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Short communication

Development and Some Psychometric Properties of Twi (Ghanaian) Version of the Visual Analogue Scale

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ABSTRACT: The Visual Analogue Scale (VAS) is one of the most widely accepted pain assessment scales. The availability of assessment scales in the native language of a people is however expected to further enhance the acceptability and utilization of such a scale. This study was carried out to develop and validate the Twi version of the Visual Analogue Scale among Ghanaians who had undergone gynecological surgery. The Original (English) version of the Visual Analogue Scale (OVAS) was translated into Twi, a language widely spoken in Ghana, West Africa. Sixty women who had undergone different gynecological surgeries assessed their pain using the OVAS and the Twi VAS (TVAS). The pain assessments were carried out for 5 consecutive post-operative days. Data were summarized using descriptive statistics while Spearman rank order correlation coefficient rho was calculated to analyse the relationship between the OVAS and TVAS.Results obtained showed that the scores of the OVAS and TVAS correlated significantly for all the 5 postoperative days. The highest correlation (rho= 0.82) was observed on the 5th post-operative day. It was concluded that the Twi version of the VAS as a valid translation of the Original VAS demonstrate good construct and concurrent validity and may be used for the assessment of post-operative gynecological pain among Twi-speaking people of West Africa.

INTRODUCTION

Pain in human beings, is a subjective experience, which often depends on personal and cultural factors (Hicks, 1995). Measurement of pain in humans is difficult (Benhamou, 1998) because in addition to the physical component of pain, emotional and psychological factors might interfere with its experience. Self-report of pain thus appears to be the only reliable measure of pain as use of traditional diagnostic methods would not provide a holistic picture. Self-report pain scales afford patients a means to communicate their pain intensity and provide clinicians with the means to track it, just as other vital signs, like temperature, blood pressure, respiration and pulse could be tracked (Jaywant and Pai, 2004). Effective management of pain also depends, to a large extent, on pain measurement with self-report pain scales.

The visual analogue scale (VAS) has been reported to be the most standardized, valid and easy to comprehend self-report pain assessment instrument (Gould et al, 2002). It presents pain based on the sufferer's perspective of pain as a continuous spectrum which does not take discrete jumps as a categorization of none, mild, moderate and severe would suggest (Gould et al, 2002).

In spite of the availability of pain assessment scales over the years, their reliability and validity cannot be presumed in all cultures as none of these tools hold psychometric stability in every environment (Bird, 2003). Attempts had therefore been made to identify the most appropriate pain scales in some environments leading to the development of culturally compliant scales. Examples include the Yoruba version of the

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verbal rating and visual analogue scales (Magbagbeola, 2001) and the Hong Kong Chinese version of Rowland-Morris disability scale (Tsang, 2004). There is however a paucity of Ghanaian versions of pain assessment scales. Although English language is the official language of Republic of Ghana, West Africa, it is not as widely spoken in day-to-day interaction as Twi, a Ghanaian language spoken across several ethnic groups in the country. Twi is the indigenous language of the Akang people of Republic of Ghana, West Africa. It is estimated that about- 15 million people have spoken and comprehension ability in the language and it is believed to be more widely spoken than English, which is the official language of Ghana. It is spoken in the Ashanti Region and in some parts of the Eastern, Western, Central, Volta and Brong-Ahafo Regions of Ghana. It follows therefore that availability of a Twi version of a reliable pain assessment scale such as the Visual Analogue Scale would be of immense benefit to Twi-speaking patients and clinicians alike. This study therefore sought to provide and establish the validity of a Twi (Ghanaian) version of the Visual Analogue Scale.

METHODS

A 2-phase study approach was used. The first phase involved translation of the original (English) version Visual Analogue Scale (OVAS) into Twi language to obtain the Twi version called Twi Visual Analogue Scale (TVAS). In the 2nd phase, the TVAS was administered alongside OVAS on patients who had surgery for gynaecological complaints.

Translation procedure

There are number of translation guidelines intended to ensure high standards of health status questionnaires (Bulinger et al, 1993; Ware et al, 1995). In this study, the minimalist approach was adopted for the translation of the Original Visual Analogue Scale (OVAS) into Twi language to arrive at the Twi version of the Visual Analogue Scale (TVAS). This involved one forward and one backward translation of the OVAS by two language experts at the Department of Languages of University of Ghana, Accra whose first language is Twi. Three undergraduate physiotherapy students and one physiotherapy intern all of whom have Twi as their first language reviewed the translations and reported no discrepancies between the back translation and the OVAS. This process appeared to fulfill the minimum requirement for developing cross-cultural health status instruments (Bulinger et al, 1993).

After completion of the translation, the TVAS was administered alongside OVAS among a group of patients who had just undergone gynaecological surgical procedures. This was to establish the construct and concurrent validity of the TVAS.

The Pain Rating Instruments

The Original Version of the Visual Analogue Scale (OVAS): The scale consists of a 10cm horizontal line. The extreme left hand side of the scale indicates '***no pain'***, while the extreme right hand side of the line indicates, '***Worst pain imaginable'***. Above the scale is the instruction to the patient to mark any point on the horizontal line that approximately describes her pain.

