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Knowledge and Practice of Nurses regarding Prevention of Surgical Site Infections

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1. INTRODUCTION

The infections which are cause after any type of surgery due to carelessness of medical staff member or a patient is known as surgical site infection (Johanna Newman, 2015). Surgical site infections are known to be 16 % of all nosocomial infections (Van Mossel, Leitz et al. 2012).

The surgical site infections are known to be the second most common infections that are spread from nurses or doctors working in the surgical wards due to their carelessness or low level of knowledge and practice regarding prevention of the infection at surgical site " (Diaz and Newman 2015).“According

to a prevalence the rate of surgical site infections in developed countries is low ranging from 2% to 6.4% but in undeveloped countries its rate is going upward from 5.5% to 25%"(Dubberke, Gerding et al. 2008). The best way to control the surgical site infection is through good knowledge and practice of the nursing staff members in the surgical wards(Famakinwa, Bello et al. 2014).

There are two main types of the factors that are related to the growth of surgical site infection Intrinsic factors and Extrinsic factors. Intrinsic factors include advanced age, malnutrition, smoking, obesity and hypoxia. Extrinsic factors includes skin aseptic, pre-operative shaving, pre-operative skin preparation, sterilization of instruments, surgical hand scrub and dressing techniques (Famakinwa, Bello et al. 2014).

For the prevention of surgical site infection nurses must have appropriate knowledge and practice regarding intrinsic factors such as advanced age, malnutrition, hypoxia, smoking and longtime stay in the hospital. Nurses are the health care takers who spend most of their time with patients and should give numerous formal and informal health education regarding surgical site infection to the patients (de Lissovoy, Fraeman et al. 2009).

Knowledge and practice of nurses regarding intrinsic factors must be good because intrinsic factors are mostly responsible for development of surgical site infection. Main focus is on the intrinsic factors because intrinsic factors are known to be one of the main causes ofsurgical site infection. The role of intrinsic factors is equal to extrinsic factors in the spread of surgical site infections. So, that's why main focus will be on the nurses' knowledge and practice of intrinsic factors regarding prevention of surgical site infection (Labeau, Witdouck et al. 2010).

One of the prominent factors which is the cause of surgical site infection is age. Small babies and old age people

are much near to the infections. So, the nurses working in the surgical wards must be aware from the age factor of the patients having any surgery to prevent the patients from acquiring surgical site infection (Imai et al.,2013).

The intrinsic factor which is responsible for surgical site infection is malnutrition, patients suffering from malnutrition have less immunity power to fight against any disease or infection that's why they are at high risk of carrying infection. So a nurse with proper knowledge and practice must prevent the risk of such patients to avoid them from getting closer to the surgical site infection (Diaz and Newman 2015).

Patients who have a habit of smoking are also near to acquire surgical site infection Smoking is also a reason of surgical site infection. Smoking causes many other problems which help surgical site infection to get growth. Smoking is inhibited with delay wound healing and the circulation of blood is decreased and the skin due to microvascular obstruction from platelet aggregation and increased nonfunctioning of the blood (Kingsley 2001).

Fatty patients and extra body weight has been associated with surgical site infection especially after cardiac and orthopedic implant surgery(Famakinwa, Bello et al. 2014)).

Hypoxia is also a cause of surgical site infection. The patients suffering from hypoxiaare having oxygen deficiency due to this they are much near to risk of carrying surgical site infection. Hypoxia cause delay healing of wounds. So the patient who is already having delay in wound healing will be more near to acquire surgical site infections *(de Lissovoy, Fraeman et al. 2009).*

2. LITERATURE REVIEW

Nurses must always have a good knowledge and practice about the intrinsic factors responsible for surgical site infection while they are dealing with the patients of surgery to prevent the

patients from acquiring any kind of intrinsic surgical site infection in the surgical wards.The prevention of surgical site infection is an important duty for nurses working in the surgical wards. If nurses have awareness, they can give proper care to the patients and prevent the patient's health from getting worse (Labeau, 2010).

Surgical site infections are the infections which are acquired through the contact with health care providers such as nurses and doctors those working in the surgical wards. Surgical site infections can cause minor complications or great loss to the health of a patient. Surgical site infections are cost effective because of long term hospital stay, extra laboratory test charge, doctor's visit and extra processes (Harrison, Cohen et al. 2015).

Rate of surgical site infection vary from country to country some countries have very low infection rate like USA but some countries have high rate of acquiring surgical site infection like Pakistan. The risk of surgical site infection is higher in developing countries like Pakistan, India, and Afghanistan relative to developed nations like USA, China and Bangladesh (Van Mossel, 2016).

