

# THE EFFECT OF IMPLEMENTING THE SCARF MODEL ON THE PERCEPTION OF PATIENTS' AGGRESSION AMONG EMERGENCY NURSES IN DUBAI HOSPITALS

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## ABSTRACT

**Aim:** Workplace aggression is a significant problem in the United Arab Emirates (UAE) and internationally. Studies demonstrated that the emergency nurses are the most at-risk group, among other healthcare professionals, who are exposed to daily aggressive behaviour from patients, relatives, and other visitors. This study adopts the SCARF model as a long-term aggression preventive program. The general objective of this study is to measure the effect of implementing the SCARF model on the perception of aggression among emergency nurses working in Dubai Hospitals. The specific objectives include measuring nurses' perception of aggression, and measuring the effect of implementing the SCARF training on aggression rate and severity, and performance of emergency nurses.

**Method:** A quasi-experimental pre-test and post-test design was adopted. One hundred and seventy (170) emergency nurses (85 in the intervention and 85 in the control group) participated in this study. The nurses' perception was recorded by the modified version of the Management of Aggression and Violence Attitude Scale (MAVAS).

**Results:** The results showed statistically significant differences between control and experimental groups at  $p > .001$ . The results indicated that implementing the intervention in the experimental hospital had influenced the perception of the emergency nurses. Moreover, the results showed a difference in both aggression rate and severity of aggression incidents after implementing the SCARF model. A comparison between aggression rate before and after the study intervention, the findings showed 42 (28%) reduction of aggression rate. The severity of aggression incidents were reduced at all levels. There were 71 level 1 incidents reported after implementing the study intervention compared with 88 before the intervention with 17(16%) reduction rate. Implementing the SCARF model has influenced the way the participants managed the aggressive behaviors. The results showed a statistically significant difference in using new and old management approaches after implementing the study intervention. There was an increase of 57 (80%) in using new management approaches such as "talked down", "negotiation" and "reassurance"; and a decrease of 37 (46%) in using old management approaches such as "restraints", "holding", and "medications".

**Conclusion:** The study findings indicated that the SCARF model is imperative to reduce aggression incidents and develop a plan for preventing, responding to, training and controlling aggression incidents.

**Keywords:** Aggression, Perception, Emergency, Nurses, Prevention, Training

## INTRODUCTION

Workplace aggression is a significant problem in the United Arab Emirates (UAE) and internationally (Mento et al., 2020). Emergency nursing staff is the most common group among health care professionals that suffer from patient aggression. They are always the one who respond to aggressive patients' aggression due to their expertise, greater proportion of the staff, and availability. Aggression and safety issues are one of the most important strategic plans in Dubai Health Authority (DHA) hospitals in the year 2018 & 2019. Aggressive behaviour experienced in DHA hospitals comes from different sources, including acutely disturbed persons, mental health patients, drug-seekers and patients' relatives and friends. The literature highlights a number of factors related to aggressive and violent behaviour in the Emergency Department (ED), namely, patient factors, environmental factors, and interactional factors. There were 529 documented incidents of aggression across DHA hospitals in the year of 2018 & 2019. The reporting system showed that 77% of those incidents were happening in the emergency departments and 91% of them targeted emergency nurses (AMAN, 2021).

Many research studies highlighted the impact aggression on individuals, work, and on the general performance of the organization (Hahn et al., 2011; Barling, 2009). It can be concluded that the impact of aggression can be evaluated at three levels: individual, work, and organizational level. At the individual level, frequent exposure to verbal and mild level of aggression causes fatigue, irritability, embarrassment, humiliation, low self-worth and anxiety (Hahn et al., 2006; Deery, 2011). Frequent exposure to aggression reduces work commitment, increased absenteeism, reduced job performance, and increased resignation rate (Barling, 2009). The ED has a particular environment that contributes to patient aggression compared with other inpatients units. Emergency patients become aggressive for several reasons.

