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Evaluation of an Educational Program to Nurses on Management of Aggressive and Violent Behavior in Mental Health Care Setting: A Quasi-experimental Study

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ABSTRACT: ***Background:*** *Aggression or violence by patients towards the nurses working in mental health care settings is a worldwide issue that has a complex problem with serious negative consequences. Aim was to examine the effectiveness of an educational training program in changing knowledge and practices of nurses' toward patients exhibiting aggressive behaviour in mental health care setting.* ***Design:*** *A Quasi experimental study one group pre/post test design was used with 36 nurses recruited conveniently attending a one day workshop from psychiatric hospital, Jeddah. The workshop evaluation comprised the use of the Arabic version of Management of Aggression and Violence Attitude Scale (MAVAS). Descriptive and inferential statistics were calculated. The paired t-test was used to assess the statistical significance of changes in the clinical behaviour intention and confidence scores from pre- to post-intervention.* ***Results:*** *Thirty six nurses completed both pre- and post-workshop evaluation questionnaires. Nearly half (47.2%) of the subjects were aged 30-40 years with total (M ± SD 33.6 ± 1.7) old, 58.3% were female, married (69.4%) and (61.1%) had diploma qualification. Statistically significant increases in the comparison between pre and post total means on the category of MAVAS scale on the Internal, External, Situational, and management factors and total pre/post-test intervention program. In addition to signficant difference between total pre (16.33) compared with (21.44) total post assessment.* ***Conclusion and recommendation:*** *the educational program was effective in increasing the knowledge levels of the nurses toward managing aggressive behavior. Also training in de-escalation techniques enhance the ability of nurses to de-escalate violent and aggressive behavior and improve practical safety. Therefore, it is recommended to conduct ongoing training should be provided on a regular basis regarding aggression management and training should focus on enhancing staff's ability to manage aggression, communication skills, and risk assessment competencies.*

KEYWORDS: *Educational program, Management, Aggressive, Voilance, Nurses*

INTRODUCTION AND LITERATURE REVIEW

The extent of violence in healthcare settings has been escalating over time. Aggression in emergency settings is a major concern for workers and policy makers, with a staggering 1.7 million episodes occurring annually in the United States (US) alone (Holloman & Zeller, 2012). Aggression or violence by patients towards the nurses working in mental health care settings is a worldwide issue that has a complex problem with serious negative consequences. (Iozzino, et al., 2015). It was reported that the average number of aggressive incidents in mental health care settings is estimated to be more than two and a half times the average in all other areas of the health care services. (Heckemann, et al., 2015), (Bekelepi, et al. 2015). Accordingly, (Bekelepi, et al. 2015) reported that the nurses' staff who work in a psychiatric hospital were attacked by

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about seven to fourteen times a month by psychiatric patients. In the same vein, the prevalence of aggressive incidence in psychiatric hospitals is high as it was reported that among many psychiatric diagnoses there is a state called Psychomotor agitation (PMA) which appears has a different prevalence rate among patient with a variety of psychiatric conditions. Patient aggression is a common behavioral emergency that is associated with a high risk of injury to patients and healthcare professionals (Zeller & Rhodes, 2010). Psychomotor agitation (PMA) and aggressive behaviors can be unsafe and potentially disruptive, and are part of the most complex and dangerous occupational hazards in the healthcare environment (McPhaul, et al., 2013). Up to this point, minimal research has been focused on how to best prepare frontline healthcare staff to proactively address patient aggression in the psychiatric mental health care settings. (Vieta, et al. 2017) reported that 25% was found among schizophrenic disorders, while 15% was reported among bipolar disorder (BD) as the patients suffer from Psychomotor agitation (PMA) at least one episode per year. More specifically, a study was carried out in Saudi Arabia, Taief Governorate, revealed that the most important problems among Saudi population were anxiety, somatic disorders,obsession,and aggression which was estimated by 8.1% of its occurrence However, the patients may express their agression in different forms either by physical or verbal abuse. For instance, threats, harassment, bullying, verbal abuse consider as verbal aggression while, slapping, kicking, biting, stabbing considered physical one. (Heckemann, et al., 2015).

Hence, aggression considered as a cycle which contains five phases starts with triggering factors. first one is fear-inducing events which means the patient will feel as he or she under threat. the second one is frustrating circumstances which means the patient feels that his or her effort is useless. Then the patient will undergo an escalation phase as the patient physically fight and respond immediately to any events. Then he quickly goes on a crisis phase, where the patient is going to fight and acts against the threat which is going to end with violence and harm for himself or others. Then recovery which contains a relaxation of body and mind. Eventually, post-crisis occurs after this phase and the patient starts to experience fatigue and guilt and return to the stable level. (Vieta, et al. 2017). (Varcarolis, & Halter, 2018)

However, studies show that there are many risk factors which are associated with patient's aggression such as, a previous aggressive incident, a history of self-destructive behavior and substance use. Additionally, longer hospitalization, involuntary admission, impulsiveness, hostility, being of the same gender considered as the most important triggering factors associated with psychiatric patient violence. (Iozzino, et al., 2015). Another study was conducted by (Pluddemann, et al., 2013) showed that patients who had a history of drug abuse specially Methamphetamine, they behave aggressively and needs to be admitted to the inpatient acute ward with trained nursing staffs.

