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Effectiveness of an interventional program on nurses practices regarding postoperative pain management among adult patient with abdominal surgery

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Abstract---The results showed for 60 nurses divided in two group there was highly statistically significant differences between pre and post-test for the study group (at $p < 0.001$), while showed that there were no statistically significant differences between pre and post-test for the control group (at $p > 0.05$). Also there were no significant statistical differences between practices toward Management of Postoperative pain for adult patients undergoing abdominal surgery with nurses' age, gender, and education level at a p -value > 0.05 . A quasi-experimental design study had been applied with the use of pre and post-test approaches for two groups of samples 60 nurses (study and control) to examine the effectiveness of the interventional program and nurses' practice in the management of postoperative pain for adult patients undergoing abdominal surgery in Al-Diwaniya Teaching Hospital. The reliability of the questionnaire was achieved through a pilot study and then presented to experts to prove its validity. The total number of items included in the questionnaire was 10-items. The data was collected by using the semi-structured interview and analyzed by the application of a descriptive and inferential statistical data analysis approach.

Keywords---interventional program, practices, postoperative pain, abdominal surgery.

Introduction

Pain, both acute and chronic, is frequent, particularly among surgical patients and inpatients in general medical facilities. More than half ($>50\%$) of hospitalized

patients were in excruciating pain (Line et al., 2015). Every year, more than 230 million individuals throughout the world had surgery. With this yearly rise, more than 80% of patients had acute pain after surgery, with more than 75% experiencing moderate or severe pain. This means that 80% of patients who have undergone surgery will experience acute pain (Arab et al., 2016). The numerous training courses and application tactics available, researches reveal that between 55 and 78.6% of inpatients experience moderate-to-severe pain (Liyew et al., 2020)]. Postoperative pain (POP) was shown to be prevalent in 47-100 percent of patients. According to research conducted over the previous three to four decades, 20 to 80 percent of individuals following surgery had inadequate pain management (Wurjine et al., 2018)

The influence of pain on one's quality of life, social connections, physical capacity, and mental health was significant. Exhaustion, sleep disturbances, lack of appetite, and worry were some of the other symptoms. Untreated pain can have major repercussions, such as increased use of health services, duration of stay, and expenses. A nurse's or other health care professional's lack of information about pain evaluation and treatment, worries of opioid usage, abuse, and diversion, and misunderstandings about the therapeutic dose of analgesia can all contribute to inadequate pain relief. A lack of pain awareness and practices was a major obstacle to successful pain management (Salim et al., 2020).

In reality, it can have a direct impact on the comfort and lifestyle of patients, producing nausea, vomiting, weariness, tension, loss of control, poor quality of life, and a lack of sexual activity and public relations, as well as poor work performance and everyday activities (Arab et al., 2016; Shakyia et al., 2016). Pain is an unpleasant sensory and emotional experience that is associated with real or potential tissue damage (Jaleta et al., 2021). Furthermore, pain is a unique, dynamic, and subjective experience of the nociceptive data centers in the higher brain. It can be influenced by a variety of elements, including sensory, emotional, and cognitive experiences, as well as distraction, attitude, beliefs, and heredity (Misiolek et al., 2018). Therefore, this study concerns the interventional program and nurses' practice toward management for postoperative pain for adult patients undergoing abdominal surgery in Al-Diwaniya Province/ Iraq.

Method

A quasi-experimental design study had been applied with the use of pre and post-test approach for two groups of samples 60 nurses (study and control) to examine the effectiveness of the interventional program and nurses' practice toward management for postoperative pain for adult patients undergoing abdominal surgery. Study instrument: The questionnaire is one of the means to help collect data that contribute to achieving the results expected by the study, so the researcher designed this questionnaire, which aims to clarify the study objectives and significance to evaluate postoperative pain management. This questionnaire consists of two parts which includes the following:

Part I: This section composed of socio-demographic information which includes age, gender, educational level, years of experience, years of experience in surgical

wards, educational/ training courses related postoperative pain management, and marital status.

Part II: This section deals with nurse's practices with respect to procedures of postoperative pain management, the researcher observed and checked for correct or not correct performance, and consist of (10) items, These items (filed by the researcher) were rated according to the Likers' scale; always (3), sometimes (2), and never (1).

Content validity was determined by evaluation of observational checklist and an interventional program through a panel of (14) experts, who had more than 10 years of professional experience in their fields, to investigate the content of an interventional program, observational checklist toward postoperative pain management. Reliability of the questionnaire (tools) was determined through the use of test and re-test approach obtained through evaluating 10 nurses selected from Al-Diwaniya Teaching Hospital and the interval period was four weeks. Cronbach's alpha was discovered to be 0.88.

