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Research Article

Student nurses' perceptions of aggression: An exploratory study of defensive styles, aggression experiences, and demographic factors

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Abstract Throughout the clinical learning process, nursing students' perception of aggression might have implications in terms of their future professional behavior toward patients. Using a descriptive cross-sectional design, we investigated the relationships between student nurses' perceptions of aggression and their personal characteristics, defense styles, and a convenience sample of 1539 experiences of aggressive behavior in clinical practice. Information about the students' personal features, their clinical practice, and experiences of aggressive behavior was obtained by questionnaire. The Turkish version of the Perception of Aggression Scale and Defense Styles Questionnaire-40 were also used. Students were frequently exposed to verbal aggression from patients and their relatives. And perceived patient aggression negatively, perception of aggression were associated with sex, defense styles, feelings of safety, and experiences of aggressions during clinical practice. Of interest is the reality that student nurses should be prepared for untoward events during their training.

Key words aggression, clinical practice, nursing students, Turkey.

INTRODUCTION

Aggression is a significant occupational health issue for nurses (Chappel & Di Martino, 2006, Nachreiner *et al*., 2007; Hahn *et al*., 2008; Cruz & Klinger, 2011). Nursing students are likely to encounter aggressive behaviors during clinical placements. (Jackson *et al*., 2011; Magnavita & Heponiemi, 2011). Interpersonal problems with patients are main source of stress among nursing students (Gibbons *et al*., 2011; Yildirim *et al*., 2013).

Nursing students are at high risk of being victims of various types of workplace violence, ranging from verbal aggression to physical assault (Nau *et al*., 2009; Jackson *et al*., 2011; Magnavita & Heponiemi, 2011). Inexperience and lack of training, and younger age, have been identified as risk factors (Cruz & Klinger, 2011; Magnavita & Heponiemi, 2011).

It is important to study student nurses' perceptions of patient aggression because they play an important role in determining reactions to the behavior of others (Abderhalden *et al*., 2002; Jansen *et al*., 2005; Jansen *et al*., 2006). Muro *et al*. (2002) stated that it was important to determine how nursing students perceived patient aggression to facilitate the acquisition of effective skills for aggression management. To assess student nurses' perceptions of aggression will contribute to developing a profile of aggression in healthcare settings and a better understanding of nursing students' perceptions of aggression will also be useful to gain insight into the methods used by nursing students to address aggression, for example, perceptions could affect whether nurses are tolerant, cautious, or intolerant toward violent behavior.

It is well known that aggression and violence in health care adversely affect both individuals and organizations (Wells & Bowers, 2002; Farrell *et al*., 2006; Jackson *et al*., 2011). The serious consequences of aggression for nursing students who are still in the training process include physical and psychological injury, moral trauma, and an aversion for the profession at an early stage of their career.

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In Turkey, the impact of aggressive behaviors toward healthcare staff has become significant in recent years because of the increase of these adverse events in healthcare settings (Erkol *et al*., 2007; Acik *et al*., 2008). Nursing professionals, the public, and the media have directed attention to this issue.

This study will incorporate defense styles which may have an important role in addition to demographics and experiences of aggressive behavior in the formation of perceptions of aggression. Defense mechanisms are typically classified hierarchically by levels of maturity, and are ranked on a continuum from immature to mature (Malone *et al*., 2013; Segal *et al*., 2007). In personality psychology, it is believed that defense mechanisms help control anxiety during the process of identity development (Cramer, 2000). To the best of our knowledge, no previous study has investigated the effect of defense style on perceptions of patients' aggressive behavior.

This study primarily explores nursing students' perceptions of patient aggression. The relationship between perception of aggression and relevant personal characteristics, defense styles, and experiences of aggressive behavior during clinical practice were also investigated.

METHODS

Design

A descriptive, cross-sectional survey of nursing students.

Sample

The study was conducted with 1539 nursing students from seven nursing colleges/faculties in Turkey between September 2012 and September 2013. The number of students enrolled at the schools during the period of study was 2227; the response rate was 69%. Data were collected from every stage of the training process. First-year students were included in the study after completing their clinical practice. In Turkey, nursing schools are colleges or institutions that are affiliated with a university, and nursing education involves a 4-year bachelor-degree program. From early in the training programs, nursing students in Turkey are required to enhance their professional experiences and skills in various clinical practices and areas that include internal medicine, surgery, the operating room, pediatrics, obstetrics and gynecology, orthopedics, neurology, and psychiatry. To be eligible for the study students were required to have had clinical experience.