Therefore, timely recognition and appropriate assessment and management are required in emergent PMA, to reduce patients' anxiety, the risk of inward and outward aggression and to reduce the risk of violence. (Mcsherry, 2017). Consequently, nurses are in need to learn how to cope with this angry explosion and develop techniques and proper ways to handle aggressive patient and minimize their anger. However, previous studies show that some of the nurses have a mistaken knowledge in managing aggressive patients by using physical restraint and seclusions without other alternatives despite the harm caused by this action. (Brophy, et al. 2016).

Although, the patient point of view and staff regards the using of restraints is extremely different. As the patients consider the restraints breach to their autonomy, freedom, and rights, while the staff believes that the seclusion and restraints are beneficial for the patient and preserve wards functioning. (Mclaughlin, Giacco, & Priebe, 2016). However, the (American Psychiatric Nurses Association, 2015) developed a position statement that supports the reduction of using seclusion and restraints to enhance the individual's ability to manage aggressive behaviors.

A systematic literature review conducted by (Lanctôt & Guay, 2014) found that there are many studies reported that psychological, physical consequence, the emotional well-being of the patient were affected when the nurses used physical restraints and seclusion. (Khalil & Dawood, 2017) reported that, they didn't prefer neither restraint nor seclusion and prefer other alternatives non-coreasive intervention such as medication. Besides, the quality of care, the patient-nurse relationship will be affected. Moreover, psychological distress and aggression by the psychiatric patient in a study done by (Guay, Goncalves, & Boyer, 2016) reported a positive association between aggression and low self-esteem to handle the aggressive patient.

Violence prevention necessitates a comprehensive effort from all health care staff working with a psychiatric patient (Trestman, 2017). This caring can be implemented through different methods such as, an educational program which aimed to prevent and decrease aggressive behavior among psychiatric patient. (Bekelepi, et al. 2015). Many programs were conducted to teach nurses who are dealing with an aggressive patient to manage them effectively. The components of these program started usually by recognizing the warning symptoms of aggression and its consequences. (Wang, et al. 2008) reported that their educational program was effective in decreasing aggression among patient by improving nursess'knowledge and confidence, and increasing their tolerance and attitude toward management of aggressive patients (Guay, Goncalves, & Boyer, 2016).

In the current study setting nursing staff, ancillary departments, and physicians are often ill-equipped to deescalate a patient's behavior, or to effectively protect themselves or patients and others from harm. Providers' lack of skills to manage aggression creates an unsafe environment in which both staff and patients are at risk for emotional or physical injury. In addition to, their lack of professional qualifications in managing psychiatric patients and inabilty to take a quick decision regarding patients' behaviors. So,the researchers believed that teaching theoretical knowledge and training necessary nursing management skills might help to equip nurses with the necessary techniques to manage inpatients and emergancy aggression competently and effectively. Therefore, the researchers proposed to conduct this quasi-experimental study that aimed to evaluate the effectiveness of an educational training program in developing nurses' knowledge in the management of an aggressive patient.

RESEARCH QUESTIONS: The present study was designed to answer the following questions:

- Research question #1: What is the knowledge of nurses as regard to aggressive behavior as it was measured by MAVAS scale?
- Research question #2: What is the difference between pre and post assessment of nurses' knowledge after conducting the educational interventions?
- Research question # 3: How well does nurses' knowledge of management of aggressive behaviors correlate with their demographic background?

RESEARCH AIM: Investigating the effectiveness of an educational training program on increasing knowledge and practices of nurses' toward patients exhibiting aggressive behavior in mental health care setting. More specifically the current study looked at:

- Assess the knowledge of nurses (pre/post interventions).
- Find the relationship between the demographic and personal characteristics' of nurses with their knowledge level regarding the management of aggressive behavior.

HYPOTHESIS:

- H1. The total score of Knowledge of nurses will be higher than their total score in pre assessment after conducting the interventional program.
- H2 There is a significant positive correlation between post educational program scores of nurses' knowledge, as it was measured by MAVAS scale.
- H3 Nurses' demographic background has significant correlation with their knowledge, regarding the management of aggressive patient behavior.

SIGNIFICANCE OF THE STUDY: Aggression is an evolutionary behavior, but it is often destructive and maladaptive in today's society. The prevalence of aggressive behavior has been significantly increased and observed in mental health care settings, and it reflects a clinical challenge for mental healthcare providers. Serious public health concern can be presented due to harmful aggressive behavior and poor management technique. Therefore, based on our clinical experience observation, we have found that there is a high prevalence of aggression that leads nurses to use physical restraints as a first option. Although, American psychiatric nurses' association recommended that the environment should be zero restraints (Pompili, et al., 2017). Therefore, researchers intended to conduct this study to develop knowledge of nurses' staff working in AlAmal institution for psychiatric illness and addiction affiliated to the Ministry of health, Jeddah, Kingdom of Saudi Arabia.

THE OPERATIONAL DEFINITION THAT WILL BE USED THROUGHOUT THE STUDY:

- Knowledge is the information and knowledge acquired through experience or education (Concise Oxford Dictionary, 2005).
- Violence is defined as "the intentional use of physical force or power, threatened or actual, against oneself, another person or against a group or community that either result in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation." (Khalil & Dawood, 2017)
- Aggression is a harmful behavior that can be verbal aggression, such as insults, or physical aggression that causes injury to oneself and others, such as kicks or slaps (Uys & Middleton, 2014).
- Educational program is a nursing intervention outlined as planning, implementing, and evaluating a coordinated set of activities which designed to enhance wellness or to prevent, reduce, or eliminate one or more health problems of a group or community. (Khalil & Dawood, 2017).

