A Study to Assess Awareness and Knowledge Regarding Surgical Site Infection In Surgery Ward Among Nursing Officers At Paras Hospital, Panchkula, Haryana

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Abstract— Surgical site infections present a major problem in postoperative care, inhibiting patients' recuperation, and imposing huge pressure on healthcare systems. The main objective of the study was to assess the nurses' knowledge of SSIs and it is essential for improving patient safety, reducing healthcare costs, and combating antibiotic resistance. This study aims to identify areas for educational interventions and empower nurses to play a more significant role in preventing SSIs. A descriptive survey approach was taken with Convenient sampling technique was used to select participants for the study. the target population for the study was all Nursing Officers employed at Paras Hospital, Panchkula, Haryana**.** The results have revealed that the mean score was 14.38, with a mean percentage of 57.53%, which indicate moderate knowledge levels among respondents.

Keywords— Surgical, site, infection, surgery ward, nursing officers.

1. Introduction

Surgical site infections present a major problem in postoperative care, inhibiting patients' recuperation, and imposing huge pressure on healthcare systems. They occur within the surgical incision or in tissues around it; thus, they lead to long stay at hospital, increased health care costs and possible complications. It is important to note that SSIs prevention is significant for patient safety and resources. This article will discuss some salient areas of SSIs like risk factors, methods of reducing these infections and new outbreak control measures with a view to improving surgical outcomes while reducing its impact on individual patients as well as the wider health care facilities.

2. Review of Literature

Wen Feng et al. 2022Conducted a descriptive study on Knowledge, attitude, and practice of surgical site infection prevention among operating room nurses in southwest China the methodology used is In Guizhou Province, Southwest China, 49 tertiary hospitals and 75 secondary hospitals hosted a sample of 999 operating room nurses. Through a Chinese survey website, data were gathered through approved questionnaires. Descriptive statistics, One-Way Analysis of Variance, and Pearson product-moment correlation were used to analyse the data .Results are a total of 119 doctors were included in this study. Among all respondents, 92 (77.3%) were intern doctors, 16 (13.4%) were resident doctors, and 11 (9.2%) were specialist doctors. Moreover, 66 (55.5%) doctors knew the definition of SSI. Only one-quarter, that is, 30 (25.2%) doctors knew about the incidence of SSI. In addition, 8 doctors (6.7%) had good knowledge, 75 (63.0%) had fair knowledge, and 36 (30.2%) had poor knowledge regarding SSI according to this study.

J. Tanner et al. 2013 Conducted a descriptive study on Patient narratives of surgical site infection: implications for practice. the methodology used is Thematic content analysis was done after narrative interviews with 17 SSI patients—four deep, 12 organ space, and one superficial—from three hospitals in England. The results were Patients lacked overall awareness, concern and understanding of SSIs. Seven patients did not know that they had SSIs and, judging from patients' accounts, staff may have contributed to the lack of awareness by not informing patients of SSIs or downplaying their existence. The use of primary care resources was considerable and six of the patients were absent from work for two to four months.

Haleema Sadia et al . Conducted a Assessment of Nurses' Knowledge and Practices Regarding Prevention of Surgical Site Infection . Methodology used is Knowledge assessed with 25 multiple-choice questions; practice with 25 Likert scale statements. The results were a negative correlation between the variables (r = -.562) and a high correlation coefficient. Significantly (p <0.001) different from zero.Furthermore, 31% (0.5622) of the practice.

Josep M. Badia et al . 2020 Conducted a descriptive study on Awareness of Practice and Comparison with Best Evidence in Surgical Site Infection Prevention in Colorectal Surgery the methodology used was a web baesed surveys which was send to the surgens . The results were Of 355 surgeons, 33% had no feedback of SSI rate; 60% believed in evidence for normothermia, wound edge protection, and use of alcohol solution, and reported use of these strategies.