Data collection

Students completed three questionnaires.

Questionnaire

The questionnaire was used to explore the personal characteristics of the students (age, sex, class, marital status), their experiences in clinical practice (how safe they felt in the clinic, the safest clinic), and the experiences of aggressive behaviors from patients and relatives (the frequency and type of aggressive behaviors). The definitions of the various types of aggression were adapted from the publications of the International Labor Office (Di Martino *et al*., 2003), the International Council of Nurses, the World Health Organization, Public Service International (Di Martino, 2002), and the European Foundation (Chappel & Di Martino, 2006). These definitions are compatible with Turkish culture in terms of type and content. Those were clearly defined to standardize each student's experience related to aggressive behavior. For each type of aggression, the respondents were asked how often they had been exposed to the specific behavior from patients and relatives during their clinical practice. No reference period for defining exposure to aggression was provided to the respondents (i.e. the previous 12 months). The types of aggression possibly encountered were: (i) verbal abuse: words or gestures that are threatening, humiliating, offensive or frightening, and/or being yelled or shouted at; (ii) physical aggression: hitting, pushing, kicking, scratching, spitting, hair pulling, slapping, beating, and/or being attacked with an object or an attack to property; (iii) verbal sexual harassment: words, tips, glances, and gestures with sexual content; and (iv) physical sexual harassment.

The questionnaire consisted of closed-ended questions. The response categories for questions related to aggression were "never", "seldom", "sometimes", "often", and "always". The form was reviewed by psychiatric nursing experts for content validity. The form was then tested for clarity in a pilot study with 40 student nurses. No revision of the form was required.

Turkish version of the perception of aggression scale

A recently-produced, 29-item, two-factor version (Bilgin *et al*., 2011) of the Turkish version of the Perception of Aggression Scale (POAS) was used to assess the nursing students' perceptions of patient aggression. The original scale was developed to evaluate the nurses' perceptions of patient aggression (Jansen *et al*., 1997; Abderhalden *et al*., 2002). Responses ranged from "strongly agree" (1) to "strongly disagree" (5) using a five-point Likert scale. The Turkish POAS has a strong two-factor structure: factor I, unacceptable (morally bad, undesirable); and factor II, normal (understandable/comprehensible). The former represents a negative moral judgement of aggression, and the latter is an understanding that aggression can be healthy and is an element of normal human behavior (Abderhalden *et al*., 2002). Although some find aggression normal, an accepted behavior, and considered it to be an opportunity for patient care (e.g. "Aggression is a form of communication and is not destructive for this reason"), others find aggression to be unacceptable and useless in terms of patient care (e.g. "It's unwanted behavior because it's destructive"). The total scores for the subscale items were divided by the number of items. Low scores indicated strong subscale power; a lower "normal" score implied a greater understanding of aggression as a useful human response, whereas a lower "unacceptable" score expressed a greater perception of aggression as morally undesirable. The Cronbach's alphas of the Turkish POAS version were 0.85 (factor 1: unacceptable) and 0.81 (factor 2: normal) (Bilgin *et al*., 2011). In the present study, the reliability coefficients were 0.84 and 0.81.

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Defense styles questionnaire-40

The Defense Styles Questionnaire-40 (DSQ)-40 is a self-administered scale comprising a total of 40 items and 20 defenses that assess how subconsciously-employed defense styles are reflected at the conscious level. Defense styles are grouped into three dimensions: immature (projection, passive aggression, acting out, isolation, devaluation, autistical fantasy, denial, displacement, dissociation, splitting, rationalization, somatization), neurotic (undoing, pseudo altruism, idealization, reaction formation), and mature (sublimation, humor, anticipation, repression). The Turkish version of the DSQ-40 was prepared by Yılmaz *et al.* (2007), and its psychometric characteristics were determined to be acceptably valid and reliable. The Cronbach's alpha coefficients of the mature, neurotic and immature defense styles were 0.70, 0.61, and 0.83. Each item was ranked from one ("Does not apply to me") to nine ("Applies to me very much"). In the calculation of the factor scores, the highest score indicates the dominant defensive dimension. In this study, the reliability coefficients of the three defense styles were 0.68, 0.55, and 0.79 (Yılmaz *et al*., 2007).