THEORETICAL FRAMEWORK: This paper addresses three aspects of nursing staff determinants which are knowledge, toward the management of aggressive behavior exhibited by psychiatric patients in mental health care setting. Knowledge plays an important role in guiding how we react to the behavior of other people. The way nurses manage aggression will be influenced by their knowledge towards the behavior. This link between knowledge and nurses management is reflected in Instrument Design based on Bennett's Change Model (1976), this model has been revised to study the impact of the independent variables' nurses knowledge on the dependent variables of how they manage aggressive behavior. In the current research, to identify the nurses' management of aggressive behavior, the researcher must identify what knowledge the nurses have as with regard to the application of professional nursing intervention of aggressive behavior which includes verbal de-escalation, time out technique, chemical restraints, incident reporting and post-incident reviews and physical restraints as a last resort (Figure 1) (Varghese & George, 2017).

METHODS

RESEARCH DESIGN: A quantitive, quasi-experimental, one-group, pre-posttest was used to achieve the objectives of this study. This design was used to address the current study research questions, which looked at assessing the effectiveness of programmatic and policy interventions on nurses' knowledge regarding aggressive behavior management. Accordingly, the researchers introduced an intervention to measures its impact on the dependent variable at least two times (pre and post- test measurements). (White & Sabarwal, 2014)

RESEARCH SETTING: The study conducted at Al Amal institution for psychiatric illness and addiction affiliated to the Ministry of health, Jeddah, the kingdom of Saudi Arabia. The psychiatric hospital established in 1988/11/12. It provides care for psychiatric and addict patients. It was the only psychiatric hospital in Jeddah and serves more than three million individuals. It provides emergency, outpatient, and inpatient services. The capacity of the hospital was a total of 120 beds with 125 staff nurses. Almost 25% of them are in administrative positions and only 60 nurses have been involved in patient care. The majority of the nursing staff's educational qualification is a secondary level of nursing (associate degree); only seven hold a bachelor's degree

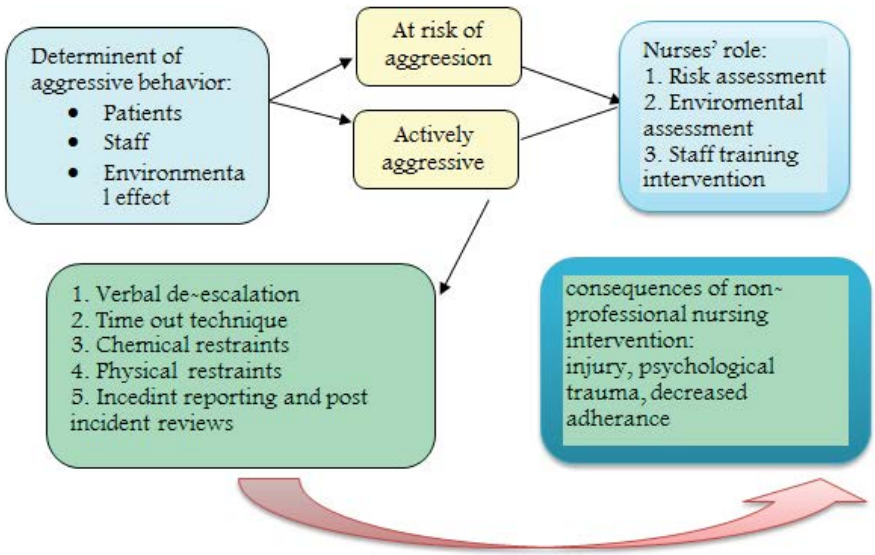

Figure 1. Management of aggressive patients.

in nursing. According to the website of the ministry of health, The hospital consists of 7 building with 125 beds. The hospital consisted of 3 acute male wards and one subacute while they have only 2 female wards one acute and the other is for management of subacute female psychiatric disorders. In addition to, emergency and outpatient building (Dack, 2013).

POPULATION: A convenience sampling technique was used to recruit 36 nurses of the nurses working in psychiatric hospital, Jeddah. Either inpatient or emergency and outpatients. They were invited to participate in the study with inclusion criteria for only who had one year or more of clinical experience of handling aggressive patient's behaviors.

SAMPLE SIZE: All nurse with inclusion criteria and working in the psychiatric hospital and willing to participate in the study. As the known population is 49 nurses. Margin error of 5%, confidence interval of 95%, hence minimum sample size is 36 nurses out of 49 nurses with consideration of others who were in vacations, sick leaves, and other nurses who refused to participate in the study.

DATA COLLECTION TOOLS: The tool consisted of 2 main parts:

1. Demographic and personal characteristics that enquires nurses about age, gender, level of education, years of experience (general and specific in a psychiatric hospital) and did they attend any training workshop in the management of aggressive behaviors.

2. The second part is The Management of Aggression and Violence Attitude Scale (MAVAS). The Arabic version of the MAVAS questionnaire was adopted as the scale was translated into Arabic by (Dawood, 2013), the validity of the scale was reported by the same author and reliability correlation coefficient was reported to be 0.86 based on her pilot study. The tool is self-administered and consists of 27 close-ended statements. The responses were spread over a

5-point Likert scale, with scoring between 1 (strongly disagree) to 5 (totally agree). The lowest score (1) indicates disagreement and the highest (5) score agreement. The scale used to obtain nurse' perceptions of aggression and the management patient. The MAVAS is an effective tool for comparative research studies carried out in different contexts, environments, countries, and populations. MAVAS consists of 4 Sub Scales including: Internal factors which are: Q1-Q5. External factors: Q6-Q8. Situational/ Interactional factors: Q9-Q13, and Management: Q14-Q27.

