



A study to assess the effectiveness of Educational Intervention on knowledge regarding oxygen therapy for COVID-19 patients among staff nurses of selected hospitals of Kashmir.

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ABSTRACT

Oxygen therapy is widely used in health care of patients with respiratory insufficiency (COVID-19), so the nurse who is caring for patients under oxygen therapy must have good knowledge regarding it. The study was aimed to assess the effectiveness of educational intervention on knowledge of staff nurses regarding oxygen therapy for COVID-19 patients.

Methods of data collection procedure: A pre-experimental one group pre-test post-test design was adopted for the study. The sample for the present study comprised of 40 staff nurses from GMC Anantnag and associated Hospital. The samples for the present study were selected by non-probability convenient sampling technique. A structured questionnaire regarding knowledge on oxygen therapy for COVID-19 patients was used to collect the data. The data obtained was analyzed and interpreted in terms of the objectives of the study.

Results: This study reveals that all the study subjects belong to the age group >23. Only 20% subjects are males and rest 80% subjects are females. 45% of study subjects have 2 years of clinical experience, while 25% have less than 2 years of experience and 30% have more than 2 years of

clinical experience. Majority (87.5%) of the study subjects has information regarding oxygen therapy from clinical experience and 50% of study subjects were exposed to COVID- 19.

Pre-test knowledge score revealed that 70% of the study subjects had inadequate knowledge, 30% subjects had moderate knowledge while 0% subjects had adequate knowledge regarding oxygen therapy for COVID-19 patients. Post-test knowledge score revealed that 7.5% study subjects had inadequate knowledge, 32.5% study subjects had moderate knowledge and 60% study subjects had adequate knowledge regarding oxygen therapy for COVID-19 patients. This indicates that the mean post-test knowledge scores i.e. 84.2% is higher than the mean pre-test knowledge scores i.e. 62.2%. The obtained value of t is 42.78 at $p < 0.01$ level of significance.

Key words:

Effectiveness; educational intervention; staff nurses; oxygen therapy; COVID-19.

INTRODUCTION

**“Whoever follows a path in the pursuit of knowledge, Allah will make easy for him a path to Paradise”
- Prophet Muhammad (SAW) (PBUH)**

The Novel Coronavirus Pneumonia (COVID-19), that appeared in late December 2019 in China’s Wuhan city, is a viral disease that belongs to the family of Caronaviridae. The most common clinical feature of the early clinical cases from Wuhan city were fever 98.0%, fatigue 69.6% and dry cough 59.4%.

The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose which an infected person coughs or sneezes. The best way to prevent and slowdown the transmission is to be well-informed about this disease, its causes, how it spreads and mainly its management and prevention. ¹

Most people infected with the Covid-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease and cancer are more likely to develop serious illness. Severe illness in Covid-19 typically occurs approximately one week after the onset of symptoms. The most common and severe complication of COVID-19 is acute hypoxemic respiratory failure or ARDS, which mainly requires oxygen and ventilation therapy. It is proposed that oxygen therapy and mechanical ventilation are the most basic and essential methods of respiratory support for COVID clients. We therefore tend to provide knowledge regarding the role of oxygen in clients having COVID and also regarding oxygen therapy.² Oxygen Therapy, also known as supplemental oxygen, is the use of oxygen as a medical treatment. This can include for low blood oxygen, Carbon Monoxide toxicity, cluster headaches and to maintain enough oxygen while inhaled anesthetics are given. Normal arterial blood oxygen saturation levels in humans are 95 to 100 percent. ³

Since respiratory assistance is the main managing of COVID-19 patients, the nursing of oxygen therapy in specified hospitals must be standardized. Nurses play a significant role in identification of causes, which can

compromise oxygen demand to the lungs and tissues in the body and in ensuring that patients who may require oxygen therapy are assessed and managed safely and competently.⁶ Nurses provide oxygen therapy in a way that prevents excessive CO₂ accumulation that is selection of appropriate flow rate and delivery device.⁷ Nurses are responsible for ensuring that clients with critical illness or life-threatening conditions (COVID) receive optimal care. Nursing care is increasingly framed in best practice, which is the application of evidence based concepts to patient problems in particular settings. In this regard, we have taken this study to provide knowledge to staff nurses, as we need to be well-trained and well-educated in providing oxygen therapy to the clients, especially those having COVID and also handling the oxygen gas properly as there is a potential risk for fire hazard and also a lot of complications during its administration. So, when we have proper knowledge regarding oxygen therapy, then we will be able to handle the COVID clients either at their own homes or during their stay at hospitals or at nursing homes.

