
NURSES' KNOWLEDGE REGARDING TRACTION CARE IN ORTHOPEDIC UNIT AT MANSOURA UNIVERSITY HOSPITAL

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Abstract:

Traction is one of the most common methods of immobilization. It is commonly used for treating patients with hip or femur fractures in orthopedic departments worldwide. Each year, more than 340,000 cases of hip fractures occur in America and 1.6 million cases worldwide, out of which 13% to 37% lose their lives. Traction is a very stressful situation for patient to endure and it requires a competent nurse to meet the patient's needs and to prevent complications. Due to the complicated and vital role executed by orthopedic nurses in the care of patient with traction and the need to prevent complications due to enforced immobility, this study **aims** to assess the nurse's knowledge in orthopedic units at Mansoura university. **Methods:** A descriptive correlational research design was conducted in orthopedic units at Mansoura university hospitals. The data were collected using a questionnaire interview sheet consists of (Sociodemographic characteristics & Traction Nurses' Knowledge questionnaire). The questionnaire was designed after an extensive literature review. The subjects of the present study consist of all available nurses working in the orthopedic units and accepted to participate in the study at previously mentioned above setting. Available nurses working in orthopedic units were entered in the study (40) nurses. **Results:** the results revealed that Less than three quarters of studied nurses had fair knowledge level about care of patient with traction. There was a significant relation between knowledge and level of education. There was no significant relation between nurses' knowledge and age, years of experience. **Conclusion:** There is an increasing need to introduce effective educational intervention for orthopedic nurses to enhance their knowledge about care of patient with traction. **Recommendation:** Encouraging continuous supervision, guidance and evaluation of nurses' performance in caring of patients with traction in the hospital to achieve and maintain the best nursing care for patients.

Key Words: Knowledge, Nurses, Orthopedic, Traction

Introduction:

Modern industrialized life and increasing incidents of road accidents and other incidents have led to an increased incidence of fractures (1). When fracture occurs, elderly bones don't heal readily because the physiologic exchange of minerals has decreased with advancing age, making the process of repair much slower (2).

The annual incidence of mid shaft femur fractures in USA is about 10 per 100,000 person. Each year, more than 340,000 cases of hip fractures occur in America and 1.6 million cases worldwide, out of which 13% to 37% lose their lives (3). Morbidity and mortality of these fractures are high. Following hip fractures, 50% of patients are unable to walk without

aid, 25% require long-term care, and 20% die during the first year (4). The overall goals of fracture treatment are anatomic realignment of bone fragments (reduction), immobilization to maintain realignment, restoration of normal or near normal function of the injured part, and establish a sturdy union between the broken ends of the bone. Reducing a fracture involves restoring proper alignment to the injured bone (5).

Treatment of fractures include one or more methods: traction ,closed or open reduction, internal or external fixation, or cast application. The treatment method depends on several factors, including the first aid given, the location and severity of the break, and the age and overall physical condition of the client. Traction is one of the most common methods of immobilization . The use of traction was once a common method of treating patients with hip fractures (6,7). The annual incidence of hip fracture was estimated to be 1.66 million worldwide in 1990 and is expected to reach 6.26 million by 2050 because of aging of the global population. (8). More than 350,000 hip fractures occur in the United States every year (9).

The purpose of any traction is to prevent or reduce muscle spasm, immobilize joint or part of the body, reduce a fracture or dislocation, and treat a pathological joint condition. Traction is also indicated to provide immobilization to prevent soft tissue damage, reduce muscle spasm associated with low back pain or

cervical whiplash, expand a joint space during arthroscopic procedures, and expand a joint space before major joint reconstruction(5). Also prevent further displacement of the fracture and maintain or improve alignment so reduction of the fractures easier when operated on.(7).

The most common types of traction are skin and skeletal traction. Skin traction involves the use of a Velcro boot(buck's traction) ,belt, or halter, which is usually secured around the affected leg. The primary purpose of skin traction is to decrease painful muscle spasms that accompany hip fractures. In skeletal traction, pins, wires, tongs, or screws are surgically inserted directly into bone . These allow the use of longer traction time and heavier weights-usually(15to 30 pounds) (6.8to13.6 Kg).Skeletal traction aids in bone realignment (6).

