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Original Research Article

The Gap between Knowledge and Practices in Standard Endotracheal Suctioning of Intensive Care Unit Nurses in Children's Hospital Lahore

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Abstract: Endotracheal suctioning is a crucial element in the management of the airway in intensive care units. The effectiveness and complication of the endotracheal suctioning procedure is associated with the method of performing. The procedure requires clinical expertise, so the nurses should perform this procedure safely and effectively. The present study was carried out to assess the gap between knowledge and practice in standard endotracheal suctioning of intensive care unit nurses. In this cross sectional descriptive study knowledge and practice of 118 nurses in the 11 ICU's of children hospital Lahore, Pakistan was analyzed. The sampling method is purposive. Data were collected using 35 item questionnaire and 31 item checklist. Descriptive and inferential statistics was used to analyze the data. The result of the study revealed that the participant have good level of knowledge (mean score 24 ± 3.0) and fair level of practice as (mean practice score was 17.85 ± 5.67) showing that there is a gap between knowledge and practice. There is no relationship between knowledge and practice score, total experience (p=0.007) and ICU type (p=0.004). The study describes that despite the presence of good knowledge their practice level is not up to the mark. The result shows that there is a need for training in this skill and continue feedback until desire level of skill achieved.

Keywords: Gap, Knowledge, Practice, Endotracheal Suctioning, Standard guidelines Intensive Care Nurses

INTRODUCTION

Airway management is primary care given to the patient admit in intensive care unit. It includes placement of endotracheal tube into the patient's airway in those who are unable to breathe [3]. The secretion of intubated patient is retained in the airway due to decrease cough reflex; impair normal function of ciliary production of mucous [13].The cells and increase accumulated secretion causes increased airwav resistance and respiratory distress, hypercapnia, hypoxia, at electasis and infection. So mechanical removal of secretion from trachea and lower airway through suctioning is necessary [9, 2]. This procedure is performed by intensive care nurses in order to provide adequate oxygenation, increase alveolar ventilation and maintain gaseous exchange [10]. It is important that the nurse's practices should be based on scientific evidences associated with different aspects of suctioning [12].

This procedure involves preparation of the patient, the suctioning event and care after the procedure. It is performed by 2 ways on the selection of catheter: open and closed, open system includes disconnection of the patient from ventilator and closed suctioning does not require removal from artificial ventilation, and 2 ways on the insertion of catheter, deep and shallow [2]. If endotracheal suctioning is not performed accurately it will lead to several complication such as respiratory and cardiac defects, tracheal endothelial trauma, bleeding, hypoxemia and cardiac arrhythmias, increased intracranial pressure may cause cardiac arrest and death [1]. Nurses should work carefully with evidence based knowledge, before, during and after suctioning. Complication arises due to mistakes in the practices. Nurses who are adhering to evidence based guideline can decrease the prevalence of the complication [11].The decrease level of knowledge about endotracheal suctioning among intensive care unit nurses could be dangerous for the patient who have artificial airway [10].

Nurses are not aware of current suctioning recommendations and practices they follow, are on traditional base rather than on evidence [4]. There were significant irregularity between the practices of ICU nurses regarding hyper oxygenation, infection control measures and negative pressures was found to be low [6].

A study found that the staff nurses set the suction pressure at more than 150mmhg although

70.8% staff nurses knew that suctioning pressure should not exceed more than 150mmhg[9]. Another study conducted on assessing knowledge of nurses about endotracheal suctioning describe that experienced nurses have answered the question about internal diameter and insertion of the catheter better than the nurses who having less experience [10]. Infection control practices are compromised resulting in infection and potential risk of aspiration of colonized bacteria. The most important deficiency lies in hand washing before and after the procedure. So there is a need to increase quality of care among ICU nurses regarding endotracheal suctioning [6].

Furthermore A study describe that majority of the nurses do not auscultate the lung sound for the presence of secretion similarly many of the participants does not provide hyper oxygenation to the patient [7].