The "environmental," "personal," and "cue recognition" were identified as major reasons and triggers for aggression taking place within hospital emergency settings (Wolf et al., 2014). Adding to that, the emergency stressful situations, patient-centered care, and pressure to perform create a unique subculture within healthcare. Drug and alcohol intoxication, prolonged waiting time, and the interference of patients' relatives and visitors all are triggers of aggression in the emergency department specifically. Prolonged waiting time with high acuity level in the emergency department was found in the literature to be one of the main contributing factors of aggression (Angland et al., 2014; Bernaldo et al., 2015). The nurses' perception and attitude toward aggression plays an important role in the way they manage patients' aggression. Some nurses believed that violence was part of their job and should be accepted and tolerated. Due to such perception, they do not pay more attention to warning signs or cues of aggression. The staff attitudes and behaviour was one of the significant factors that modulated aggressive behaviour (Hahn et al., 2006). One important aspect of the attitude of nurses is the way they perceive the concept of aggression. For example, the nurses have different perceptions of the impact and severity of different forms of aggressive behaviours in the clinical practice (Needham, 2004). When the nurses perceive aggression as inevitable and part of their daily job, they suffer from feelings of inadequacy and incompetence. Their negative feeling interferes with their attitude with patients which trigger more aggressive behaviours (Ramacciati et al., 2015). On the other hand, when the nurses believe that the aggressive behaviours come from unmodified factors such as heredity and genetic factors, they follow the traditional approach in aggression management (seclusion, restrains, and holding practices). Therefore, nurses' perceptions and attitude are linked directly to their approach and interventions.

Many of aggression interventions and preventive strategies have been implemented to manage aggression and violence in hospitals and healthcare settings. Among different aggression preventive strategies that are used in the field of aggression is the aggression training programs.

Training generally addresses a range of skills, knowledge, and attitudes, and may also include breakaway techniques, self-defense and physical restraint techniques (Richardson et al., 2019). The evaluation of short and long term effectiveness of aggression training is important to

justify the cost and time spent in these programs. Moreover, hospital management and nursing administration should provide emergency nurses with the required training on aggression management strategies to ensure their safety. Although staff training programs have long been considered central to preventing patient aggression, a limited number of studies have evaluated the effect of training on learning or organizational outcomes (Kontio et al., 2012). The effectiveness of the aggression training was controversial and questionable. Many researchers found the aggression training programs effective and able to reduce aggression incidents, while other researchers found no significant changes can be measured after implementing aggression training programs interventions (Ramacciati et al., 2015; Hirsch & Steiret, 2019; Joseph et al., 2018).

Although many researchers studied the effectiveness of aggression prevention and management programs, still the evaluation of these programs has not been rigorous. Moreover, there is a deficiency in the studies that follow interventional and strong research designs. For example, there were no randomized controlled trials on the effective physical interventions approaches of aggression management such as manual restraints. The evaluation process focuses on the returned knowledge and cognitive gains of the course. These programs were not evaluated by longitudinal studies to test their effectiveness and outcomes in the clinical practice (Sailas & Fenton, 2000). Therefore, literature regarding intermediate and long-term effects of these programs is scarce. At the region level, there are no empirical studies have yet been conducted to examine the effectiveness of aggression training programs on the perception and attitude of emergency nurses toward aggression. The traditional aggression training programs aim to increase nurses' knowledge on risk assessment, physical interventions such as restraints and seclusion, and de-escalation techniques. The SCARF model is an aggression prevention program that aims to prevent aggressive behaviours preemptively. It targets the predispositions that lead to aggression such as patients' anger, waiting times, and unmet needs. Moreover, the SCARF model provides the building blocks of the interpersonal approach of managing aggression (Rock, 2008; Rock, 2009). The SCARF model explains the outcome of any social interaction based on meeting or compromising the main five human needs. These significant needs include: the need to maintain individual status "Status", the need to be informed about what is happening "Certainty", the need for control "Autonomy", the need to be loved "Relatedness, and finally, the need for equality and justice "Fairness" (Aziz et al., 2021; Rock, 2008; Rock, 2009). The model enables people to understand the core social domains that drive human behavior (Schaufenbuel, 2014). Given that the SCARF model is proposed to be implemented in DHA hospitals, it is necessary to assess its efficiency based on scientific facts and to put forward relevant recommendations. This study aims to investigate the effectiveness of the SCARF model implementation on emergency nurses' perception and attitude toward aggression in DHA emergency clinical settings.