Additionally , mechanical traction can be either continuous as in fracture treatment or intermittent for relief of muscle spasm in other types of musculoskeletal/ neurologic trauma ,such as cervical nerve root compression. (6). Traction can be applied with the hands (manual traction). This is temporary traction that may be used when applying a cast, giving skin care , or adjusting the traction apparatus. (10).

Before providing nursing care to the client in traction, the nurse must identify, the exact nature and location of the client's injury, the purpose of the traction, how the traction device achieves its purpose, what body movements are permitted and what

body are not, particularly joint movements distal and proximal to the injury, and potential complications for this type of injury and treatment.. (11).

Nurses' skills, interventions, attitudes, communication and continuity of care constitute the essential components of orthopedic nurse care. Patient satisfaction measures assist nurses in the evaluation of effectiveness of their practice. Attitudes of nurses caring for orthopedic patients affect the quality of care provided (12). Early identification of the care problem is vital in orthopedic nursing. Also, Patient education is a critical component of orthopedic nursing that requires nurse communication to maintain optimum independence and quality of life. (13).

Due to the complicated and vital role executed by orthopedic nurses in the care of patient with traction, The nurse entering practice wants to learn, to perform nursing effectively and satisfactorily for themselves and for their patients. Since nursing offered to the public as help or services, nurse should attain and maintain a high level of nursing knowledge and nursing performance, in order to be effective in practice. Nurse must gain nursing knowledge before they enter practice (14,15). Therefore the aim of the study is to evaluate the nurse's knowledge and practices in orthopedic units in Mansoura university.

Aim of study:

Assess knowledge of nursing staff at the orthopedic units regarding the existing care of patient with traction.

Research questions:

- 1- What is the current level of knowledge of nurses about traction care ?
- 2- Is there a relation between socio-demographic variables and nurses' knowledge ?

Subjects & Methods

Study Design:

A descriptive correlational cross sectional research design was used in this study.

Setting:

This study was conducted at orthopedic units at Mansoura University Hospital.

Subjects:

The sample of the present study consist of all available nurses working in the orthopedic units and accepted to participate in the study. At previously mentioned setting. A total of 40 nurses were entered in the study.

Tools:

Tool 1: A questionnaire interview sheet.

This tool was developed by the researcher based on thorough up to date literature review (16,17,15,18,19,20). and consists of two parts:

Part 1: Sociodemographic characteristics:

E.g. (age, gender, educational level, qualification, years of experience and attendance at any previous taught programs about traction.).

Part 2: Traction Nurses' Knowledge questionnaire:

This questionnaire was used to assess nurses' knowledge about traction. The questionnaire includes 21 items in total and included five categories: General knowledge about traction (4 items), Knowledge about skin traction (3 items), Knowledge about skeletal traction (3 items), Knowledge about care of patient with traction (8 items), and Knowledge about complications of traction (3 items).

All nurses need to choose one or more correct answer to each question. A correct answer was scored = 1; an incorrect answer was scored = 0. Scores of each item were summed up, and the total score ranged from 0 to 61 according to total number of questions. Score percentage= mean score / maximum possible score ×100%. Higher scores indicated more knowledge about traction. The level of knowledge was classified according to good, fair, and poor for overall knowledge and in each knowledge section. A score of 75% or more = (46-61) were classified as “Good knowledge”, from 74% to 50% = (31-45) classified as “fair knowledge”,

and a score <50% = (0 - 30) was classified as “poor knowledge” (21).

Methods:

1. An official permission was issued from ethical committee of faculty of nursing, Mansoura University to carry out the study and interview the nurses in the selected university hospital.
2. After obtaining permission from the Director, the researcher met the head of the orthopedic department, he was then introduced to the medical and nursing staff of in-patient department and asked for permission to collect data and explained the study objective.
3. After a thorough review of literature, tool was developed by the researcher.
4. Content validity of tool was done by 5 expertise in the field of the study and the necessary modification was done.
5. Tool was tested for its reliability by test – retest measurement and Cronbach,s alpha. (Test – retest) reliability of knowledge questionnaire is ranged from $r = 0.8 - r = 0.87$ and Cronbach,s alpha ($r. \alpha = 0.87$).
6. A pilot study was carried out on a sample of 5 nurses in orthopedic department at Mansoura University Hospital, to evaluate ambiguity, clarity and applicability of the tool and the approximate time needed for the interview . Accordingly, the necessary corrections and adjustments were

