Stress and Adjustment Disorder Section of WHO Schedules for Clinical Assessment in Neuropsychiatry (SCAN) - Thai Version: Validity and Reliability Study

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Objectives: *To determine the validity and reliability of the Thai version of the Stress and Adjustment Disorder section of WHO Schedules for Clinical Assessment in Neuropsychiatry (SCAN) version 2.1.*
Material and Method: *The SCAN interview version 2.1 Stress and Adjustment Disorder section was translated into Thai and its content validity tested by back translation. The linguistic clarity of the psychiatric schedules for Thais from the country's four regions was tested by psychiatrists competent in the use of the schedules and aware of their underlying objectives. The reliability of SCAN: Stress and Adjustment Disorder section was tested between June and November 2006 on 30 participants, including 18 patients with stress-related disorders (adjustment disorder, post-traumatic stress disorder, acute stress reaction) and 12 normal volunteers.*
Results: *Based on reactions from the sample and consultations from competent psychiatrists, content validity was established. The duration of interviews for the Stress and Adjustment Disorder section averaged 17.92 min (25.59 for patients with stress-related disorders and 6.41 for normal subjects). The respective mean inter- and intra-rater reliability kappa was 0.90 (SD = 0.12) and 0.94 (SD = 0.09). A respective 77.05% and 85.26% of the items reached a substantial to almost perfect level of inter- and intra-rater agreement.*
Conclusion: *The Stress and Adjustment Disorder section of the WHO Schedules for Clinical Assessment in Neuropsychiatry (SCAN Thai Version) is demonstrably an effective tool for diagnosing stress-related disorders among Thais.*

Keywords: *Schedules for clinical assessment in neuropsychaitry, Reliability study, Validity study, Semi-structured interview schedules, Stress, Adjustment disorder, Brief depressive reaction, Prolonged mild depressive reaction, Post-traumatic stress disorder, Acute stress reaction*

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Thais, as a nation, have suffered a wide range of stressors, ranging from everyday life stressors (*i.e.*, accidents and illness) to disasters (*i.e.*, tsunami, flood, landslides, storms, and terrorism). In the Asian Tsunami of 2004, 1,926 Thais died, 2,023 were injured, and 58,550 suffered direct losses[1]. In 2006, over six million Thais were affected by flooding[2] and 142,849 by catastrophic storms[3]. In that same year, political violence in the south claimed 522 lives, caused 906 injuries, and damaged 31 schools, 16 governmental offices, and many private properties[4]. The year also saw 107,898 road accidents, causing 12,693 deaths and 83,290 injuries[5], 8,738 violent crimes, 43,531 crimes against persons, and 76,879 properties crimes[6].

Exposure to these and normal daily stressors caused psychiatric disorders in persons who did not have the resilience to cope; resulting in acute stress reaction, post-traumatic stress disorder and adjustment disorder with attendant suffering and impaired function. Detection and diagnosis of, and early intervention for, these conditions would help reduce suffering and functional losses. In Thailand, clinical diagnoses of

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stress related disorders are made using the Diagnostic and Statistical Manual of Mental Disorders (DSM IV) and the International Classification of Diseases (ICD-10), but there is no validated diagnostic instrument for these disorders; thus, developing a standardized interview schedule, which is universally accepted and adaptable to Thai culture, is an important and challenging task.

The Schedules for Clinical Assessment in Neuropsychiatry (SCAN) constitute a semi-structured clinical interview for use by trained clinicians to assess and diagnose psychiatric disorders among adults, developed within the framework of the WHO and the National Institute of Mental Health (NIMH) Joint Project on Diagnosis and Classification of Mental Disorders, Alcohol and Related Problems. The use of SCAN provides flexibility in the diagnosis of mental disorders, based on the current International Classification of Disease (ICD), Diagnostic and Statistical Manual (DSM) systems, and other diagnostic systems that may be developed in the future and it allows worldwide comparisons of psychiatric diagnoses[7-9].

The authors' objective was to test the validity and reliability of the Stress and Adjustment Disorder Section of SCAN's Thai version.

Material and Method

After translating the original English version of SCAN to Thai, and back-translating to establish its validity, the SCAN Stress and Adjustment Disorder Section was used to conduct interviews on psychiatric patients and controls.

