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KNOWLEDGE AND ATTITUDE REGARDING SAFE OXYGEN THERAPY ADMINISTRATION AMONG NURSING STUDENTS

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ABSTRACT

Oxygen is essential for all organisms on earth. In hospitals , oxygen is used as a treatment for various cardio-pulmonary disorders such as pneumonia, heart failure , hemorrhagic shock etc. while oxygen administration is lifesaving , too much can be dangerous. Safe oxygen administration is one of the most important aspects of patient care and is the core responsibility of the nurse. This study was conducted for the purpose to determine knowledge and attitude regarding safe oxygen administration among nursing students. The objectives of the study were to assess knowledge regarding safe oxygen therapy administration among nursing students, to assess deficit areas in knowledge regarding safe oxygen therapy administration among nursing students, to assess attitude regarding safe oxygen therapy administration among nursing students, to find relationship between knowledge regarding safe oxygen therapy administration with selected demographic variables like age, gender, professional course, year of study, Area of living and source of information. The study was carried out by using quantitative non experimental research design at selected nursing college of Ludhiana, the target population was 100 nursing students who were studying in selected nursing college. Convenient sampling technique was used to select sample. After taking verbal consent, A questionnaire and check list were distributed to assess knowledge and attitude toward safe oxygen therapy administration. Data was analysed by descriptive and inferential statistics and data was presented in tables and graphs. The findings of study revealed that majority (56%) of nursing students were in the age group of 21 to 24 year. As per gender, 91% were female and 70% were B.SC nursing students. 55% of students were of b.sc nursing 3rd year and GNM 3rd year. As per source of information maximum students (5 3%) have information from books as well as newspaper and 65% students belong to urban area.

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Regarding knowledge maximum 56% students have average knowledge regarding safe therapy administration and main deficit area was regarding devices used for oxygen administration. As per attitude 98% of students have positive attitude toward safe oxygen therapy administration. There was significant relationship between knowledge regarding safe oxygen therapy administration with course of study and area of residence.

Keywords: Attitude, Nursing Students, Oxygen Therapy, Hypoxemia

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INTRODUCTION

A body to function correctly needs an oxygen concentration at a certain level. Sometimes, this oxygen level is not sufficient in the body so it needs supplementation in artificial oxygen. For patients with life-threatening diseases, the administration objective for oxygen saturation is 94-98%, and for those who are at high risk for respiratory issues or hypercapnia, the target is 88-92%. Age, therapeutic objectives and patient tolerance are just a few of the numerous variables that must be taken into consideration when choosing the appropriate oxygen delivery system and flow rate.[1]

Oxygen is an essential element of life. However, it can have both extraordinary biological benefits and acute toxic effects like medicine. In addition, the world health Organization has introduced oxygen is an essential medical items required in the health system. It plays a vital role in preventing and managing tissue hypoxemia in patient with acute and chronic problems. If oxygen therapy method used correctly, can improve treatment outcomes and patient life; however, improper use can be extremely harmful.[2]

A clear knowledge, attitude and practice for oxygen therapy among health professionals who are managing patients at different patient care areas are mandatory. But it has gaps in real practice due to lack of oxygen therapy training and guidelines, workload, inadequate supply of oxygen and delivery devices and so on. National and possibly local oxygen therapy guidelines or hospital protocols are better to be developed and practiced. Oxygen supply and delivery devices should always be adequate and be used properly. Knowledge and skills are important factors for safe administration of oxygen therapy.[3]

Knowledge and positive attitudes enable nurses to improve the quality of their patients lives and prevent hypoxemia and acute lung injury. The knowledge of oxygen administration by nurses is below the expected quality, according to studies. Nurses must have knowledge about indications of oxygen therapy and normal oxygen saturation at different ages, and regular training should be integrated into their work schedule.[4]

Oxygen therapy is a medical treatment prescribed mainly for hypoxic patients; OT provides oxygen at higher concentration than that found in the atmosphere(>21%). It is listed as a core item on the World Health Organization model of essential medicines, which is a list of the most effective and safe drugs used in a health system. The selection of the best oxygen delivery device and flow rate of oxygen depends on many factors some of which are the patients age, therapeutic goals and patient tolerance.[5]

Oxygen is a component of ambient air at 21% concentration. It makes up about 65% of human

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body mass and essential to all tissues of the body for energy production. It is one of the essential drugs listed by the World Health Organization. Oxygen therapy is the administration of oxygen at concentration greater than that in the ambient air with the intent of treating or preventing hypoxia. Oxygen therapy is very useful in managing acutely ill patient hence an essential and an emergency drug for adequate resuscitation.[6]

AIM OF STUDY

To assess the knowledge and attitude regarding safe administration of oxygen therapy among nursing students.

