



Psychometric properties of the Turkish version of the Perception of Aggression Scale

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Accessible summary

- There is a distinct lack of studies that explore the perceptions of aggressive behaviour in health care at the national and international levels.
- There is also a lack of tools to evaluate the perceptions of aggression in the Turkish language.
- This study examines psychometric validation of the Perception of Aggression Scale to gain an insight into aggression in different cultures.

Abstract

The aim of this study was to investigate the psychometric properties of the Turkish version of the Perception of Aggression Scale. Cross-sectional data were collected by the completion of questionnaires by 350 nursing students from two nursing schools in Istanbul, Turkey. The psychometric properties of the Turkish version of the scale were analysed by using factor analysis (principal component analysis), assessment of internal consistency and reliability, and Spearman's rank correlation coefficients. The two-factor structure was confirmed by principal component analysis: the first factor treated aggression as functional and the second as dysfunctional. The correlation between the means of the items and dimensions was moderate (r for factor 1: 0.47–0.73; r for factor 2: 0.29–0.70). The coefficient of internal consistency of the scale was 0.85 for factor 1 and 0.81 for factor 2. Thus, Turkish version of Perception of Aggression Scale is a valid and reliable tool. It is essential to understand perceptions of aggressive behaviour in order to establish effective management strategies to tackle untoward events in clinical settings.

Introduction

Violence directed towards healthcare staff in the workplace is a pervasive and common problem in both industrialized and developing countries. It is such a severe problem that it can lead to many nurses giving up their careers. Exposure to violence is recognized as a significant factor in making the healthcare industry an unhealthy and unattractive workplace for professionals (International Labour Office 2005, International Council of Nurses 2007).

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Aggressive behaviours that are covered by the term 'workplace violence' include various forms of abuse, such as verbal, physical and emotional abuse. These behaviours threaten the health, safety and well-being of patients and workers in the healthcare industry (Rippon 2000, Nolan *et al.* 2001, Abderhalden *et al.* 2002, Gerberich *et al.* 2004, Jansen *et al.* 2005a, Maguire & Ryan 2007). The negative consequences of such violence cause damage both to the individual and to institutions, with the damage ranging from emotional reactions (stress, anger, guilt, fear, etc.) to a loss of productivity and an unsafe work environment (Rippon 2000, Jansen *et al.* 2005a, Camerino *et al.* 2008, Roche *et al.* 2010).

Violent behaviour affects all healthcare staff, but there is a common assumption that nurses are the main target of violent behaviour in the workplace (Nolan *et al.* 1999, Rippon 2000, Jackson *et al.* 2002, Maguire & Ryan 2007, Camerino *et al.* 2008). In the UK, 9.5% of nursing staff are at risk of workplace violence in any 1 year (Wells & Bowers 2002). Nurses worldwide report very high rates of exposure to workplace violence. The working paper of the joint programme of International Labor of Office/International Council of Nurses/World Health Organization/Public Services International on workplace violence in The Health Sector (Di Martino 2002) reported that 62% of nurses in Brazil were exposed to violence in their workplace. This study also showed that more than 50% of nursing staff had been victims of abusive behaviour in the previous year. In a systematic review (Ozcan & Bilgin 2007), it was found that in studies conducted between 1999 and 2007 in Turkey the percentage of nursing staff who experienced any type of violence ranged from 58% to 81%. Verbal abuse is more frequent, but physical abuse is becoming increasingly common (Bilgin & Buzlu 2006). Some studies have reported that nursing students are more vulnerable to aggression than other workers (Rippon 2000, Muro *et al.* 2002, International Labour Office 2005, Ferns & Meerabeau 2008). In a recent study (Ferns & Meerabeau 2008), 45% of nursing students reported that they had experienced verbal aggression during clinical practice, mostly from patients.

Nursing students are responsible for establishing the future of the profession. They are expected to gain skills in order to become qualified members of the profession. The modern world presents new challenges that result from changes in working conditions, including in the healthcare environment. Patients and their rights are at the centre of modern health care. Everyone who works in health care is responsible for meeting all the needs of each patient through an individualized holistic approach. Nursing students are required to gain experience in different clinical areas during their education. They are inexperienced, and they move between clinical wards frequently to fulfil the requirements of the course curriculum. Each part of the course brings a new environment and culture, together with new patients and their relatives. Nursing students have to deal with the additional stressors of being exposed to and being a victim of aggression and violence (Ferns & Meerabeau 2008). The International Council of Nursing believes that appropriate security measures must be applied to protect nursing students, who are at particular risk of encountering workplace violence (International Labour Office 2005, International Council of Nurses 2007).

