PSYCHOLOGICAL MEDICINE

Validation of Malay Trauma Screening Questionnaire

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ABSTRACT

Background: **Posttraumatic stress disorder (PTSD) is prevalent among trauma patients seeking treatment. An easy and reliable screening tool is needed to identify the PTSD symptoms in order to provide early intervention and prevent further complication.**

Objectives: **This study aimed to validate the Malay Trauma Screening Questionnaire (TSQ-M).**

Methods: **The TSQ was translated into Malay language and was administered to 50 trauma patients in orthopaedic clinic and wards in Hospital Universiti Sains Malaysia (HUSM) and Hospital Raja Perempuan Zainab II (HRPZ II) in March to May 2010. Clinical interview was conducted using the Clinician-Administered PTSD Scale (CAPS).**

Results: **The TSQ-M showed good psychometric property. The internal consistency (Cronbach alpha 0.73) and concurrent validity with CAPS (r = 0.57) are good. At the optimal cut-off score of 5, the sensitivity, specificity, positive and negative predictive values are 0.80, 0.85, 0.48 and 0.96 respectively.**

Conclusion: **The TSQ-M is a valid and reliable tool for screening PTSD in Malaysian population.**

KEY WORDS

Malay, orthopaedic, trauma, TSQ, PTSD

INTRODUCTION

Most people experience at least one potentially traumatic event during their lifetime. Whilst traumatic experiences can lead to a range of mental health problems, post-traumatic stress disorder (PTSD) is the most recognized disorder following trauma. It can also accompany chronic painful diseases. PTSD has been observed in more than 50% of fibromyalgia patients with chronic pain[1]. The prevalence estimates of PTSD are high. For example, the lifetime and 12-month prevalence of PTSD has been estimated 7.8%[2] and 3.5%[3] respectively.

Even though there has been development of a number of efficacious behavioral and pharmacological treatments, only a minority of patients with PTSD receive mental health services. PTSD is one of the most frequently under recognized and untreated anxiety disorder. Increasing the detection of patients with PTSD is a crucial step towards addressing the health and mental health burden experienced by these patients.

A brief and easily understood screening tool is important to aid in the detection of PTSD symptoms. Patients who develop marked avoidant symptomatology soon after a traumatic event might be unable or unwilling to report intrusive symptoms leading to a significant number of false negatives[4]. Identification of subjects at risk for PTSD, therefore, is essential for prevention or early treatment of PTSD which is vital from health as well as cost-benefit perspective. The aim of this study was to validate TSQ-M for use in local population.

METHODOLOGY

Participants

The study protocol was approved by the Research and Ethics Committee, Universiti Sains Malaysia and Ministry of Health. Eligible subjects gave their written informed consent after the nature of the study was explained. Subjects were in- or out-patients age 18-65 with history of trauma at least 1 month prior to the study, cooperative, literate and able to understand the Malay language. Those having traumatic brain injury or severe mental illness such as schizophrenia and major depression were excluded. A single researcher (the first author) trained in psychiatric interview administered the test individually to all subjects from March to May 2010. They were recruited from the orthopaedic clinic and ward, Hospital Universiti Sains Malaysia (HUSM) and Hospital Raja Perempuan Zainab II (HRPZ II). Both hospitals are approximately 5 km apart located in Kota Bharu, northeastern part of Peninsular Malaysia.

Instruments

The Trauma Screening Questionnaire (TSQ) is a 10-item self-rated questionnaire for use with survivors of all types of traumatic stress. It has 5 re-experiencing items and 5 arousal items. Respondents are asked to endorse those items that they have experienced at least twice in the past week. It is recommended that screening be conducted 3 to 4 weeks post-trauma to allow for normal recovery processes to take place. Excellent prediction of a PTSD diagnosis was provided by respondents endorsing at least six items[5]. The forward and back translation process of the TSQ was independently carried out 2 sets of translators comprised of a psychiatrist and a linguist fluent in both languages. The forward and back translated versions were reconciled producing a harmonized version of Malay Trauma Screening Questionnaire (TSQ-M). The meaning and the contents remained unchanged throughout the translation process. It was then pilot tested among 10 Malay speaking trauma patients. The ease of understanding and interpretations of all items were checked. The face validity was satisfactory. The finalized version of TSQ-M was reviewed to ensure satisfactory face, content, semantic and conceptual equivalence. The content validity was acceptable as judged by the content experts involved.