Procedure

After obtaining permission and approval from each of the school administrative boards, questionnaires were distributed to the students during class time. The purpose of the study was explained briefly to before the forms were completed. Additionally, students were guaranteed that the confidentiality and anonymity of their responses would be preserved, and their informed, written consent to participate was obtained. Students completed and returned the survey taking an average of 15 min.

Ethical considerations

This study was performed following approval of Istanbul University Florence Nightingale School of Nursing Institutional Research Ethics Board (Paper no. 2016) and permission of the administrative boards of relevant schools in the context of the study. Students were guaranteed that there would be no negative consequences if they declined to join the study at any stage of the data collection. Following data collection, the researchers allocated time to consult students, if needed, to relieve any negative feelings that arose.

Data analysis

SPSS software (version 15.0; SPSS, Chicago, IL, USA) was used for the statistical analysis. The perception of aggression was considered a dependent variable. The independent variables were the personal characteristics, defense styles, and aggression experiences of students during clinical practice. The mean ± standard deviation and a percentage calculation were used to present the student nurses' characteristics and aggression experiences, and to calculate defense styles and POAS subscales. To calculate the frequency of aggression, all response categories except "never" were combined. The Kruskal–Wallis and Mann–Whitney *U*-tests were used to examine relationships between students' personal characteristics and the mean factor scores, depending on the level of measurement of the independent variables and the distribution of the respective data. Pearson's correlation was used to determine relationships between the Turkish POAS factors and the defense style scores of the students. Furthermore, multiple linear regression analysis was performed to examine the interactions between some variables and the aggression perceptions of the students. This analysis was conducted based on the type of dependent and independent variables (the dependent variable was measured on a continuous scale, and independent variables were categorical and continuous). Significance was set at $P \leq 0.05$ for all analyses.

RESULTS

Sample

A total of 1539 nursing students provided baseline questionnaires for the analysis. The descriptive statistics are provided in Table 1. Most respondents were young, female, and single, and were in their second year or later in their training. Nearly half (49.8%) perceived the clinical setting as always safe. Pediatric clinics were reported to be the safest place, and psychiatric wards were reported to be the least safe. With respect to their experience of aggression, being the target of verbal aggression was the highest, and rates of physical aggression were low. Being exposed to sexual verbal harassment from patients and their relatives was more frequent than physical aggression.

The students exhibited mostly mature defense styles, and immature defenses were the least prevalent. Aggression was more strongly morally judged to be unacceptable than it was perceived as normal, understandable, and comprehensible (note that the scale is reverse scored; i.e. higher scores indicate less and vice versa).

Comparisons with perception of aggression, personal characteristics, defense styles, and aggression experiences

Female students were more likely to perceive patient aggression to be unacceptable than their male counterparts ($Z_{mnu=}$ –3.69, $P < 0.01$). In contrast, the male students were affirmative to factor II and were more likely to perceive aggression to be normal ($Z_{mnu=}$ –5.36, $P < 0.01$). Feeling safe during clinical practice was associated with the students' perception of aggression. Patient aggression was perceived to be less understandable the safer the student felt ($\chi_{KW} = 5.76$, $P < 0.01$) (Table 2).

Those exposed to aggressive behaviors during clinical practice perceived aggression to be less normal and understandable than those without such exposure ($Z_{mnu=}$-2.37, $P < 0.01$). No differences were found between the perception of patient aggression and the students' year of study, age, or marital status.

A mature defense style was associated differently with the perceptions of aggression scores. Students with mature defenses were less likely to perceive aggression to be a normal

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Table 1. Personal characteristics of student nurses and their aggression experiences ($n = 1539$)

Variables	mean ± SD	*n*	%
Age	21.29 ± 1.84		
Sex			
Female		1404	91.2
Male		135	8.8
Marital status			
Single		1509	98.1
Married		30	1.9
Year of study			
First year		183	11.9
Second year		517	33.6
Third year		425	27.6
Fourth year		414	26.9
Feeling safe during clinical practice		127	8.3
Never		638	41.5
Sometimes		766	49.8
Always			
Clinics judged to be "always safe"		364	23.7
Internal medicine		322	21.0
Surgery		390	25.3
- Obstetrics and gynecology		56	3.6
Psychiatry		514	33.4
Pediatrics			
Aggression experiences			
Patient – verbal		594	38.6
Patient – physical		90	5.8
Patient – sexual and verbal		161	10.5
Patient – sexual and physical		54	3.5
Patient's relative – verbal		514	33.4
Patient's relative – physical		64	4.2
Patient's relative – sexual and verbal		110	7.1
Patient's relative – sexual and physical		16	1.0
Any aggression from patients		653	42.4
Defense styles			
Mature	5.52 ± 1.26		
Immature	4.05 ± 0.99		
Neurotic	5.10 ± 1.17		
Perceptions of aggression			
Functional	3.28 ± 0.68		
Dysfunctional	2.36 ± 0.49		