"Surgical site infection is caused around the world in many cases it is due to carelessness of the health care providers studies in the industrialized world have shown major complications of 3-17% and a mortality rate of 0.4-0.8% but in Pakistan, the deathratio due to surgical site infection is higher than high other countries." (Asad Ali Toor, 2013).

Surgical site infection can be preventing through proper knowledge of nurses regarding intrinsic factors that are cause of spreading surgical infections, the problems of the patient in surgical wards such as, age of the patient, malnutrition status, obesity the smokers and hypoxic patients. A study shows that nurses' have no proper knowledge and practice regarding the age of patient, malnutrition status, obese patients, smoking

patients and hypoxic patients that's why such patients acquire infection from the surgical wards (Hollinworth H., 2013).

Age is a considerable intrinsic factor which is responsible for increase in acquiring surgical site infection, people who are aged and small children are much near to get surgical site infection. A study found that people who are advanced age(more than 70 years) are at high risk of surgical site infection (Imai et al., 2013).

Malnutrition is also one of the major causes of nosocomial infection including the surgical site infection, patients suffering from malnutrition have less immunity power that's why they are at high risk of carrying infection. If the serum albumin level is below then surrogate level of 3.4 to 5.4 g/dl is indicator of surgical site infection so the nurses working in the surgical departments must be aware of the surrogate level of the patients(Diaz and Newman 2015).

Smoking is associated with inhibited wound healing and decreased blood circulation to the skin due to microvascular obstruction from platelet aggregation and increased non-functioning of hemoglobin. This factor increased risk of surgical site infection(Kingsley 2001).

Obesity has been associated with surgical site infection especially after cardiac and orthopedic implant surgery found that patients with underweight colon surgery who had BMI of 25 or above had a 1.67-fold risk for surgical site infection compared with patients with BMI less than 25(Famakinwa, Bello et al. 2014).

The patient who is having oxygen deficiency is much near risk of carrying surgical site infection. It causes delay in the healing of wounds. The patient having delay in healing wounds is at very high risk of acquiring surgical site infections *(de Lissovoy, Fraeman et al. 2009).*

3. PROBLEM STATEMENT

Healthcare today is challenged by the infectious and chronic diseases. The goal of high quality, cost effective and accessible care requires a competent workforce of healthcare professionals (Maharajan, Rajiah et al. 2017). The surgical site infections are known to be the second most common infections that are spread from nurses or doctors working in the surgical wards due to their carelessness or low level of knowledge and practice regarding prevention of the infection at surgical site. The rate of surgical site infections in developed countries is low ranging from 2% to 6.4% but in undeveloped countries its rate is going upward from 5.5% to 25%"(Dubberke, Gerding et al. 2008)

For the prevention of surgical site infection nurses must have appropriate knowledge and practice regarding intrinsic factors such as advanced age, malnutrition, hypoxia, smoking and longtime stay in the hospital. Nurses are the health care takers who spend most of their time with patients and should give numerous formal and informal health education regarding surgical site infection to the patients.

4. OBJECTIVE

The objective of the study is:

- To assess nurses' knowledge regarding prevention of surgical site infection.
- To assess nurses' practice regarding prevention of surgical site infection.

5. RESEARCH QUESTIONS

Do nurses have knowledge regarding prevention of surgical site infection?

Do nurses follow exact practice regarding prevention of surgical site infection?

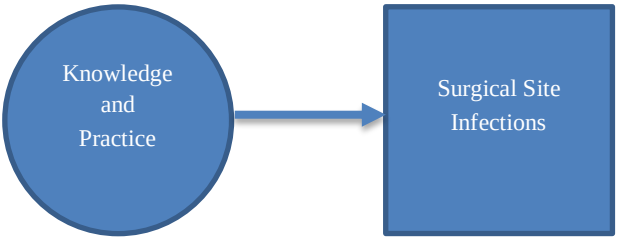
6. SIGNIFICANCE

Nurses have a lot of role to play in prevention of surgical site infection thus there is a need to amine their knowledge and practice. Appropriate knowledge and practices of nurses will help to prevent surgical site infection if there is a lack, education will be given.

The study findings enable the organization to enhance the knowledge and practice of nurses regarding prevention of surgical site infection which results in reduction of the patient hospital stay and minimize cost and time.

The study will help me to enhance my knowledge and practice regarding prevention of surgical site infection during my studies and my clinical site.

