The Thai Version of the Positive and Negative Syndrome Scale (PANSS) for Schizophrenia: Criterion Validity and Interrater Reliability

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Abstract

The Positive and Negative Syndrome Scale or PANSS is a standardized instrument for the measurement of positive and negative symptoms of schizophrenia. The PANSS was widely accepted by researchers and was translated into many languages. It is now translated into Thai, the PANSS-T. The PANSS-T was carefully assessed for its reliability and criterion validity in relation to the PANSS in Thai schizophrenic patients. The results were satisfactory. The PANSS-T can now be used by Thai researchers in clinical studies of schizophrenia that involve the measurement of positive and negative symptoms.

Key word : Positive Symptoms, Negative Symptoms, Schizophrenia

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The differentiation between positive and negative symptoms in schizophrenia which is now widely accepted and is officially included in both ICD 10[1] and DSM 4[2] diagnostic criteria for schizophrenia was first introduced by Hughlings-Jackson[3] at the end of the 19th century. He suggested that positive symptoms such as hallucinations and delusions and negative symptoms such as blunted affect and poor rapport may have different etiologies. During the past century the diagnosis of schizophrenia has shifted back and forth between the early focus on negative symptoms under the influence of Kraepelinian concept of dementia praecox[4] and Bleuler's schizophrenia[5] to the later focus on positive symptoms induced by Schneider's concept of "first rank symptoms"[6], and finally to the renewed interest of negative symptoms and differentiation between positive and negative symptoms initiated by Crow[7] and Andreasen[8].

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In this renewed concept, positive symptoms are regarded as an excess of normal functions (the presence of something that should be absent), and negative symptoms as a loss of normal functions (the absence of something that should be present)[9]. Recently, the differentiation of positive and negative symptoms has led to numerous studies exploring the clinical and pathophysiological correlates of each group of symptoms. Studies have suggested that the presence of negative symptoms are associated with poor outcome[10], more cognitive impairments[11], and negative symptoms tend to be more treatment-resistant than positive symptoms [12]. However, many novel antipsychotics, such as clozapine[13,14], risperidone[15,16], olanzapine[17] and sertindole[18], have shown better efficacy than conventional antipsychotics in the treatment of negative symptoms in schizophrenic patients. This better response has led to many hypotheses that pathophysiology of negative symptoms may imply dopaminergic deficit rather than excess and may also involve other neurotransmitter systems such as serotonergic system[19,20].

From all the reasons discussed above, it is now generally accepted that it is important to differentiate and measure both positive and negative symptoms in the treatment and clinical studies of schizophrenic patients. The Positive and Negative Syndrome Scale (PANSS) is a scale developed by Kay et al[21] in 1987 to measure positive and negative symptoms in schizophrenia. The scale consists of 30 items, with 18 items from the Brief Psychiatric Rating Scale (BPRS)[22] and 12 items from the Psychopathology Rating Scale (PRS)[23]. Each item is accompanied by a complete definition as well as detailed anchoring criteria in a 7-point scale ranging from 1 = absent to 7 = extreme. The PANSS comprises 3 subscales, 7 items for positive symptoms, 7 items for negative symptoms, and 16 items for general psychopathology.

The PANSS has been standardized and has proved to yield high validity and reliability in many studies and has been translated into many languages such as Spanish, Portuguese, French, German, Italian, Dutch, Swedish, Japanese, Chinese, Korean, and Turkish[24]. This paper will report on the Thai adaptation of the PANSS (PANSS-T) and the testing of its reliability and validity against the English version.

MATERIAL AND METHOD

This project began with the translation of the full PANSS Rating Manual[25] including the formal interview guidelines, and the definitions and criteria for symptom ratings into Thai by the first author. The definitions and criteria for symptom ratings were then translated back into English by another independent psychiatrist to check the validity of the translation. The Thai definitions and criteria for symptoms were then corrected and the language adaptation was finalized by a workshop composing of 30 expert Thai psychiatrists.

Our next step was to evaluate the reliability and validity of the PANSS-T against the original PANSS[21]. Twenty Thai schizophrenic patients were interviewed in Thai, using the formal PANSS interview guidelines Thai version, by a group of Thai psychiatrists who had been trained to use PANSS and PANSS-T and the formal interview guidelines. Each interview was recorded with videotape. The videotapes recording the interview of these 20 patients were then rated by four Thai psychiatrists whose mother tongue was Thai but who were also fluent in English. These psychiatrists rated conjointly but independently in pairs after watching the videotape for each interview. For each case, one pair of psychiatrists rated it by using the PANSS-T and another pair rated it by the original PANSS, and they systematically alternated in their assignment to the PANS-T *vs.* the original PANSS to achieve counterbalance across the full group. In this way, each case had four sets of rating, two by PANSS-T and two by PANSS. This condition provided for assessment of reliability and criterion validity of the PANSS-T in relation to the PANSS, i.e., the degree of correspondence between the two versions as revealed by their interrelatedness and their similarity in mean scores and variances.