SD, standard deviation.

phenomenon ($r = 0.07$, $P < 0.001$). In contrast, those with mature defenses were also likely to perceive aggression to be more unacceptable ($r = -0.11$, $P < 0.001$). Those with more immature defenses were more likely to perceive aggression to be normal and understandable behavior ($r = -0.14$, $P < 0.001$). The neurotic defense style was not associated with the nursing students' perceptions of aggression.

Model building

Multiple linear regression analysis was conducted to compare the relationship between perceptions of aggression and those variables significant according to the univariate analysis. Two models were constructed with the two POAS scores as the dependent variables. Results are shown in Table 3, and they indicated that sex, being exposed to aggressive behavior from a patient, and mature and immature defense styles were significantly and independently related to the perception of aggression as normal ($R^2 = 0.038$, $P < 0.001$). The adjusted R^2 value was low, indicating that although all those variables were statistically significant, their overall influence was low. The perception of aggression as unacceptable was associated with sex and mature defense style ($R^2 = 0.023$, $P < 0.001$).

DISCUSSION

We surveyed more than 1500 student nurses to examine their perceptions of patient aggressive behavior, defense styles, and experiences of aggressive behavior during clinical practice. Perceptions of aggression were related to sex, feelings of safety, exposure to aggression, and defense styles, but not to age or marital status. Male students were more tolerant and understanding of aggression than their female counterparts. A mature defense style was associated with a rejection of aggression as unacceptable and abnormal/incomprehensible, and an immature defense style was associated with the perception of aggression as acceptable. These relationships were preserved in multiple regression equations.

POAS scores

Overall, aggression was perceived to be an unacceptable mode of behavior by the nursing students. This finding is consistent with those of previous studies investigating nurses or nursing students' perceptions of aggression (Abderhalden *et al.*, 2002; Muro *et al.*, 2002; Bowers *et al.*, 2007; Pazvantoglu *et al.*, 2011). However, participants in previous studies viewed patient aggression to be a relatively normal behavior (Finnema *et al.*, 1994; Abderhalden *et al.*, 2002; Palmstierna & Barredal, 2006; De Benedictis *et al.*, 2011). Turkish student nurses were more likely to view aggression to be abnormal and incomprehensible than samples from different cultures. The increase of untoward events and assaults to healthcare staff might play a role in this attitude of students. Workplace violence in healthcare settings in Turkey is a substantial problem because of the strikingly high rate of each type of violence (Keser Ozcan & Bilgin, 2011). There is an increasing awareness among healthcare professionals and the public of the concept of zero tolerance for workplace aggression (Turkish Grand National Assembly, 2013).

Exposure to aggression, and POAS scores

Approximately half of the student nurses had been exposed to some type of aggressive behavior from patients during clinical practice, and the most encountered type of aggressive behavior was verbal abuse. Exposure to verbal aggressive behavior from patients and their relatives was common. In the relevant literature, student nurses have been defined as a vulnerable group, particularly in terms of verbal abuse (Celebioglu *et al.*, 2010; Magnavita & Heponiemi, 2011). It is obvious that nursing students are a possible target for assaults in the context of the hierarchical structure in health care.