- done. Then designed tool was modified.
7. The researcher used to go to orthopedic department included in the study setting following certain schedule. Three days a week, and started data collection based on the schedule of three days per week from 9 am to 2 pm, and all nurses who accepted to participate were included in the study, they were called separately by the responsible nurse at frequent intervals .
 8. An interview schedule was used for data collection and nurses interviewed individually by the researcher in the nursing room in the orthopedic department. The researcher used to start the interview by introducing himself and the purpose of the study. After providing an explanation for the purpose and the nature of the study. The researcher emphasized to the nurses that they have the right to withdraw at any time.
 9. The necessary data was collected. Nurses were given the questionnaire to complete. The researcher clarified the questions .The researcher then checked whether the questionnaires were complete, and asked the nurses to complete them as necessary.
 10. The researcher managed to interview from 2 to 3 nurses daily .time taken to fill study tools ranged from 20 – 30 minutes on individual basis to be filled depending on level of education, degree of understanding, and response of the nurse.
 11. The researcher coded the questionnaires to assure the anonymity of the nurses. Finally, the researcher scored the responses, and compiled them for data analysis.
 12. The data collection covered a period of 2 months, started from the beginning of May 2014 to the end of June 2014.
- Ethical Consideration and Patient Right**
1. Nurse's written consent to participate in the study was obtained.
 2. Verbal consent was also obtained from each participating nurse prior to his/her inclusion into the study after clarification of the nature and aims of the study .
 3. The investigation emphasized that participation is absolutely voluntary and anonymity, privacy, rights, and safety of nurses was absolutely assured from the beginning of the study.
 4. Confidentiality of nurses was also ascertained throughout the study.
- Results:**
- The results of the present study will be presented in 3 main parts which are Socio-demographic characteristics of Studied nurses ,nurses' knowledge regarding traction, and relationship between nurses' knowledge and Socio-demographic Characteristics.

Table(1): Socio-demographic Characteristics of the studied Nurses No.(40).

Items	No. (40)	100%
Age group:		
18 - < 30 years	20	50.0
30 - < 40 years	20	50.0
40 - < 50 years	0	0.0
50 - < 60 years	0	0.0
Mean ±SD	29.5±5.75	
Gender		
Male	0	0.0
Female	40	100.0
Educational level		
Nursing school	27	67.5
Technical nursing institute	4	10.0
Technical health institute	4	10.0
Faculty of nursing	5	12.5
Specialization		
Yes	0	0.0
No	40	100.0
Number of training program in caring for orthopedic patient.		
Yes	0	0.0
No	1	100.0
Type of training program		
Training program in caring of orthopedic Patient.	0	0.0
Training program in caring of a accident patient	1	2.5
Training program in caring of patient with traction	0	0.0
Total years of experience		
< 3 years	3	7.5
3 - < 5 years	1	2.5
5 - < 10 years	14	35.0
10 - < 15 years	10	25.0
15 - < 20 years	7	17.5
20 - < 25 years	5	12.5
Mean ±SD	11.84±6.08	
years of experience in orthopedic unit		
< 3 years	4	10.0
3 - < 5 years	2	5.0
5 - < 10 years	14	35.0
10 - < 15 years	9	22.5
15 - < 20 years	7	17.5
20 - < 25 years	4	10.0
Mean ±SD	11.1±6.15	

• Numbers not mutually exclusive

Table (1) Shows socio demographic characteristic of studied nurses. All participants were female and their ages ranged from 18-40 years with mean age 29.5 ± 5.57 years. About two thirds of studied nurses (67.5 %) have nursing school, (12.5 %) of studied nurses have bachelor of nursing. More than one third of studied nurses (35%)