## MATERIALS AND METHODS

The research questions were investigated employing a quasi-experimental pre-test and post-test design on two groups – the intervention and the control group. Hundred and seventy emergency nurses working in two emergency departments of DHA hospitals. Eighty-five nurses from the experimental hospital and the same were recruited from the control hospital. The two groups are comparable in size, gender, nationality, and the scope of service for both hospitals.

### Ethical Considerations

In order to gain access to the nurses, approval was sought and received from hospitals administrations and from Dubai Research Central Ethical Committee. All participants were required to give consent for their own involvement in the research process. This was based on the national and international recommendations and guidelines. After being given written information about the research project, each nurse wishing to participate received a written study

description including its aim, methods, intervention, the questionnaires and information on the voluntary nature of participation. To ensure the confidentiality and anonymity the names of the participants were encoded. Because the intervention and questionnaire focus on patient aggression, contact with the researcher was available by phone or email to answer emerging questions.

## **Instrument**

The modified version of the Management and Attitude of Violence and Aggression Scale (MAVAS) was used in this study as the main measurement of participants' perception and attitude toward aggression. The MAVAS tool designed to measure the participants' perception about causes and management approaches of aggression. The 27 statements cover multiple dimensions of the perception that are lacking in other measure instruments (Duxbury & Whittington, 2005). Similarly, the MAVAS represented a valid, reliable scale for gauging nurses' attitudes towards patient aggression.

Construct validity of the MAVAS was assessed using factor analysis (Vargas et al., 2015). The factorability of the 27 MAVAS items was examined. All the items correlated at least .4 with at least one other item, suggesting reasonable factorability; the Kaiser-Meyer-Olkin measure of sampling adequacy was .825, and Bartlett's test of sphericity was significant ( $\chi^2=3486.6$ ,  $p<0.01$ ). Face and content validity was confirmed by the expert panel comprising ten healthcare professionals (two emergency nurses, one psychiatrist, one clinical psychologist, one emergency physician, two mental health nurses, one quality officer, and two mental health nurse managers). The panel has rated three items of the original scale (item 10, 12, 24) as irrelevant to be included in the questionnaire. The justification was the "seclusion" room does not exist in the emergency settings and ED nurses don't use this mode of control. The Cronbach's alpha coefficient of the overall MAVAS came in at 0.773. The test-retest intraclass correlation coefficient of the instrument ICC) was 0.887.

## **Intervention**

The emergency nurses in the experimental hospital were divided into two groups and scheduled for a two-days training program as per the request from the administration. It was difficult to pull out all 85 nurses from the clinical area in one day. The program lasted for 6 hours per day. The program utilized different methodologies to ensure competency and skills acquisition. Each SCARF domain was defined, explained, and demonstrated in different scenarios. The previous real aggression incidents were demonstrated as role-play scenarios followed by reflection and discussion. Each component of the SCARF domains was demonstrated twice; one in a positive way in which the SCARF value was met, and another scenario in which the value was not met that resulted in aggressive behavior. The participants were asked to start implementation of SCARF domains in their clinical practice after completing the training program.

## **DATA ANALYSIS**

The central tendency and the frequency distribution were calculated for the participants' demographic data to ensure that the participants in both experimental and control groups were similar. Descriptive statistics such as frequencies, means, standard deviation and percentages were used in the analysis of data to find the participants' perception on the cause and the attitude of aggression in the experimental and control groups. The Chi Square was used in testing the matching relationship between the two groups and in testing the association of participants' demographic data with the causes and management approaches of aggression. As the data of this study were not normally distributed, the Mann-Whitney test was used for measuring the effect of the intervention on participants' perception of the cause and management of aggression for

both control and experimental groups (two independent groups/non parametric). On the other hand, the Willcoxon test was used for measuring the effect of the intervention on participants' perception of the cause and management of aggression for the same group before and after implementing the intervention.