The statistical analyses were performed, using the SPSS. In the analysis of interrater reliability the correlations were tested by means of the Pearson correlation coefficient. For the validity test, mean scores and variances were compared and cross-correlations between scores of each item rated by PANSS-T and PANSS were determined by the Pearson correlation coefficient. The per cent of agreement between the PANSS-T and the PANSS for each item rated in the same group of patients were also reported. The agreement of ratings was determined by the method suggested by Kay et al [26]. In the method, the concordance is defined as a deviance of $\leq$ 1 points.

RESULTS

Twenty patients with schizophrenia or schizophreniform disorders were interviewed and recorded. Details concerning the patients' characteristics are reported in Table 1.

Interrater reliability

The interrater correlations for the PANSS-T rating and the comparative values for the PANSS are summarized in Table 2. Significant Pearson correlations were obtained for all three principal scales of the PANSS-T, and these coefficients were highly similar to those of the PANSS as applied by different raters in the same sample. This confirms that the interrater reliability of PANSS-T is comparable to the interrater reliability achieved by the original PANSS.

Comparability and Criterion-related Validity

The criterion-related validity of the PANSS-T against the PANSS was determined by the statistical analyses of the comparability of the PANSS-T with the PANSS when rated by different raters in the same patient sample. Table 3 shows the means and standard deviations for the PANSS-T and PANSS as rated by the four raters in this sample. The scale scores for all subscales were highly similar with no significant differences between the corresponding PANSS and PANSS-T means. In addition, the correlations between the PANSS and the PANSS-T scales were all significant beyond $p < 0.0001$ (positive, $r = 0.89$; negative, $r = 0.72$; general psychopathology, $r = 0.88$).

Table 4 reports the cross-correlations for the individual items. The item correlations extended from 0.04 (uncooperativeness) to 0.9 (hallucinations). Although a number of items yielded quite low correlations (conceptual disorganization, $r = 0.53$; excitement, $r = 0.27$; hostility, $r = 0.49$; poor rapport, $r = 0.33$; anxiety, $r = 0.38$; Tension, $r = 0.59$; mannerism and posturing, $r = 0.56$; uncooperativeness, $r = 0.04$; preoccupation, $r = 0.51$), when we determined the per cent of agreement for each item using the method to define agreement of rating proposed by Kay et al[26] the results was fine for every item (70%-100%).

Table 1. Sample characteristics in standardization study of the PANSS-T.

Patient characteristics	Number	%
Sex		
Male	11	55
Female	9	45
Marital status		
Single	20	100
Diagnosis		
Schizophrenia	18	90
Schizophreniform	2	10
Medicated with neuroleptics	20	100
Medicated with anticholinergics	20	100
Age (mean ± SD)	31.1±9.36	
Chronicity of illness (mean ± SD)	8.4±8.05	
Years of education (mean ± SD)	10.7±2.87	

Table 2. Interrater reliability of the PANSS-T comparing with the PANSS.

	Interrater reliability for PANSS (Pearson r)	Interrater reliability for PANSS-T (Pearson r)
Positive syndrome	0.89*-0.89*	0.77*-0.81*
Negative syndrome	0.74*-0.76*	0.81*-0.83*
General psychopathology	0.69*-0.73*	0.76*-0.78*

* = $P < 0.001$

Table 3. Statistical analysis of the correspondence between PANSS and PANSS-T.

Scale	PANSS		PANSS-T		Mean diff	Rater Agreement (Pearson r)
	Mean	SD	Mean	SD		
Positive syndrome	17.55	6.96	17.38	7.23	0.17	0.89*
Negative syndrome	15.35	4.17	14.65	4.43	0.70	0.72*
General psychopathology	34.70	6.63	33.53	6.68	1.17	0.88*

* = $P<0.001$

Table 4. Cross-correlations between the PANSS and PANSS-T on positive symptoms, negative symptoms and general psychopathology (n = 20).