VALIDITY AND RELIABILITY OF THE SCALE: The structural validity of the English version the scale is confirmed by Dawood, 2013) in her study as it was reported that, the factor analysis identifies the four factors that are statistically and conceptually significant. These were: interactional/situational factors like a nurse-patient relationship, the means of communication and the level of patient involvement in decision making. Also, external (environmental factors) such as degree of privacy and adequate space, schedule of care, environmental comfort from both physical and psychological points of view. And internal factors such as age, gender, and disorder. Scale reliability is confirmed by its stability aspect over time (repeatability) (Lepiešová and Tomagová, 2014) and the Cronbach alpha was 0.86 as reported by Dawood, 2013.

PILOT STUDY: The tools were piloted and tested by 10 participants to identify ambiguities, the time required and any difficulties that might be encountered by the participants in reading or understanding. Those 10 participants were included within the participants of the current study.

DATA COLLECTION PROCESS: Once the proposed study approved from KAIMRC and IRB, a letter was submitted to the psychiatry hospital in Jeddah for permission and data collection was initiated after arrangement with the manager of nursing in the hospital. The Data collected during the academic year spring 2018/2019. The participants in the Quasi-experimental group were asked to sign the informed consent form before starting the program, and to fill the questionnaires before, and after the educational training program. The educational training program conducted on a day, 3 consecutive sessions. These sessions divided into 3 main sessions each part involving 3 sessions and each session was 45 minutes to an hour. The program sessions covered the following objectives:

- Develop nurses 'knowledge about aggressive behavior
- Assist nurses to recognize risk factors and theories that explaining aggressive behavior (why of the behavior) Empower nurses to apply the different professional technique to manage aggressive behavior including (communication, time out, limit setting and chemical restraints).

The program was conducted at 5 consecutive days since the availability of nurses is limited at every session because the shortage of nurses number at each ward therefore, the nurses were divided into 5 subgroups. Each group was contacted for 5 hours divided as follow:

Half an hour was given for fulfilling the pretest questionnaires.

- The First session was warming up and stating the program objectives and 90 minutes was spent in discussing the knowledge and attitude toward aggressive patients including definition of aggression, phases of aggressive behavior, and causes of aggressive behaviors and risk factors of aggressive.
- The second session (2 hours) had the methods of assessment of aggressive behavior including: warning manifestations of aggressive behavior, how to interrupt the cycle of aggression, different form of aggressive behaviors presented by the patients, different strategies to manage aggressive patient such as applying therapeutic communication techniques, time out technique, seclusion and restraints, and how to apply risk assessment and promoting safety of nurses and patients.
- The Third sessions after finishing the learning session, last hour was divided into 2 equal parts, half an hour was for discussion, questions and feedback of the nurses and the other for fulfilling questionnaires after implementing the program.

METHODS OF INSTRUCTIONS: The sessions were presented to the nurses with booklets, brochures and audio-visual materials designed for management of aggressive patients' behavior. Role play, modeling, demonstration and remonstration was used to teach the behavioral and communication interventions for patients having aggressive behavior.

ETHICAL CONSIDERATIONS: The study was submitted for official approval from the research unit at the College of Nursing, Jeddah, KAIMRC and IRB. Then the approval letter was submitted to the director of nursing at Alamal psychiatric illness and addiction for approval. After that, study subjects were approached for explaining the purposes and the procedure for the study. Subjects were informed that participation in the study is voluntary and if they can withdraw without any penalty at any time. They assured that their answers kept anonymous during the study and that their data kept confidential.

DATA ANALYSIS AND STATISTICAL MANAGEMENT: The data were coded and analyzed using SPSS version 20.0. Data presented using descriptive statistics for discrete variables in the form of frequencies and percentages, and for interval and ratio variables in the form of means and standard deviations. A paired t-test was used to analyze the total scores of the participants' responses on the pre-test and the post-test (i.e., before and after the educational training program). Participants' sociodemographic and knowledge, and practices differences analyzed using Pearson correlation test The significance level tested at $p<0.05$

RESULTS

Table 1 showed that nearly half (47.2%) of the subjects were aged 30-40 years with total (M ± SD 33.6 ± 1.7) old, 58.3% were female, married (69.4%) had diploma (61.1%) educational qualification. As regard to their years of experiences, more than one third (33.3) of the studied sample had 11-15 years and 55.6 were attending workshops previously. Concerning the work experiences of studied subjects, 36.1 working at ER compared by equal number 27.8, of nurses working in acute and chronic patients' wards. Regarding to the number of patients/shift, 47.2% indicated that only 2-3 nurses were in per shift compared by only 16.7% indicted 6 and more were available per shift while, 44.4% indicated that number of admission of aggressive patient was 100 -500/year and, 44.4 indicated that, physical and chemical restraint were the most used common strategy used by participant in managing aggressive behaviors exhibited by psychiatric patients (Table 1).

Table 2 presented the comparison between pre and post distribution of nurses on their correct and incorrect response related to the internal factors. The results showed that the nurses equal lowest 13 (36.1%) correct response in pre assessment was in their identification of how to prevent patients from becoming aggressive and patient will be calm if he left alone "compared with (80.6) and(50%) responded correctly in the post assessment (Table 2).