## Results Demographic Data

The researcher tried to ensure matching in three aspects. First, the study setting in the experimental hospital emergency settings was mostly similar to the setting in the emergency department of the control hospital in terms of physical layout and acuity level of emergency cases. The second aspect of matching is the similarity between nurses in the experimental group and in the control group. Both groups of nurses had similar educational background, gender differences, and emergency experience and qualification. Finally, the scope of practice treated and the type of patients in both hospitals were approximately similar. Based on the results presented in table (1), the findings showed that the two groups were comparable regarding gender, nationality, age, qualification and nursing experience as there were no statistical significant differences in those variables between the two groups. In terms of gender, less than 5% differences between male participants in the two groups, the same percentage was found in the female participants in both control and experimental groups. It was noted that the age criterion also has minor differences between the participants in both groups. There was an increase in Indian nurses in the experimental group, and increase in Filipino nurses in the control group. Although there were some differences in the demographic data of control and experimental groups, these differences were not statistically significant. The same findings were repeated in the staff qualification, experiences, and their exposures to aggressive behaviors.

	<b>Demo. Data</b>	<b>Sub-Category</b>	<b>Frequency</b>	<b>ChiSquare/Pv</b>
Gender	Male	8	12	0.907/0.341
	Female	60	68	
Nationality	Indian	30	22	2.246/.523
	Filipino	22	26	
	Arab	10	10	
	Others	9	8	
Age	20-25 Y	18	19	1.063/.786
	26-35 Y	31	27	
	36-45 Y	17	19	
	more than 45 Y	13	16	
Qualification	Nursing	40	33	2.592/.274
	Bachelor Degree	21	33	
	Master Degree	11	10	
Experience	2-5 year	12	14	.229/.973
	6-10 year	14	16	
	11-15 years	19	21	
	above 15 years	30	28	
Exposure to	never	12	8	1.915/.590
Aggression	Monthly	28	34	
	weekly	16	20	
	Daily	16	15	

## Comparison Results Between Experimental and Control Groups

The nurses of the intervention and control groups did not differ in their socio-demographical characteristics (sex, age, nationality, education level, professional experiences and degree of exposure to aggression). The Mann-Whitney independent – sample U test was used to compare the results of the experimental and control groups before and after the intervention (table 2). The Mann-Whitney independent test showed  $p > .05$  for all factors of the MAVAS between the pre-test control group and pre-test experimental group. Only the difference in the situational factor was noted at  $p .009$ , but this difference is not statistically significant. The differences of the five domain scores of MAVAS were not statistically significant between the pre-test control group and pre-test experimental group. On the other side, the results of the post-test between both groups using the same test showed that the environmental factor of MAVAS had no significant results ( $p .447$ ) which indicated there is no change on the participants' perception of environmental factors as causative factors of aggression. For the remaining four MAVAS factors, the results showed statistically significant differences in both groups at  $p < 0.00$ . The results indicated that implementing the intervention in the experimental hospital had influenced the perception of the emergency nurses of the experimental group (table 3).

	<b>Internal Factor</b>	<b>External Factor</b>	<b>Situational Factor</b>	<b>Old Approach Factor</b>	<b>New Approach Factor</b>
Mann-Whitney U	3237.5	3166	2785	3405	3311
Wilcoxon W	6892.5	6821	6440	7060	6966
Z	-1.175	-1.402	-2.602	-0.655	-0.942
Asymp. Sig. (2-tailed)	0.24	0.161	0.009	0.513	0.346

	<b>Internal Factor</b>	<b>External Factor</b>	<b>Situational Factor</b>	<b>Old Approach Factor</b>	<b>New Approach Factor</b>
Mann-Whitney U	2175.5	3371	2352.5	2284.5	2131
Wilcoxon W	5830.5	7026	6007.5	5939.5	5786
Z	-4.651	-0.761	-4.086	-4.305	-4.691
Asymp. Sig. (2-tailed)	0	0.447	0	0	0

The Wilcoxon signed-rank test was used to compare the results among the same group before and after the intervention. For the control group, the results showed that there was a difference in the internal factor between the pretest and posttest with a  $P .099$  but this difference is not statistically significant. For other factors (external, situational, new management approach, and old management approach) there was no significant differences (table 4). The results supported the assumption of no differences occurred, as the intervention was not implemented in the control hospital. For the experimental group, the showed that there were statistically significant differences between the two groups ( $p < 0.00$ ) for all MAVAS factors (table 5). The results supported the assumption that implementing the intervention in the experimental hospital influenced the nurses' perception of aggression.