An exploratory study by on knowledge and skill regarding endotracheal suctioning describes that there are deficient areas of knowledge and skill between observed practices and best practices. This study indicates that even though nurses knowledge score was acceptable deficiency exist in some areas of suctioning (actual event and post suctioning). It may be due to that the nurses get the knowledge from others or due to inadequate training [14].

Despite the importance of endotracheal suctioning there are few studies documented in Pakistan. A literature review of practices of endotracheal suctioning demonstrated that knowledge and practice of health care professional related to endotracheal suctioning play a vital role to enhance patient's safety [8]. There is a need to do more work in this perspective to provide evidence based care.

Nursing practice in Pakistan facing many challenges one of them is to improve clinical performance. Knowledge is not only the way to improve clinical skill; assessment of performance at bed side is required. On the part of endotracheal suctioning, it is observed that nurse's knowledge and practice regarding endotracheal suctioning was poor. Studies suggested that most of the nurses in the intensive care unit perform according to their own suctioning practice rather to rely on the scientific evidence [7]. As endotracheal suctioning is associated with several complications there is a need to assess gap between knowledge and practice in standard endotracheal suctioning of nurses. Evidence based guideline is required in all intensive care setting and nurses should be motivated to follow them.

Intensive care unit nurses are expected to care efficiently in order to improve outcome of the patient so this is their primary responsibility to deliver nursing care for the benefit of the patient. This study will helpful to clarify the status of knowledge and practices of ICU nurse regarding endotracheal suctioning in the children hospital, finding weakness and offer recommendations. The result of the study will be useful to identify care given in the ICU. It will also helpful to convince the hospital management that nurses require education and training related to endotracheal suctioning.

The study was plan to accomplish following purposes

- To assess knowledge regarding endotracheal suctioning in ICU nurses.
- To observe practices of endotracheal suctioning in ICU nurses.
- To assess gap between knowledge and practice in standard endotracheal suctioning.
- To determine relationship between knowledge and practice and demographic variables.

METHODOLOGY

Place of work

The study was conducted in ICU's of the children hospital and institute of child health Lahore. It has 11 ICU (including specialty ICU e.g. CICU and ward ICU) with 140 beds capacity. The number of beds in ICU varied between minimum of 6 and maximum of 32. The nurse to patient ratio is 1:4 per shift within these ICU's. The study was carried out in all ICU's where endotracheal suctioning is performing in the patient with artificial airway.

Research design

Cross sectional, Descriptive.

Total population

1200 nurses in hospital.

Target population

168 nurses working in ICU

Sample technique

Purposive sampling method was used in the study.

Sample size

118 nurses working in intensive care unit of children hospital Lahore.

Inclusion criteria

Nurses who are currently working in the critical care ICU (e.g. MICU) or working in the ward ICU with more than 3-month experience, age between 18-50 years, both male and female, Diploma in nursing, midwifery, specialization, or BSCN are in inclusion criteria.

Exclusion criteria

The nurses who have experience less than 3 months in ICU or who are not working in ICU. The nurses who do not want to participate deliberately in the research.

Study instrument

The questionnaire was adopted from the study [9] after their permission. The data of the study was collected 45 items in questionnaire and 31 item checklist. The study required questions that are parallel to the checklist so the data was collected on that basis. The questionnaire covers two domains: demographic data and knowledge based questions. The demographic data includes age, gender, level of nursing education, length of ICU experience, ICU training, types of ICU. Knowledge based questionnaire includes question about practices prior to suction, infection control practices, during the suction, and after the suction. Each question was based on lickert scale with the choices of "yes" "no" "never" "rarely" "most of the time" and "always". It was assessed by scoring system; one point was given to the correct answer and incorrect answer considered as zero. Correct answer considered "yes and always" and "no or never". The nurse's total score ranged between 0-35 and score was classified into 3 categories. 0-10 considered poor, 11-20 fair and 21-35 good.

