



## Asian pearls

## Testing psychometric properties of a Chinese version of perception of aggression scale



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## ABSTRACT

**Aim:** This study was to evaluate the psychometric properties of the Chinese version of the 12-item Perception of Aggression Scale (POAS).

**Method:** It consists of three phases of testing, including (1) translation and back-translation and content validity; (2) semantic equivalence between translated Chinese and original English version; and (3) construct validity, internal consistency and test-retest reliability.

**Results:** The translated Chinese and back-translated English version showed excellent similarities and agreements between two independent translators. The Chinese version indicated high item- and scale-level content validity indexes (0.86–1.00) and satisfactory semantic equivalence with the original English language version (weighted kappa=0.48–0.90; intraclass correlation coefficient=0.91). Exploratory factor analysis in 249 nursing students resulted in three components (dysfunctional, functional and protective dimensions), explaining 64% of the total variance, with satisfactory internal consistency (Cronbach's alpha=0.76–0.83) and good 2-week test-retest reliability (Pearson's  $r=0.87$ ). The Chinese version of POAS was found to be a valid and reliable tool to examine nurses' attitudes towards patient aggression.

**Discussion:** Chinese nurses in this study viewed patient aggression to be an undesirable negative behaviour suggestive of uncontrollability behaviour presented by the patient under their care.

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## 1. Introduction

Patients' aggression and/or violent behaviours towards health care workers are common phenomena in various clinical settings (Jansen et al., 2005a,b). These phenomena are not only limited to psychiatric care institutions/units but also extend to general care settings such as hospitals (Wells and Bowers, 2002) and general practitioners in the community (Ness et al., 2000). Previous research on aggression among hospitalised psychiatric patients has mainly focused on patient variables such as their emotional reactions resulting from frustration and psychiatric symptoms (Nijman and Rector, 1990). With more evidence emerging about the aetiology and processes of aggression, the latest research has widened in scope to investigate the risk factors influencing patient aggression and related changes in patients' mood during their hospital stay (Almvik et al., 2000). A wide variety of external factors has been found to be associated with patient aggression in

general and mental health care settings, for example; environmental and organisational variables such as staff morale, patient/staff ratio and ward policy, and staff variables such as their educational level and years of clinical experience (Larue et al., 2009). With more understanding of these risk factors, frontline nurses may feel much safer and more confident in the management of patient aggression, as well as in establishing therapeutic nurse-patient communication and relationships (Martin and Daffern, 2006). However as suggested by many nurse researchers, there is a need to explore nurses' perceptions towards patient aggression and its correlated factors, which can vary greatly across patient populations and clinical settings (Nijman et al., 2005), in order to improve the patient care and prevent any harm or injury to both staff and patients (Trenoweth, 2003). Among the organisational and staff factors identified, staff attitude towards patient aggression is found to be an important factor influencing incidents of aggression in psychiatric inpatient (Nijman et al., 2005).

Three self-report instruments have been frequently used for assessment of health care staffs' attitudes towards patient aggression and/or violence, including Attitudes toward Patients'

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Physical Assault Questionnaire (Poster and Ryan, 1989), Attitudes towards Aggressive Behaviour Questionnaire (Collins, 1994) and Perception of Aggression Scale (Jansen et al., 1997). The first two scales (Poster and Ryan, 1989; Collins, 1994) similarly focused on staff attitudes towards patients' responsibility for aggression, staff safety and their competence in managing aggressive behaviours. However, the Perception of Aggression Scale (POAS) is much more concerned with staffs' or nurses' appraisals and characterization of patient aggression than the other two instruments, reflecting a comprehensive picture of different aspects of staff attitude toward aggression, from being viewed as being the patient's normal reaction to his/her lived experience to a performance of a functional behaviour (Jansen et al., 1997).

The construct validity of the original 60-item Perception of Aggression Scale (POAS) was tested with 274 Dutch nurses in psychiatric services (Jansen et al., 1997). In Jansen et al.'s study, three subscales were constructed, including "aggression as a normal reaction", "aggression as a violent reaction" and "aggression as a functional reaction", with satisfactory internal consistency (Cronbach's  $\alpha = 0.70\text{--}0.89$ ). Abderhalden et al.'s (2002) subsequent study examined the construct validity of the 60-item POAS with 729 psychiatric nurses in Swiss; and a two-factor solution was extracted, including "aggression as a dysfunctional undesirable phenomenon" and "aggression as a functional comprehensible phenomenon" with very satisfactory internal consistency (Cronbach's  $\alpha = 0.80$  and  $0.88$ , respectively). Later, the German version of POAS was shortened to 32 items by Needham et al. (2004), resulting in an acceptable internal consistency (Cronbach's  $\alpha = 0.76$  and  $0.77$ ) and a similar construct validity with the 2-factor solution as the one suggested by Abderhalden et al. (2002).