7. THEORITICAL FRAMEWORK



(Bloom's Taxonomy learning theory, 1956)

The framework of this study based on Bloom's Taxonomy learning theory (1956). Bloom suggested three learning covering domains i.e. the cognitive, psychomotor, and affective domains. There are interrelationships between these domains. The cognitive domain contains knowledge regarding intrinsic factors associated with surgical site infection. The psychomotor domain includes the practice of pre-operative and post-operative care regarding basic stages of practice. Though, the affective domain if nurses give proper care to the patient the chances of the surgical site infection will decrease(Bloom, 1956).

7. OPERATIONAL DEFINITIONS

Knowledge:

The facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject.

Practice:

The facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject surgical site infections.

Surgical site infection (SSI).

It involves only skin and subcutaneous tissue of incision.

8. MATERIAL AND METHOD

Study Design

A cross-sectional study design was used.

Study Setting

The setting for this research was Jinnah Hospital Lahore.

Duration of the Study:

This study was completed approximately 4 months (September 2018, to December 2018).

Study Population:

The study population for this research wasnurses of all the surgical wards in Jinnah Hospital Lahore.

Sampling Technique:

The simple random sampling techniques was used to collect data from selected population.

Sample Size:

Sample size is determined by using this formula

$$n= N/ 1+ (N) (E)^2$$

Desired sample size= n=?

Target Population= N =245

Margin of error =E=0.05 at 95% confidence interval

$n= 245/1+245(0.05)^2$

n= 245/1+1

n=245/2
n=151
The sample size is 151

Sample Selection for Nurses:

Inclusion criteria:

The subject included in the study was:

- All Head nurses and staff nurses of all the surgical wards.
- Both male and female
- Those patients who were interested to participate in the study

Exclusion criteria:

The subjects who are excluded from the study was:

- Nursing assistant of surgical wards in Jinnah Hospital Lahore
- Those who are not willing to participate

8. ETHICAL CONSIDERATIONS

The rules and regulations set by the ethical committee of Lahore School of Nursing were followed while conducting the research and the rights of the research participants was respected.

- Written informed consent attached was taken from all the participants.
- All information and data collection were kept confidential.
- Participants remained anonymous throughout the study.
- The subjects were informed that there are no disadvantages or risk on the procedure of the study.
- They were also informed that they will be free to withdraw at any time during the process of the study.
- Data was kept in under key and lock while keeping keys in hand. In laptop it will be kept under password.

9. DATA COLLECTION PLAN

- After taking informed consent, data was collected by the help of collection tool questionnaire adopted (Humaun Kabir Sickder, 2009).
- Data was collected from 151 staff nurses.

10. DATA ANALYSIS:

Data was analyzed by using SPSS version 22.0 statistical software for data analysis.

- Demographic variables like age, gender, marital status, education etc. was analyzed by using descriptive statistics like frequency, percentage, mean and standard deviation. Percentages were calculated for categorical data while continuous data was analyzed through mean and standard deviation.

RESULT

This Chapter includes the portion of analysis. The focus of this chapter is to analyze the data, which gathered through Self-Administered Questionnaire. Questionnaire contain three portions. First portion is Demographic, then second is Knowledge and third portion is Practice. Descriptive analysis was used to analyze the data of questionnaire.

Demographic Characteristics:

This portion summarize the demographic characteristics of respondents (n=151) on the base of their marital status (single or Married), gender (Male, female), age (18-25 year, 26-35 years, 36-50 or above 50 years). Qualification (Diploma in Nursing, MBBS,Surgical Specialization, Other) , Stay in Organization(Less than 1 years, 1- 5 years, 6-10 years, or above than 10 years).

Table 1 shows the Statistics.

Statistics

		Gender	Age	Hospital	Experience	Qualification
N	Valid	151	151	151	151	151
	Missing	0	0	0	0	0
Mean		2.00	2.05	1.00	2.34	1.00
Median		2.00	2.00	1.00	2.00	1.00
Std. Deviation		.000	.937	.000	1.032	.000
Std. Error of Skewness		.197	.197	.197	.197	.197
Std. Error of Kurtosis		.392	.392	.392	.392	.392
Range		0	3	0	3	0
Skewness			.387		.131	
Kurtosis			-.898		-1.147	

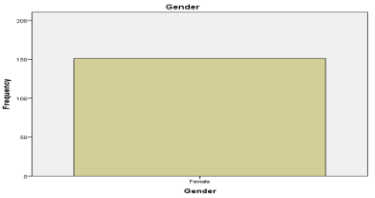
This table shows that the 151 respondents answer their gender, age hospital experience and qualification. No one miss the part of telling gender, age, hospital, experience and qualification.