Non participation observation was involved in the study. The observational checklist involves 31 items steps of the procedure parallel to the questionnaire. Each item in the checklist coded as" yes" or "no" and adherence with the checklist was assessed. It was assessed by scoring system, one point was given to correct action and incorrect action got zero or no score.

Ethical consideration

Data were collected after securing permission from nursing superintendent of the children's hospital Lahore. The participants were informed verbally and in written about need, aim, method, and value of the study. Subjects were given opportunity to ask question about study and they are able to contact the researcher if question arose. Participants were also given assurance of confidentiality and anonymity, and their participation was voluntarily.

Data collection

Data was collected through questionnaire, and this questionnaire was distributed in 118 participants.

And these participants were also observed for their practices about endotracheal suctioning. (Using non participant's observation) the participants were asked to fill the questionnaire with best possible answer. The checklist was filled by the researcher, observing the subjects while performing the procedure.

Data Analysis

- SPSS version 21 was used to analyze the data
- Data were analyzed for inferential statistics and descriptive statistics (frequency distribution, mean, median, standard deviation) of demographic variables and other variables.
- Spearman correlation coefficient was used to assess relationship between knowledge and practice score, chi square was used to determine the relationship between demographical variable and knowledge and practice score.

RESULTS

Data were collected and analyzed on SPSS version 21. Applied frequency test, percentage on different variables calculated and presented in the tables.

The ages of the participants are as follow, 36.4% (n=43) are belong to18-25 age group, 57.6% (n=68) of respondents are fall under26-35age group, 5.9% (n=7) of respondents fall under 36-50 age group. The qualification of the subjects was recorded as, 21.19 % are Post RN/BSCN, 60.17% Diploma nurses, and 18.6% specialization. On classification of participants according to experience 28.8% (n=34) of participants having experience less than 1 year, 48.3% (n=57) of participants having experience of 1-5 years, 12.7% (n=15) of the participant having 6-10 years of experience, and 10.17% (n=12) more than 10 years.

With the regard of ICU training, 41.5% of respondents are having ICU training, (n=69) of respondents did not have ICU training. It was determined that 22.9% (n=27) of participants working in MICU, 12.7% (N=15) in CICU, 8.5% (n=10) in CSICU, 20.7% (n=25), 5.9 %(n=7) in MNICU, and 28.8% (n=34) in ward ICU.as presented in table 1.

Table-1: Demographic variables								
Sr.	Variable		Frequency	Percentage				
1-	Gender	Female	118	100%				
		Male	0	0				
2-	Marital Status:	Married	42	35.6%				
		Un-Married	76	64.4%				
3-	Age of ICU Nurses:	18-25years	43	36.4%				
	-	26-35 Years	68	57.6%				
		36-50 Years	7	5.9%				
4-	Qualification of ICU Nurses	Post RN/BSCN.	25	21.2				
		Diploma Nurse.	71	60.2%				
		Specialization.	22	18.6%				
5-	Total Experience of ICU Nurses	<1 Year	34	28.8%				
		1-5 Years	57	48.3%				
		6-10 Years	15	12.7%				
		>10 Years	12	10.2%				
6-	Length of ICU Experience of Nurses:							
		0-1Years	66	55.9%				
		2-4 Years.	34	28.8%				
		>4 Years	18	15.3%				
7-	ICU Training	Yes	49	41.5%				
		No	69	58.5%				
8-	Type of the ICU	MICU	27	22.9%				
		CICU	15	12.7p%				
		CSICU	10	8.5%				
		SICU	25	21.2%				
		MNICU	7	5.9%				
		WARD ICU	34	28.8%				

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Infection Control Measures For Suctioning

