14 days to test for its stability over longer period of time.

Two studies have examined the convergent validity of EDE-Q 6.0. The Japanese version of EDE-Q 6.0 subscales converged with EDI-II's and EAT-26's subscales, with moderate correlations [12]. In Australian sample, a group of researchers explored the convergent validity between their slightly modified EDE-Q 6.0 with measures of psychological well-being and impairment, and results showed adequate convergent with both psychological well-being scale and with impairment scale [17]. In addition, no study has carried out equivalence reliability analysis between the original English version EDE-Q 6.0 and adapted version of EDE-Q 6.0. Therefore, this study would like to conduct an equivalence reliability analysis between the original and the Malay version of EDE-Q 6.0. If there is high equivalence reliability between them, perhaps the English version can be used for Malaysians whom English is their first or second language.

Previous literatures also suggested that construct validity of EDE-Q 6.0 on its factorial structure indicator is very controversial with limited fitness into its theoretical four components (i.e., subscales). Several studies had examined the factorial structure of EDE-Q 6.0 and illustrated more fitness into three-factor structure. These evidences, hence, provide support for three-factor instead of four [13, 21]. However, a study in Malaysia by Ramli and colleagues found an empirical support for four-factor structure on the older 36-item version of

EDE-Q [3]. Since Ramli and colleagues' version is not the latest version of EDE-Q, hence, this also calls for re-examination of the latest EDE-Q (i.e., EDE-Q 6.0) factor structure in Malaysian sample.

Research Objectives

1. To examine the homogeneity, stability, and equivalence reliability of the Malay version of EDE-Q 6.0 to the original English EDE-Q 6.0.
2. To examine the concurrent, convergent, and divergent validity of the Malay version of EDE-Q 6.0.
3. To examine the factor structure(s) of the Malay version of EDE-Q 6.0.

Research Questions

1. Will the Malay version of EDE-Q 6.0 demonstrate appropriate internal, test-retest, and equivalence reliability with the original English version?
2. Will the Malay version of EDE-Q 6.0 demonstrate appropriate concurrent, convergent, and divergent validity?
3. What is/are the factor structure(s) of the Malay version of EDE-Q 6.0?

Methods and Procedures

Study Designs

The study will be conducted by using survey method to study the psychometric properties of the Malay version of EDE-Q 6.0.

Measures

The measures that will be used for construct validation and criterion related validations of the Malay EDE-Q 6.0 are:

Sociodemographic profile

The sociodemographic profile consists of personal details of participants including gender, age, race, academic background, and marital status. Estimated height and weight of participants are included as part of the main information required in EDE-Q 6.0. Information on medical and mental health status are also noted.

Adapted Malay version of Eating Disorder Examination-Questionnaire 6.0 (Malay EDE-Q 6.0)

EDE-Q 6.0 is a feasible self-administered questionnaire to assess for eating habits and attitude for the past 28 days. It has four main subscales which are restraint, eating concern, shape concern, and weight concern. The global score of EDE-Q is the summation of the scores from four main subscales and the total is then divided into the number of subscales (i.e., four) to generate Global EDE-Q score [2].

Adapted Malay version of Eating Attitude Test-26 (Malay EAT-26)

EAT-26 is a self-report measure for eating disorder psychopathology and to assess for eating disorder risks [9]. It is a self-administered questionnaire with 26-item and three domains which are dieting, bulimia and food preoccupation, and oral control. The items are measured in a 6-point Likert scale with the options from 1 (“never”) to 6 (“always”). EAT-26 is first being adapted and validated to Malay EAT-26 and later is used to study the convergent validity of Malay EDE-Q 6.0 since both are measuring the construct of eating disorder. In Malaysia, the English version of EAT-26 has been validated in university and college sample. EAT-26 has shown desirable internal reliability coefficient from .77 to .83 [22].

Becks Depression Inventory-Malay (BDI-Malay)

BDI-Malay consists of 20 items to screen for depressive symptoms for the past one week. Higher score indicates higher severity of depressive symptoms [23]. The psychometric studies on BDI-Malay reported internal consistency ranging from $\alpha = .71$ to $.91$ with convergent and divergent validity of $r = .80$ and $r = .79$, respectively, with its criterion measures. Due to psychometric soundness of BDI-Malay, hence, it can be used with confidence among Malaysians [23].

Becks Anxiety Inventory-Malay (BAI-Malay)

BAI-Malay consists of 21-item to measure the severity of anxiety symptoms. It has shown good internal reliability with excellent Cronbach’s alpha value ($\alpha = .91$) [24]. Similar study also found the evidence that the BAI-Malay has an acceptable concurrent validity ($r = .22$ to $.67$) with other scales that measure the construct of anxiety (i.e., Fear Questionnaire, Depression Anxiety Stress Scale-21, Anxiety Sensitivity Index, and Catastrophic Cognitive Questionnaire-Modified).

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

WHOQOL-BREF-Malay is the abbreviated version of World Health Organization Quality of Life-100 (WHOQOL-100) with only 26 items to assess quality of life. The 26 questions are scored from 1 to 5 with the higher score indicates more satisfaction towards areas related to the items. It consists of four main domains which are physical health, psychological, social health, and environment. It also has generated good

internal reliability in the range of $\alpha=.64$ to $\alpha=.89$. WHOQOL-BREF-Malay has shown excellent discriminating ability between patients and healthy people [25]. This study also has conducted criterion related validity between the WHOQOL-BREF-Malay with WHOQOL-100 with correlation coefficient of $r =.66$ to $.74$ in all four domains. The scores of Malay EDE-Q 6.0 will be correlated with the scores of WHOQOL-BREF-Malay to study for divergent validity since study has reported that patients with eating disorders have poor quality of life especially on their psychosocial domain [26].