Table 3 presented comparison between pre and post distribution of nurses on their correct and incorrect response related to the external factors. The result showed that the nurses equal lowest 13 (36.1%) correct response in pre assessment was in their identification of that the Patients are aggressive because of the environment compared with 31 (86.1%) responded correctly in the post assessment (Table 3).

Table 4 illustrated the Comparison between pre and post distribution of nurses on their correct and incorrect response related to situational factors. The results revealed that, an equal number of lowest incorrect 13 (36.1%) of participant incorrectly respond to "other people can make patient aggressive and poor listening to the patients are the main cause of patients' aggressive behavior compared with 31(68.1%)and 32(88.9%) respond correctly in post assessment in addition to, 16 (44.4%) of nurses was respond incorrectly in relation to their knowledge which refers to their way of communication as trigger for patients aggressive behavior compared with 32(88.9%) respond correctly in the post assessment (Table 4).

Table 5 presented the comparison between pre and post distribution of nurses on their correct and incorrect response related to management factors. The results revealed that the nurses respond incorrectly 25 (69.4%) to "The practice of secluding violent patients should be discontinued compared respond correctly in post assessment 28 (77.8%). in addition to, 24 (66.7%) of nurses was respond incorrectly in relation to the use of Physical restraint is sometimes used more than necessary and respond correctly in 27 (75%) the post assessment Additionally, the majority 22 (61.1%) of nurses responded incorrectly to their using of seclusion is more than necessary compared with 22 (61.1%) correctly responded in the post assessment (Table 5).

Table 6 presented the comparison between pre and post total means ± std. Deviation on the category of MAVAS scale on the Internal, External, Situational, and management factors of and total pre/ post-test intervention program. The results showed the presence of highly statistically significant difference between the pre and

Table 1.

Distribution of studied subjects according to their demographic and personal characteristics (n=36).

Variable	Frequency	%	M ± SD
Age			
25-29	14	38.9	33.61 ± 7.1
30-40	17	47.2	
40<	5	13.9	
Gender			
Male	15	41.7	-
Female	21	58.3	
Marital status			
Married	25	69.4	-
Divorced	5	13.9	
single	6	16.7	
Level of education			
diploma	22	61.1	-
Bachelor	14	38.9	
Years of experiences			
>1 year	3	8.3	3.22 ± 1.267
1-5 year	10	27.8	
6-10 year	5	13.9	
11-15 year	12	33.3	
year 15<	6	16.7	
Attending workshop			
Yes	20	55.6	1.44 ± 0.50
No	16	44.4	
No. of nurses per shift			
2-3 nurses	17	47.2	4.13 ± 1.89
4-5 nurses	13	36.1	
< 6 nurses	6	16.7	
No. of Patients' admission per year			
>100	10	27.8	2.00 ± 0.75
100-500	16	44.4	
<500	10	27.8	
Used Strategies			
Restraint	2	5.6	5.33 ± 2.09
Chemical restraint	4	11.1	
Seclusion, restraint and chemical restraint	1	2.8	
Restraint and chemical restraint	9	25	
Others	16	44.4	
	1	2.8	
Workplace			
Acute ward	10	27.8	3.02 ± 1.88
Chronic ward	10	27.8	
ER	13	36.1	
OPD	3	8.3	

Table 2.

Comparison between pre and post distribution of nurses on their correct and incorrect response related to the internal factors (n=36).

Statement	Pre-Internal Factors		Post-Internal Factors	
	Correct	Incorrect	Correct	Incorrect
	f & %	*f* & %	*f* & %	*f* & %
It is difficult to prevent patients from becoming aggressive	13 (36.1%)	23 (63.9%)	7 (19.4%)	29 (80.6%)
Patients are aggressive because they are ill	22 (61.1%)	14 (38.9%)	24 (66.7%)	12 (33.3%)
There are types of patients who are aggressive	25 (69.4%)	11 (30.6%)	35 (97.2)	1 (2.8%)
Patients who are aggressive should try to control their feelings	28 (77.8%)	8 (22.2%)	31 (86.1%)	5 (13.9%)
Aggressive patients will calm down if left alone	13 (63.1%)	23 (63.9%)	18 (50%)	18 (50%)

Table 3.

Comparison between pre and post distribution of nurses on their correct and incorrect response related to external factors (n=36).

Statement	Pre-External		Post-External	
	Correct	Incorrect	Correct	Incorrect
	f & %	*f* & %	*f* & %	*f* & %
Patients are aggressive because of the environment they are in	13 (36.1%)	23 (63.9%)	31 (86.1%)	5 (13.9%)
Restrictive environments can contribute towards aggression	26 (72.2%)	10 (27.8%)	33 (91.7%)	3 (8.3%)
If the physical environment were different, patients would be less aggressive	17 (47.2%)	19 (52.8%)	36 (100%)	-

Table 4.

Comparison between pre and post distribution of nurses on their correct and incorrect response related to situational factors (n=36).

Statement	Pre-situational		Post-situational	
	Correct	Incorrect	Correct	Incorrect
	f & %	*f* & %	*f* & %	*f* & %
Other people make patients aggressive or violent	23(63.%)	13(36.1%)	31(68.1%)	5(13.9%)
Patients commonly become aggressive because staff do not listen to them	23(63.9%)	13(36.1%)	32(88.9%)	4 (11.1%)
Poor communication between staff and patients leads to patient aggression	20(55.6%)	16(44.4%)	32(88.9%)	4 (11.1%)
Improved one to one relationship between staff and patients can reduce the incidence of patient aggression	28(77.8%)	8 (22.2%)	35(97.2%)	1 (2.8%)
It is largely situations that can contribute towards the expression of aggression by patients	29 (80.6%)	7 (19.4%)	34 (94.4%)	2 (5.6%)

Table 5.