Table-2:]	Infection	Control	Measures	For	Suctioning.
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Sr.	Question			Knowledge			Practice	
no.				Correct	Incorrect	Neutral	Correct	Incorrect
1.	Washing hands	before	Freq.	108	6	4	48	70
	suctioning		%	91.5	5.1	3.4	40.7	59.3
2.	Wearing gloves	before	Freq.	117	1	0	85	33
	suctioning		%	99.2	0.8	0	72	28
3.	Apron wearing	before	Freq.	79	28	11	4	114
	procedure		%	66.9	23.7	9.3	3.4	96.6
4.	Mask wearing	before	Freq.	111	4	3	84	34
	procedure		%	94.1	3.4	2.5	71.2	28.8
5.	Applying goggles	before	Freq.	43	64	11	5	113
	procedure		%	36.5	54.2	9.3	4.2	95.8
6.	After suctioning	washing	Freq.	111	0	4	112	6
	hands		%	99.1	0	3.3	94.9	5.1

On the question of washing hands participants responds positively as 91.5 % (n=108) given correct answer and 5.1% give incorrect answer and 3.4% are neutral. On observation 40.7% (n=48) of the participants observed performing correct practice of hand washing, 59.3 % (n=70) of the participants did not wash their hands before procedure. Prior to suctioning 66.9% (n=79) knew that apron should be wear before suctioning and 23.7% (n=28) did not know, 9.3%

(n=11) remain neutral. But in practically only 3.4% (n=4) of nurses observed to wear apron before procedure, 96.6 %, (n=114) majority of them did not wear it. 94.1% (n=111) stated that surgical mask should be worn before suctioning, 3.4 %(n=4) gave the wrong answer 2.5% (n=3) are neutral, during observation (n=84)71.2 % have wear the mask and (n=34) 28.8 %, did not wear it during observation of the procedure. 36.5% (n=43) stated that glasses should be worn during

suctioning, 54.2 %(n=64) replied that it should not be worn and 9.3% (n=11) were response that it may or it may not be worn during suctioning. Only (n=5) 4.2%, wear goggles during procedure and 95.8%, did not wear it.

Before Suctioning

	Table-3: Before Suctioning									
Sr.	Question		Kn	owledge		Practice				
no.										
			Correct	Incorrect	Neutral	Correct	incorrect			
1.	Auscultation of lung sound	Freq.	100	11	7	30	88			
	before suctioning	%	84.8	9.3	5.9	25.4	74.6			
2.	Informing the patient before	Freq.	83	13	22	51	67			
	procedure	%	70.4	11	18.6	43.2	56.8			
3.	Putting the patient in suitable	Freq.	58	40	20	97	21			
	position for suctioning	%	49.2	33.9	16.9	82.2	17.8			
4.	Hyperventilation/	Freq.	101	12	5	98	20			
	hyperoxigination before	%	85.6	10.2	4.2	83.1	16.9			
	procedure									
5.	Applying saline from	Freq.	10	100	8	5	113			
	endotracheal tube during	%	8.5%	84.7%	6.7	4.2	95.8			
	suctioning									

84.8 %(n=100) stated that patient lung should be auscultated before suctioning and 9.3% (n=11) did not know and 5.9% (n=7) responded neutral, but on observation 25.4 % (n=30) of the participants were observed performing auscultation before procedure, and 74.6 %, (n=88) did not performing it. 49.2% (n=58) knew the right position of suctioning and on applying 82.8% (n=97) of the nurses were putting the patient in suitable position and, 17.8% (n=21) of the nurses were not applying it

8.5% (n=10) knew that suctioning should not done by saline administration, 84.7% (n=100) stated that it should be done with saline administration and 6.7% (n=8) have neutral response, on observation 95.8%, (n=113) of the respondents doing wrong practice of applying normal saline during suctioning and only 4.2 % (n=5) performing it correctly.

70.4 %(n=83) correctly answer that procedure should be explain to the patient, 11 %(n=13) responded inversely and 18.6% (n=22) stated that it may or may not be explained to the patient.