Table 1.1

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	151	100.0	100.0	100.0

Fig 1.1:



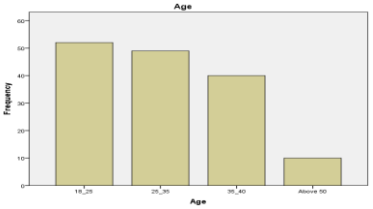
This table and graph shows that all the respondents took part in filling the questionnaire were female. Figure shows that out of 151 sample size, all the respondent were female nurses and account for 100% of sample size.

Table 1.2

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18_25	52	34.4	34.4	34.4
	25_35	49	32.5	32.5	66.9
	35_40	40	26.5	26.5	93.4
	Above 50	10	6.6	6.6	100.0
	Total	151	100.0	100.0	

Fig 1.2 :



This table shows the percentage of the respondents which took part in the research. This table shows that 34.4% of the respondents were of 18-25 age, 32.5% were of 25-35, 35-40 were of 26.5% and 6.6% belongs from the age above from 50 years.

Table 1.3:

Hospital

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Government Hospital	151	100.0	100.0	100.0

Fig 1.3:

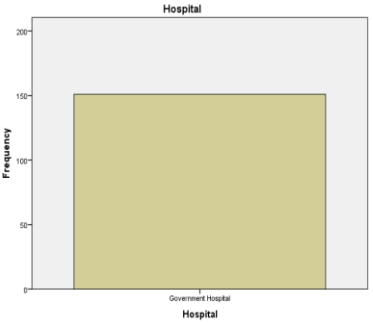
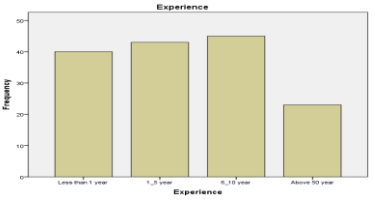


Table 1.4:
Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	40	26.5	26.5	26.5
	1_5 year	43	28.5	28.5	55.0
	6_10 year	45	29.8	29.8	84.8
	Above 20 year	23	15.2	15.2	100.0
	Total	151	100.0	100.0	

This table shows the experience level of the respondents who took part in the research. 26.5% respondents were having the experience of less than 1 year, 28.5% were having experience of 1-5 year, 29.8% were having experience of 6-10 year and 15.2% were having the experience above 20 years.

Fig 1.4 shows the experience level of the nurses.

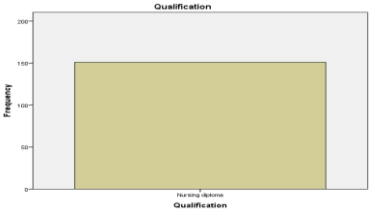


This table shows the statistics of qualification.
Qualification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nursing diploma	151	100.0	100.0	100.0

All the respondents were having nursing diploma.
Here are the bar charts of gender, age, hospital, experience and qualification.

Fig 1.5.



Reliability Testing

The second part of the Questionnaire was based on the questions of knowledge that either the nurses have any knowledge regarding the prevention of surgical site infection or not.

To check the reliability of this filled questionnaire spss version 21 was used. And according to Cronbach's Alpha it was .734.It is the normal value which shows that the questionnaire were not filled fake.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.734	.773	6

The third and last part of the questionnaire was based on the practice regarding prevention of surgical site infection. Its reliability was also checked use Cronbach's Alpha. This questionnaire reliability was .503, this value is not a good but it is accounted in average.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.503	.622	11

Frequency analysis for the questionnaire based on knowledge regarding prevention of surgical site infection.

Question #1.

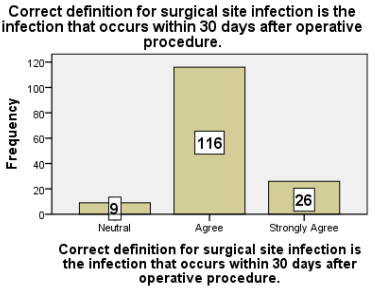
Correct definition for surgical site infection is the infection that occurs within 30 days after operative procedure.

Table: 2.1:

Correct definition for surgical site infection is the infection that occurs within 30 days after operative procedure.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	9	6.0	6.0	6.0
	Agree	116	76.8	76.8	82.8
	Strongly Agree	26	17.2	17.2	100.0
	Total	151	100.0	100.0	

Fig 2.1.