The Ethics Committee at Khon Kaen University reviewed and approved the present study. Following approval, informed consent was obtained from the patients before conducting the interviews. Between June and November 2006, the authors conducted semi-structured interviews on 12 normal volunteers and 18 volunteers with stress-related disorders at Srinagarind Hospital, Khon Kaen, Thailand, using the Stress and Adjustment Disorder Section of the Thai version of SCAN.

There are three sub-sections of The SCAN interview version 2.1 Stress and Adjustment Disorder section. The acute stress reaction sub-section has 35 items concerning the exposure to severe stressor or trauma and mental and physical symptoms related to traumatic experience. The post-traumatic stress disorder sub-section has 16 items asking about long term effects of the traumatic experience including re-experience, avoidance, and hyper vigilance symptoms. The adjustment disorder sub-section has 10 items asking about the effects of the psychosocial stressor. The items of these three sub-sections include all ICD-10 criterions for diagnosing the stress-related disorders.

The process of validity and reliability testing were established through:

1. Content validity: Two psychiatrists, well-versed in SCAN, arrived at a consensus on the original meaning of each item and whether the Thai version conserved this. The comprehensibility of language was then tested among Thai samples from all four linguistic regions of the country. Reflections, comments, and suggestions from the Thais interviewed were assessed then summarized during a consensus meeting of the two psychiatrists (NP and TK).

2. Reliability study: The presented sample size comprised 30 subjects (18 patients with stress-related disorders and 12 normal volunteers). The patients (from either our in- or out-patient departments) were identified using either the ICD-10 or DSM-IV criteria. All subjects had to be over 18 years of age, Thais (*i.e.*, speaking Thai as their mother tongue and *lingua franca*). All subjects were interviewed by a psychiatrist familiar with SCAN and, with permission from each subject, the interviews were video-recorded.

2.1 Inter-rater reliability: Two psychiatrists (trained in the use of SCAN) independently rated the interviews; either live or on video; and,

2.2 Intra-rater reliability: One of the psychiatrists re-rated the video two weeks later.

Statistical analysis

Inter- and intra-rater reliability were determined from the agreement between raters; using the kappa statistic (κ) for categorical data[10]. The simple percentage of agreement was used whenever the κ statistic could not be calculated. All statistics were done using STATA 7.0.

The pre-defined level for the degree of agreement was 1 = poor agreement ($\kappa < 0.00$); 2 = slight (κ: 0.00-0.20); 3 = fair (κ: 0.21-0.40); 4 = moderate (κ: 0.41-0.60); 5 = substantial (κ: 0.61-0.80); and, 6 = near perfect (κ: 0.81-1.00)[11,12].

Results

The content validity and linguistic test for SCAN - the Thai version were assessed. The reliability study commenced with 30 subjects (14 males [46.67%]; 16 females [53.33%] between 19 and 60 years of age), including 18 patients with stress-related disorders and 12 normal volunteers to ensure a full range of scores

Table 1. Agreement of each sub-section as determined by κ (n = 30 cases: 18 stress disorder and 12 normal)

Subsections	Inter-rater reliability						Intra-rater reliability					
	Unable to compute kappa (number)	Mean	Median	STD	Min	Max	Unable to compute kappa (number)	Mean	Median	STD	Min	Max
1. Acute stress reaction	1	0.88	0.92	0.12	0.47	1.00	1	0.94	0.95	0.07	0.79	1.00
2. Post-traumatic stress disorder	-	0.97	1.00	0.04	0.86	1.00	-	0.94	1.00	0.10	0.64	1.00
3. Adjustment disorder	4	0.85	0.90	0.17	0.63	1.00	4	0.91	1.00	0.15	0.65	1.00
Total	5	0.90	0.93	0.12	0.47	1.00	5	0.94	1.00	0.09	0.64	1.00

Table 2. Inter- and intra-rater reliability profile for each sub-section in 30 cases

Sections	Items	Inter-rater rating (items)							Intra-rater rating (items)						
		Degree of agreement							Degree of agreement						
		Unable to compute	AP	Sb	M	F	S	P	Unable to compute	AP	Sb	M	F	S	P
1. Acute stress reaction	35	1	27	6	1	-	-	-	1	34	-	-	-	-	-
2. Post-traumatic stress disorder	16	-	16	-	-	-	-	-	-	16	-	-	-	-	-
3. Adjustment disorder	10	4	4	2	-	-	-	-	4	4	2	-	-	-	-
Total	61	5	47	8	1	-	-	-	5	54	2	-	-	-	-