85.6% (n=101) knew that hyperventilation before suctioning is mandatory, 10.2% (n=12) did not know and 4.2% (n=5) were neutral. It was found on observation 83.06% (n=98) of the subjects providing hyperventilation with ambo bagging, 16.9% (n=20) were not. As presented in table 3.

During Suctioning

	Table-4: During Suctioning									
Sr.	Question		K	Inowledge		Practi	ce			
no.			Correct	Incorrect	Neutral	Correct	Incorrect			
1.	Choosing correct diameter of	Freq.	112	0	6	103	15			
	suction catheter during suctioning	%	94.9	0	5.1	87.3	12.7			
2.	Adjusting correct aspirator	Freq.	83	13	22	58	60			
	pressure during procedure	%	70.3	11	18.6	49.2	50.8			
3.	Humidification of catheter by	Freq.	62	55	1	85	33			
	passing normal saline	%	52.5	46.6	0.8	72	28			
4.	The catheter moved back and	Freq.	21	94	3	11	107			
	forth in the airway	%	17.8	79.7	2.5	9.3	90.7			
5.	Catheter removal with intermittent	Freq.	107	10	1	87	31			
	suctioning	%	90.7	8.5	0.8	73.7	26.3			
6.	The correct aspirator time10-15	Freq.	99	12	7	52	56			
	seconds per suctioning	%	83.9	10.2	5.9	52.5	47.5			
7.	Hyperventilation/ hyper	Freq.	109	6	3	96	22			
	oxygenation at the end of procedure	%	92.2	5.1	2.5	81.4	18.6			

8.	Catheter not washed with saline	Freq.	37	80	1	23	95
	prior to oropharyngeal suctioning	%	31.3	67.8	0.8	19.5	80.5
9.	Maximum three times	Freq.	23	70	25	52	66
	consecutively suctioning	%	19.4	59.3	21.2	55.9	44.1
	performed						
10.	30-60 seconds rest to the patient in	Freq.	82	10	26	69	59
	consecutive suctioning	%	69.5	8.5	22	58.5	41.5
11.	Monitor cardiac rhythm during	Freq.	109	6	3	89	29
	suctioning	%	92.4	5.1	2.5	75.4	24.6
12.	Stop the procedure if heart rate	Freq.	31	65	22	76	42
	increased 40 beats or more	%	26.3	55.1	18.7	64.6	35.6
13.	Stop the procedure if heart rate	Freq.	77	20	21	91	26
	decreased 20 beats or more	%	65.2	16.9	17.8	77.8	22.2

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94.9% stated correctly that children aspirator catheter between 6-12, 5.1 %(n=6) have neutral response, 87.3 % (n=103) of the nurses observed choosing the correct aspirator catheter and (n=15) 12.7% not using appropriate catheter size. 70.3% (n=83) stated correctly about the aspiration pressure but 11% (n=13) doesn't knew about suction pressure and 18.6% (n=22) remains neutral, during observation 49.2% (n=58) of the participants were adjusting the pressure of suction machine (correctly performing the procedure) and (n=60) 50.8 % of the nurses did not adjust pressure of suction machine

17.8 (n=21) gave correct answer, 79.7% (n=94) gave wrong answer to the question on catheter moving forth and back while in the airway and 2.5% (n=3) does not give any specific answer, while observing 90.7 % (n=107) of subjects were observed wrong practice of moving catheter forth and back in the airway, and only (n=11) 9.3% performing it correctly

Following the suctioning procedure 83.9 % (n=99) gave the correct answer about time of suctioning, 10.2% (n=12) gave incorrect answer, 5.9(n=7) does not specifically answer the question. On observation 52.5% (n=52) of the nurses were observed within the time limit and, 47.5%, (n=56) of the participant exceed the time. On asking the question about washing catheter with saline 31.3% (n=37) knew that it should not washed with saline and 67.8% (n=80)

After Suctioning

does not knew and 0.8% (n=1) are not sure about the answer, during observation 80.5%, (n=95) of the participants not washing the catheter with saline and (n=23) 19.5% were washing the catheter.