This shows that 76.8%(116) Of nurses were agree with the correct definition of surgical site infection. 6.0%(9) were neutral and 17.2%(26) were strongly agree.

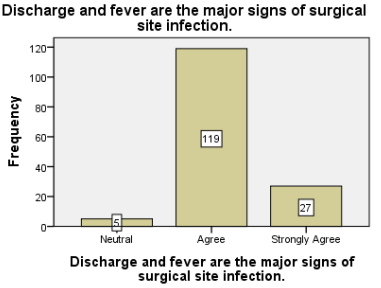
Question#2. Discharge and fever are the major signs of surgical site infection.

Table 2.2:

Discharge and fever are the major signs of surgical site infection.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	5	3.3	3.3	3.3
	Agree	119	78.8	78.8	82.1
	Strongly Agree	27	17.9	17.9	100.0
	Total	151	100.0	100.0	

Fig 2.2.



This table shows that 78.8%(119) were agree that discharge and fever are the major signs of surgical site infection. 3.3%(5) were neutral and 17.9%(27) were strongly agree.

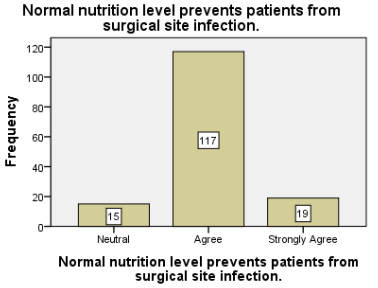
Question#3. Normal nutrition level prevents patients from surgical site infection.

Table 2.3:

Normal nutrition level prevents patients from surgical site infection.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	15	9.9	9.9	9.9
	Agree	117	77.5	77.5	87.4
	Strongly Agree	19	12.6	12.6	100.0
	Total	151	100.0	100.0	

Fig 2.3



77.5(117) nurses were just agree that normal nutrition level prevents patients from surgical site infection. 9.9%(15) were neutral and 12.6(19) were strongly agree.

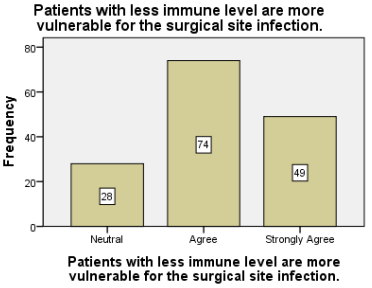
Question# 4. Patients with less immune level are more vulnerable for the surgical site infection.

Table 2.4:

Patients with less immune level are more vulnerable for the surgical site infection.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	28	18.5	18.5	18.5
	Agree	74	49.0	49.0	67.5
	Strongly Agree	49	32.5	32.5	100.0
	Total	151	100.0	100.0	

Fig 2.4.



49.0%(74) nurses were agree that patients with less immune level are more vulnerable for surgical site infection, 18.5%(28) were neutral and 32.5%(49) strongly agree.

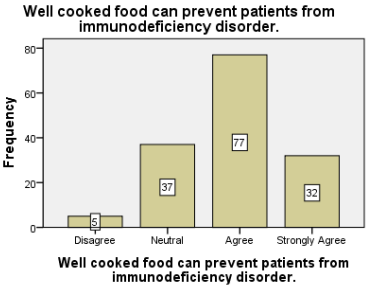
Question#5. Well cooked food can prevent patients from immunodeficiency disorder.

Table 2.5:

Well cooked food can prevent patients from immunodeficiency disorder.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	3.3	3.3	3.3
	Neutral	37	24.5	24.5	27.8
	Agree	77	51.0	51.0	78.8
	Strongly Agree	32	21.2	21.2	100.0
	Total	151	100.0	100.0	

Fig 2.5.

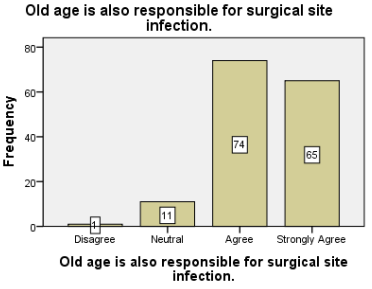


This frequency shows that 51.0%(37) nurses were agree that well cooked food can prevent patients from immunodeficiency which is a cause of surgical site infection, 24.5%(37) were neutral and 21.2%(32) were strongly agree.

Question#6. Old age is also responsible for surgical site infection.
Table 2.6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.7	.7	.7
	Neutral	11	7.3	7.3	7.9
	Agree	74	49.0	49.0	57.0
	Strongly Agree	65	43.0	43.0	100.0
	Total	151	100.0	100.0	

Fig 2.6.