MATERIAL & METHODS

This Pre-Experimental One group pre-test post-test design approved by Institutional Ethical Committee of (IUST/IEC-/21) Islamic University Of Science & Technology Awantipora. The Sample Size was 40 staff nurses working in selected hospitals of Kashmir (GMC Anantnag). The duration of data collection was one week from 26 -Nov.-2021 to 2 -Dec -2021. Hospital ward was used to collect the data from staff and purpose of study was informed. Consent was taken from the staff nurses and semi-structured questionnaire was used to collect the responses from students via pen-paper test. No. of demographic variables were 6 and Chi- Square test was done to determine the association between Score levels and Selected demographic variables.

Maximum Score was 25 and Minimum Score was 0. Validity was established by expert opinion and modification was made as per their suggestion, language Validity was established by a qualified person. Formal permission from Institutional Ethical Committee of IUST Awantipora. The obtained data was organized in a statistical way to summarize result was visualized scientifically.

RESULTS:

Socio demographic variables of staff nurses.

Note: Number of staff nurse(n) = 40

S. No	Demographic variables	Frequency	Percentage (%)
1	Age group		
	A.<18 OR 18	0	0%
	B. 19-22	0	0%
	C. 23 OR >23	40	100%
2	Gender		
	Male	08	20%
	Female	32	80%

3	Area of practice		
	Unit	08	20%
	Ward	32	80%
4	Years of Practice		
	<2	10	25%
	2	18	45%
	>2	12	30%
5	Source of information		
	Clinic	35	87.5%
	Other	05	12.5%
6	Exposure to COVID		
	YES	20	50%
	NO	20	50%