Wahbi Albishi et al. 2019 Conducted a descriptive study on Awareness and Level of Knowledge About Surgical Site Infections and Risks of Wound Infection Among Medical Physicians in King Abdulaziz University Hospital: Cross-Sectional Study the methodology used was a 20 questions MCQ questioner was used. The results were A total of 119 doctors were included in this study. Among all respondents, 92 (77.3%) were intern doctors, 16 (13.4%) were resident doctors, and 11 (9.2%) were specialist doctors. Moreover, 66 (55.5%) doctors knew the definition of SSI. Only one-quarter, that is, 30 (25.2%) doctors knew about the incidence of SSI. In addition, 8 doctors (6.7%) had good knowledge, 75 (63.0%) had fair knowledge, and 36 (30.2%) had poor knowledge regarding SSI according to this study.

3. Research Methodology

Research Approach: A descriptive survey approach was deemed most suitable for this study. This approach excels at gathering information on the current state of knowledge, attitudes, or behaviours within a defined population.

Research Design : A descriptive survey design was chosen. This design involves the development of a comprehensive survey instrument (questionnaire) to collect data from the target population

Study setting: The study was conducted at Paras Hospital, Panchkula, Haryana**.** This specific location was chosen due to its well-established reputation as a leading healthcare facility in the region and its sizeable population of nursing officers.

Population : The target population for this study encompasses all Nursing Officers currently employed at Paras Hospital, Panchkula, Haryana.

Sample: A representative sample of nursing officers was selected from the target population.

Sampling Technique: Convenient sampling was used to recruit participants for the study. This technique involves selecting readily available subjects from the population. However, we acknowledge the potential limitations of convenient sampling, such as bias. We will address these limitations by aiming for a diverse sample that reflects the demographics of the nursing.

Inclusion Criteria:

- Nursing Officers of Paras Hospital.
- Nursing Officers who are available at time of data collection.

Exclusion criteria:

- Nursing Officers who are not willing to participate.
- Nursing Officers who are not available at the time of data collection.

Variables under study

Independent Variable - Knowledge and attitude

Dependent Variable - Nursing Officers

4. Analysis & Results

Analysis and interpretation of data was done according to the objectives using descriptive and inferential statistics. The level of significance chosen was at $p \leq 0.05$.

To extract meaningful results, we employed statistical methods to code, analyze, and interpret the data. The results of the data analysis are presented in the following sections.

Section A : Description of the selected baseline data of the study participants and their patient

Section B:

Table No 1: DEMOGRAPHIC PROFILE OF THE SUBJECTS N=110

Variables	Opts	Percentage (%)	Frequency(f)
Age	21 and below	2.7%	3
	22-25 years	60.9%	67
	26-30 years	26.4%	29
	31-35 years	8.2%	9
	35 and above	1.8%	2
Gender	Male	40.9%	45
	Female	59.1%	65
Education	GNM	36.4%	40
	B.Sc Nursing	49.1%	54
	Post Basic B.Sc Nursing	12.7%	14
	M.Sc Nursing	1.8%	2

Experience	0-3 years	60.9%	67
	4-6 years	26.4%	29
	7-9 years	5.5%	6
	10 years and above	7.3%	8
Any Training on SSI	Yes	26.4%	29
	No	73.6%	81
Availability of Supply	Proper	13.6%	15
	Limited	85.5%	94
	Not available	0.9%	1
Duration of Patient Stay	More then 5 days	83.6%	92
	Less then 5 days	16.4%	18
Relation With Any Infection Control Department	Yes	15.5%	17
	No	84.5%	93

The demographic data of 110 respondents shows that the majority are aged 22-25 years (60.9%) and have 0-3 years of experience (60.9%). Females constitute 59.1% of the respondents. Most have a B.Sc in Nursing (49.1%). A significant portion (73.6%) has not received any training on SSI. The availability of supply is mostly limited (85.5%). Most respondents (83.6%) reported a patient stay duration of more than 5 days. Only 15.5% have a relation with an infection control department. This data provides insights into the demographics and professional backgrounds of the respondents, highlighting areas for potential focus in training and resource allocation.