49.0%(74) nurses were agree that old age is also responsible surgical site infection, 0.7%(1) was disagree, 7.3%(11) were neutral and 43.0%(65) were disagree.

Frequency table and percentage figures for the filled questionnaire regarding the prevention of surgical site infection.

Frequency Table

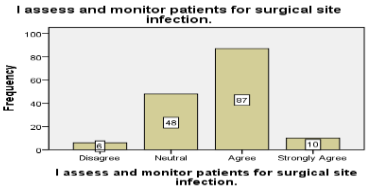
Question# 7. I assess and monitor patients for surgical site infection.

Table 3.1:

I assess and monitor patients for surgical site infection.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	6	4.0	4.0	4.0
	Neutral	48	31.8	31.8	35.8
	Agree	87	57.6	57.6	93.4
	Strongly Agree	10	6.6	6.6	100.0
	Total	151	100.0	100.0	

Fig 3.1.



These values shows that about 57.6%(87) nurses assess and monitor patients for surgical site infection 4.0%(6) were disagree, 31.8(48) nurses were neutral and only 6.6%(10) were strongly agree.

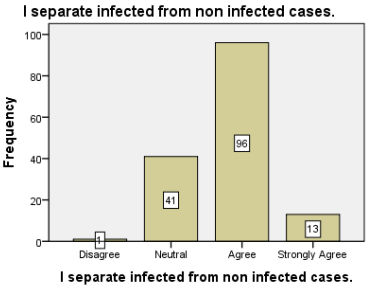
Question# 8. I separate infected from non infected cases.

Table 3.2:

I separate infected from non infected cases.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.7	.7	.7
	Neutral	41	27.2	27.2	27.8
	Agree	96	63.6	63.6	91.4
	Strongly Agree	13	8.6	8.6	100.0
	Total	151	100.0	100.0	

Fig 3.2.

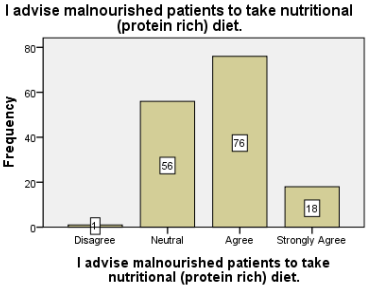


63.6%(96) nurses were agree that the separate the infected patients from the non- infected, 0.7%(1) were disagree, 27.2%(41) were neutral and 8.6%(13) were strongly agree.

Question #3. I advise malnourished patients to take nutritional (protein rich) diet.
Table 3.3:
I advise malnourished patients to take nutritional (protein rich) diet.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.7	.7	.7
	Neutral	56	37.1	37.1	37.7
	Agree	76	50.3	50.3	88.1
	Strongly Agree	18	11.9	11.9	100.0
	Total	151	100.0	100.0	

Fig 3.3.



50.3%(76) nurses were agree that they advise malnutrition patients to take protein rich diet, 0.7%(1) was disagree, 37.1%(56) were disagree and 11.9%(18) were disagree.

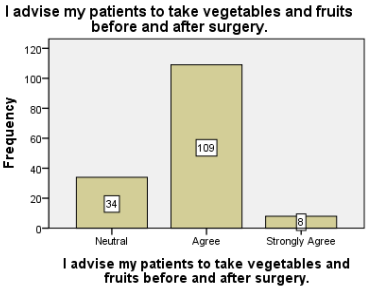
Question# 10.I advise my patients to take vegetables and fruits before and after surgery.

Table 3.4:

I advise my patients to take vegetables and fruits before and after surgery.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	34	22.5	22.5	22.5
	Agree	109	72.2	72.2	94.7
	Strongly Agree	8	5.3	5.3	100.0
	Total	151	100.0	100.0	

Fig 3.4.



72.2%(109) nurses were agree that they advise patients of surgery to take vegetables and fruits after surgery 22.5%(34) were neutral and 5.3%(8) were strongly agree.

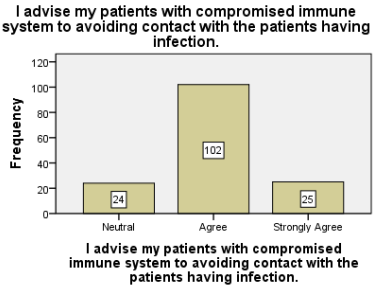
Question# 11. I advise my patients with compromised immune system to avoiding contact with the patients having infection.