OBJECTIVES

- To assess knowledge regarding safe oxygen therapy administration among nursing students
- To assess deficit areas in knowledge regarding safe oxygen therapy administration among nursing students,
- To assess attitude regarding safe oxygen therapy administration among nursing students
- To find relationship between knowledge regarding safe oxygen therapy administration with selected demographic variables like age, gender, professional course, year of study, area of living and source of information

REVIEW OF LITERATURE

Arif Jamie 2021 conducted a cross-sectional descriptive study to assess knowledge and practice of nurses towards oxygen therapy in the public Hospitals of Harari region, Ethiopia. A self administered questionnaire was administered to 422 participants to assess knowledge and practice about oxygen therapy. Of 422 participants , 50.2% were female. 61.4% and 47.5% of the nurses had good knowledge and practice level about oxygen therapy respectively. Knowledge about oxygen therapy had no significant association with gender, age, education level, marital status and work experience.[7]

Katel K et al. 2021 conducted a quantitative descriptive cross-sectional study to asses the level of awareness on oxygen therapy among nurses at selected district hospital in Nepal. A non-probability purposive sampling technique was used to select 125 subjects. A semi-structured self administered questionnaire was used to collect data . the study proved that 74.4% of the

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nurses had unsatisfactory level of knowledge, 20% had average knowledge and 5.6% had satisfactory knowledge regarding oxygen therapy. A significant association was found between the knowledge level and age, educational status and experience of the subjects.[8]

Asmaa Hamdy Mostafa, Moggeda Mohamed Mehany and Mona Abd Elaziem Ahmed 2019 conducted a s Quasi Experimental study to investigate the effect of educational program about oxygen therapy on the nurses knowledge and practice. Subjects were the all available nurses in the emergency department who were 50 nurse. Two tools were used -structure interview questionnaire to assess nurses knowledge and observational checklist to assess performance. The total nurses knowledge mean score improvement from (9.80_+4.818) before educational program to (19.840+_.421) after implementation and total nurses performance mean score improved from (63.0400_+ 7.94101) before implementation of educational program to (97.9200 +_ .39590) after its implementation. There was good improvement with highly significant difference related to knowledge and practice of educational program.[9]

Mona Mohamed Mayhob 2018 conducted a descriptive study to assess nurses knowledge, practices and barriers affecting a safe administration of oxygen therapy. Purposive sampling technique was used to collect data from 50 nurses from different departments in one of the educational hospitals in Cairo. Four tools were used as follows: 1. Nurse demographic data 2. Nurses knowledge assessment tool 3. Oxygen therapy administration assessment tool 4. Barriers to safe ^{oxygen} administration assessment tool. The study proved that only < 10^{th} and < 5^{th} of the studied sample had satisfactory level of knowledge and < 5^{th} had adequate level of practices. The most common reported barriers were: absence of protocol for oxygen therapy could be followed and unavailability of well functioning equipment.[10]

Victoire Uwineza Didi 2017 conducted a Quantitative descriptive study to assess knowledge, attitudes and Practice among Nurses toward oxygen administration to the critically ill patients at UTHK. The target population was professional nurses working at the Emergency and ICU units at UTHK. A Questionnaire was distributed to consenting nurses for completion. Data was analysed using SPSS20. Out of 65 nurses who were responded, 73.8% had a knowledge classifiable as poor, 21.1% moderate and 3.1% good. There was significant relation between the education level and nursing practices during administration of oxygen. The attitudes of participants in the various subject areas raised were moderate on 63.1% and practice also was moderate on 46.2%.[11]

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MATERIAL AND METHOD

Research Approach

A quantitative approach

Research design

An exploratory design was used

Sample size

100 nursing students of private nursing college

Inclusion criteria

It included nursing students who were willing to participate

Description of tool

Part 1: sociodemographic variables

Part 2: a semi-structured questionnaire to assess knowledge regarding safe oxygen administration