AP = almost perfect, Sb = substantial, M = moderate, F = fair, S = slight, P = poor

Table 3. Itemized inter- and intra-rater degree of agreement

Degree of agreement	Itemized degree of agreement	
	Inter-rater rating	Intra-rater rating
Almost perfect (kappa = 0.81-1.00)	13.060 13.067 13.083 13.090 13.081 13.094 13.117 13.063 13.068 13.087 13.097 13.108 13.064 13.065 13.075 13.078 13.089 13.080 13.093 13.062 13.066 13.071 13.072 13.077 13.079 13.085 13.086 13.088 13.095 13.096 13.098 13.102 13.103 13.104 13.105 13.106 13.107 13.109 13.113 13.114 Total = 47 items = 77.05%	13.083 13.072 13.090 13.081 13.082 13.094 13.060 13.103 13.105 13.061 13.069 13.097 13.064 13.071 13.074 13.079 13.086 13.076 13.080 13.093 13.062 13.077 13.078 13.085 13.086 13.087 13.088 13.089 13.091 13.095 13.096 13.098 13.099 13.100 13.101 13.104 13.106 13.107 13.108 13.112 13.113 13.114 13.117 Total = 52 items = 85.26%
Substantial (kappa = 0.61-0.80)	13.059 13.061 13.069 13.070 13.073 13.074 13.116 13.115 Total = 8 items = 13.11%	13.109 13.115 13.116 13.059 Total = 4 items = 6.56%
Moderate (kappa = 0.41-0.60)	13.091 Total = 1 items = 1.64 %	Total = 0 items = 0%
Fair (kappa = 0.21-0.40)	Total = 0 items = 0%	Total = 0 items = 0%
Slight (kappa = 0.00-0.20)	Total = 0 items = 0%	Total = 0 items = 0%
Poor (kappa < 0)	Total = 0 items = 0%	Total = 0 items = 0 %
Cannot compute kappa value	13.092 13.118 13.119 13.120 13.121 Total = 5 items = 8.20%	13.092 13.118 13.119 13.120 13.121 Total = 5 items 8.20%

and spectra of symptoms. The interviews took between 8.26 and 60.04 min (average, 52.59 $\pm$ 13.02) and none of the subjects quit during the interviews.

There were 65 items in this section and after excluding the items that have constant values and for which validation was not necessary, 61 items remained for analysis. Of these, the Kappa value could not be calculated for five because there was no variation in the responses among the subjects.

Inter-rater reliability

The mean inter-rater reliability-κ for the 61 items was 0.90 (0.12). The majority of the κ values indicated near perfect to substantial agreement, one had moderate agreement while none had slight or poor agreement (Tables 1-3). The κ values could not be computed for five items because they were all rated at the same value, which was 100 percent.

Intra-rater reliability

The mean intra-rater reliability-κ was 0.94 (0.09). All except two items indicated almost perfect agreement. Those two items still reached substantial agreement (Tables 1-3). The κ values for the same five items could not be calculated because they were all rated at the same value. However, there was 100% of agreement in the rating.

Discussion

The inter- and intra-rater reliability scores for "SCAN (Thai version), the Stress and Adjustment Disorder Section" had κ values indicating substantial to near perfect agreement. One item had statistically poor inter-rater κ agreement, although its absolute percentage of agreement was high. The good agreement might be due to the specificity of the questions used in each item and the authors' use of psychiatrists well-versed in SCAN to rate (and re-rate) the interviews. The results were comparable with a Spanish reliability study (of SCAN Spanish version), which also reported a high degree of reliability[13].

Item 13.091 had moderate inter-rater agreement. It was designed to assess the stress-related to uncontrollable and excessive grief. Local culture might

explain the difference between raters. Training and agreement on the definition of the symptoms could improve this weakness. The solution then would be to re-check the score and criteria used for rating (among raters) by consulting the SCAN glossary when in doubt[14] and to pay special attention to these items during the training process.