Procedure

This study will follow the guidelines for the best adaptation procedure as suggested by International Test Commission (ITC) Guidelines Second Edition [27]. Forward translation of EDE-Q 6.0 will be conducted by a content expert and the forward-translated items will then be back translated by another independent content expert. Subsequently, both the forward and back-translated items will be reviewed by another content expert who acts as an independent reviewer. All the translators involved have qualifications in Psychology and possessed good bilingual abilities to ensure the items are semantically and contextually relevant.

The data collection is divided into pre-testing, pilot study, and main study phases.

Pre-Testing

The objective of the pre-testing study is to get an overview of the experience of test takers, to evaluate their understanding of the concepts being asked, and, allowing the researchers to assess the response latency (i.e., the time taken to complete individual items in the survey) [28]. The pre-testing

study was conducted on Master students in Psychology ($N=5$) of International Islamic University of Malaysia (IIUM). The inclusion criteria for the participants are postgraduate students in Psychology, Malaysian nationals, with proficiencies in both Malay and English languages.

Pilot Study

The pilot study is conducted among a sample of undergraduate students in Psychology major ($N=100$) in the same university with the aim to look at methodological standpoint (e.g., sampling and recruitment, data collection, and data analyses) and for small scale reliability and validity analyses [28]. According to a study by Baker, sample size of 10-20% of the main study is reasonable for enrolling pilot study [29].

Main Study

A sample of students ($N=400$) of International Islamic University of Malaysia (IIUM) will be recruited as minimum of 300 sample is required for Exploratory Factor Analysis [30]. Samples are within the age range of 18 to 25 years old since the mean age of onset for eating disorder in young adult is within this range [31]. They will be recruited via stratified random sampling. Forty from 400 participants will be re-approached to test for test-retest reliability at the interval of 14 days. The inclusion criteria for the participants in main study are IIUM students with Malaysian nationals, and with proficient in both Malay and English languages.

Statistical Analyses

To analyse the data, IBM SPSS Statistics Version 23.0 Software will be used for both pilot and main studies. Prior to data analysis,

data will be cleaned and screened from any outliers and missing values by using descriptive statistics.

Cronbach's alpha will be used for internal reliability and Pearson's correlation will be used to analyse test-retest reliability, equivalent reliability, and also for concurrent, convergent, and divergent validities. Factorial structure indices will be analysed by using Exploratory Factor Analyses (EFA).

Ethical Considerations

This proposed study will be submitted to the Institutional Research Ethics Committee (IREC) to obtain approval before data collection. Permission will be obtained from each of the intellectual property holders. Participation of participants, Subject Matter Experts (SMEs), and translators will be on voluntary basis with informed consent to be obtained from them individually and from authorize administration that they all are affiliated to. Data will be kept anonymous and confidential. Since the study does not involve any clinical sample, the study is deemed to cause no physical or psychological harm. However, if the participants require any psychological support, helpline information will be attached along with the participants' consent form.

Expected Outcomes

1. Malay EDE-Q is a homogenous and stable test.
2. Malay EDE-Q 6.0 has adequate equivalent reliability when compared to original English version of EDE-Q 6.0.
3. Malay EDE-Q 6.0 scores will have adequate concurrent validity with BDI-Malay and BAI-Malay, and will converge to the scores of Malay EAT-

26, and will diverge from the scores of WHOQOL-BREF-Malay.

4. Factor structure of the Malay version of EDE-Q 6.0 in Malaysian sample will reflect the original four-factor structure.

Significance of the Study

This study would like to contribute to the continuous empirical examination of factor structure of EDE-Q 6.0. Fairburn and Beglin developed EDE-Q to be very similar to EDE so that comparison can be done between different methods of assessment for eating disorder [7]. The items that they developed was based on the main behavioural features of eating disorders and the items also must generate four main subscales which are restraint, shape concern, eating concern, and weight concern. However, several studies on factor structure of EDE-Q 6.0 did not provide support for theoretical four-factor structure [16, 32]. In Malaysia, Ramli and colleagues carried out confirmatory factor analysis and able to produce four-factor structure with only five items had value less than 0.3 [3]. The factors were Restraint, Shape Concern, Eating Concern and Weight Concern. Hence, on the basis of further understanding on the underlying theory of eating disorder in Malaysia, the factor structure of Malay EDE-Q 6.0 needs to be discovered.

Researchers have argued that culturally adapted test is the most effective way to produce an equivalent test in a second language [33]. Due to lack of expertise in eating disorders in Malaysia, in addition, limited studies on technical quality of eating disorder test in Malaysia setting, the current project would like to adapt the latest and well-established eating disorder scale which is EDE-Q 6.0. The project, hence may contribute to the demand of psychometric

research as well as development in research of eating disorders.

At present, there is no appropriate tool being formally used by clinicians in Malaysia setting to screen for eating disorders [3]. Owing to this reason, calls are made for adaptation or development of clinical tests. With the existence of culturally adapted EDE-Q6.0, future research can study the norms and clinical reference data for the Malaysian population from various age ranges, backgrounds, and from different area of residence (i.e., rural/urban). Consequently, this can be used to compare and interpret score from both clinical and research settings [34]. Furthermore, these norms can also be utilized to assess any significant change during the course of treatment for eating disorder.

It is also hoped that future research may use current findings to study the epidemiology of eating disorder since there is lack of epidemiological studies on eating disorder in Malaysia. In addition, current research is hoped to bring confidence to researchers and especially clinicians to use semantically, contextually, and conceptually relevant tools that are valid for local communities since it is to everyone known that valid assessment will lead to proper diagnosis and intervention. With appropriate intervention, it is hence, hoped in reducing the consequences of eating disorder such as suicidal activities.

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