SECTION B – ASSESS THE LEVEL OF KNOWLEDGE ABOUT SURGICAL SITE INFECTION AMONG THE NURSING STAFF

Table no 2: Frequency & Percentage distribution level of knowledge. N=110

CRITERIA MEASURE OF KNOWLEDGE SCORE		
LEVEL OF SCORES N= 110	**PERCENTAGE**	**FREQUENCY**
ADEQUATE KNOWLEDGE.(17-25)	29.1%	32
MODERATE KNOWLEDGE.(9-16)	65.5%	72
INADEQUATE KNOWLEDGE.(0-8)	5.5%	6

The criteria measure of knowledge scores for 110 respondents shows that a significant majority, 65.5%, have moderate knowledge (scores ranging from 9-16). Meanwhile, 29.1% of respondents have adequate knowledge (scores ranging from 17-25). A small portion, 5.5%, have inadequate knowledge (scores ranging from 0-8). The maximum score achievable is 25, while the minimum is 0. This indicates that while most respondents have a fair level of understanding, there is room for improvement in achieving higher knowledge scores among the surveyed group.

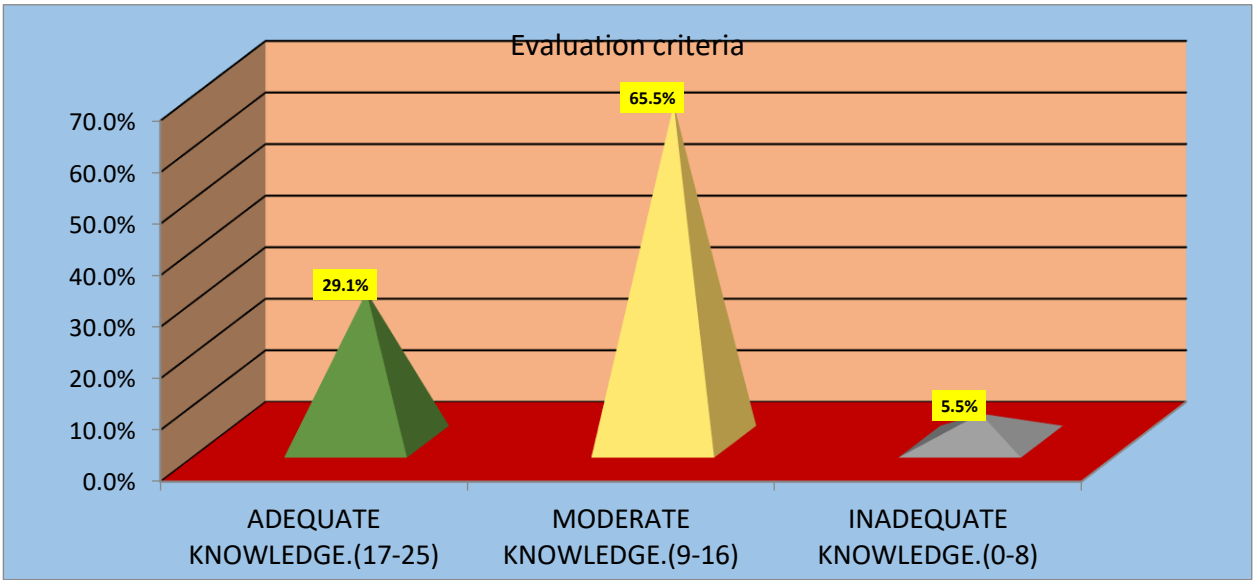

Figure no.1: Pyramidal diagram showing the percentage distribution level of knowledge

Table No 3: Descriptive statistics of knowledge N=110

DESCRIPTIVE STATISTICS	Mean	Median	S.D.	Maximum	Minimum	Range	Mean %
KNOWLEDGE SCORE	14.38	15	3.54	23	2	21	57.53
Maximum=25 Minimum=0							

The knowledge scores of 110 respondents show an average score of 14.38 out of 25, with a median of 15 and a standard deviation of 3.54. Scores ranged from 2 to 23, indicating some variability in knowledge levels. On average, respondents achieved 57.53% of the maximum possible score, suggesting a moderate level of knowledge overall.