With the regard of frequency of suctioning 19.4% (n=23) correctly answer, 59.3% (n=70) does not gave correct answer and 21.2% (n=25) are not sure about the answer. In practice 44.1% (n=52) were observed performing suction 3 times consecutively but most of them (n=66) 55.9 %, observed not to perform suction more than 3 times

On asking about resting the patient for 30-60 second if more than one suction is needed 69.5% (n=82) gave correct answer, 8.5% (n=10) gave incorrect answer, and 22% (n=26) are neutral.

While observing them58.5 %(n=69) of the subjects rest the patient during suctioning but 41.5 %, (n=59) of the subjects observed to not provide rest of 30-60 seconds

92.4% (n=109) gave the correct answer about monitoring heart rate during procedure and 5.0% (n=6) gave wrong answer, 2.5% (n=3) are not sure about the answer. On observation 75.4 %, (n=89) of the participants monitored cardiac rhythm but 24.6 %, (n=29) of the participants observed of not monitoring it. As shown in table 4.

Sr.	Question		ŀ	Knowledge		Practice			
no.			Correct	Incorrect	Neutral	Correct	Incorrect		
1.	Auscultation after suctioning	Freq.	104	11	5	33	85		
		%	86.5	9.3	4.2	28	72		
2.	Giving oral care to patient	Freq.	97	9	12	48	70		
		%	82.2	7.6	10.1	40.7	59.3		
3.	Vital sign monitoring	Freq.	115	3	0	92	26		
		%	97.5	2.5	0	78	22		
4.	Recording the procedure of	Freq.	114	2	2	62	56		
	suctioning	%	96.7	1.7	1.7	52.5	47.5		

Table-5: After Suctioning

With the regard to answer the question of auscultate patient lung after suctioning 86.5% (n=104) gave correct answer, 9.3% (n=11) gave wrong answer and 4.2(n=5) are neutral. However during observation 28%, (n=33) of the participants correctly perform the procedure but majority of them72 %,(n=85) did not auscultate after the procedure.

Participants responded to the question about oral care after procedure 82.2% stated it correctly, 7.6% (n=9) stated wrong and 10.1% (n=12) not sure about the answer. In practice only 40.7 % (n=48) were observed providing an oral care to the patient, 59.3 %, (n=70) were not providing oral care to the patient

97.5% correctly answered the question about vital sign monitoring, 2.5% (n=3) gave incorrect answer. During performance 78.0%, (n= 92) of the participant observed for monitoring vital sign but some of them 22% (n=26) were not. 96.7% (n=114) stated that procedure should be documented, 1.7% (n=2) gave incorrect answer, 1.7% (n=2) are neutral. While on

observing them 52.5% (n=62) of participants actually record the procedure, 47.5%, (n=56) did not record any procedure. (Table 5)

Nurses Knowledge and practice score about endotracheal suctioning

93.2% (n=110) of participants have good knowledge, 5.9% (n=7) of participants have fair knowledge and 0.8% (n=1) have poor knowledge about ETT suctioning. The level of practice was good in 42.9%, fair in 44.5%, and poor in14%. (Figure 1 & 2)

The mean knowledge score of the nurses calculated to be 24 \pm 3.0 (min-maxi=10-31) and the mean practice score was 17.85 \pm 5.67 (min-maximum=5-26)

There is a weak correlation between nurse's knowledge and practice score as r = 0.031, and p = 0.736 it is not statistically significant. It means that nurses have knowledge about standard guidelines but they do not put it into practice.