Although violent behaviours towards healthcare workers have been studied frequently during recent decades, most of

the studies on this topic have been conducted to assess the prevalence and to determine the prediction of such behaviours (Whittington 2002, Jansen *et al.* 2005a). In contrast, staff perceptions of aggression and violence are very important but have not been studied sufficiently. There are limited studies focused on psychiatric nurses' perceptions to aggressive behaviours of patients (Abderhalden *et al.* 2002, Needham *et al.* 2004). Researchers have emphasized the need for research on the effects of the perception of aggression (Jansen *et al.* 1997, Abderhalden *et al.* 2002). Jansen *et al.* (2005a) have emphasized that the attitudes of staff to the aggressive behaviour of patients has a significant impact on the management of aggression. Differences in perceptions are conjectured to explain variations in the definition and reporting of aggressive events (Jansen *et al.* 1997, Abderhalden *et al.* 2002). The Perception of Aggression Scale (POAS; Jansen *et al.* 1997, Abderhalden *et al.* 2002, Whittington 2002, Needham *et al.* 2004) is a tool that was developed to determine different dimensions of aggression. The Cronbach alpha values of the two-factor version of the POAS were reported to be 0.88 and 0.80, for dysfunctional and functional factors in a study by Abderhalden *et al.* (2002). Although the POAS shows good psychometric properties in its original version, it has not been validated in Turkish.

The aim of this study was to determine the validity and reliability of the Turkish version of the POAS with respect to a population of student nurses. The investigation of the psychometric properties of this instrument in a different setting from that in which the scale was developed should provide additional evidence of its properties in different cultures.

The following research question was addressed:

- What are the psychometric properties of the Turkish version of the POAS?

Methods

This cross-sectional study involved a convenience sample that consisted of all student nurses who attended lectures between March and May 2009 at two nursing schools in Istanbul. In Turkey, nursing schools are colleges or faculties that are affiliated with a university. The education of nurses involves a 4-year bachelor degree programme. Each semester, the students register in one core professional nursing course and, from the second semester, they attend a clinical practice course in addition to their theoretical courses, concurrently. Exposure to practice and willingness to participate in the study were the only criteria for inclusion in the study reported herein. Of 400 questionnaires distributed, 350 were returned, which gave an overall response rate of 87.5%.

The administration boards of the nursing schools granted approval for the study. The administration boards of schools function as not only an approval authority but also as internal ethical committee. The students were told that participation was voluntary, and they were also assured about confidentiality and the anonymity of the findings. Consent to participate in the study was assumed if students completed and returned the questionnaire.

The 32-item POAS is a self-administered scale to evaluate the perceptions of nurses towards patient aggression (Jansen *et al.* 1997, Abderhalden *et al.* 2002, Needham *et al.* 2004). The POAS was created by Jansen *et al.* (1997), and each item on the scale is a different definition of aggression that can be variously approved or rejected by the respondents. Responses range from 'strongly agree' (1) to 'strongly disagree' (5). The scale has a strong two-factor structure: aggression is dysfunctional (an unacceptable/undesirable phenomenon), and aggression is functional (an acceptable/comprehensible phenomenon). The former represents a negative moral judgement of aggression, and the latter is an understanding that aggression is an element of normal human behaviour that can be healthy (Jansen *et al.* 1997, Abderhalden *et al.* 2002, Needham *et al.* 2004, Bowers *et al.* 2007). Recently, Jansen *et al.* (2005b) decided to rename the POAS as the Attitude Toward Aggression Scale, because of the evaluative character of the POAS items.

During the first phase of the study, the POAS was translated into Turkish using an iterative process of translation. The standard forward-backward procedure was applied to translate the POAS from English into Turkish. First, three bilingual nursing professionals translated the scale into standard Turkish, and then the scale was back-translated independently by a bilingual language expert. Subsequently, researchers compared the translated Turkish and the original POAS, and minor revisions were made with the help of the back-translator. In addition, comments from the original authors were considered during the translation process.

The students were asked to complete a demographic data sheet and the Turkish version of the POAS scale twice during a 2-week period. Given that this study was conducted as part of a large-scale research project, the results of the psychometric evaluation of the Turkish version of the POAS will be presented in this current study.