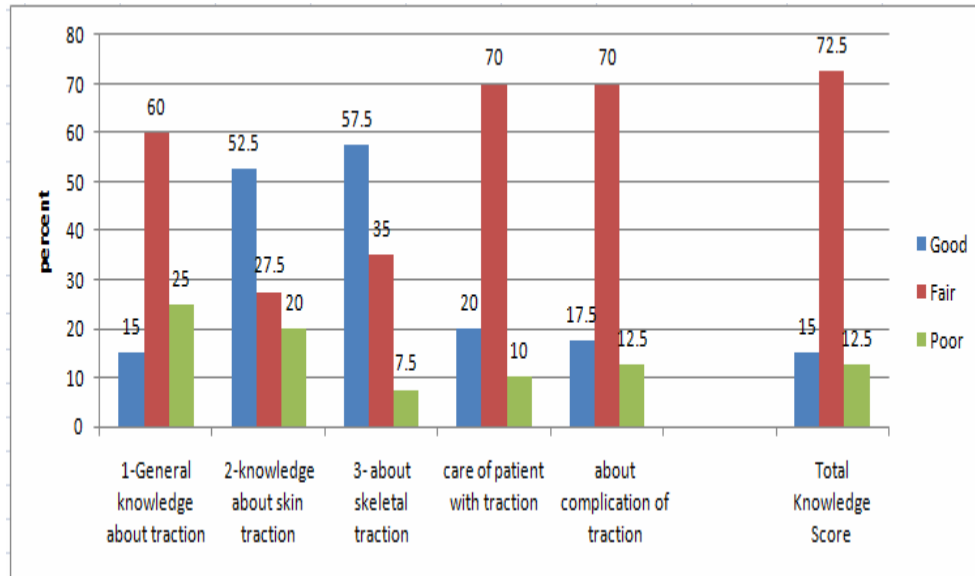
had from 5-10 years of experience in general and in orthopedic unit, one quarter of studied nurses(25%) had from 10-15 years of experience with mean 11.84 ± 6.08 years of experience. None of the studied nurses participated in training program except one nurse participated in training program in caring of accident patient.

Table (2) Nurses' knowledge about Traction No.(40).

Knowledge Levels	Good		Fair		Poor		Total		Me an	St Dev
	Co unt	%	Co unt	%	Co unt	%	Co unt	%		
1-General knowledge about traction	6	15.0	24	60.0	10	25.0	40	100.0	56.3	13.84
2-knowledge about skin traction	21	52.5	11	27.5	8	20.0	40	100.0	60.6	23.27
3- knowledge about skeletal traction	23	57.5	14	35.0	3	7.5	40	100.0	71.5	17.99
4- knowledge about care of patient with traction	8	20.0	28	70.0	4	10.0	40	100.0	67.3	12.61
5- knowledge about complication of traction	7	17.5	28	70.0	5	12.5	40	100.0	59.9	13.04
Total Knowledge Score	6	15.0	29	72.5	5	12.5	40	100.0	63.3	10.63

Table (2) Shows levels of knowledge of studied nurses. Knowledge levels were classified into 3 levels (poor , fair , good).In the studied group of nurses, less

than three quarters (72.5%) had fair knowledge level, (15%) of nurses had good knowledge level, and only (12.5 %) of nurses had poor level.

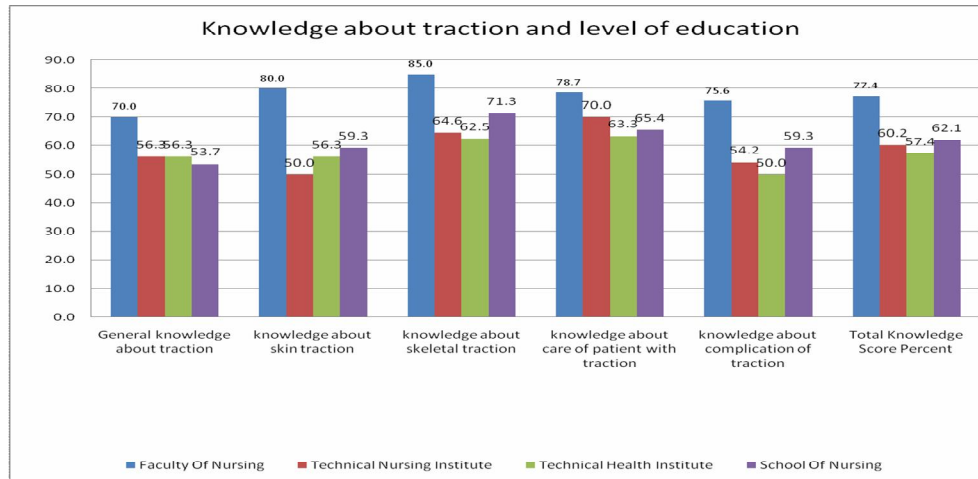


Figure(1): Nurses' knowledge about Traction.