Part 3: a checklist to assess attitude regarding safe oxygen administration

Ethical consideration

- A written consent was taken from principal of college of nursing before conducting the study
- Informed verbal consent was taken from subjects
- Subjects were made ensure to maintain confidentiality

DATA ANALYSIS

Section A

Table 1 depict that maximum (56%) of students were in the age group of 21-24 years of age followed by (40%) were in the age group of 17-20 years of age and least (4%) were in the age group of 25-28 years of age. As per gender maximum (91%) of subjects were female and (9%) were male. According to course of study maximum (70%) of subjects were of b.sc nursing course and least (30%) of were of GNM course. As per year of study, maximum (55%) of 3rd year students followed by least (45%) of 2nd year students.

Table 1. socio demographic variables

1.	AGE (YEARS)	N	%
	17-20	40	40
	21-24	56	56
	25-28	04	04

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2.	GENDER	N	%
	Male	09	09
	Female	91	91
3.	COURSE OF STUDY	N	%
	B.SC Nursing	70	70
	GNM	30	30
4.	Year of study	N	%
	2nd year students	45	45
	3rd year students	55	55
5.	Area of living	N	%
	Hostellars	35	35
	Day scholars	65	65
6.	Source of information	N	%
	Seminar /exhibition	04	04
	Books	53	53
	Nursing journal	20	20
	Internet	23	23

According to area of living maximum (65%) subjects were dayscholars and (35%) were hostellars. As per source of information, maximum (53%) subjects have taken knowledge from books followed by (23%) from internet, (20%) from journals and least(4%) from seminar and exhibitions

Section B

Table 2 and fig 1 depicts that maximum (56%) subjects had average knowledge regarding safe oxygen administration, followed by (30%) had good knowledge, (13%) had below average knowledge and least(1%) had excellent knowledge regarding safe oxygen administration.

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Table 2. objective: To assess knowledge regarding safe oxygen therapy administration among nursing student

(N=100)

Level of knowledge	Score	n	%
Excellent	>17	0.1	1
Good	14-17	30	30
Average	10-13	56	56
Below average	<10	13	13

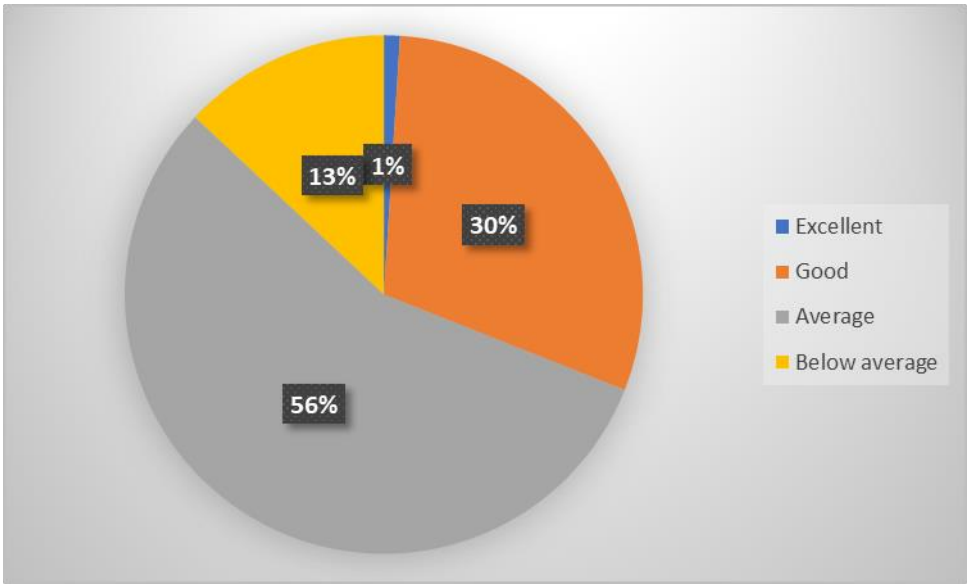

Figure 1. Percentage of level of knowledge regarding safe oxygen therapy administration among nursing students.