The psychometric properties of the Turkish version of the POAS were analysed using appropriate statistical methods. Factor analysis [principal component analysis (PCA)], which included orthogonal (varimax) rotation, was used to examine the factor structure of the POAS. Items with a factor loading lower than 0.30 were excluded from further analysis. Associations between dimensions of

the Turkish version of the POAS, including assessment of test-retest reliability, were evaluated by assessing the degree of correlation. Spearman's test was used as a non-parametric alternative to Pearson correlation analysis to identify significant correlations within the Turkish version of the POAS. The reliability coefficients (Cronbach's alpha) were calculated for all the components of the POAS. All analyses were carried out using the Statistical Package for the Social Sciences (SPSS Version 11.0).

Results

The mean age of the students was 21.44 ± 1.73 years ($n = 350$). All 350 students were female. Only second, third and fourth-year students were included in the sample because first-year students were not yet engaged in clinical practice.

The construct validity of the POAS was determined by PCA. The results of the PCA of the data from the Turkish sample revealed a similar factor structure to that of the original instrument, as reported in the study conducted by Abderhalden *et al.* (2002). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of the 32 variables was 0.84, which is well above the acceptable limit of 0.05; Bartlett's test of sphericity, which indicates that correlations between items were sufficiently large for principal component analysis, gave $\chi^2: 3429.5, 496$ d.f. ($P < 0.001$), that is to say, factoring was appropriate. Examination of the Scree plot suggested a two-factor solution. The data were subjected to varimax rotation to obtain an initial two-factor solution.

From the original 32-item set, the three items (items 3, 20 and 28) were removed because the factor loading of the variable was lower than 0.30 and/or the variable did not fit well into one of the factors.

After checking other factor solutions without three items, the final two-factor solution was calculated using varimax rotation. The two factors of the final solution accounted cumulatively for 34.21% of the variance. The KMO measure of the 29 variables was 0.85, and Bartlett's test of sphericity was significant at $P < 0.001$ ($\chi^2: 3219.9; 406$ d.f.).

Twelve items loaded on factor 1 (aggression as a functional/comprehensible phenomenon), and 17 items loaded on factor 2 (aggression as a dysfunctional/undesirable phenomenon). The results of the PCA are presented in Table 1.

A weak negative correlation was found between the mean summated scores of the two factors ($r: -0.22, P < 0.001$). Therefore, there seems to be a slight tendency that disagreement with statements in dimension 1 is correlated with agreement with statements in dimension 2. The

Table 1
Results of principal component analysis of the Turkish version of the Perception of Aggression Scale

Items	Factor loadings	
	Factor 1	Factor 2
Aggression ...		
... is a form of communication and as such not destructive (Item 25)	0.76	
... is the protection of one's own territory (Item 26)	0.76	
... is the start of a positive nurse-patient relationship (Item 27)	0.71	
... is a way to protect yourself (Item 22)	0.67	
... will make the patient calmer (Item 30)	0.66	
... is a healthy reaction to anger (Item 31)	0.61	
... is an attempt to push the boundaries (Item 9)	0.55	
... is energy people use to achieve a goal (Item 8)	0.54	
... is an expression of emotions, just like laughing or crying (Item 19)	0.53	
... offers new possibilities in nursing care (Item 7)	0.48	
... is emotionally letting off steam (Item 4)	0.48	
... helps the nurse see the patient from another point of view (Item 17)	0.47	
<i>Variance for Factor 1</i>	18.36%	
... is hurting others mentally or physically (Item 14)		0.64
... is repulsive behaviour (Item 16)		0.63
... is unnecessary and unacceptable behaviour (Item 13)		0.63
... in any form is always negative and unacceptable: feelings should be expressed in another way (Item 23)		0.62
... is an impulse to disturb or interfere in order to dominate or harm others (Item 12)		0.56
... is any action of physical violence (Item 15)		0.53
... is expressed deliberately, with the exception of aggressive behaviour of someone who is psychotic (Item 11)		0.53
... is a tool patients use to exercise power over others (Item 24)		0.51
... is a powerful, inappropriate, non-adaptive, verbal and/or physical action done out of self interest (Item 10)		0.49
... is something that cannot be tolerated (Item 32)		0.49
... is violent behaviour to others and self (Item 2)		0.47
... is behaviour the patient knows might cause injury to another person without their consent (Item 18)		0.44
... is when a patient has feelings that will result in physical harm to self or others (Item 1)		0.41
... poisons the atmosphere on the ward and obstructs treatment (Item 21)		0.38
... is essentially beating up someone else (Item 5)		0.32
... is threatening damage to others or objects (Item 6)		0.31
... comes from feelings of powerlessness (Item 29)		0.30
<i>Variance for Factor 2</i>		15.85%
<i>Percentage of total variance explained</i>	34.21%	

Factor loadings >0.30 are reported.