Table (3) Relationship between Nurses' Knowledge about Traction and Age No.(40).

Age	General knowledge about traction	knowledge about skin traction	knowledge about skeletal traction	knowledge about care of patient with traction	knowledge about complication of traction	Total Knowledge Score Percent	
18- < 30 yrs	Mean N Std. Deviation	57.500 20 13.4914	61.250 20 23.6128	70.833 20 21.0298	65.000 20 13.9967	56.944 20 10.7960	62.049 20 10.3309
30- < 40 yrs	Mean N Std. Deviation	55.000 20 14.4084	60.000 20 23.5081	72.083 20 14.8764	69.667 20 10.9170	62.778 20 14.6543	64.590 20 11.0343
Total	Mean N Std. Deviation	56.250 40 13.8354	60.625 40 23.2651	71.458 40 17.9909	67.333 40 12.6130	59.861 40 13.0434	63.320 40 10.6286
M-W Z P		-.454 .650	-.200 .841	-.123 .902	-1.197 .231	-1.282 .200	-.420 .674

Table (3) shows that, there is no significant relation between knowledge of nurses about traction and their age ($P > 0.05$).



Figure(2): Relationship Between Nurses' knowledge and Level of Education .

Table (4) Relationship between Nurses' Knowledge about Traction and Level of Education No.(40).

Level of education		General knowledge about traction	knowledge about skin traction	knowledge about skeletal traction	knowledge about care of patient with traction	knowledge about complication of traction	Total Knowledge Score Percent
Faculty Of Nursing	Mean	70.000	80.000	85.000	78.667	75.556	77.377
	N	5	5	5	5	5	5
Technical Nursing Institute	Mean	56.250	50.000	64.583	70.000	54.167	60.246
	N	4	4	4	4	4	4
Technical Health Institute	Mean	56.250	56.250	62.500	63.333	50.000	57.377
	N	4	4	4	4	4	4
School Of Nursing	Mean	53.704	59.259	71.296	65.432	59.259	62.052
	N	27	27	27	27	27	27
Total	Mean	56.250	60.625	71.458	67.333	59.861	63.320
	N	40	40	40	40	40	40
	Std. Deviation	16.2447	20.9165	6.9722	10.9545	12.1716	10.6494
	Std. Deviation	10.4859	28.8675	23.9357	11.5470	9.4879	10.8226
	Std. Deviation	10.4859	23.9357	22.0479	8.6066	4.5361	9.5589
	Std. Deviation	13.3440	22.0883	17.3472	12.8152	12.3267	9.0216
	Std. Deviation	13.8354	23.2651	17.9909	12.6130	13.0434	10.6286
	K-W Chi square	5.562	4.069	4.314	5.398	9.553	7.958
	P	.135	.254	.229	.145	.023	* .047

Table (4) shows that, there is a *significant relation between knowledge of nurses about traction and their level of education ($P < 0.05$).

Table (5) Relationship between Nurses' Knowledge about Traction and Years of Experience No.(40).

years of experience		General knowledge about traction	knowledge about skin traction	knowledge about skeletal traction	knowledge about care of patient with traction	knowledge about complication of traction	Total Knowledge Score Percent
yrs 3 <	Mean	61.111	50.000	52.778	62.222	48.148	55.191
	N	3	3	3	3	3	3
	Std. Deviation	4.8113	25.0000	33.6788	15.3960	6.4150	14.6933
3 - < 5 yrs	Mean	66.667	50.000	91.667	80.000	55.556	70.492
	N	1	1	1	1	1	1
	Std. Deviation						
5 - < 10 yrs	Mean	53.571	60.714	70.833	64.286	57.143	61.124
	N	14	14	14	14	14	14
	Std. Deviation	13.7570	18.8982	17.8281	14.9317	11.8210	9.5682
10- < 15 yrs	Mean	62.500	77.500	73.333	72.000	64.444	68.525
	N	10	10	10	10	10	10
	Std. Deviation	17.6777	24.8607	14.0546	10.7955	14.6285	12.7406
15 - < 20 yrs	Mean	52.381	50.000	75.000	64.762	61.111	62.295
	N	7	7	7	7	7	7
	Std. Deviation	10.4464	25.0000	16.6667	11.3622	12.4226	8.0311
20 - < 25 yrs	Mean	51.667	50.000	71.667	70.667	64.444	63.934
	N	5	5	5	5	5	5
	Std. Deviation	12.3603	17.6777	17.2804	8.9443	16.0054	9.2008
Total	Mean	56.250	60.625	71.458	67.333	59.861	63.320
	N	40	40	40	40	40	40
	Std. Deviation	13.8354	23.2651	17.9909	12.6130	13.0434	10.6286
	K-W Chi square	5.696	8.616	3.219	4.336	5.452	3.808
	P	.337	.125	.666	.502	.363	.577