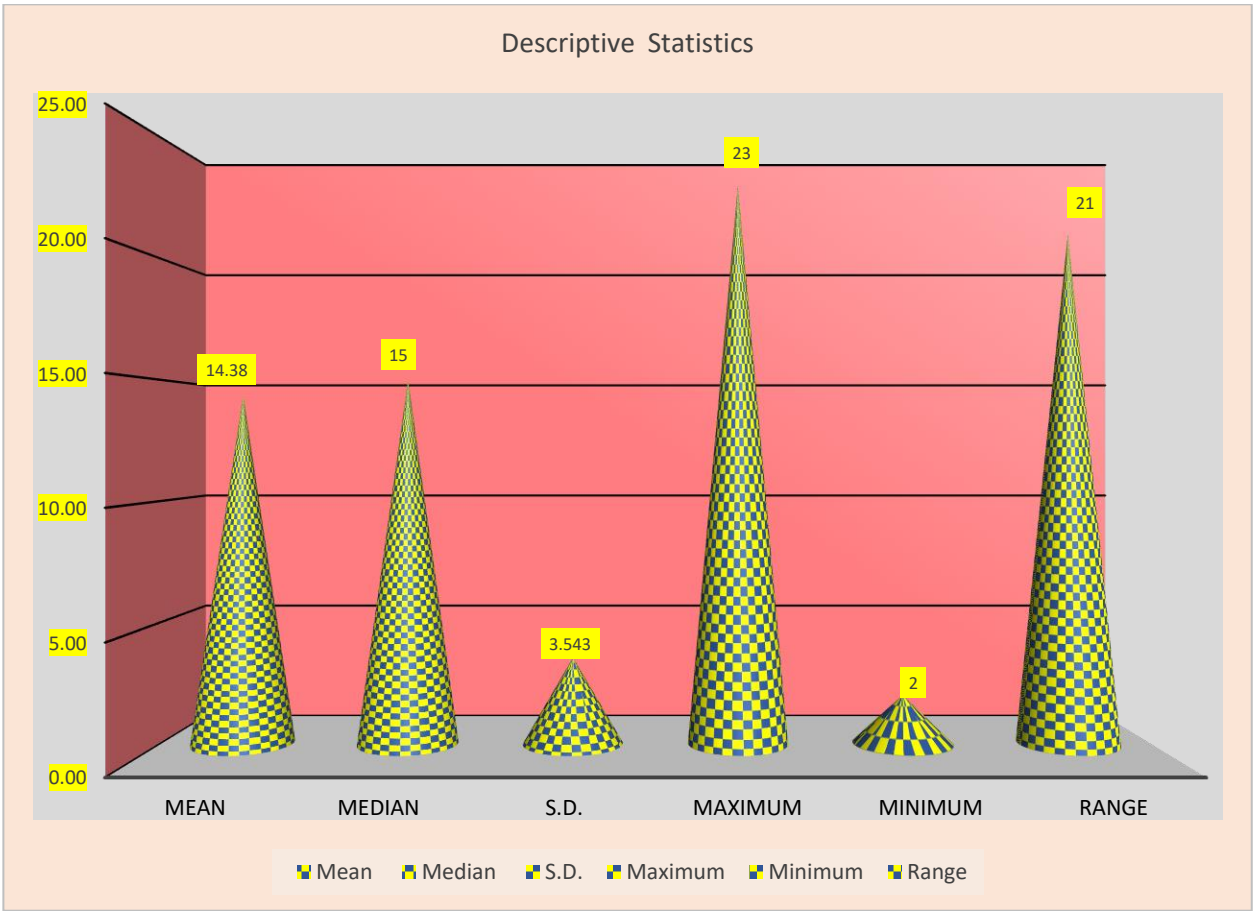

Figure no. 2: Conical Shaped diagram representing descriptive statistics level of knowledge

Table No 4: Table Showing Association of Scores and Demographic Variables N=110

DEMOGRAPHIC DATA		LEVELS OF KNOWLEDGE (N=110)			ASSOCIATION WITH KNOWLEDGE SCORE	
Variables	**Opts**	ADEQUATE KNOWLEDGE	MODERATE KNOWLEDGE	INADEQUATE KNOWLEDGE	**Chi Test**	**P Value**
Age	21 and below	2	1	0	4.025	0.855
	22-25 years	18	44	5		
	26-30 years	8	20	1		
	31-35 years	3	6	0		
	35 and above	1	1	0		
Gender	Male	14	29	2	0.261	0.878
	Female	18	43	4		
Education	GNM	10	28	2	3.357	0.763
	B.Sc Nursing	19	32	3		
	Post Basic B.Sc Nursing	2	11	1		
	M.Sc Nursing	1	1	0		
Experience	0-3 years	19	43	5	3.232	0.779
	4-6 years	10	18	1		
	7-9 years	2	4	0		
	10 years and above	1	7	0		
Any Training on SSI	Yes	9	17	3	2.059	0.357
	No	23	55	3		
Availability of Supply	Proper	5	9	1	17.822	0.001
	Limited	27	63	4		
	Not available	0	0	1		
Duration of Patient Stay	More then 5 days	26	61	5	0.196	0.907
	Less then 5 days	6	11	1		
Relation With Any Infection Control Department	Yes	5	10	2	1.604	0.449
	No	27	62	4		