Factor 1: aggression as a functional/comprehensible phenomenon.

Factor 2: aggression as a dysfunctional/undesirable phenomenon.

correlation between the means of the items and factors was moderate (r for factor 1: 0.47–0.73; r for factor 2: 0.29–0.70).

The reliability analysis demonstrated satisfactory internal consistency, with a value of Cronbach's alpha of 0.85 for factor 1 (functional dimension) and 0.81 for factor 2 (dysfunctional dimension). The test-retest correlations across the 2-week period (15 days) ranged between 0.16 and 0.62. Furthermore, a strong relationship was found between the factors in terms of time (r to re- r for factor 1 was 0.71, $P < 0.001$; r to re- r for factor 2 was 0.67, $P < 0.001$). These results suggest that there was consistency between the components of the POAS when they were evaluated at different times.

Discussion

Cultural aspects that might be unique to human nature have many important implications for the definition, judge-

ment and management of aggression. There is no Turkish instrument to measure how aggression is perceived. As a consequence, the aim of the current study was to establish a Turkish version of the POAS, which is used widely in Europe. The satisfactory results that were obtained with respect to the psychometric properties of the POAS indicated that the Turkish POAS can measure perceptions of aggression reliably and appropriately in Turkish nursing students.

Two factors were identified clearly in the Turkish version of the POAS, as in the original scale (Abderhalden *et al.* 2002). The Turkish version of the POAS yielded a similar factor solution to that of the original instrument: first, aggression can be perceived as a functional/comprehensible phenomenon, and second, aggression can be perceived as a dysfunctional/undesirable phenomenon. Cumulatively, the two factors accounted for 34.2% of the total variance, as compared with 35.0% of the explained variance for the factor solution for the original full POAS

(Abderhalden *et al.* 2002) and 39.4% of the explained variance for the shortened version of the POAS (Needham *et al.* 2004). This result suggests that the instrument mainly includes two different dimensions of aggression that have positive and negative meanings, even in different cultures.

The validity of the scale was also demonstrated by the existence of a weak negative relationship between the two factors and correlation of the means of the items and factors. It is clear that there was no concrete pattern in the perception of aggression by this sample. Our data showed only a weak negative correlation between the two dimensions, which was similar to the findings of the study conducted by Abderhalden *et al.* (2002). Aggression is a complex concept, and hence perceptions of aggression are difficult to categorize. Furthermore, it can be assumed that the perception of aggression is influenced strongly by the characteristics and experiences that are unique to different situations.

With regard to the test–retest reliability, as measured by the Spearman correlation coefficient, considerable variability was discovered across the items of the original scale. Most of the correlation coefficients were under 0.50. The items with the poorest reliability did not show any clear pattern in terms of being positive or negative phenomena of aggression. The item with the lowest correlation coefficient was ‘Aggression is behaviour the patient knows might cause injury to another person without their consent’ (item 18, factor 2). It might be complicated for students to differentiate whether an aggressive behaviour of a patient is intentional or not. Thus, accounting for the responsibility of a patient with respect to aggressive behaviour could be difficult and emotionally challenging for student nurses.

Given that some of the items in the Turkish form of the POAS showed such variability across the time interval, the context of the POAS items should be discussed. According to Needham *et al.* (2004) a lack of discrimination between state and trait items of the POAS might lead to an instability in the perception of aggression. Our test–retest results might imply the accuracy of this view transculturally. Furthermore, the sample consisted of nursing students. The

attitudes of students might tend to be more sensitive and volatile than those of other healthcare professionals.

The internal consistency of the two subscales was satisfactory, as in the original study of the POAS (Abderhalden *et al.* 2002). This means that the items that form the scale are appropriate to the aim of the instrument. It is important to consider the limitations of the study when interpreting our data. The sample consisted only of female students, which prevented the analysis of a gender effect in the results. Furthermore, it is well known that there are cultural differences in perceptions. The measurement of differences in perception is a complex issue. Another limitation of the study is that the sample has been drawn from only two nursing schools; therefore, generalization of the study results will require replication with a larger sample including different groups of workers of different gender.

Conclusions

Numerous studies have documented the frequency of assaults or violence in the healthcare setting, particularly involvement of psychiatric nurses as a well-documented risky group during the last decade. However, there has been a limited number of studies that have focused on the perception of aggression. In particular, there is no validated Turkish instrument to evaluate the perception of aggression. The Turkish version of the POAS, which was found to be a valid and reliable instrument in this study, might be useful for researchers and healthcare administrators in understanding perceptions of aggression and finding efficient ways to manage aggression in healthcare settings.

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