Fig-2: Total practice of participants

44.92%

Demographic	Knowledge			Practice			
variables			T		1	T	
	Poor	Fair	Good	Poor	Fair	Good	
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	
Age							
18-25 years	0(0.0)	4(9.3)	39(90.7)	8(18.6)	18(41.9)	17(39.5)	
26-35 years	1(1.5)	3(4.4)	64(94.1)	6(8.8)	28(41.2)	34(50.0)	
36-50 years	0(0.0)	0(0.0)	7(100)	0(0.0)	7(100)	0(0.0)	
	P=	= 0.55		P=0.	.06		
Total experience of							
ICU nurses.							
<1 year	0(0.0)	3(8.8)	31(91.2)	1(2.9)	11(32.4)	22(64.7)	
1-5 year	1(1.8)	4(7.0)	52(91.2)	12(21.1)	28(49.1)	17(29.8)	
6-10 year	0(0.0)	0(0.0)	15(100)	1(6.7)	7(46.7)	7(46.7)	
>10 years	0(0.0)	0(0.0)	12(100)	0(0.0)	7(58.3)	5(41.7)	
	P=0.50		P=0.0	P=0.007			
Type Of							
ICU							
MICU	0(0.0)	1(3.7)	26(96.3)	1(3.7)	11(40.7)	15(55.6)	
CICU	0(0.0)	0(0.0)	15(100)	4(26.7)	2(13.3)	9(60.0)	
CSICU	0(0.0)	0(0.0)	10(100)	1(10.0)	3(30.0)	6(60.0)	
SICU	0(0.0)	3(12.0)	22(88.0)	2(8.0)	12(48.0)	11(44.0)	
MNICU	0(0.0)	0(0.0)	7(100)	3(42.9)	4(57.1)	0(0.0)	
WARD ICU	1(2.9)	3(8.8)	30(88.2)	3(8.8)	21(61.8)	10(29.4)	
P=0.728		P=0.004					
Qualification							
Of ICU nurses							
Post RN/B.Sc.N	0(0.0)	3(12.0)	22(88.0)	4(16.0)	15(60.0)	6(24.0)	
Diploma nurses	1(1.4)	4(5.6)	66(93.0)	8(11.3)	30(42.3)	33(46.5)	
Specialization	0(0.0)	0().0)	22(100)	2(9.1)	8(36.4)	12(54.5)	
	P=	0.286		P=0	P=0.243		

Table-6: Knowledge and practice according to demographic variable using chi square				
- Table-0. Knowledge and bractice according to demographic variable using ciri solare	Table 6. Knowledge and	prosting according to	domographic variable	ncing obi canora
	Table-0: Knowledge and	bractice according to	uemographic variable	using chi suuare

Chi square test (p=0.05)

By applying chi square test among demographical variables (age, total experience of ICU nurses, type of ICU, qualification of ICU nurses) and knowledge and practices of ICU nurses about endotracheal suctioning to search association between them. From the analysis of chi square it is revealed that there is significant association between total experience and practice of nurses (p=0.007) and type of ICU and practices of nurses (p=0.004). But there was no association between rests of variables.

DISCUSSION

The research results revealed that the participant have good level of knowledge (mean score24 \pm 3.0) and fair level of practice as (mean practice score was 17.85 \pm 5.67) showing that there is a gap between knowledge and practice in such a crucial procedure in the ICU, s and the nurses are aware of recommended practice but do not follow them.

The results of this study are similar to the other researcher who discussed that the knowledge of ICU nurses was at desireable level (mean score 19.59out of

26). But the practice is at very low level mean score at 8.75/26, revealed the fact that there is a large gap between knowledge and practice [1].

Another study confirms these results as the mean score of knowledge was $23.79\pm$ of 3.83 out of 31 and mean practice score is 12.88 ± 2.53 out of 31 descibes that there knowledge score is better than there practice score [9].

But a study coducted on the assessment of the knowledge of nurses about endotracheal tube describe that the correct percentage is only 58% which is undesireable level of knowledge and the results are in contrast to this study [10].

The results of descriptive study on open system endotracheal suctioning practices among nurses, suggested that mean of total rate of adherence to recommended guideline was 51.33%. Explaining poor adherence to best practice recommendation available for performing open system endotracheal suctioning. The results are similar to the this study as it also have low adherence to recommended practice [5].