Table 3.5:

I advise my patients with compromised immune system to avoiding contact with the patients having infection.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	24	15.9	15.9	15.9
	Agree	102	67.5	67.5	83.4
	Strongly Agree	25	16.6	16.6	100.0
	Total	151	100.0	100.0	

Fig 3.5.



67.5(102) nurses were agree that they advise the patients with compromised immune system to avoid contacting with the patients having infection, 16.6%(25) were strongly agree and 15.9%(24) were neutral.

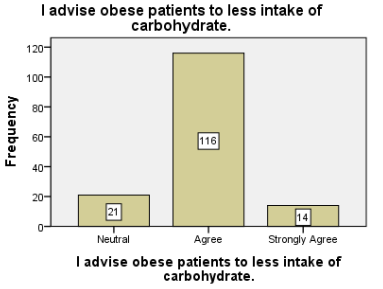
Question# 12. I advise obese patients to less intake of carbohydrate.

Table 3.6:

I advise obese patients to less intake of carbohydrate.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	21	13.9	13.9	13.9
	Agree	116	76.8	76.8	90.7
	Strongly Agree	14	9.3	9.3	100.0
	Total	151	100.0	100.0	

Fig 3.6.



Value shows that 76.8%(116) nurses were agree that they advise the obese patients to less intake of carbohydrate, 13.9%(21) nurses were neutral and 19.3%(14) nurses were strongly agree.

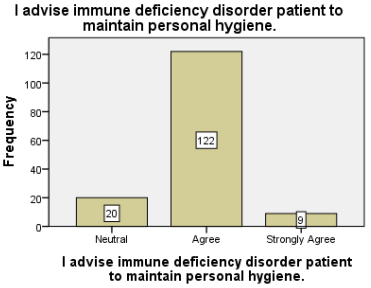
Question# 13. I advise immune deficiency disorder patient to maintain personal hygiene.

Table 3.7:

I advise immune deficiency disorder patient to maintain personal hygiene.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	20	13.2	13.2	13.2
	Agree	122	80.8	80.8	94.0
	Strongly Agree	9	6.0	6.0	100.0
	Total	151	100.0	100.0	

Fig 3.7.



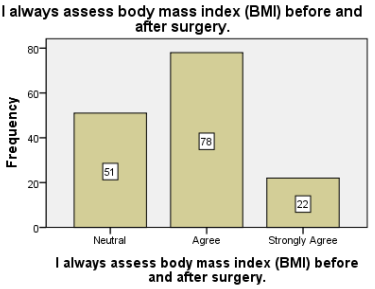
Question# 14. I always assess body mass index (BMI) before and after surgery.

Table 3.8:

I always assess body mass index (BMI) before and after surgery.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	51	33.8	33.8	33.8
	Agree	78	51.7	51.7	85.4
	Strongly Agree	22	14.6	14.6	100.0
	Total	151	100.0	100.0	

Fig 3.8.



51.7%(78) nurses were agree that they assess BMI before and after surgery, 33.8%(51) were neutral which means some time they do and sometime they don't 14.6%(22) were strongly agree which means they usually do this.

Question# 15. I always inquire patient about history of smoking.

Table 3.9:

I always inquire patient about history of smoking.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	55	36.4	36.4	36.4
	Agree	72	47.7	47.7	84.1
	Strongly Agree	24	15.9	15.9	100.0
	Total	151	100.0	100.0	

Fig 3.9.

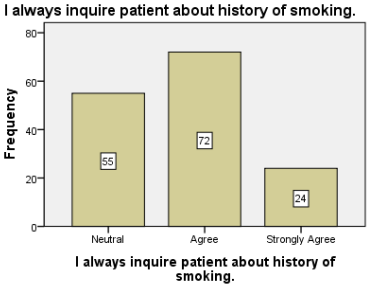


Table 3.10 shows that nurses show mark of agree on advising the patients to stop smoking.

Question No.16

I advise patient to stop smoking.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	2.0	2.0	2.0
	Neutral	17	11.3	11.3	13.2
	Agree	85	56.3	56.3	69.5
	Strongly Agree	46	30.5	30.5	100.0
	Total	151	100.0	100.0	

Fig 3.10.