Comparison between pre and post distribution of nurses on their correct and incorrect response related to management factors (n=36).

Statement	Pre-Management		Post-Management	
	Correct	Incorrect	Correct	Incorrect
	f & %	*f* & %	*f* & %	*f* & %
Different approaches are used on the ward to manage aggression	29 (80.6%)	7 (19.4%)	32 (88.9%)	4 (11.1%)
When a patient is violent seclusion is one of the most effective approaches	27 (75%)	9 (25%)	23 (63.9%)	13 (36.1%)
Patients who are violent are restrained for their own safety	31(86.1%)	4 (11.1%)	34 (94.4%)	2 (5.6%)
The practice of secluding violent patients should be discontinued	32(88.9%)	4 (11.1%)	35 (97.2%)	1 (2.8%)
Medication is a valuable approach for treating aggressive and violent behavior	23(63.9%)	13 (36.1%)	22 (61.1 %)	14 (38.9%)
The use of negotiation could be used more effectively when managing aggression and violence	22(61.1%)	14 (38.9%)	30 (83.3%)	6 (16.7%)
Expressions of anger do not always require staff intervention	17 (47.2%)	19 (52.8%)	17 (47.2%)	19 (52.8%)
Physical restraint is sometimes used more than necessary	12(33.3%)	24 (66.7%)	27 (75%)	9 (25%)
Alternatives to the use of containment and sedation to manage patient violence could be used more frequently	27 (75%)	9 (25%)	33 (91.7%)	3 (8.3%)
Patient aggression could be handled more effectively on this ward	29(80.6%)	7 (19.4%)	33 (91.7%)	3 (8.3%)
Prescribed medication can sometimes lead to aggression	11(30.6%)	25 (69.4%)	28 (77.8%)	8 (22.2%)
Seclusion is sometimes used more than necessary	14(38.9%)	22 (61.1%)	22 (61.1%)	14 (38.9%)
Prescribed medication should be used more frequently for aggressive patients	20(55.6%)	16 (44.4%)	26 (72.4%)	10 (27.8%)
The use of de-escalation is successful in preventing violence	30(83.3%)	6 (16.7%)	31 (86.1%)	5 (13.9%)

posttest of the intervention program as t=-6.84, -5.04,and -7.350 at p-value 0.000 respectively. On the other hand, the results reported that there was no significant difference between pre/post internal factors as well management interventions as t=-1.86,and -0.238 at p 0.070 and 0.813 respectively.

Figure 2 showed the comparison between pre and post total means on the category of MAVAS scale on the Internal, External, Situational, and management factors and total pre/post-test intervention program. The result revealed pre mean of internal factors 2.80 compared with 3.19, in post assessment. As regarded to external factors pre was 1.55 compared with 2.77 in post assessment, while the situational factors was 3.41 in pre compared with 4.55 in post assessment. As regarded to management factor 9.00 compared with 10.91 in post assessment. In addition to total pre 16.33 compared with total post assessment 21.44 (Figure 2).

Table 7 revealed that the knowledge score was affected by age of nurses and their working experiences with high significance difference at p 0.000 and t test (-22.24, -19.066), which means that the more the age and experience the lower the level of knowledge among studied subjects (Table 7).

Table 8 illustrated that there was no significance difference in all demographic variables as either increase or decrease in one of these characteristics does not affect the nurses' knowledge toward management of aggressive patient.

Table 6.

Comparison between pre and posttotal means ± std. Deviation on the category of MAVAS scale and total pre/post-test intervention program (n=36).

Mavas scale	M ± SD		t	Sig.
	Pre	Post		
Internal factors	2.80 ± 1.19	3.19 ± 1.11	-1.86	0.07
External factors	1.55 ± 1.05	2.77 ± 0.42	-6.84	0.00
Situational factors	3.41 ± 1.29	4.55 ± 0.90	-5.04	0.00
Management factors	9.00 ± 2.92	10.91 ± 1.90	-0.238	0.813
Total scale pre and post	16.33 ± 4.31	21.44 ± 3.14	-7.35	0.00

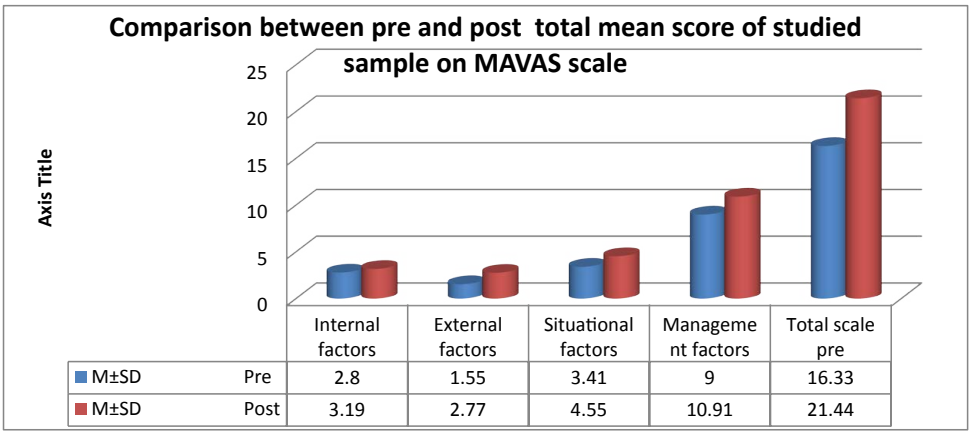

Figure 2. Comparison between pre and post total means on the category of MAVAS scale.