The association between demographic variables and knowledge scores among 110 respondents shows that most variables, including age, gender, education, experience, training on SSI, duration of patient stay, and

relation with any infection control department, do not significantly impact knowledge scores. The only significant factor is the availability of supply (p=0.001), indicating that proper supply availability is associated with higher knowledge scores. All other factors had p-values greater than 0.05, indicating no significant association with knowledge levels.

Table No 5: Representing Item-Wise Analysis level of knowledge Scores. N=110

Area>	Question	Correct (%)	Incorrect (%)	Correct (f)	Incorrect (f)
PART - B –KNOWLEDGE	Qno.1	91.0%	9.0%	91	9
	Qno.2	84.0%	16.0%	84	16
	Qno.3	61.0%	39.0%	61	39
	Qno.4	80.0%	20.0%	80	20
	Qno.5	87.0%	13.0%	87	13
	Qno.6	68.0%	32.0%	68	32
	Qno.7	80.0%	20.0%	80	20
	Qno.8	60.0%	40.0%	60	40
	Qno.9	81.0%	19.0%	81	19
	Qno.10	40.0%	60.0%	40	60
	Qno.11	53.0%	47.0%	53	47
	Qno.12	75.0%	25.0%	75	25
	Qno.13	75.0%	25.0%	75	25
	Qno.14	40.0%	60.0%	40	60
	Qno.15	63.0%	37.0%	63	37
	Qno.16	46.0%	54.0%	46	54
	Qno.17	46.0%	54.0%	46	54
	Qno.18	36.0%	64.0%	36	64
	Qno.19	37.0%	63.0%	37	63
	Qno.20	16.0%	84.0%	16	84
	Qno.21	40.0%	60.0%	40	60
	Qno.22	21.0%	79.0%	21	79
	Qno.23	72.0%	28.0%	72	28
	Qno.24	54.0%	46.0%	54	46
	Qno.25	37.0%	63.0%	37	63