Being younger might have been related to the high rate of sexual-verbal abusive behaviours experienced by the students

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Table 2. Comparisons of student nurses' personal characteristics and their perceptions of aggression

Variables	Aggression – functional (mean ± SD)	Z_{mnu}	χ_{kw}/post-hoc	r	Aggression – dysfunctional (mean ± SD)	Z_{mnu}	χ_{kw}/post-hoc	r
Sex								
Female($n = 1404$)	3.30 ± 0.69	−3.69*			2.34 ± 0.49	−5.36*		
Male ($n = 135$)	3.12 ± 0.59				2.55 ± 0.42			
Feeling safe							NS	
Never ($n = 127$)†	3.17 ± 0.82		5.76 **					
Sometimes ($n = 638$)‡	3.29 ± 0.67							
Always ($n = 766$)§	3.30 ± 0.67							
Defense styles								
Mature				0.07 ***				−0.11*
Immature								
Neurotic				−0.14*				NS
				NS				NS
Aggression experiences								
Yes ($n = 653$)	3.33 ± 0.67	−2.37*					NS	
No ($n = 883$)	3.25 ± 0.69							

*$P = 0.000$, **$P = 0.04$, ***$P = 0.003$, ‡ > †, § > †. NS, not significant; SD, standard deviation.

Table 3. Relationship between students' perceptions of aggression and sex, aggression experiences, and defense styles

	Standardized β coefficients	*t*	*P*-value
Perception of aggression as normal, adjusted ($r^2 = 0.038$)			
Sex	–0.055	−2.139	0.033
Being exposed to patient aggression	0.055	2.172	0.030
Mature defense style	0.094	3.623	0.000
Immature defense style	–0.151	−5.833	0.000
Perception of aggression as unacceptable, adjusted ($r^2 = 0.024$)			
Sex	0.116	4.533	0.000
Mature defense style	–0.090	−3.445	0.001

and probably represent the societal patterns embedded in the communications amongst people (Bronner *et al.*, 2003, Celik & Bayraktar, 2004).

Students' perceptions of patient aggression were affected by their own experiences of aggression during clinical practice. Students who were exposed to patient aggression exhibited an attitude of treating the act as less normal and understandable. Pazvantoglu *et al.* (2011) found a similar pattern in their study, which consisted of qualified nurses from various healthcare divisions in Turkey. Aggression experiences, regardless of their type, seem to impact the perceptions of patient aggression. Being a victim of aggression is a threat to individual integrity and sense of security. For victims, past experiences could impede to approach patient's behaviour as a normal human emotion. These results highlight the potential significance of students' experiences of aggression. It is important to distinguish between feelings of aggression, which are normal and acceptable human emotions, from the behavior of aggression, which is mostly considered disruptive behavior. The dimensions of normal/acceptable and unacceptable aggression should be constructively assessed as a feeling and/or a behavior. Educational preparation of nurses for potential experiences of aggression might help them maintain a more positive understanding of aggression in human life and in the behavior of patients throughout their future career. Failure to prepare for this experience might lead to entrenched negative attitudes and the rejection of any patient who exhibits aggression.

Sex and POAS scores

Compared to their male counterparts, female students are more likely to view patient aggression from a negative perspective and as unacceptable behavior. Muro *et al.* (2002) revealed similar results to those of this study by reporting that the scores of student nurses on the POAS showed the impact of sex differences. However, Palmstierna and Barredal (2006) found the opposite, in which male nurses with more experience were more likely to perceive aggression as unacceptable. Gender related responses to aggressive behavior among nurses might be specific based on age and cultural background. When these factors are evaluated in terms of societal roles assigned to the sexes, men tend to engage in aggressive behavior (especially with direct actions) to cope with and find a solution to a problem (Ferns, 2006). Women, however, are more likely to be regarded as victims by society, and are therefore felt to be more vulnerable in this context. These typical sex roles are also reflected in Turkish culture, in which males are identified as aggressors, and females are identified as victims.

Feelings of safety and POAS scores

It was found that students who felt safe in the clinical environment tended to view aggressive behavior to be an abnormal

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human feeling or function. Feeling safe in an environment might be based on risk management, including protective measures, risk assessment, and a well-designed environment and might thus be independent of the frequency of actual aggression. However, the feeling of being safe clearly does not allow or support a greater understanding of aggression as normal human emotion. People's safety concerns might lead them to perceive aggression to be a behavioral issue that needs to be addressed, because a violent and chaotic atmosphere might threaten the individual's well-being and disturb the peace.