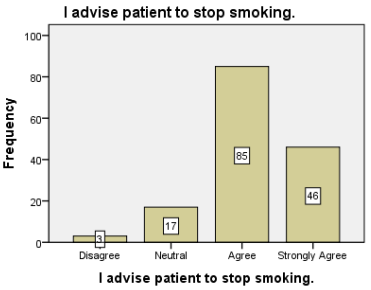


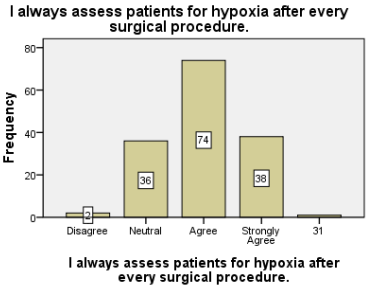
Table 3.11 shows that less than half of nurses show that they assess patients of hypoxia after every surgical site infection.

Question No.17

I always assess patients for hypoxia after every surgical procedure.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	1.3	1.3	1.3
	Neutral	36	23.8	23.8	25.2
	Agree	74	49.0	49.0	74.2
	Strongly Agree	38	25.2	25.2	99.3
	31	1	.7	.7	100.0
	Total	151	100.0	100.0	

Fig 3.11.



DISCUSSION:

The graphs show that nurses were having a good knowledge about the surgical site infection but they were not using the knowledge in the practice. Factors which were cause of surgical site infection are very large in n umbers but the nurses of Jinnah Hospital Lahore were just having the knowledge but only some factors were been practice by them.

According to (Van Mossel, Leitz et al. 2012) surgical site infection is caused due to carelessness of the medical staff members in the surgical wards so they must have a good knowledge and practice regarding the prevention of the surgical site infection.

According to my research results the nurses of Jinnah Hospital were having a good knowledge regarding the prevention of surgical site infection but their practice seems not good. There was a need to improve practice regarding prevention of surgical site infection and help the patients to seek health not to get ill.

According to (Imai et al., 2013) age is a factor which is responsible for surgical site infection because the person who is older in age he/she is near to acquire surgical site infection, similarly small children new born are also having less immune system and this causes surgical site infection.

Nurses were well aware with the age factor but they were not applying any practice regarding this factor no special care was given to the old age patients and small children.

Malnutrition is a major cause of surgical site infection, patients of malnutrition are having low immunity to fight against any disease so they are near to risk of acquiring surgical site infection (Diaz and Newman 2015)).

Nurses which were selected to give data were having knowledge but they were not practicing this while dealing with the patients of surgical site infection.

Smoking is a very dangerous factor and a responsible of surgical site infection. Smoking already affects our body mechanisms and destroy the immune system badly and increase the risk of acquiring different diseases and surgical site infection Kingsley, 2001. According to my collected data much of the nurses were not assessing the smoking history of the patients.

According (Famakinwa, Bello et al. 2014)) fatty and obese patients are very sensitive and they are very near to acquire surgical site infection. Nurses are responsible to advising the obese patients to maintain their body and avoid the food which contain large amount of carbohydrates. But the nurses of Jinnah Hospital were not advising and helping their patients to avoid carbohydrates containing diets.

Patients who suffered from hypoxia are having oxygen deficiency and oxygen deficiency also delay the healing of wounds (*(de Lissovoy, Fraeman et al. 2009))*. Nurses were not having knowledge and were not practicing this in the surgical site infections.

CONCLUSION:

The study exposed that nurses have poor knowledge about the prevention of surgical site infection but there areas of practice

are better as compare to knowledge the question is that how can they give better practice if they don't have enough knowledge. Therefore the hospital administration needs to conduct educational and training program to enhance the knowledge of nurses to prevent surgical site infection and improve quality of care.

LIMITATIONS:

This study used a self administered questionnaire to examine nurses' practice regarding the prevention of SSI that may not reflect the actual nursing practice. Therefore, the implications of the findings may be used with caution. Since this study recruited only nurses working in surgical related wards the generalizability of the findings may be limited.

1. Participants of the projects were feel hesitation and not interested in filling questionnaire.
2. Limited time to have face to face meeting to explain any confusion.
3. The study was confined in Jinnah Hospital Lahore so the finding can not be generalized.
4. Resources for conducting research were not sufficient which is hurdle in collecting accurate data and can cause biasness.

RECOMMENDATIONS:

Based on the findings of this study, Being a researcher I suggest the following recommendations:

1. Education and training program should be conducted to improve nurses' knowledge.
2. Education and training program should be conducted to improve nurses' knowledge and practice in some areas.
3. Similar research should be conducted in other wards, including, other medical wards, or other hospitals in Pakistan.

4. A repetition study using observation method is recommended to examine the level of nurses' knowledge of surgical site infection prevention.

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