Section B

Table 3 and fig 2 depicts the deficit areas in knowledge regarding safe oxygen administration among nursing students. Rank order of knowledge regarding safe oxygen administration was highest with mean percentage (74.4), followed by 2nd rank in knowledge about symptoms of hypoxia with mean percentage (67.33), 3rd rank with mean percentage (51.5) in position and contraindications, followed by 4th rank in complications with mean percentage (49.33), 5th rank in special precautions with mean percentage (49) and least 6th rank in devices of oxygen administration with mean percentage of (47.25).

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Table 3 .Objective 2. To identify the deficit areas in knowledge regarding safe oxygen administration among nursing students

Area of knowledge	Max Score	Mean	Mean %	Rank
Introduction	5	3.72	74.4	1st
Symptoms of hypoxia	3	2.02	67.33	2nd
Devices for oxygen administration	4	1.89	47.25	6th
Position & contraindications	2	1.03	51.5	3rd
Complications	3	1.48	49.33	4th
Special precautions	3	1.47	49	5th

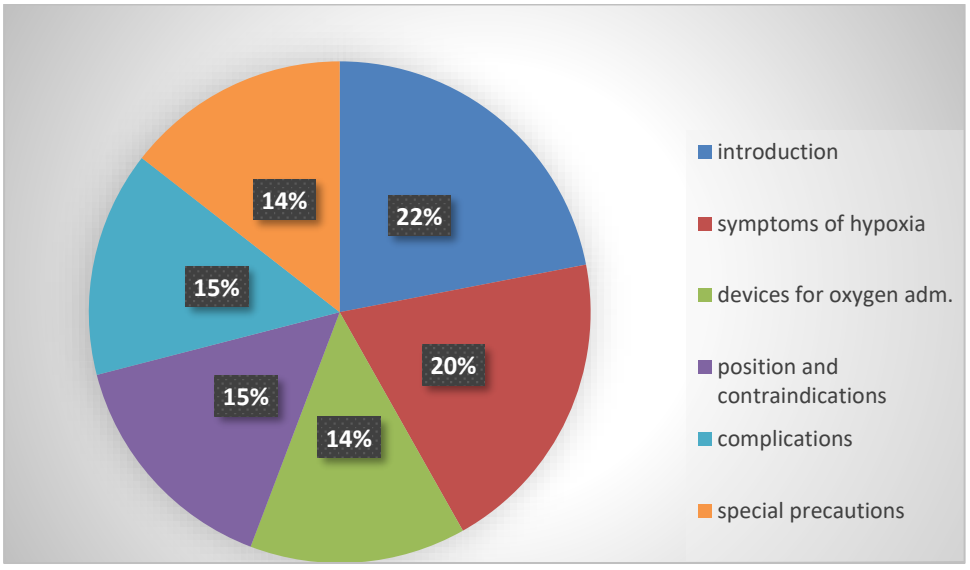

Figure 2. Mean percentage of deficit area in knowledge regarding safe oxygen therapy administration therapy among nursing students.

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Section C

Fig. 3 depicts the maximum (98%) of subjects had positive attitude towards safe oxygen administration and minimum (2%) of subjects had negative attitude regarding safe oxygen administration.

Figure 3. Objective: To assess the attitude towards safe oxygen administration among nursing students.