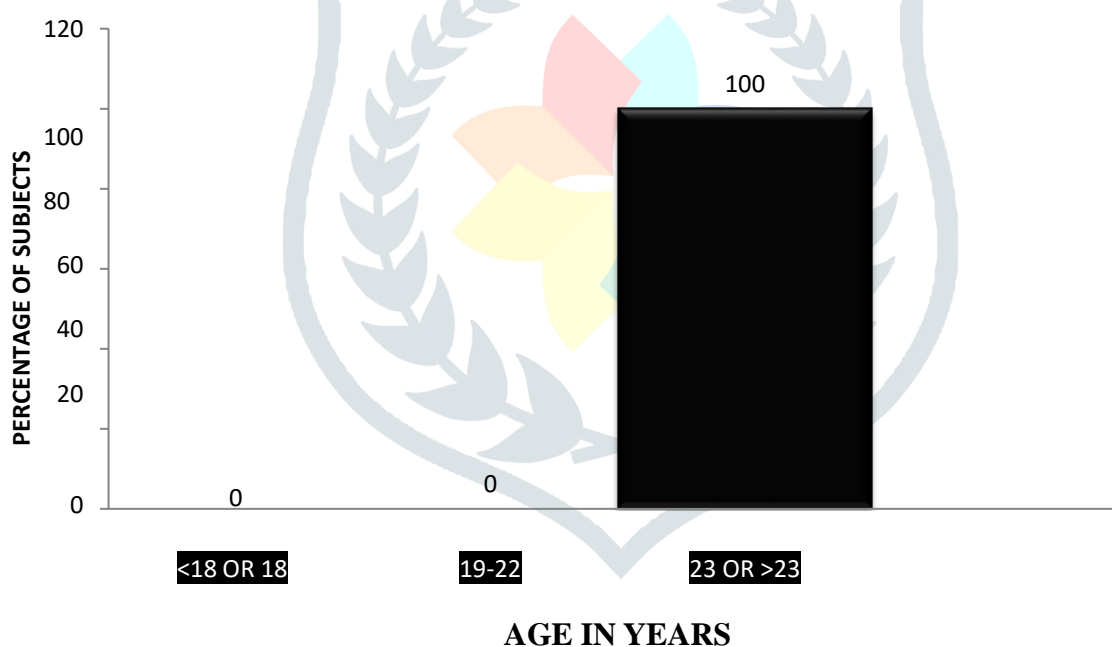


Fig.2. Percentage distribution of subjects regarding their age

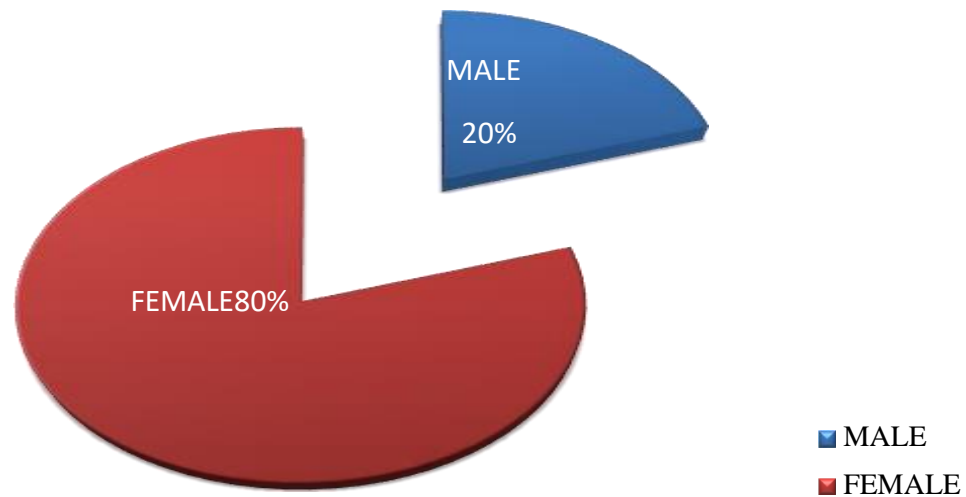


Fig.3. Percentage distribution of subjects regarding their gender

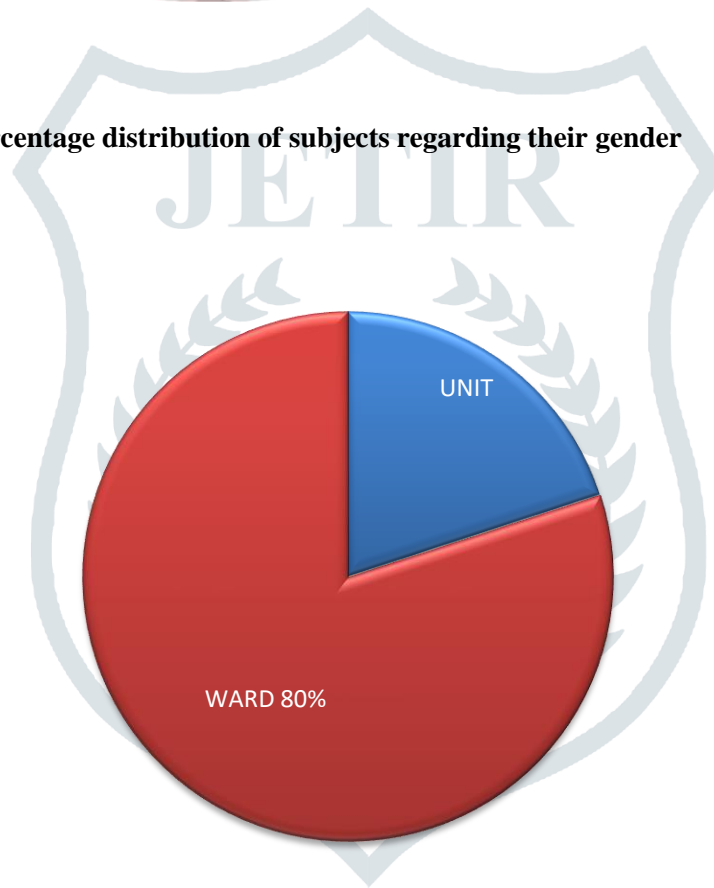


Fig.4. Percentage distribution of subjects regarding the area of practice

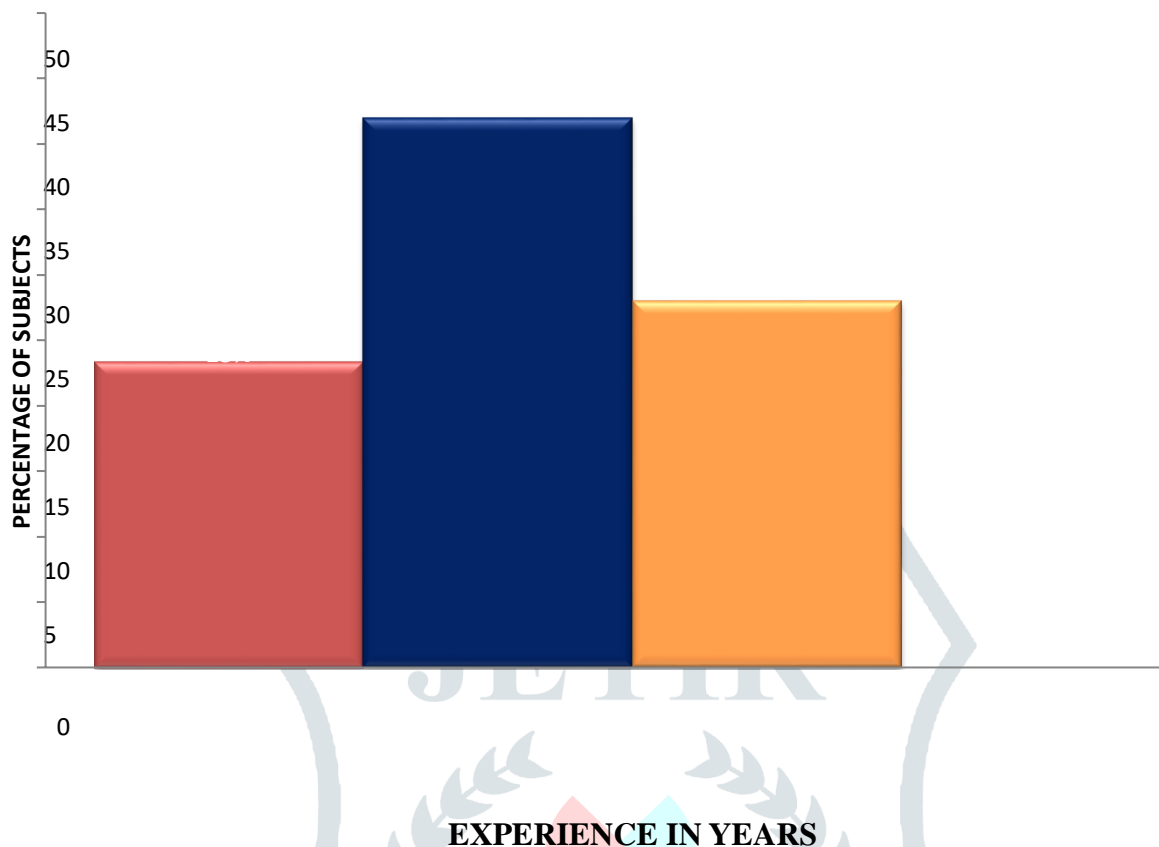