Table (5) shows that, there is no significant relation between knowledge of nurses about traction and their total years of experience ($P > 0.05$).

Table (6) Relationship between Nurses' Knowledge about Traction and Years of Experience in Orthopedic Unit No.(40).

years of experience in orthopedic unit		General knowledge about traction	knowledge about skin traction	knowledge about skeletal traction	knowledge about care of patient with traction	knowledge about complication of traction	Total Knowledge Score Percent
yrs 3 <	Mean	60.417	56.250	56.250	65.000	48.611	56.967
	N	4	4	4	4	4	4
	Std. Deviation	4.1667	23.9357	28.3619	13.7437	5.3190	12.5118
3 - < 5 yrs	Mean	62.500	75.000	75.000	70.000	50.000	63.934
	N	2	2	2	2	2	2
	Std. Deviation	5.8926	35.3553	23.5702	14.1421	7.8567	9.2735
5 - < 10 yrs	Mean	52.381	60.714	72.024	64.286	59.524	61.827
	N	14	14	14	14	14	14
	Std. Deviation	14.0316	18.8982	18.0831	14.9317	13.5082	10.0116
10- < 15 yrs	Mean	62.963	75.000	75.000	73.333	66.667	69.763
	N	9	9	9	9	9	9
	Std. Deviation	18.6856	25.0000	13.8193	10.5409	13.6083	12.8590
15 - < 20 yrs	Mean	53.571	46.429	76.190	65.714	61.905	62.998
	N	7	7	7	7	7	7
	Std. Deviation	9.4491	22.4934	17.6308	12.4297	14.1380	9.1694
20- < 25 yrs	Mean	52.083	50.000	66.667	68.333	58.333	60.656
	N	4	4	4	4	4	4
	Std. Deviation	14.2319	20.4124	15.2145	8.3887	9.6225	6.4193
Total	Mean	56.250	60.625	71.458	67.333	59.861	63.320
	N	40	40	40	40	40	40
	Std. Deviation	13.8354	23.2651	17.9909	12.6130	13.0434	10.6286
K-W Chi square		5.575	7.518	2.739	2.815	8.187	3.739
P		.350	.185	.740	.729	.146	.588

Table (6) shows that, there is no significant relation between knowledge of nurses about traction and their years of experience in orthopedic unit ($P > 0.05$)

Discussion:

Traction is one of the most common methods of immobilization . The use of traction was once a common method of treating patients with hip fractures (6,7). The annual

incidence of hip fracture was estimated to be 1.66 million worldwide in 1990 and is expected to reach 6.26 million by 2050 because of aging of the global population. (8). More than 350,000 hip fractures occur in the

United States every year (9). Nurses' skills, interventions, attitudes, communication and continuity of care constitute the essential components of orthopedic nurse care. Patient satisfaction measures assist nurses in the evaluation of effectiveness of their practice. Attitudes of nurses caring for orthopedic patients affect the quality of care provided (12). Early identification of the care problem is vital in orthopedic nursing. Also, Patient education is a critical component of orthopedic nursing that requires nurse communication to maintain optimum independence and quality of life. (13).

Sociodemographic data and characteristics of the study Subjects:

The Sample of the study consists of 40 nurses, This result is accordance with (19) who reported in his study about evaluation of nursing knowledge and practices concerning nursing care of patient with skin traction in orthopedic units in Kurdistan region that the sample of the study was 40 nurses. In contrast, (22) who reported in his study about promoting nursing care for children undergoing chemotherapy that the sample of a study was 50 nurses.