The data were analyzed using (SPSS) version 21 application of statistical analysis system. The information was evenly distributed. Frequencies, Percentages, Mean and Standard Deviation, Pearson's Correlation Coefficients, T-test (paired sample t-test) to determine the mean difference between the nurses' practices at two levels of measurements (pre-test and post-test), and Analysis of variance (One Way-ANOVA) to determine the association between the nurses' practices and some demographic characteristics. Statistical significance was defined as a p 0.05.

The overall responses according to total mean of score which follow:

Statistical Mean= 1- 1.66 refers to Poor Nurses Practices

Statistical Mean= 1.67 - 2.32 refers to Intermediate Nurses Practices

Statistical Mean= 2.33 – 3 refers to Good Nurses Practices

Results

The finding in table 1 revealed that age of nurses was less than thirty years old as accounted for study and control group respectively. According to gender, the female was a more than (50.0%) in the study and control group respectively. A high percentage ($n=11$; 36.7%) of nurses were graduating from a Nursing institute in the study group. while, the nurses in control group in equal degree. Regarding the years of experience in nursing the nurses in the study group with Mean $\pm$ SD 7.50 $\pm$ 6.600, while the control group with Mean $\pm$ SD 9.87 $\pm$ 10.095. And regarding years of experience in surgery wards in the study group with Mean $\pm$ SD 4.16 $\pm$ 5.072, while the control group with Mean $\pm$ SD 6.57 $\pm$ 6.495. According to the training course the most nurses attended a training course with percentage (23.3% and 20%) in the study group and control group respectively just one time inside the Iraq and for one week. Based on the analyzed result by the chi-square there was no statistically significant difference with demographics two groups ($p>0.05$).

Table (1): Participants Characteristics

Demographic Characteristics	Variables	Control Group (n=30)		Study Group (n=30)		C. S P. value
		f.	%	f.	%	
Age Mean $\pm$ SD	20 – 24 years	4	13.3	5	16.7	.465
	25 – 29 years	14	46.7	14	46.7	N.S
	30 – 34 years	5	16.7	8	26.7	
	35 – 39 years	2	6.7	2	6.7	
	40 – 44 years	3	10.0	0	0	
	45 years and above	2	6.7	1	3.3	
	Total	30	100.0	30	100.0	
Gender	Mean $\pm$ SD	28.3 $\pm$ 1.437		27.2 $\pm$ 1.066		
	Male	14	46.7	13	43.3	.961
	Female	16	53.3	17	56.7	N.S
	School of nursing	10	33.3	10	33.3	.351
Education level	Nursing institute	10	33.3	11	36.7	N.S
	College of nursing	10	33.3	9	30.0	
	Total	30	100.0	30	100.0	
Social Status	Single	7	23.3	12	40.0	.582
	Married	20	66.7	16	53.3	N.S
	Widowed	1	3.3	0	0	
	Divorced	2	6.7	2	6.7	
	Separated	0	0	0	0	
	Total	30	100.0	30	100.0	
	Years of experience in nursing	Mean $\pm$ SD	9.87 $\pm$ 10.095	7.50 $\pm$ 6.600		.505
Years of experience in surgery wards	Mean $\pm$ SD	6.57 $\pm$ 6.495		4.16 $\pm$ 5.072		N.S
						.188
Training course	Not participate	24	80.0	23	76.7	.517
	One	6	20.0	7	23.3	N.S
	Two	0	0	0	0	
Place	Not participate	24	80.0	23	76.7	.517
	Inside Iraq	6	20.0	7	23.3	N.S
	Outside Iraq	0	0	0	0	
Duration of the course	Not participate	24	80.0	23	76.7	.517
	One week	6	20.0	7	23.3	N.S
	More than one week	0	0	0	0	

f.: Frequency, No.: Number, %Percentage, C.S= chi –square, N.S = Non significant at $p > 0.05$.

Findings demonstrated in table 2 there was highly statistically significant differences between pre and post-test for the study group (at $p < 0.001$), while showed that there were no statistically significant differences between pre and post-test for the control group (at $p > 0.05$).

Table (2): Difference between pre and post- test for the study and control group

		Pre		Post		Paired t Test statistics			
		M.	SD	M.	SD	t-test	df	P. Value	Sig.
Study Group	Practices about pain management	1.58	.359	2.76	.077	-18.55-	29	.000	H.S
Control	Practices about pain management	1.58	.359	1.59	.371	-.418-	29	.679	N.S

M = mean of score, S.D=Standard Deviation, d.f=degree freedom=29, Sig. = Significance, N.S =Non Significant at $p > 0.05$, S= Significant at $p < 0.05$, H.S: High Significant at $p < 0.001$. Eva=evaluation level, P = poor (1 – 1.66), IN= Intermediate (1.67 - 2.32), G = Good (2.33 - 3).