Fig.5. Percentage distribution of subjects regarding their experience

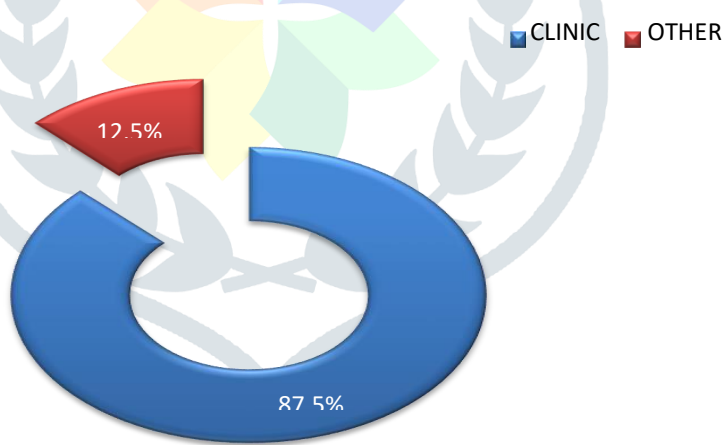


Fig.6. Percentage distribution of subjects regarding the source of information

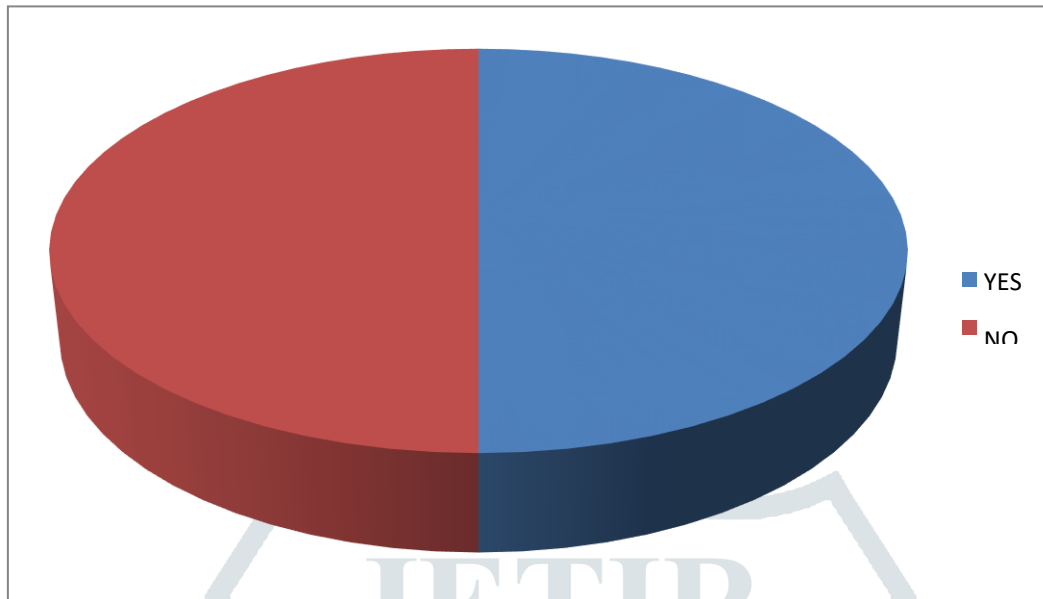
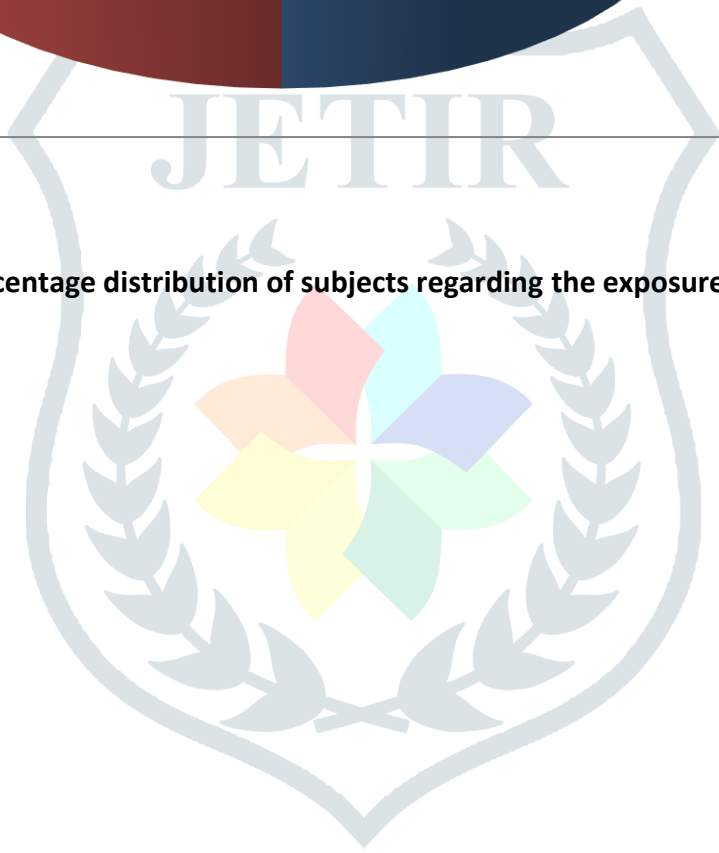


Fig.7. Percentage distribution of subjects regarding the exposure to COVID 19



Pre test level of knowledge of subjects regarding oxygen therapy for COVID19patients.

Table 2: Mean, Mean Percentage And Standard Deviation Of Pre Test Level Of Knowledge Scores Of Subjects Regarding Oxygen Therapy For Covid 19 Patients N=40

OVERALL PRETEST KNOWLEDGE	
Max Score	20
Min Score	08
Mean	15.55
Mean percentage	62.2
Standard deviation	3.088