The same researcher conducted clinical interview using the

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Table 1. Item-Total Statistics

	Corrected item-total correlation	Cronbach's alpha if item deleted
Q1 Upsetting thoughts or memories about the event that have come into your mind against your will *Gangguan fikiran mengenai kejadian tersebut yang terlintas dalam fikiran tanpa kehendak anda*	.358	.717
Q2 Upsetting dreams about the event *Berasa terganggu dengan mimpi-mimpi yang berkaitan dengan kejadian tersebut*	.228	.733
Q3 Acting or feeling as though the event were happening again *Berasa seolah-olah kejadian tersebut berulang kembali*	.365	.716
Q4 Feeling upset by reminders of the event *Berasa terganggu dengan sesuatu yang boleh mengembalikan kenangan terhadap kejadian tersebut*	.511	.692
Q5 Bodily reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the event *Reaksi tubuh (seperti degupan jantung yang kuat, memulas perut, berpeluh, pening) apabila diingatkan tentang kejadian tersebut*	.309	.724
Q6 Difficulty falling or staying asleep *Sukar untuk tidur atau meneruskan tidur*	.503	.694
Q7 Irritability or outbursts of anger *Mudah meradang atau marah dengan tiba-tiba*	.526	.690
Q8 Difficulty concentrating *Sukar memberikan tumpuan*	.400	.711
Q9 Heightened awareness of potential dangers to yourself and others *Mempunyai kesedaran yang tinggi terhadap kemungkinan bahaya kepada diri sendiri dan orang lain*	.265	.731
Q10 Being jumpy or being startled at something unexpected Berasa gugup atau terkejut pada sesuatu yang tidak diduga	.441	.704

Clinician-Administered PTSD Scale (CAPS) after administering the TSQ-M without knowing the total score of the questionnaire. The CAPS is a structured interview intended for use by mental health professionals who have formal knowledge of psychopathology and experience conducting diagnostic interviews for assessing posttraumatic stress disorder (PTSD) diagnostic status and symptom severity. The CAPS included standardized questions to determine the frequency and intensity of the 17 symptoms of PTSD symptoms in the preceding month, using a 5-point Likert scale. It also included standardized questions assessing, subjective distress and impairment in social and occupational functioning due to these problems. It has excellent reliability, yielding consistent scores across items, raters, and testing occasions. In addition, it has excellent convergent and discriminant validity, diagnostic utility, and sensitivity to clinical change[6-8].

Table 2. Cut-off scores with corresponding sensitivity, specificity, positive and negative predictive value

TSQ-M Score	Sensitivity	Specificity	Positive Predictive Value (PPV)	Negative Predictive Value (NPV)
5	0.80	0.85	0.48	0.96
6	0.66	0.94	0.67	0.94
7	0.53	0.98	0.88	0.92

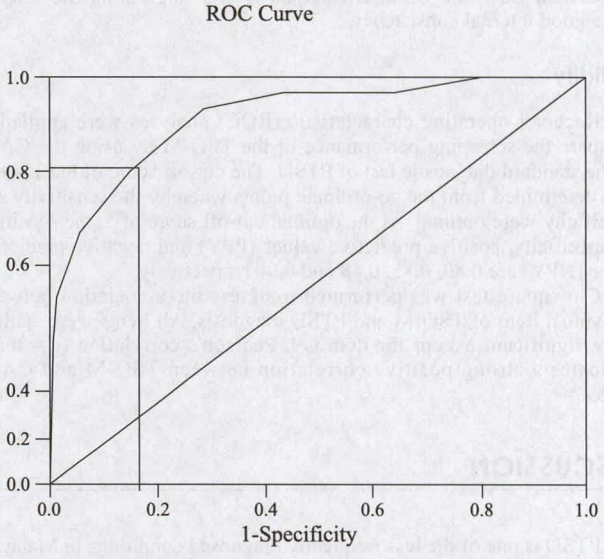

Figure 1. ROC curve of the TSQ-M.