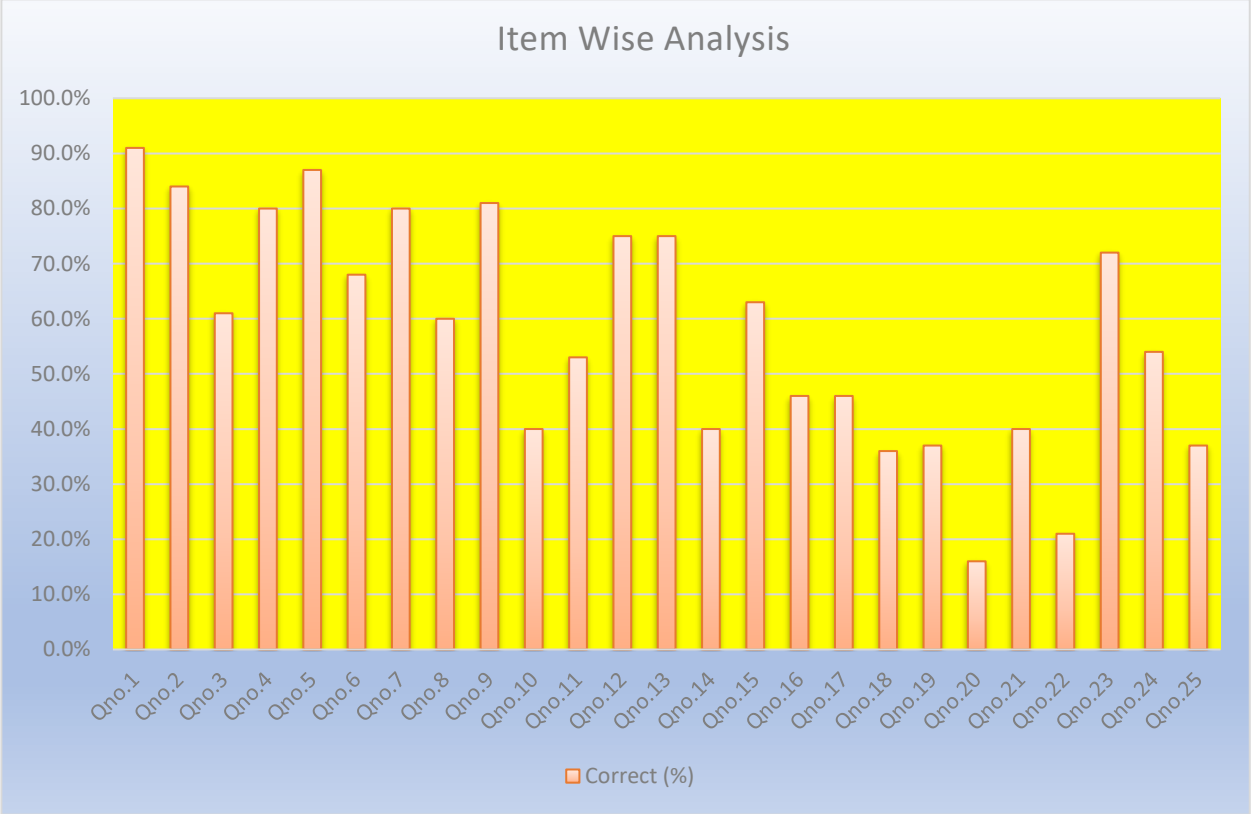

Figure no. 3: Bar diagram representing Item wise analysis of level of knowledge

Table No 6: Table Showing Descriptive Stats of Demographic Variables .

Variables	Opts	Mean%	Mean	SD	N
Age	21 and below	65.33	16.3	2.08	3
	22-25 years	56.42	14.1	3.58	67
	26-30 years	58.21	14.6	3.59	29
	31-35 years	60.89	15.2	3.63	9
	35 and above	58.00	14.5	4.95	2
Gender	Male	58.93	14.7	3.72	45
	Female	56.55	14.1	3.42	65
Education	GNM	56.50	14.1	3.55	40
	B.Sc Nursing	58.81	14.7	3.59	54
	Post Basic B.Sc Nursing	55.71	13.9	3.20	14
	M.Sc Nursing	56.00	14.0	7.07	2
Experience	0-3 years	56.36	14.1	3.68	67
	4-6 years	60.00	15.0	3.71	29
	7-9 years	60.67	15.2	2.64	6
	10 years and above	56.00	14.0	2.20	8
Any Training on SSI	Yes	53.66	13.4	4.66	29
	No	58.91	14.7	3.00	81
Availability of Supply	Proper	55.47	13.9	4.42	15
	Limited	58.21	14.6	3.31	94
	Not available	24.00	6.0		1
Duration of Patient Stay	More then 5 days	57.83	14.5	3.56	92
	Less then 5 days	56.00	14.0	3.55	18
Relation With Any Infection Control Department	Yes	53.18	13.3	5.18	17
	No	58.32	14.6	3.15	93

The data analysis reveals that the highest mean knowledge score (16.3) is among those aged 21 and below, though this group is small (N=3). Males have a slightly higher mean score (14.5) than females (14.1). B.Sc Nursing graduates have the highest mean score (14.7). Experience shows varied results, with those having 4-6 years of experience scoring highest (15.0). Availability of supply significantly impacts scores, with proper supply leading to a mean score of 15.0. Training on SSI and relation with an infection control department appear to have less impact on mean scores. Overall, the mean score is moderate, indicating a fair level of knowledge across the surveyed variables.