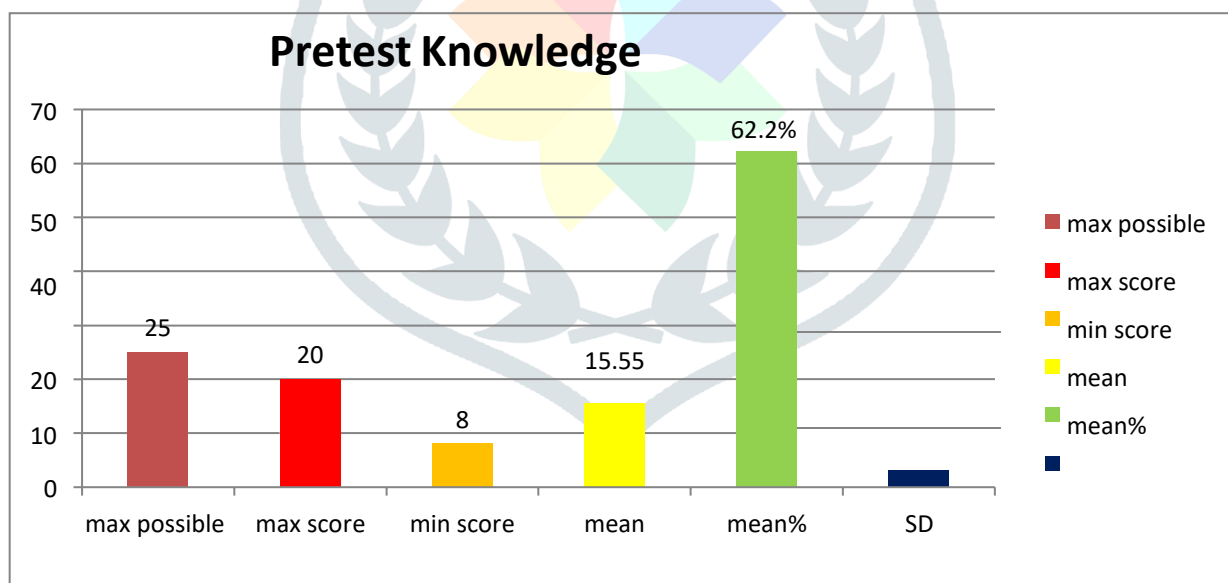
**Fig.8. Pretest knowledge score**

Table 2 and Fig 8 shows that over all pre test knowledge of mean was 15.55 with SD 3.088. The highest score was 24 and lowest was 08.

28(70%) had inadequate knowledge in the pre-test, 12(30%) had moderate knowledge in the pre-test and 0 (0%) study subjects had adequate knowledge in the pre-test

Post Test level of Knowledge of subjects regarding oxygen therapy for COVID-19 patients

Table 4: Mean, Mean Percentage and Standard Deviation of Post Test Level of Knowledge Scores of Subjects Regarding Oxygen Therapy for Covid 19 Patients

OVERALL POST TEST KNOWLEDGE		N= 40
Max Score		25
Min Score		16
Mean		21.05
Mean percentage		84.2
Standard deviation		2.275