	<b>Internal Factor</b>	<b>External Factor</b>	<b>Situational Factor</b>	<b>Old Approach Factor</b>	<b>New Approach Factor</b>
Z	-1.648b	-.259c	-1.129c	-.870c	-.418c
Asymp. Sig. (2-tailed)	0.099	0.796	0.259	0.384	0.676

	<b>Internal Factor</b>	<b>External Factor</b>	<b>Situational Factor</b>	<b>Old Approach Factor</b>	<b>New Approach Factor</b>
Z	-5.946b	-5.118c	-5.912c	-5.052c	-5.051c
Asymp. Sig. (2-tailed)	0	0	0	0	0

### The Incident Record System Review

The results showed a difference in both aggression rate and severity of aggression incidents after implanting the SCARF model. There was a (28%) reduction of the number of incidents from (n=139) before the study intervention to (n=97) after the intervention. The severity of aggression incidents were reduced as well (table 6). The IRS results showed a difference in the aggression management strategies before and after implementing the SCARF model. The IRS data highlighted the most frequent interventions and strategies that were used in aggression incidents (table 7). The first three strategies represented the new management style (talked down, negotiation, and reassurance), and the remaining four represented the old management style (medication, holding, restraining, and seclusion). Generally, the participants have used the new management style interventions more after implementing the SCARF model.

	<b>June 2019 – Nov 2019</b>		<b>Dec 2019 – May 2020</b>	
Rate of Incidents	139		99	
Severity of Incidents	Level 1	88	Level 1	74
	Level 2	25	Level 2	17
	Level 3	19	Level 3	6
	Level 4	7	Level 4	2
	Level 5	0	Level 5	0

<b>Strategy</b>	<b>Talked down</b>	<b>Negotiation</b>	<b>Reassurance</b>	<b>Medication</b>	<b>Holding</b>	<b>Restraining</b>
Before Intervention	26	12	34	90	31	18
After Intervention	44	36	39	57	12	13

## DISCUSSION

The study results indicated that the only difference in the participants' perception of aggression was shown in the post-test experimental group nurses who implemented the SCARF training in their practice. Based on the study results, there were no differences among the pretest and posttest control groups. Similarly, there were no differences in the perception among the pretest control group and pretest experimental group as at the pretest phase none of them was exposed to the study intervention. On the contrary, there were significant differences found between the group that received the intervention and the other groups. For example, the differences of the five domains scores of MAVAS were statistically significant between the pretest experimental group and posttest experimental group; The same conclusion was reached in the last group in which the four domain scores of MAVAS was statistically significant between the pretest experimental group and posttest experimental groups. In conclusion, the results supported that implementing the SCARF training in the experimental hospital had influenced the participants' perception and attitude toward causes and management of aggression. The study results were validated by the rate and severity of aggression incidents in the experimental hospital after the training that was dropped dramatically compared with the same duration before the training. Moreover, The approach of the experimental nurses was shifted from using more traditional restrictive measures (Restraining, Holding, Medication) before the training toward interpersonal measures after the training (Negotiation, Talking, Reassurance)