Symptom		Pearson r	Per cent of agreement
Positive symptoms			
P1.	Delusions	0.88	80.00-95.00
P2.	Conceptual disorganization	0.53	70.00-100.00
P3.	Hallucinatory behavior	0.90	85.00-100.00
P4.	Excitement	0.27	85.00-90.00
P5.	Grandiosity	0.86	75.00-100.00
P6.	Suspiciousness/persecution	0.84	75.00-95.00
P7.	Hostility	0.49	85.00-95.00
Negative symptoms			
N1.	Blunted affect	0.68	90.00-100.00
N2.	Emotional withdrawal	0.71	95.00-100.00
N3.	Poor rapport	0.33	85.00-90.00
N4.	Passive/apathetic social withdrawal	0.77	95.00-100.00
N5.	Difficulty in abstract thinking	0.87	90.00-95.00
N6.	Lack of spontaneity and flow of conversation	0.64	85.00-90.00
N7.	Stereotyped thinking	0.75	85.00-95.00
General Psychopathology			
G1.	Somatic concerns	0.84	90.00-100.00
G2.	Anxiety	0.38	75.00-90.00
G3.	Guilt feelings	0.63	85.00-100.00
G4.	Tension	0.59	85.00-90.00
G5.	Mannerism and posturing	0.56	90.00-95.00
G6.	Depression	0.69	95.00-100.00
G7.	Motor retardation	0.75	95.00-100.00
G8.	Uncooperativeness	0.04	85.00-95.00
G9.	Unusual thought content	0.84	95.00-100.00
G10.	Disorientation	0.71	85.00-95.00
G11.	Poor attention	0.76	90.00-100.00
G12.	Lack of judgement and insight	0.80	85.00-95.00
G13.	Disturbance of volition	0.66	85.00-100.00
G14.	Poor impulse control	0.63	90.00-100.00
G15.	Preoccupation	0.51	80.00-85.00
G16.	Active social avoidance	0.73	95.00-100.00

DISCUSSION

In the adaptation of the PANSS to a different language and culture, it must be proved that the psychometric properties established for the English version are upheld. Although the translation of the PANSS into Thai was done in a strict fashion, it is inevitable that the text is at least to some degree altered by the differences in language and culture. Therefore, research on reliability and validity of the adapted version is required. However, instead of repeating all the studies done for the standardization of the PANSS[24], we standardized the PANSS-T against the original, a process known as criterion validation. The assumption here is that if the PANSS-T is shown to be reliable and statistically comparable to the original, which is well standardized, the PANSS-T should also share the psychometric properties of the PANSS. The results showed that the interrater reliability of the PANSS-T ratings were comparable to the PANSS ratings, and there was no significant differences between the means and standard deviations of the PANSS-T scores and the PANSS scores when applied in the same patient sample. There were also significant correlations for all the principal subscales. The cross correlations and the per cent of agreement between the PANSS-T ratings and the PANSS ratings for individual items are also generally quite good. In conclusion, the study indicated that the PANSS-T was a well standardized adaptation of the PANSS and yield equivalent results to the original version.

However, this study is only our beginning point to establish the reliability and validity of the PANSS-T, and there are other studies that should be done in the future. The norm and standardized scores for the PANSS-T should be done in the Thai patient population with a large enough sample of patients. After the PANSS-T is used more widely and with a larger patient sample, other studies such as the test of its construct validity by means of factor analysis can also be done. The use of the PANSS-T will enable clinicians and researchers studying schizophrenic patients to establish a standardized evaluation of the severity and the progression or the improvement of symptoms in their sample and will hopefully lead to the better understanding of the patients and the improvement of our patient care.

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เครื่องมือวัดกลุ่มอาการบวกและลบของโรคจิตเภทฉบับภาษาไทย (PANSS–T) : การตรวจสอบความแม่นตรงและความน่าเชื่อถือ

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คณะผู้วิจัยได้แปลเครื่องมือวัดความรุนแรงของกลุ่มอาการบวกและลบของโรคจิตเภทที่มีชื่อว่า The Positive and Negative Syndrome Scale หรือ PANSS มาเป็นภาษาไทยและได้ตรวจสอบความแม่นตรงและความน่าเชื่อถือโดยเทียบกับการใช้เครื่องมือดังกล่าวในฉบับภาษาอังกฤษ ผลออกมาเป็นที่น่ายอมรับ ดังนั้นนักวิจัยจึงสามารถนำเครื่องมือฉบับภาษาไทยนี้มาใช้ในงานวิจัยที่ต้องการวัดความรุนแรงของกลุ่มอาการบวกและลบของโรคจิตเภทในคนไทยได้

คำสำคัญ : อาการบวก, อาการลบ, โรคจิตเภท

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