Findings demonstrated in table 3 there in no significant statistical differences between practices toward Management for Postoperative pain for adult patients undergoing abdominal surgery with nurse's age at p -value > 0.05 . And the results showed there were no significant statistical differences between practices toward Management with nurse's gender at p -value > 0.05 , also the results showed there were no significant statistical differences between practices toward Management with nurse's education level at p - value > 0.05 .

Table (3): Association between nurses' demographics with their practices about pain management for study group post-test

Demographic	Variables	Mean	SD	Analysis	P. value
Age	20 – 24 years	2.773	.04559	F = .633	.434
		8			
	25 – 29 years	2.789	.07165		
		1			
	30 – 34 years	2.771	.10324		
		4			
	35 – 39 years	2.690	.10102	F = .236	.631
		5			
	40 – 44 years	2.777	.05499		
		8			
	45 years and above	2.690	.10102		
		5			
Gender	Male	2.761	.07274	F = .236	.631
		9			
	Female	2.775	.08207	F = .142	.709
		9			
Education level	School of nursing	2.781	.08301	F = .142	.709
		0			

Nursing institute	2.761	.06292
	9	
College of nursing	2.767	.09049
	2	

P=probability value, NS: Non-Significant at $P > 0.05$, S: Significant at $P < 0.05$, HS: Highly Significant at $P < 0.01$.

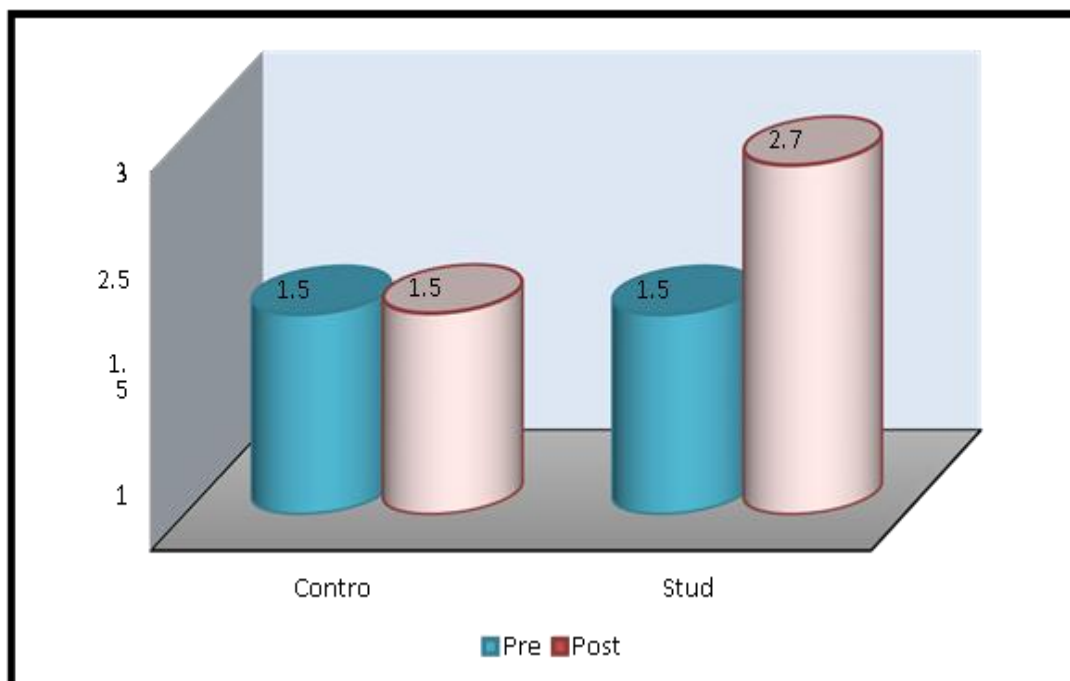


Figure (1): The effect of an interventional program of nurses' practices toward management for postoperative pain for adult patients undergoing abdominal surgery and the differences between Pre and Post –test for study Mean $\pm$ SD 1.58 $\pm$.359 to 2.76 $\pm$.077 and control Mean $\pm$ SD 1.58 $\pm$.359 to 1.58 $\pm$.371 groups by total mean score.

Discussion

This study used a purposive clinical trial design to test the effectiveness of an interventional educational and skill building training program in nurse's practices about management of postoperative pain for adult patients undergoing abdominal surgery. The present study samples consists of 60 nurses who were purposively allocated to either a control group ($n=30$) or a study group ($n=30$). The mean age was 28.3 ± 1.437 for control group and 27.2 ± 1.066 for study group. This result match with the result of Alreshidi (2016) who find in his study that The bulk of the research participants were between the ages of 26 and 30 years (AlReshidi,2016).