### Effectiveness of Aggression Training Programs

The effectiveness of the training on aggression management were controversial in the literature. The current study concluded that the study intervention "SCARF Training" was effective in changing staff perception and attitude in managing patients' aggression. In consistent with the findings, another study found that staff at the intervention work sites reported 50% less violent incidents than the control work sites during the year of study (Arnetz & Arnetz, 2000). Similarly, it was found that the aggression management training mostly refreshed, activated, and extended existing strategies to manage aggression. It also increased nurses' situational, interactional and environmental awareness for clinical aggression (Gerdtz et al., 2013). A review of 42 studies found that the rates of coercion were lowest in the group in which staff had received theoretical training and done practical exercises to de-escalate the situation; attacks on staff and injuries were also rarer (Hirsch & Steiret, 2019). Similarly, in one study found that nurses after the aggression training strove to keep patients informed during waiting periods and reported paying increased attention to maintaining an appropriate physical distance as well as to their tone of voice, gestures, body posture and positioning in their interactions with patients or visitors (Heckemann et al., 2015). Correspondingly, similar findings were reported by a study of the effect of education programs on violence in the ED. The study results revealed that the number of reported violent interactions at the same intervals was reduced by 0.85, 0.31, and 0.51, respectively (Fernandes et al., 2002). Correspondingly, it was found that the implementation of behavioral management led to a significant reduction in the episodes of aggressive behavior and other unwanted outcomes including injuries, use of physical restraint, and duration of seclusion (Deans, 2004). In line with these finding, the staff of the experimental group after attending aggression training have significantly improved scores on confidence in managing aggressive situations (Cahill, 2004). The same was supported by another study where the nurses reported increased situational and environmental awareness as well as increased confidence and improved technical skills for preventing and managing aggression (Nau et al., 2008). Recently, a study in Jordan confirmed that the paired-samples t-test showed a significant decrease in the mean total score of perceived stress of all nurses after attending the training course (Masa'Deh et al., 2021). Correspondingly, it was found that a substantial decline in



patient injuries and rate of seclusion and restraint incidents in inpatient units after the implementation of aggression management training (Wale et al., 2008).

On the contrary, the results of the current study were not supported by the findings of other studies that did not find the training and education programs to be effective in reducing aggression rate or influencing staff perception. For example, a review of 39 published studies and concluded that no clear trend emerged in direction of minimizing violent incidents (Livingston & Boyd, 2010). Similarly, the findings in another study revealed that the follow-up period of 3-12 weeks may have been too short to capture the change effects, and the participants shared their learning only to a limited extent within their teams and reported no change in work routines (Grenyer et al., 2004). The authors of the NICE guideline on the short-term management of disturbed/violent behavior commented that training programs are not based on evidence of either effectiveness of training or the benefits perceived by staff (NICE, 2015). The requirement of a training program in improving nurses' confidence to resolve problems was not as much as enforcing policies and processes of prevention of workplace violence (Hahn et al., 2012). In support with these findings, a study by Heckemann found that nurses' attitude towards aggression did not change after aggression training (Heckemann et al., 2015). Correspondingly, Joseph added that there was no clear evidence of the impact of this training on assault rate could therefore be derived (Joseph et al., 2015).

### SCARF Model

The SCARF model as the intervention implemented in the current study, involved cognitive, psychometric skill, and affective learning outcomes. All of these domains were tested and measured by the study objectives. The effectiveness of aggression training and education was controversial in the literature. Many studies revealed the effectiveness of the training where other studies did not find those programs to be effective. For example, it was found that students in the intervention group demonstrated enhanced confidence but no change in attitude after the training course, while students in the control group remained stable on all measures (Needham, 2004). Similarly, the training program emphasized effective communication, patient's expected response, peace, impatience, proper relationship and exchange of opinions and controlling behavior in reaction to violence. The training managed to effectively improve nurses' self – confidence in having the ability to manage patients' aggression; however it failed to make any change in their perception on management of violence (Bodagh et al., 2020). In a study of the effectiveness of a training course in the management of aggression, it was noted that in some studies there was a reduction in incident rate and injuries after the introduction of training courses (Needham, 2004). Others have reported no change in incident rates and an increase in injuries after the implementation of a course or have reported no reduction in incidents for staff who were trained, compared with a control group of staff who did not take the training course. In conclusion, the most rigorous trial conducted so far found no convincing effect of training on aggression frequency.