Table 7.

Correlation between age and teaching experience of total pre/posttest intervention program (n=36).

Total Knowledge pre/post test	Mean	SD	t	Sig. (2-tailed)
Age	-15.0278	4.05312	-22.246	0.00
Experience	-13.5556	4.26577	-19.066	0.00

Table 8.

Anova test for relationship between participants' demographic characterstics of pre and post scale (n=36).

Pre/Post Scale	M	*f*	Sig.
Gender Pre	43.087	0.362	0.551
Gender Post	0.622	0.061	0.806
Marital status Pre	6.69	0.054	0.947
Marital Status Post	8.164	0.815	0.451
Education Pre	86.97	0.739	0.396
Education Post	0.577	0.057	0.813
Workplace Pre	213.474	2.122	0.09
Workplace Post	5.887	0.556	0.732
Workshop Pre	40.139	0.337	0.565
Workshop Post	5.339	0.531	0.471
Nurse per shift Pre	314.189	2.999	0.064
Nurse Per shift Post	20.702	2.236	0.123
Strategy Pre	88.026	0.737	0.538
Strategy Post	2.217	0.208	0.89

DISCUSSION

The objective of this study was to investigate the effectiveness of an educational training program in developing nurses ' knowledge and practices towards psychiatric patients who exhibit aggressive behavior. It was hypothesized that, nurses' knowledge, regarding the management of aggressive patient will be changed after conducting the educational intervention program. The result confirm that the educational program was effective in improving the nurse's knowledge regarding the management of aggressive patient as total mean of pretest was (M ± SD 16.33 ± 4.31) compared with posttest

(M ± SD 21.44 ± 3.14), with higher statistical significant difference between the pretest and posttest of the intervention program (t=7.35 at p-value 0.000.) Similarly, (Heckemann, et al., 2015) discussed the effectiveness of aggression management training program for nursing staff and students working in an acute hospital setting. As, they reported that, the training program was effective in activation of current knowledge of the prevention strategies, de-escalation, and increased awareness of the situational skills of nurses for early signs of patient and visitor aggression. Also, it is congruent with (Kinner, et al., 2016) who found that, majority of participants felt that the practice of seclusion and restraint was likely to cause harm, infringe human rights, compromise confidence and potentially cause or trigger past trauma. Consumers were more likely to regard these practices as harmful than professionals.

The current study results revealed that, the vast majority of the participants believed that eliminating mechanical restraint was both desirable and feasible despite their usual use of physical restraint. The interpretation of this result might be related to shoratge of actual nurses' number working with patients as it was reported that the total number of nurses per each shift doesn't exceed 3-4 nurses distributed for more than 18 patients in acute ward and 45 patients in subacute and chronic wards. Many participants, especially professionals, believed that seclusion and certain forms of restraint were likely to yield some benefits, including increased consumer safety, increased safety of employees and others, and behavioral boundaries. Also, in a study conducted in Australia, mentioned that there was a statistically significant increase in nursing knowledge levels after a two-day training in aggression management which was in line with our results. Moreover, the studies conducted on aggression management were concluded that, the training programs resulted in an increase in knowledge levels on basic topics of aggression management, a decrease in the use of forced practices towards patients, an increase in workers ' self-confidence, changes in nurses ' perceptions and attitudes towards aggression as reported by (Arguvanli et al., 2015).

Additionally, the results showed the significant improvements for all variables under study, as the results reported that the category of the scale including the internal variable such as nurses' age and gender have an equal lowest (13 (36.1) correct response in pre assessment compared with (80.6%) and (50%) responded correctly in the post test. The external factors showed that the nurses equal lowest 13 (36.1%) correct response in pretest compared with 31 (86.1%) responded correctly in the post assessment. In the situational factors the results revealed that, an equal number of lowest incorrect 13 (36.1%) of participant incorrectly respond to "other people can make patient aggressive and poor listening to the patients are the main cause of patients' aggressive behavior compared with 31 (68.1%)and 32 (88.9%) respond correctly in post assessment in addition to, 16 (44.4%) of nurses was respond incorrectly in relation to their knowledge which refers to their way of communication as trigger for patients aggressive behavior compared with 32 (88.9%) respond correctly in the post assessment. Lastly the management of aggressive behavior factors revealed a result of the nurses respond incorrectly 25 (69.4%) to "The practice of secluding violent patients should be discontinued compared respond correctly in posttest 28 (77.8%). in addition to, 24 (66.7%) of nurses was respond incorrectly in relation to the use of physical restraint is sometimes used more than necessary and respond correctly in 27 (75%) the post assessment Additionally, the majority 22 (61.1%)of nurses responded incorrectly to their using of seclusion is more than necessary compared with 22 (61.1%) correctly responded in the post assessment. Correspondingly, the results suggested that the educational training program led to significant improvements in nurse's knowledge and practices toward aggressive patients' behavior managements.

On the other hand, the correlation between the pre and posttest of measurement scale with the participants' background showed no significant relationship between their knowledge and educational level, previous training, and the type of unit they been working. Surprisingly, the results of the current study revealed that the more the years of experience and the age of nurses, the less the knowledge they have, this result might be related to that majority of nurses holding associate degree and diploma in general nursing. Therefore, it could be concluded that nurses in the current study setting were neither certified nor qualified to work with psychiatric patients, especially when they exhibited aggressive behaviors (Schaaf, 2013).