An observational study on the practices of open system suctioning discussed that nurses does not practice the best recommendation as in this study. The mean of the nurse's practice score is 22.62 and range between 14-30 and as a result they provide low quality suctioning to the patients [7].

The varying of the result in knowledge and practice of ICU nurses on endotracheal suctioning may be due to lack of standard guidelines in the ICU and nurses did not have any training in their service on endotracheal suctioning, whatever they learn is through experience.

Findings of this study shows disparity between their knowledge and practice on hand washing. Participants were aware of significance of hand washing but on practically applying it they are failed to do so, as knowledge score was 89.3% and on practice adherence was only 40%. Another study shows these discrepancies in the performance of ICU nurses in relation to current recommended practice. The participants of this study washed hands before suctioning are72.2% (n=26) [6].

It was found in the present study that only 3.3% (n=4) of nurses wear apron during suctioning which are similar to the results of the exploratory study on endotracheal suctioning that only 6% of participants wore apron [14].

Approximately 33.1% of nurses knew that glasses should be worn during suctioning but only 4.2% (n=5) wear goggles during suctioning. That are similar to study in which only 2 participants wore the glasses before suctioning procedure [7].

The result of the study revealed that 40.3% of nurses moved the catheter forth and back while in the airway [9] and 90.7% were determined in this study.

Statistically significant relationship found between total experience and practices of ICU nurses(p=0.007) and type of ICU with practice of ICU nurses(p=0.004), which is in contrast to another study that describes there is no relationshiop between knowledge, practice and demographic variables.

Limitation

There are several limitation of the study that need to be discussed. The study was based on purposive sampling(non probability method) random sampling can decreases the chances of biases in the result. The questionnare was filled in the researcehers presence so there was a possibility of transfer of information to the participants. Data was collected from critical and ICU areas on duty nurses, if the patient getting sick it may effect the participants response to the questions e.g. rapidly answer the question. On the part of observation one should not ignore the importance of hawtrhrone effect and the researcher presence effects the participants performance. There is a shortage of time, and the participants were only observed once it does not provide true representation of the practices. This study was conducted in the one hospital with the small sample size so it does not represent all hospital of the Lahore.

CONCLUSION

The study represents the crucial insight of intensive care nurses in childern hospital Lahore. On their endotracheal suctioning practices. It was descriptive, cross sectional quantitive study and is concerned about all aspects of endotracheal suctioning. Based on the findings the of the study the researcher conclude that most of the nurses have good knowledge and fair practice on the part of endotracheal suctioning. The results also represents that participants have knowledge and they may not put it into the practice. The disparity between knowledge and practice can lead to unfavourable consequences to the patient and nursing care will also be suffer. This may be due to nurses have learned these practices from experience without adequate training. It is imperative that nurses are aware of recommended guideline and new advancement in the field of critical care nursing (endotracheal suctioning) to reduce the complication. This issue can be solved by training programme and workshop on this regard and repeating the programmes until desire level of this skill achieved and this will in turn increases the quality of nursing care in critical areas. As the quality of practical skill increases there is a reduction of hospital stay, needless medical intervention and mortality rate.

Implications

Evidence based guidelines on endotracheal suctioning is obligatory in all intensive care unit settings and nurses should motivated to utilise them.Nurse administrator should arrange a teaching session frequently for the nurses who are working in in the critical areas and ICU settings. Some studies also confirms that teaching intervention is helpful in improving knowledge and pactice about endotracheal suctioning [11]. Along with the teaching there is also a need for monitoring the practices of nurses and evaluation of performance at bed site and feedback should be provided accordingly.

Recommendation

It is recommended that this study should be taken place on large sample to truly represent the status of ICU nurses regarding endotracheal suctioning. It is also recommended that the observation of the practices should be done atleast 3 times to minimize the error. This study should be repeat after teaching session to assess the sustainability of the recommended practice.

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