The model enables people to understand the core social domains that drive human behavior (Schaufenbuel, 2014). The laboratory tests and brain imaging have recorded the same neural and hormonal responses that occur when people need to eat or to escape from aggressive act (Serrat, 2014). The SCARF model is a brain- based framework designed to improve the social interaction between individuals. The model enables individuals to have better conscious awareness of their social interactions when they communicate with others. It can help the person to identify the factors that activate the reward or threat response in a social situation (Rock, 2008; Rock, 2009). When any of the five SCARF needs are enhanced, a positive response is provoked; and when any of these needs are threatened, or decreased, anxiety increases and threat responses are automatically triggered. According to the SCARF model, people can modify the core social domains that drive human behavior. Based on the model, the threat response elicited by lacking any of the SCARF needs can be considered contribution factors and triggers for clinical aggression, and enhancing these needs will form strong barriers for possible aggression.

## Status

Meeting the “Status” value would be met when the patients could be achieved by perceiving the patient as a valuable person who has the right to be respected and treated fairly. Faschingbauer, et al., (2013) found that feeling disrespected involved feeling ignored and violated, which fostered increased feelings of anger and acting out. In support of this conclusion, feeling disrespected is more linked with an individual's status (De Bono et al., 2014). Patients who felt they were being treated rudely and with disrespect had greater feelings of hostility and anger than patients who were treated politely. “Fairness” and “Status” are linked together in social interaction. Generally, high status people or “VIP people”, by definition, do not receive fair treatment only, but they are given a priority in the public services. On the contrary, “low class people” are considered an easy target of unfair treatment. According to one study, the aggressiveness probably represents a reaction to an unfair situation rather than to the mere fact of a frustrating circumstance (White et al., 2014). In this case, aggression serves to maintain a sense of dignity or individuality. Moreover, aggression was operationally defined in terms of irritation and feeling of unfairness. Many factors make the anxious patients more aggressive than other patients; irritability, fear of the unknown and increase of negative thinking produce a vicious cycle of triggers that feed each other (Petal & Taylor, 2012).

## Certainty

“Certainty” value is integrated in the UAE health care system in many policies and regulations; for examples, Informed Consent Policy, Patient Information Policy, and Patient Right and Responsibility Conduct. The findings of one study revealed that the participants perceived lack of information and communication as contributing factors to aggression (England, 2014). This is consistent with other findings that the anxiety was associated with higher levels of reported physical aggression (Hatfield & Dula, 2014)). The same was validated by a study on the relationship between anxiety and aggression in Hong Kong that found the reactive aggression was positively associated with feeling anxiety that lead to expressing anger and hostility towards others or objects (Fung et al., 2015).

## Autonomy

“Autonomy” refers to the brain’s craving to feel that we have choices about what to do and not to do and that we have at least some level of control over our environment and circumstances. A study in one of psychiatric hospital revealed that patients perceive restrictive environments can cause aggression (Pulsford et al., 2013). A Turkish study found that parental autonomy support for adolescents was associated with lower levels of violent behavior (Özdemir et al., 2013). Patients have the right to decide on their treatment plan to feel in control over their life. Loss of control and lack of autonomy is among the most disturbing and frustrating factors that lead to both verbal and physical aggression (Rodriguez et al., 2013). A systemic review of twenty-one studies recording the experiences of 400 patients who suffer from terminal illness. Three themes emerged: a) dignity mediated by the loss of functionality, linked to the loss of control; b) dignity as identity; and c) autonomy as a determining factor of perceived dignity (Voyer et al., 2005). Autonomy and the feeling of control is one of the main factors that help patients in the treatment process. The active role of patients in the treatment plan and the decision-making process will give them a feeling of independence and dignity. Imposing rules on patients against their preferences, lack of respect, and preventing them in practicing their right to make decisions were additional triggers that provoked aggressive behaviors. This proposition is validated by other researchers who indicated that the authoritative restrictive approaches adopted by healthcare providers may trigger aggression and violence (Sandvide et al., 2004).