Defense styles and POAS scores

The use of defense mechanisms correlates with the adaptation process to new conditions (Zeigler-Hill & Pratt 2007; Segal *et al.*, 2007; Malone *et al.*, 2013). Defense mechanisms are also regarded to be elements of personality and daily experiences of coping and adaptation (Ramkissoon, 2014). An immature defense style has the strongest connections with interpersonal outcomes, and it is also related to difficulties and distress that originate from interpersonal circumstances (Zeigler-Hill & Pratt, 2007; Malone *et al.*, 2013). Additionally, immature defenses have been argued to be unsuccessful and maladaptive. Mature defenses include the successful use of defense mechanisms, and they allow better modulation of distress, while maintaining engagement with reality (Malone *et al.*, 2013; Maltby & Day, 2004). It is possible to assess the correlations between defense styles and aggression perceptions found in this study.

In this study, immature defenses were associated with a perception of aggression, which might be seen to be more desirable among student nurses, specifically being nonjudgemental and understanding toward patients and their behavior. Having immature defenses might actually help and support immature respondents in understanding and tolerating aggressive behavior exhibited by patients, as aggressive behaviors might be viewed to be an outcome of poor psychological adjustment. Thus, individuals' perceptions of patients' aggressive behaviors might be reinforced through their own internal needs and conflicts. In support of this notion, the approach of social and personality psychology, which uses defenses in the sense of self-esteem protection, might be exemplified (Cramer 2000; Ramkissoon, 2014; Segal *et al.*, 2007).

Zeigler-Hill and Pratt (2007) found that the immature defense style (e.g. projection, passive aggression, acting out, denial) was the only defense style that contains major interpersonal content, and was correlated with submissiveness and hostility. An immature defense style might prepare student nurses for a victim role, reflecting a feeling = behavior-type response, in which a nurse might reply to the question about aggression as if aggression included the driving emotion. Greater tolerance and understanding of aggression could be highly compatible with a failure to reject or complain about repeated victimization. People with a mature defensive style might consider aggression strictly as a behavioral issue, and perceive aggression to be a problem that requires coping. Segal *et al.* (2007) claimed that less immature defense is related to emotional control, greater maturity, and self-regulatory capacities. This style might also include being aware of the appropriate nature of an underlying emotional state, being person not refusing the assailant as a person. A positive association between disapproval of aggression and a positive attitude toward patients with personality disorders found by Bowers *et al.* (2007) could support this notion.

This point is critical. The defense style findings might suggest that the understanding and acceptance of aggression should be discouraged in student nurses. Alternatively, we should prepare nurses with a balanced and nuanced position so they emerge from training with a modest view of aggression as partially normal and mid-way between acceptable and unacceptable, and are therefore able to freely choose how to respond in individual circumstances, avoiding both judgement and becoming silent victims.

Limitations

Although this study was conducted with a large sample, the results cannot be generalized to all nursing schools and students in the country. Because the experiences of aggression were assessed retrospectively using self-reported measures, there might have been problems with student recall or bias. The categorization of aggression experiences was based on the verbal–physical–sexual modes of behavior exhibited by patients and patient relatives. Aggressive behaviors from others (e.g. health team members, peers, educators) in the environment against student nurses were not included in the study. The reference period for defining exposure to aggression was not included (i.e. previous 12 months). We did not analyze the variation in perceptions over time. We cannot discuss our results on the DSQ in more details because we could not find any available norms or comparable groups. Lastly, there could be an element of coercion of students in asking to complete questionnaires in the classroom, which is a public space. Although the questionnaires were completed anonymously, some respondents might have chosen to give socially-desired answers, leading to possibly inaccurate perceptions.

Conclusion

This study contributes to the literature by exploring the risks and experiences of aggressive behaviors in clinical practice, and perceptions of patient aggression and related factors with a large sample of student nurses from Turkey.

Implications for practice

Clinicians and educators must provide secure environments for students during clinical practice. Aggression is an important issue for student nurses that requires attention during education prior to clinical practice. For this reason, determining the defense styles of students and providing efforts/interventions to prevent/minimize their exposure to untoward events should be directed toward those most in need and most likely to benefit at an early stage of their education.

Importantly, violence prevention in health care is achieved only by a systematic approach. The curriculum of nursing should include, throughout the course of the program, a comprehensive education in ways of coping with and managing aggression in

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healthcare. Further exploration of what acceptable behavior or unacceptable behavior means to student nurses might help develop healthier methods of addressing patients' distress.

CONTRIBUTIONS

Study Design: HB, NKO, ZT
Data Collection and Analysis: HB, NKO, ZT, FK, NEB, OE, SAC, OP, KG
Manuscript Writing: HB, NKO, ZT, OP, FK

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