Regarding gender, all of the study sample are females, this is in accordance with (23) who reported in her study about effect of physical restraint guidelines on nurses' performance at masoura university hospitals that almost of nurses were females. In contrast, (19) reported in his study about skin traction that half of the sample were females and the other half were males.

Regarding age, mean age of studied nurses was 29.5 ± 5.75 years. This result is in accordance with study conducted in different renal dialysis units by (24) who reported that the majority of nurses were young with mean age 28.9545 ± 5.4982 . (25) reported that majority of nurses were young with mean age 31.1 ± 8.24 years. Also, (26) reported that the majority of nurses were in age group (21- 41) years.

Regarding nurses' educational level, the present study showed that about two thirds of studied nurse graduated from nursing school. This was on the same line with (27) who reported that majority of studied staff nurses graduated from nursing school. Another finding reported by (28) showed that more than two thirds of studied nurses graduated from nursing school . In contrast , (29) reported that majority of nurses were university graduates, (30) reported that more than half of studied nurses had bachelor degree, and (31) reported that majority of nurses graduated from faculty of nursing.

Regarding Years of experience, the present study showed that one quarter of studied nurses had more than ten years of experience with mean 11.84 ± 6.08 years of experience. This result goes in line with another study conducted in different renal dialysis units by (32) who reported that majority of nurses had 11-15 years of work experience, (33) reported that less than three quarters of nurses had less than ten years of experience in hemodialysis centers. In contrast, (34) reported that nearly one third of nurses had more than 6 years of experience,

and (35) reported that less than half of nurses had less than two years of experience.

Regarding Years of experience in orthopedic ward, the present study showed that more than quarter of studied nurses had less than ten years of experience in orthopedic ward with mean 11.1 ± 6.15 years of experience. This result is in line with (20) who reported that more than quarter of nurses had less than ten years of experience in orthopedic ward. In contrast, (15) reported that less than quarter of studied nurses had less than ten years of experience in orthopedic ward with mean 3.40 ± 1.71 years of experience. Also, (36) reported that less than fifth of nurses had less than ten years of experience in intensive care unit.

Regarding receiving any training program, the present study showed that minority of nurses receiving training program in caring of accident patients. In accordance, (37) reported that less than one fourth of the nurses in their study sample reporting having information about PRs. Through training, whereas almost two fourths of them reported practice as their source of information. This means that the wrong practices or misconception would extend to nurses from previous generations, and this will be perpetual. On the same line (38) reported in their study that most of ICU nurse didn't receive special education or any in-service training about PRs practices. In contrast, (39) reported that less than half of nurses received a pain training Course, and (40) reported that majority of nurses receiving training

program about advanced Cardiac Life Support.

Knowledge of nurses about traction

All health care practitioners required to have good knowledge to safely provide patient care (41). (42) mentioned that inadequate and incomplete performance of nurses in their work results from inadequate educational preparation. (43) illustrated that nurses should attain and maintain a high level of nursing knowledge and nursing practice. But to be effective in practice, nurses must gain knowledge before they enter practice.

Regarding general knowledge about traction, the present study showed that less than fifth of studied nurses had good score related to general knowledge about traction with Mean \pm SD score (56.3 ± 13.84), This result goes in line with (19) who reported that about fifth of nurses had good score related to general knowledge about traction. In contrast, (44) reported that more than three fifths of studied subjects had insufficient knowledge regarding physical restraints.

Regarding nurses' knowledge about types of traction, The present study showed that more than half of nurses had good knowledge score about skin and skeletal traction. In contrast, (23) reported in her study about effect of physical restraint guidelines on nurses' performance that more than two thirds of studied nurses had poor knowledge score regarding types of physical restraints. Also, (37) reported that minority of studied nurses had sufficient knowledge related to types of physical restraints.

Regarding knowledge of nurses about traction care. The present study showed that less than three quarters of studied nurses had fair knowledge score about care of patient with traction with Mean \pm SD score (67.3 \pm 12.61). This result goes on the same line with (19) who reported that less than half of studied nurses had fair knowledge related to care of skin traction. In contrast, (15) reported in her study about Impact of an educational program on nurses' performance toward children in Thomas traction that majority of nurses had poor knowledge score related to care of Thomas traction.