## Relatedness

“Relatedness” value is the strongest barrier of aggressive behavior. When the nurses feel related to their patients, they add a warm personal dimension to the relationship that is reflected in the treatment and care. On the contrary, absence of “Relatedness” with the presence of aggression triggers and frustration, make the nursing staff easy targets of aggression. In one study that investigated the causes of aggression from patients’ perspectives, the participants gave high importance of skills in personal communication and respect toward patients. The staff who were unsupportive, insensitive, and unresponsive could trigger an aggression encounter; moreover, those staff were perceived as disrespectful and rude (Swain, 2014). This was supported by another study that found that a hostile-dominant interpersonal style and symptoms of paranoia predicted poor therapeutic alliance, contributing 14% of the variance in therapeutic alliance scores. A dominant interpersonal style predicted aggression towards staff (Cookson et al., 2012). On the other hand, the strength of the therapeutic alliance between nursing staff and patients has been posited as an important protective factor that can limit the likelihood of aggression. The same conclusion was revealed in a study that found patients were hypervigilant and showed suspicion toward specific staff based on the previous experiences of harmful help-seeking. Highly suspicious patients would be more defensive and project their negative feeling and aggressive behaviors toward staff behavior and attitude (Budge, 2016).

## Fairness

“Fairness” refers to our need for fair exchanges. As per the SCARF model, threats to our brains’ need for fairness can be triggered by broken promises (explicit or implicit promises), expectations not being met, different rules or standards for different people, and inconsistency (Rock, 2008). Based on social-exchange theory, frustration-aggression theory and attribution theory, there is a correlation between service unfairness (distributive unfairness and procedure unfairness) and attribution on customer dysfunctional behavior (Li & Liu, 2015). According to the finding of one study, the aggressiveness probably represents a reaction to an unfair situation rather than to the mere fact of a frustrating circumstance. In this case, aggression serves to maintain a sense of dignity or individuality (Dambacher et al., 2015).

## LIMITATIONS OF THE STUDY

The nature and the complexity of aggression phenomena put the researcher on many challenges. Although the researcher tried to ensure matching between experimental and control groups, he could not control other confounding factors that might have affected the study findings. Another challenge was the fact that emergency patients encountered many healthcare providers in their visits, but the SCARF training was provided to the nurses only. This limitation can be avoided in future studies if the training includes all health care providers. Besides, many health care team members deal with emergency patients, but the training was delivered to the nursing staff only. The last limitation in this study was the duration of the study (six months). A longitudinal study design can confirm if the changes in the staff attitude and reduction of aggression rates are real and sustainable.

## CONCLUSION AND IMPLICATION FOR FUTURE RESEARCH

The results of this study demonstrated the complex interplay between the various factors that contribute to patient aggression. The findings reveal that communication factors contributed to aggression in the ED. In addition, organizational and workplace characteristics as well as patient- nurse interactions are important contextual factors that can affect the incidence of patient and visitor aggression. It appears that implementing the SCARF model in the emergency setting can produce change in emergency nurse’ perception and attitude toward aggression and

improve nurses' confidence in managing aggressive patient behavior. Moreover, implementing the SCARF model minimized aggression rate and reduced the forceful interventions in managing aggression. The interaction therapeutic approach guided by the SCARF model is recommended to be an integral part of training and practice. According to the study results, further research should be conducted to ascertain the impact of the SCARF model on the actual performance of non- ED nurses in different healthcare settings. Moreover, as most studies have assessed episodes of aggression toward nurses, future studies should include other types of healthcare workers who are also victims of aggression in the same settings. As per the expert panel who suggested to include relatives and visitors as an external factor, more research is necessary to investigate this factor in the social and cultural context of the health care system. The future research should incorporate qualitative approaches such as Grounded Theory, in order to investigate the entire interaction leading up to aggression. Planned interval training on SCARF components may increase emergency nurses' knowledge about patient aggression, enhance their positive attitudes, and minimize or prevent workplace aggression. Finally, findings of this study contribute to a body of growing literature by introducing a SCARF as a proactive preventive model of aggression management training. The findings also provide evidence-based knowledge derived from clinical outcomes that will be useful for both emergency nurses and their patients in a safer inpatient behavioral health setting.

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