In their study on postoperative pain management among health care professionals in the ILE-IFE hospital, Famakinwa et al., (2014) claimed that the bulk of the sample in their study was between the ages of 21 and 30 years

(Famakinwa et al.,2011). With somewhat more were female 16 (46.7%) than male for the study group while female 17 (56.7%) than male for the control group this sample assignment covered surgical ward.

Rafati et al., (2016) performed a research in Iran to evaluate nursing reports on patients' pain severity and quality, concurrent symptoms, the use of scales in pain assessment, and compliance with the national guideline following surgery, that stated the mean age of the patients was 34.55 ± 11.94 years, and 77.7% were female and mean of years of experience was 11.98 ± 9.04 (Rafati et al.,2016). Concerning to Levels of education, the study results showed that the majority of nurses 10 (33.3%) of nurses in the study group and 11(36.7%) of nurses in the control group were nursing institute

A study by Enlah et al., (2018) found that the majority of the nurses working in surgical ward were graduated from institute (Arab et al2015). Concerning to years of experience in the surgical ward the study results showed that in the study group and with Mean $\pm$ SD 4.16 ± 5.072 , while the control group with Mean $\pm$ SD 6.57 ± 6.495 . According to a research done by (Nimer & Ghrayeb 2017), the study and control groups had a larger percentage of years of nursing experience (1-5) years (Nimer & Ghrayeb,2016). Germossa et al., (2018) conducted a study to investigate the influence of an in-service training program on nurses' knowledge and attitudes about pain management in an Ethiopian university hospital where the majority of nurses (67.6%) had worked in the field for less than 10 years (Germossa et al.,2018).

The present study revealed that there were no significant differences between (pre-test and post-test) in control group of overall total nurses' practices when (p value > 0.05). This mean not clearly improvement in nurses' practices for control group between pre and post in all items of nurses' practices about Pain management in surgical ward. Many nurses (48 percent) lacked the practical expertise to function successfully in controlling POP, according to Rafati et al., (2016), who performed a research in Iran(Rafati et al.,2016).

Quliti and Alamri (2015) concluded that there was a gap in pain evaluation and management prior to attending an educational course in their study "Assessment of pain Knowledge, Attitude, and Practice of Health Care Providers" (Al-Quliti & Alamri,2015). (Dijk, 2017), who stated that nurses who do not attend continuing education sessions do not keep their understanding of postoperative pain up to date (Van et al2017). However, there was highly significant differences between (pre-test and post- test) of study group at (p value < 0.01) for overall total nurses' practices concerning pain management .this mean there were high level of improvement in nurses' practices for study group between pre and post an interventional program about aseptic technique in operation room.

According to a study by YeeTse (2014), there was a significant difference between the pre-test and post-test results in terms of pain management (Tse & Ho,2014). This finding was in line with the findings of a study conducted by Shalabia, Al-Kalaldeh, and Al-Tarawneh (2015) to determine the impact of a brief educational program on nurses' knowledge, attitude, and practice toward pain management.

They found that the educational program had a positive impact on nurses' knowledge and attitude (Abozeidet al.,2015).

As a result of the data analysis, there were no significant statistical differences between practices toward Management of Postoperative pain for adult patients undergoing abdominal surgery with nurses' age, gender, and education level at a p-value > 0.05. The present research includes Abdul-Jaleel & Rajha's (2020) study, which found no significant differences between the study groups at the post-test and socio-demographic data (Abdul-Jaleel, & Rajha,2020). Salim, Tuffaha, and Brant (2020) investigate the effect of a pain management program on nurses' knowledge, attitude, and practice regarding pain, finding no statistically significant differences between demographic features and the experimental group at post-test (Salim et al.,2020).

Conclusion

Conclusion from the discussion that the study results accepted the alternative hypotheses and an interventional program had a significant effect on nursing staffs' practices about pain management. The study confirmed that prior to the educational session, the nurses had erroneous pain assessment practices and lacked expertise with pharmaceutical and non-pharmacological therapies. The study showed that the practice regarding nursing management of patient with postoperative pain in the study group had been improved after exposure to educational program. The study indicated that the nurses in the study group had an improvement of the total means score after the intervention program. The study revealed that practice was not affected by the age for nurses who working in the day or night shift at the surgical ward. The study indicated that practice was not affected by gender in the surgical ward

Financial Disclosure

There was no financial disclosure.

Conflict Of Interest

None to declare

Ethical Clearance

All experimental protocols were approved by the Al-Diwaniya Health Directorate in Iraq, and all experiments followed the permitted procedures.

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