Hence, this lack of education in the nursing staff is a hindrance in providing high-quality nursing care to the patients who need an advanced level of nursing care (Al-Ahmadi, 2014). (Jahan, 2005) reported that, nurses with associate degrees (61.3% in the current study) have a lower status of professionalism than Bachelors of Science in Nursing (BSN). Moreover, (Al-Ahmadi, 2014) gave three reasons as to why associate degree nurses are not regarded as professionals. (Majeed, 2014) stated that the university is responsible about training people, forming their personalities, and preparing them for holding responsibility of caring with others.

It is widely believed that a diploma is technical and of a low level of education (Aldossary, While, & Barriball, 2008). Additionally, (Almadani, 2015) concluded that there are three main problems related to the nursing workforce in Saudi Arabia (SA) which can be categorized under the headings of educational, organizational, and societal. Initially, the educational issues; which include many nursing staffs that do not even have a bachelor's degree in Nursing Science. Secondly, the organizational issues involve policies and regulations related to nursing along with the turnover and retention rates of nurses. Lastly, societal issues include the working environment including the gender ratio, long working hours, shortage of nurses, and job dissatisfaction.

As it was indicated by nurses attending the program that "regardless their work area they were asked about peaceful solutions in situations of violence and threats". Also, they reflected that the majority of their colleagues in the hospital didn't have the belonging or intimacy feeling either for nursing profession or the place they did their job in. Undoubtedly, the presence of sense of belonging toward the working environment and their career might help them to seek advanced level of nursing practices and they will be skillful in managing aggressive patient and other challenging emergent psychiatric situations (Al-Shahri, 2002).

STUDY LIMITATIONS

Despite the effectiveness of the program, the sample was small, because of the convenience sampling technique which was used

to recruit the nurses. In addition to, decrease number of the nurses (49) who are working in the wards, recalculation of the sample size was done to end up with 36 nurses out of 49. Moreover, the data collection process only took place during the day shifts due to the difficulty and non-feasibility of the staffs in the other shifts duty to their small number (2/ward.)

CONCLUSION

In conclusion, this study showed that training program in managing aggressive behavior was effective in increasing the knowledge levels of the nurses. Also training in de-escalation techniques enhances the ability of employees to de-escalate violent and aggressive behavior and improve practical safety. Moreover, the result of correlation between the pre and posttest revealed high significance in the age and years of experience related to nurses' knowledge. It showed that the more the years of experience and nurses age, the less the knowledge they have due to, all senior nurses have a diploma and associate degree of nursing. Additionally, demographic background of the nurses had no significant correlation with their knowledge or competency level in managing aggressive behaviors.

RECOMMENDATIONS

Based on the findings of the current research study, the following recommendations are suggested:

- Ongoing training should be provided on a regular basis regarding aggression management. Training should focus on enhancing staff's ability to manage aggression, communication skills, and risk assessment competencies.
- Improving hospital environment and communication between nurses and patients in the form of patient listening and conveying respect, acknowledging that improvement could occur and would reduce the risk of psychiatric inpatient aggression and violence.
- Training can also be carried out in the form of in-service training at the ward level and all staff should be required to attend.
- Communicate the results to the hospital manager as well to the nursing manager to establish a team whose specialty in managing aggressive patients only and respond to an established specific code. As, this will decrease load on nurses working in acute wards and could manage the shortage of nurses number.
- Establishing regular system of hiring nurses to the psychiatric hospital nonetheless, the hiring process should be based on certain criteria of nurses' of having competent communication skills, caring behaviors and special interest in psychiatric nursing.

RESEARCH CLINCAL IMPLICATIONS

The current study was conducted to to investigate the effectiveness of an educational training program in developing nurses ' knowledge and practices towards psychiatric patients who exhibit aggressive behavior. at the Jeddah Psychiatric Hospital affiliated to the Ministry of Health. The results highlighted the following important clinical implications:

- Despite the restrictions and position statements by the American Psychiatric Nurses Association (APNA) and other mental health agencies; the only and main management of nursing management of the aggressive behavior was physical restraints due to lack of nurses knowledge and clinical competency in management of aggressive behavior therefore, there is an urgent need for the presence of agencies that can provide special psychiatric nursing qualification and certification program of registered psychiatric nurses since the nurse's role in patient safety and quality improvement within health care systems is loudly addressed in the new field of research.
- Educational support systems should be available to ensure that knowledge with regard to this matter translates into changed knowledge and clinical competency of management of aggressive behavior.
- There is an urgent need to change the culture and environment of mental healthcare settings which can often trigger behaviors that may lead to patients' aggressive behavior and enable the nurses to provide the right care and ensure patient safety.
- The outcomes of the current study are supported by many researchers. As leaders and clinicians in the research setting need to understand the association between an organization's safety and patient outcomes as well as how nurses' qualifications and certification can influence executives to lead working environment improvements and communication between nurses and patients in the form of patient listening and conveying respect, acknowledging that improvement could occur and would reduce the risk of psychiatric inpatient aggression and violence. (Balas & Boren, 2000), and (Khalil, Alghamdi, & Almalki, 2017).
- In addition, and probably more important in every psychiatric hospital settings, future research needs to address how research findings and evidences can be translated into and become the new standard of nursing practices.

FUTURE RESEARCH

A follow-up study should be carried out at the same institution including all categories of nurses and other disciplines as they work with these aggressive patients as well, also it should be done with a bigger number of sample size.

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