Table 3. The TSQ-M individual item positive response with PTSD diagnosis

Item	PTSD	Non-PTSD	P value
Q1	26	81	< 0.001
Q2	15	21	< 0.001
Q3	18	37	< 0.001
Q4	25	72	< 0.001
Q5	18	39	< 0.001
Q6	24	52	< 0.001
Q7	20	39	< 0.001
Q8	21	42	< 0.001
Q9	26	120	0.062
Q10	22	70	0.001

Statistical analysis

All data entry and analysis were done using Statistical Packages for Social Science (SPSS) version 18.0 software. Descriptive statistics were performed for socio-demographic, traumatic events and clinical characteristic. The internal consistency of TSQ was assessed using Cronbach's alpha. The validity between TSQ-M and CAPS was assessed by calculating the correlation coefficient. The sensitivity, specificity, positive predictive value and negative predictive value were also evaluated.

RESULTS

Characteristics of the Participants

A total of 50 patients met the inclusion and exclusion criteria were involved in the validation study. The subjects were mostly single (n =

32, 64%), Malay (n = 49, 98%), male (n = 36, 72%) age between 21-30 years (n = 20, 40%). Most of them were unskilled worker with monthly income of less than RM 1,000 (n = 28, 56%), educated up to secondary level (n = 36, 72%) and stayed with their family (n = 47, 94%). The main cause of trauma in the subjects was motor vehicle accident (n = 41, 82%) involving motorcycle (n = 35, 83.3%). The mean total score for TSQ-M is 4.32 ± 2.56 (ranges from 0 to 10)

Reliability

Overall the items had a satisfactory correlation with corrected item total score. Lowest values were seen in items Q2 and Q9. Cronbach's alpha if item deleted ranges from lowest 0.690 (item Q7) to highest 0.733 Item Q2). The Cronbach's alpha is 0.73 suggesting the TSQ-M has a good internal consistency.

Validity

Receiver operating characteristic (ROC) analyses were applied to compare the screening performance of the TSQ-M by using the CAPS as the standard diagnostic test of PTSD. The cut-off score of the TSQ-M was determined from the co-ordinate points whereby the sensitivity and specificity were optimal. At the optimal cut-off score of 5, the sensitivity, specificity, positive predictive values (PPV) and negative predictive value (NPV) are 0.80, 0.85, 0.48 and 0.96 respectively.

Chi-square test was performed to assess the association between individual item of TSQ-M and PTSD diagnosis. All items were statistically significant except for item Q9. Pearson's correlation (r = 0.57) indicates a strong positive correlation between TSQ-M and CAPS scores.

DISCUSSION

PTSD is one of the less frequently diagnosed conditions in Malaysia clinical setting, hence giving the impression of a low incidence of PTSD among the local population. The gap between the true prevalence of PTSD in trauma patients and its recognition underline the importance and need for a proper screening tool which can be easily implemented in the local setting. TSQ has been validated and used as a screening tool for predicting PTSD in trauma patients various countries, clinical setting, culture and language[5,9,10]. It was found to be a reliable and valid screening tool in addition to it being brief, short and precise.

The back and forward translational process ensured the new translated questionnaire retain the concept of the original questionnaire. The TSQ-M has good face and content validity. It also has good internal consistency reliability as shown by Cronbach's alpha of 0.73. This is comparable with the study in Netherlands and Congo in which the Cronbach's alpha was 0.85[10] and 0.68[11] respectively.

The optimal cut-off score of TSQ-M is 5 (sensitivity 0.80, specificity 0.85) compared to the original study which has optimum cut-off point of 6. At cut-off point 6, TSQ-M showed lower sensitivity 0.66 despite increasing specificity 0.94. The PPV at cut-off 5 was 0.48 and NPV was 0.96. A practical implication of these finding is that survivors who show few early symptoms tend to remain asymptomatic (a strong negative predictive power), whereas many of those with early symptoms may still recover (a weaker positive predictive power). These findings were consistent with a study of assault patients in Wales[9], which showed TSQ had sensitivity of 0.85, specificity 0.89, PPV 0.48, NPV 0.98 and efficiency 0.90. However, the optimum cut-off score was 6 compared to the cut-off value 5 in this study.

Items Q2 "upsetting dreams about the event" and Q9 "heightened awareness of potential dangers to yourself and others" were poorly correlated with corrected item total score of the questionnaire. Item Q9 was also not statistically significant for PTSD. This was probably due to the respondents not fully understanding the meaning of the questions leading to the tendency to give negative answer to the questions. In conclusion, the TSQ-M has good psychometric property and therefore is a valid and reliable screening tool to evaluate symptoms and making PTSD diagnosis in Malaysian population.

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