Orthopedic nurses have an essential role in caring for patient with traction in order to prevent complications. They should check the pulse over the affected area, assess restraining devices and encourage deep breathing exercises, as well as have knowledge about passive and active exercises. Moreover, they should observe neurovascular changes and assess vital signs, especially if there is any risk of infection from the injury (11&45).

Regarding complication of traction, the present study showed that about three quarters of nurses had a fair knowledge score about the complications of traction. In contrast, (15) reported that When the sampled nurses were asked about the complications of traction, it was found that they had a poor 'knowledge score' regarding skin, gastrointestinal tract, skeletal, muscular as well as metabolism complications. Also, (23)& (37) reported that majority of studied nurses had poor knowledge

about complications of physical restraints.

Regarding total knowledge score of studied nurses, the present study showed that more than two thirds of studied nurses had fair knowledge level with Mean \pm SD score (63.3 \pm 10.63) related to nursing care of patient with traction. This result is in accordance with (19) who reported that less than half of studied nurses had fair knowledge level related to nursing care of patient with skin traction. In contrast, (15) reported that all nurses had poor knowledge level related to care of children with Thomas traction. Also, (46) & (47) reported that minority of nurses had sufficient and fair knowledge level about physical restraints.

Regarding relationship between knowledge and age, the present study showed that there is no significant relation between nurses' knowledge and age, This result goes in line with (48) , who reported that no statistically significant relation was found between nurses knowledge and nurses' age , (49) & (50) reported that there is no significant relation between nurse's knowledge and their age. In contrast, (51) showed that there was a significant relationship between knowledge of hepatitis and age. Also, (52) reported that there was a significant relation between nurses' knowledge and age.

Regarding relationship between knowledge and level of education, the present study showed that there is significant relation between nurses' knowledge and level of education, This result is congruent with (53), (54) & (55) who reported that there

was a significant relation between nurses' knowledge and their educational level, and (56) & (52) mentioned that a statistical significant relation is found between total nurse's knowledge and qualifications. In contrast, (57) & (58) found that there is no statistical significant relation between nurse's level of knowledge and qualifications, and (59) reported there are no statistically significant relations between knowledge and level of education.

Regarding relationship between knowledge and years of experience, the present study showed that there is no significant relation between nurses' knowledge and years of experience, similar findings supported this result published by (59) who reported that there are no statistically significant relations between knowledge and years of experience.

Also, (60) , (61) & (62) reported that there is no significant relation between nurse's years of experience and their knowledge. In contrast, (63) , (64) & (65) reported that there are statistically significant relations between knowledge and years of experience.

Conclusion:

Based on the finding of the present study, the following can be concluded:

- The mean total knowledge score and its related areas were at fair level except knowledge about skin and skeletal traction were at good level. Less than three quarters of studied nurses had fair knowledge level, and only (12.5 %) of nurses had poor knowledge about traction.

- There was a statistically significant relation between nurses' knowledge about traction and level of education.
- There was no statistically significant relation between nurses' knowledge about traction and age, years of experience.

Recommendation

Based on the results of the present study the following recommendations are suggested:-

For Nurses:

- 1- Orientation programs for newly qualified nurses or those new to the unit, with regards to traction, should be implemented.
- 2- Updated guidelines, continuous in-service educational programs for nurses regarding caring of patients with traction.
- 3- Encouraging continuous supervision, guidance and evaluation of nurses' performance in caring of patients with traction in the hospital to achieve and maintain the best nursing care for patients.
- 4- Emphasizing the important of availability of a manual update procedures' book regarding caring of patients with traction.
- 5- Standards of care concerning traction should be developed.
- 6- Clinical protocol and guidelines should be designed around traction use at the orthopedic unit
- 7- The majority of staff nurses at the orthopedic unit should be actively participating in regular conferences, seminars, and workshops.

- 8- Developing standardized tool for periodic evaluation of the nurse's knowledge in orthopedic wards.

For Further Nursing Research:

- 1- Replication of the study using a large number of sample and various setting in Egypt with the inclusion of control group to examine the effectiveness of educational program for orthopedic nurses to enhance their knowledge and practice about care of patient with traction.
- 2- Development of exercise rehabilitation program for patients with traction and study its effect on patients quality of life.

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