Palmstierna and Barrdeal (2006) further shortened the POAS to 12 items and examined its construct validity with 357 Swedish nurses. A three-factor solution was identified, including "aggression as a dysfunctional undesirable phenomenon", "aggression as a functional comprehensible phenomenon" and 'aggression as a protective measure', with specifically high factor loadings of items ( $\geq 0.53$ ) to one of the three identified factors. The newly identified factor "aggression as a protective measure" was crucial and found sensitive to nurses' level of training in management of aggression/violence. This short version of POAS consisted of one-fifth of the total number of items in the original scale, three-dimension of nurses' attitude towards aggression than the previous versions, requiring less effort and time for completion and thus improving the practicability of its clinical and research use.

In Chinese populations, levels of patient aggression in psychiatric services are similar to those reported in western countries (Chen et al., 2011; Foster et al., 2009). However, no validated Chinese measurement tool is available for assessing Chinese and other Asian nurses' attitudes, despite these attitudes being an important predictive factor of patient aggression. Therefore, this aim of this study was to translate the 12-item POAS from original English to Chinese language, and to examine its psychometric properties in terms of content validity, item equivalence, test-retest reliability, internal consistency, and construct validity.

## 2. Methods

### 2.1. Study design

This study aimed to evaluate the psychometric properties of a Chinese version of the 12-item Perception of Aggression Scale (POAS) in three phases: (1) ensuring translators' agreement on the translation and back-translation and its content validity; (2) testing the semantic equivalence between translated Chinese and

original English version; (3) examining its test-retest reliability, internal consistency and construct validity.

### 2.2. Participants and study procedure

In the first phase of the study, instrument translation and backward translation were performed as suggested by Wang et al. (2006). One bilingual research nurse translated the POAS into Chinese language; and one bilingual translator back-translated the Chinese version into English independently. They checked each translated and back-translated item of the scale, assessed the accuracy of the translation and then discussed with the researchers about their agreements and/or comments. The items not agreed as accurately translated were amended with the consensus by the two translators, and researchers.

The refined Chinese version of POAS were administered to a 10-member expert panel, including 3 advanced practice psychiatric nurses, 3 nurse educators, 2 psychiatrists, and 2 medical social workers. The panel members were asked to rate the relevance of each item on a 4-point scale (1- 'not relevant', 2- 'somewhat not relevant', 3- 'somewhat relevant', and 4- 'highly relevant'). The content validity of the Chinese version was assessed by calculating the Content of Validity Index (CVI) on the ratings of the 10 experts. Item-level CVIs were calculated as the proportion of experts who had rated either '3' or '4' on the 4-point scale. Scale-level content validity was computed using both the averaging method (average of the item-level CVIs) and universal agreement method (i.e., proportion of items for which there was universal agreement of relevance among the experts), as suggested by Polit and Beck (2006).

In the second phase of the study, a convenience sample of 38 bilingual mental health nurses in a regional 800-bed psychiatric hospital were asked to complete both the English and Chinese version of the POAS. Half of the respondents were given the Chinese version first and then the English one; and the other half were administered the two versions in a reversed order. This split-half technique can avoid the respondents' recall biases (Portney and Watkins, 2000). The item equivalence between the refined Chinese and the original English version of the POAS was evaluated using weighted kappa; whereas, the semantic equivalence of the overall scale between the two versions was assessed using intra-class correlation coefficient.

During the third phase of the study, a convenience sample of 249 nursing students was recruited for construct validity and reliability test. This sample size was adequate for exploratory factor analysis according to Gorsuch's (1983) guideline of 5–10 cases per item, and allowed for a non-response rate of up to 20%. After written informed consent was obtained, each recruited nursing student was asked to complete a demographic data sheet and the Chinese version of POAS anonymously. Then half of them ( $n = 126$ ) were randomly selected for test-retest reliability test, in which they completed the Chinese version twice at a 14-day interval.

Inclusion criteria of the respondents in third phase were: (a) all year 2–5 nursing students at The Hong Kong Polytechnic University (b) able to understand and read Chinese; and (c) providing voluntary consent to participate in this study. Newly admitted university students and those without clinical experiences were excluded.

### 2.3. Instruments

The 12-items POAS was used to examine health professionals' views on patient aggression in terms of three domains, including a dysfunctional undesirable phenomenon (6 items reverse-coded), a functional comprehensible phenomenon (4 items) and a protective

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