The κ values could not be computed for five items (*i.e.*, 13.092, 13.118, 13.119, 13.120, and 13.121),which are about dissociative stupor, adjustment disorder with predominance of other emotions, adjustment disorder with disturbance of conduct, adjustment disorder with mixed disturbance of emotion and conduct, and adjustment disorder with other specified predominant symptoms not common in the presented population in this age group. Hence their being rated at the same value.

All of the items in the post-traumatic stress disorder part achieved almost perfect agreement, perhaps due to the clarity of the questions regarding symptoms. Therefore, this part can be used with a high level of confidence.

Limitations

The authors recruited only participants from Srinagarind Hospital, Khon Kaen (Northeast Thailand) so that there might be a question about the reliabilities when using this instrument with patients from different parts of the country. However, the authors did the content validity and linguistic test for SCAN - the Thai version by testing the comprehensibility of language in all four linguistic regions of the country that might overcome this problem.

The authors did not compare SCAN and a clinical interview for diagnostic agreement since such an analysis was beyond the scope of the present study. Indeed, further study of concurrent validity needs to be done.

Conclusion

The "SCAN (Thai version), Stress and Adjustment Disorder Section" has good validity and reliability, especially the part on post-traumatic stress disorder. Using this semi-structured interview would help with consistency of diagnosis among interviewers. Training in the use of SCAN in Thailand should be set up in order to build familiarity with its terms and approach.

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ความถูกต้องและความเชื่อถือได้ของ WHO Schedules for clinical assessment in neuropsychiatry ฉบับภาษาไทย หมวดความเครียดและปฏิกิริยาการปรับตัว

นวนันท์ ปิยะวัฒน์กูล, ธวัชชัย กฤษณะประกรกิจ, สุชาติ พหลภาคย์

วัตถุประสงค์*: รายงานนี้เป็นการศึกษาความถูกต้องและความเชื่อถือได้ของ WHO Schedules for clinical assessment in neuropsychiatry ฉบับภาษาไทยหมวดความเครียดและปฏิกิริยาการปรับตัว*

วัสดุและวิธีการ*: คณะผู้รายงานได้แปล หมวดความเครียดและปฏิกิริยาการปรับตัวของ WHO Schedules for clinical assessment neuropsychiatry (SCAN) version 2.1 เป็นภาษาไทยตรวจสอบความถูกต้องเมื่อแปลกลับเป็นภาษาอังกฤษ และทดสอบความถูกต้องเชิงภาษาในประชากรทั่วไปทั้ง 4 ภาคของประเทศไทย และความเห็นจากผู้ เชี่ยวชาญ และทดสอบความเชื่อถือได้ในกลุ่มตัวอย่างที่ประกอบด้วยผู้ป่วยที่มีความผิดปกติ ในกลุ่มอาการหมวดความเครียดและปฏิกิริยาการปรับตัว จำนวน 18 ราย (ซึ่งได้รับการวินิจฉัยว่าเป็น adjustment disorder, post-traumatic stress disorder หรือ acute stress reaction) และอาสาสมัครปกติ จำนวน 12 ราย*

ผลการศึกษา*: ผู้ถูกสัมภาษณ์สามารถเข้าใจความหมายของข้อคำถาม และรักษาความหมาย ได้ตรงกับต้นฉบับภาษาอังกฤษใช้เวลาในการสัมภาษณ์เฉลี่ย 17.92 นาที (SD = 14.03) และมีค่าความเชื่อถือ ได้จากการวัดความสอดคล้องตรงกันระหว่างผู้สัมภาษณ์ 2 คนเฉลี่ยเท่ากับ 0.90 (SD = 0.12) และความสอดคล้องตรงกันในผู้สัมภาษณ์คนเดียวกันที่ให้คะแนน 2 ครั้ง เท่ากับ 0.94 (SD = 0.09) ซึ่งเป็นระดับความสอดคล้องมาก มีข้อคำถามที่มีความสอดคล้องกันมากถึงเกือบสมบูรณ์ระหว่างผู้สัมภาษณ์ 2 คนร้อยละ 77.05 และระหว่างผู้สัมภาษณ์คนเดียวกัน ร้อยละ 85.26*

สรุป*: WHO Schedules for clinical assessment in neuropsychiatry ฉบับภาษาไทยหมวดความเครียด และปฏิกิริยาการปรับตัวสามารถใช้เป็นเครื่องมือในการวินิจฉัยกลุ่มอาการความเครียดและปฏิกิริยาการปรับตัวได้*