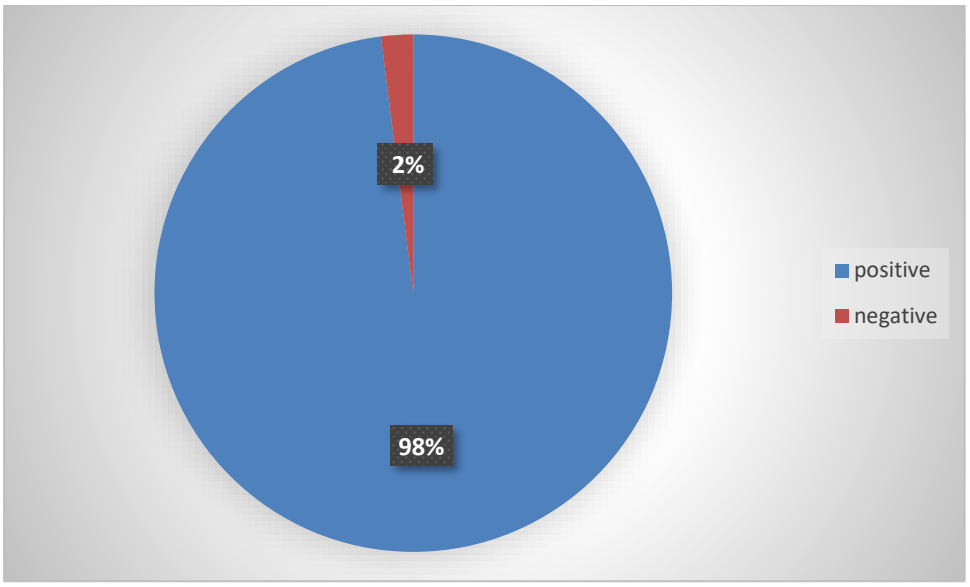

Figure 3. Depict attitude regarding safe oxygen therapy administration among nursing students

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Section D

Objective 4. To find relationship between knowledge regarding safe oxygen therapy administration with selected demographic variables like age, gender, professional course, year of study, area of living and source of information.

Table 4 Mean , SD and F values regarding knowledge regarding safe oxygen administration among nursing students according to age (N=100)

Age (years)	N	Mean	SD	Df	F
17-20	40	12.77	2.230		
21-24	56	11.94	2.260	2/98	3.97^{NS}
25-28	04	9.75	2.861		

NS=not significant

Table 4 revealed that mean knowledge score regarding safe oxygen administration was 12.77 among the students of age group 17-20 years, followed by 11.94 among the age group 21-24

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years and 9.75 among age group of 25-28 years .

Hence, it can be concluded that age has no significant impact on level of knowledge regarding safe oxygen administration.

Table 5. Mean , SD and F values regarding knowledge regarding safe oxygen administration among nursing students according to gender (N=100)

Gender	N	Mean	SD	Df	t
Male	09	9.88	2.643		
Female	91	12.42	2.196	99	6.99^{NS}

NS= not significant

Table 5 depicted that mean knowledge score regarding safe oxygen administration was 9.88 among male students and 12.42 among female students.

Hence, it can be concluded that gender has no significant impact on level of knowledge regarding safe oxygen administration.

Table 6 Mean , SD and F values regarding knowledge regarding safe oxygen administration among nursing students according to course of study (N=100)

Course of study	N	Mean	SD	Df	T
B.SC NURSING	70	12.03	2.32		
GNM	30	11.08	2.38	99	0.03^{*}

*=significant

Table 6 depicted that mean knowledge score regarding safe oxygen administra2.03 among B.SC nursing students and 11.08 among GNM students.

Hence, it can be concluded that course of study has significant impact on level of knowledge regarding safe oxygen administration.

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Table 7 Mean , SD and F values regarding knowledge regarding safe oxygen administration among nursing students according to year of study (N=100)

year of study	N	Mean	SD	Df	T
2nd year nursing students	45	12.46	2.64		
3rd year nursing students	55	11.98	2.28	99	1.02^{NS}

NS= not significant

Table 7 revealed that mean knowledge score regarding safe oxygen administration was 12.46 among 2nd year nursing students and 11.98 among 3rd year nursing students.
Hence, it can be concluded that year of study has no significant impact on level of knowledge regarding safe oxygen administration.

Table 8 Mean , SD and F values regarding knowledge regarding safe oxygen administration among nursing students according to area of living (N=100)

Area of living	N	Mean	SD	Df	T
Hostellers	35	12.257	2.69		
Day scholars	65	11.25	2.124	99	0.01^{*}

*= significant

Table 8 revealed that mean knowledge score regarding safe oxygen administration was 12.257 among hostellers students and 11.25 among day scholars students.
Hence, it can be concluded that area of living has significant impact on level of knowledge regarding safe oxygen administration.

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Table 8 Mean , SD and F values regarding knowledge regarding safe oxygen administration among nursing students according to source of information (N=100)

Source of information	N	Mean	SD	df	F
Seminars/exhibitions	04	11.5	2.08		
Books	53	12.07	2.97		
Nursing journals	20	12.04	2.64	3/99	0.16^{NS}
Internet	23	12.26	2.07		

NS= not significant

Table 8 showed that mean knowledge score regarding safe oxygen administration was 12.26 among the students who were using internet, followed by 12.07among books user , 12.04 among nursing journal users and 11.5 among attended seminars and exhibitions .

Hence, it can be concluded that source of information from different media has no significant impact on level of knowledge regarding safe oxygen administration

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