The Twi Version of the Visual Analogue Scale (TVAS): This is a direct translation of the OVAS into Twi language. It is a 10cm horizontal line. The extreme left hand side of the scale indicates ***"ɛnyɛya"*** whilst the extreme right hand side of the line indicates ***"ɛyaw kɛsi paa aa wubɛtumi adwine ho"***. Both are direct translations of ***"no pain"*** and ***"worst pain imaginable"*** respectively. Above the scale is also an instruction in Twi to the patient to mark a point on the 10cm horizontal line to describe the intensity of her pain.

Participants

The study sample consisted of 60 patients who had undergone various gynecological surgical procedures. They were recruited into the study first day post their surgery. Eligibility criteria for participation in the study included: (a) being bilingual-defined in this study as comprehension of both English and Twi languages; and (b) being well oriented in time, place and person at the time of recruitment and throughout the study period. Patients with medical history of psychological or psychiatric disorders were excluded from the study.

Procedure for Administration of the Pain Rating Scale

The research panel of the School of Allied Health Sciences, University of Ghana, reviewed the research protocol. Informed consent of the patients was also obtained before the commencement of the study. The clinical and socio demographic profiles of the participants were obtained. The 2 instruments, the OVAS and TVAS, were administered on each of the 60 women starting with the OVAS and a time interval of 5 minutes was allowed before the second instrument (TVAS) was administered. This process was repeated daily for 5 consecutive days thereafter, from the immediate day post-surgery to the 5th day post-surgery.

This was to assess the test-retest reliability and responsiveness of the instrument.

Data Analysis: The SPSS 13.0 software program version was used in data analysis. Descriptive statistics of mode, mean, standard deviation, frequency and percentages were calculated for the clinical and socio-demographic information of the participants. Correlations between the original VAS and the Twi version of VAS were analyzed using Spearman Rank Order Correlation Coefficients. Significance level was set at 0.05.

RESULTS

The socio-demographic and clinical characteristics of the 60 females who participated in the study are presented in table 1. The statistical analyses indicate that the scores of the OVAS and TVAS over the 5 days post operative were significantly correlated and the highest correlation (rho = 0.82) was observed on the 5th post-operative day (Table 2).

Table 1: Clinical and Socio-demographic profile of patients (N=60)

Variables	**n**	**%**
Indication for Surgery		
Ectopic pregnancy	**21**	35.0
Fibroid	**33**	55.0
Incomplete Abortive	**2**	3.3
Ovarian Cyst	**2**	3.3
Marital Status		
Married	**43**	71.7
Single	**15**	25.0
Widowed	**2**	3.3
Education		
First cycle Institution	**18**	30.0
Primary	**14**	23.3
Second cycle Institution	**19**	31.7
Tertiary	**9**	15.0
Occupation		
Active	**41**	68.3
Sedentary	**19**	31

Key: n= number of patients

DISCUSSION

Evidences abound in the literature about appropriateness of the original visual analogue scale (VAS) for the assessment of postoperative pain (Sakura et al, 1993; DeLoach et al, 1998; Bodian et al, 2001; Li et al, 2007). The outcome of this study showed that the pain scores as rated by the patients using the new instrument, namely the Twi Visual Analogue Scale (TVAS) correlated significantly with those on the Original (English) version of the Visual Analogue Scale (OVAS), a trend suggesting that the Twi VAS measures the same construct as the original VAS. It can be inferred from this observation that the TVAS is suitable for pain assessment post-operatively. The availability of these scales is particularly important, among other health care specialties, in postoperative physiotherapy, which not only addresses post operative pain as an entity but also prevents the interference of postoperative pain with normal cardio-respiratory and musculoskeletal functions.

Table 2
Spearman Correlation Coefficients between Original VAS and Twi version VAS across 5 Post–Operative

TVAS					
Day 1	Day 2	Day 3	Day 4	Day 5	**OVAS**
0.55*	0.63*	0.74*	0.77*	0.82*	

The correlation between the OVAS and the TVAS increased progressively across the 5 post-operative days, with the highest correlation recorded at the 5th post-operative day. This trend could be attributed to the fact that patients usually experienced difficulty in expressing their pain adequately during the immediate postoperative period (Deloach et al 1998). This difficulty is however expected to decrease as time after surgery progresses. It is also somewhat possible that the better correlation might be due to increased familiarity of the participants with the 2 scales, which resulted from the repeated assessments. The fore going might therefore suggest that where possible, pre-operative administration of the TVAS be carried out to enhance the patient's familiarity with the scale. This in turn will enhance its acceptability to, and utility by patients and clinicians respectively.

Conclusion: The findings of our study show that the Twi version of the visual analogue scale is a valid translation of the original (English) visual analogue scale. It also showed good concurrent validity when compared with the Visual Analogue Scale. Further studies should are being carried out to establish the

reliability and responsiveness of the TVAS and its validity among other patients population.

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