Area Wise , Table no. 7

Descriptive Statistics	Definition related questions	Risk Factors related questions	Causes related questions	Signs and Symptoms related questions	Medical Management related questions	Nursing Management related questions	Overall
Mean	3.13	2.32	3.00	1.81	0.43	3.70	14.38
S.D.	0.836	0.918	1.381	0.873	0.497	1.571	3.543
Median	3	3	3	2	0	4	15
Maximum	4	3	5	3	1	8	23
Minimum	1	0	0	0	0	0	2
Range	3	3	5	3	1	8	21
Mean %	78.18	77.27	60.00	60.30	42.73	41.11	57.53

The descriptive statistics for knowledge scores across different question categories reveal the following insights: Respondents scored highest on definition-related questions with a mean of 3.13 and a mean percentage of 78.18%. Risk factors-related questions also had a high mean score of 2.32 (77.27%). Causes-related questions had a mean score of 3.00 (60.00%). Scores for signs and symptoms-related questions were lower, with a mean of 1.81 (60.30%). Medical management-related questions had the lowest mean score of 0.43 (42.73%), while nursing management-related questions had a mean score of 3.70 (41.11%). Overall, the mean score was 14.38, with a mean percentage of 57.53%, indicating moderate knowledge levels among respondents.

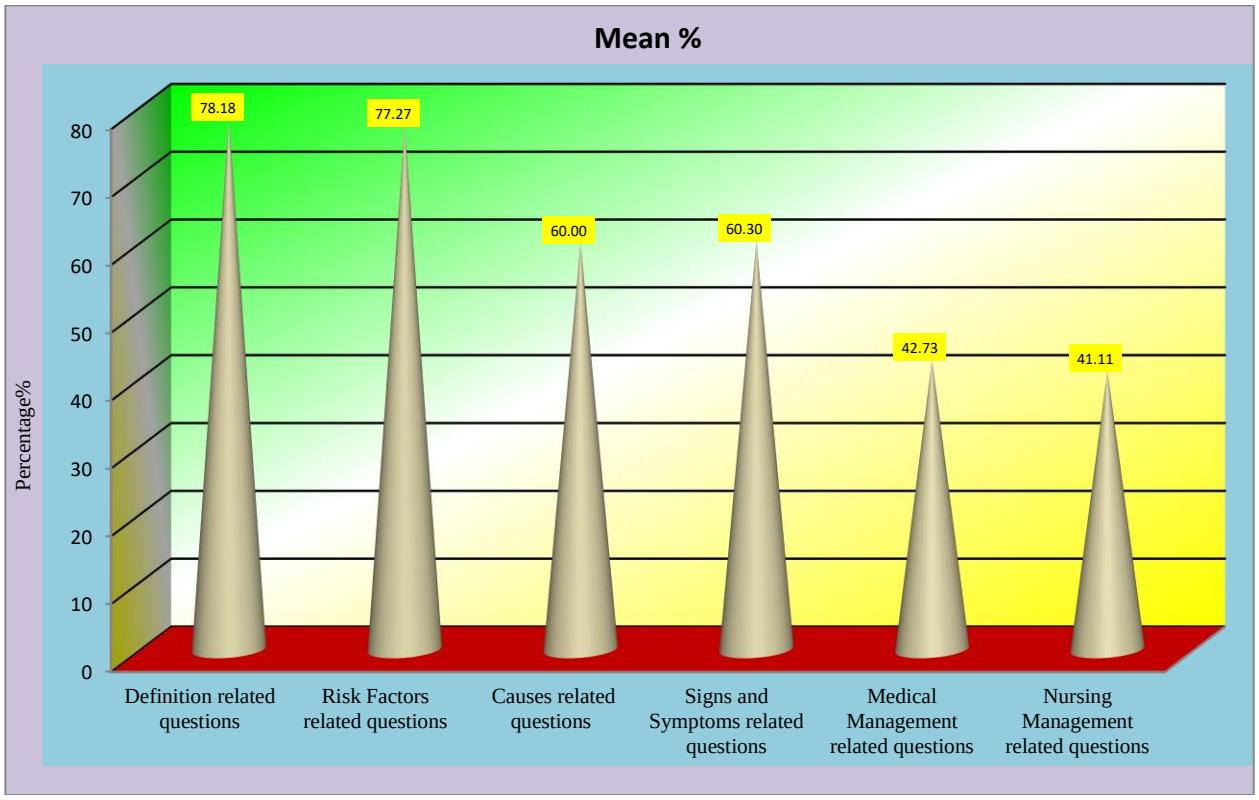

Figure no. 4

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