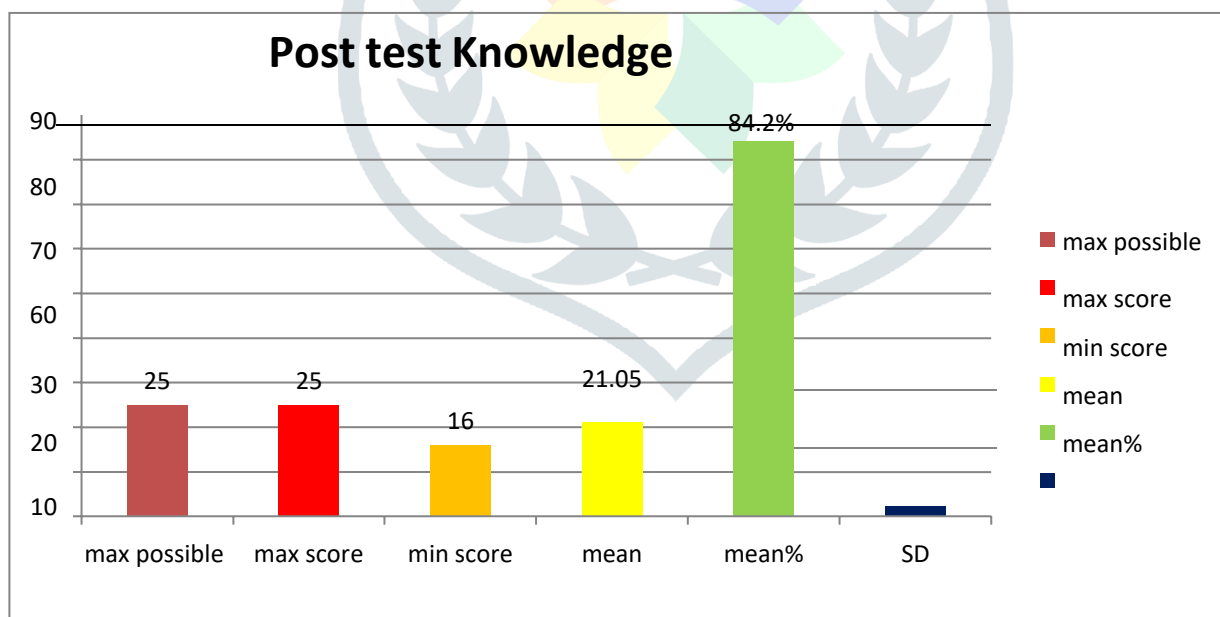


Fig.10. Post test knowledge score

Table 4 and Fig 10 shows that over all post test knowledge of mean was 21.05 with SD 2.275. The highest score was 25 and lowest was 16.

Effectiveness of Educational intervention on Knowledge of subjects regarding oxygen therapy for COVID19 patients

Table 6: Comparison of Pre-test and post-test knowledge of Subjects regarding oxygen therapy for COVID19 patients. N=40

Pre-test score				Post-test score				Percentage of enhancement
Range	Mean	Mean%	SD	Range	Mean	Mean %	SD	
12	15.55	62.2%	3.088	9	21.05	84.2%	2.275	22%

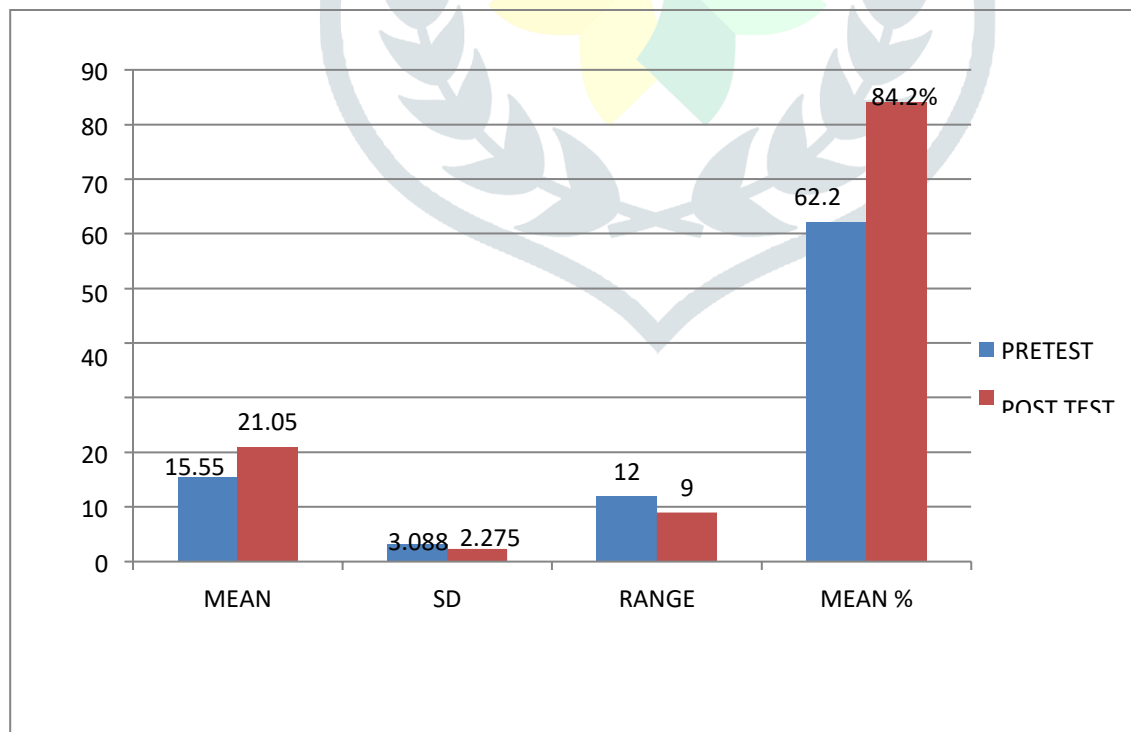


Fig.12. Comparison of overall pre test and post test knowledge score

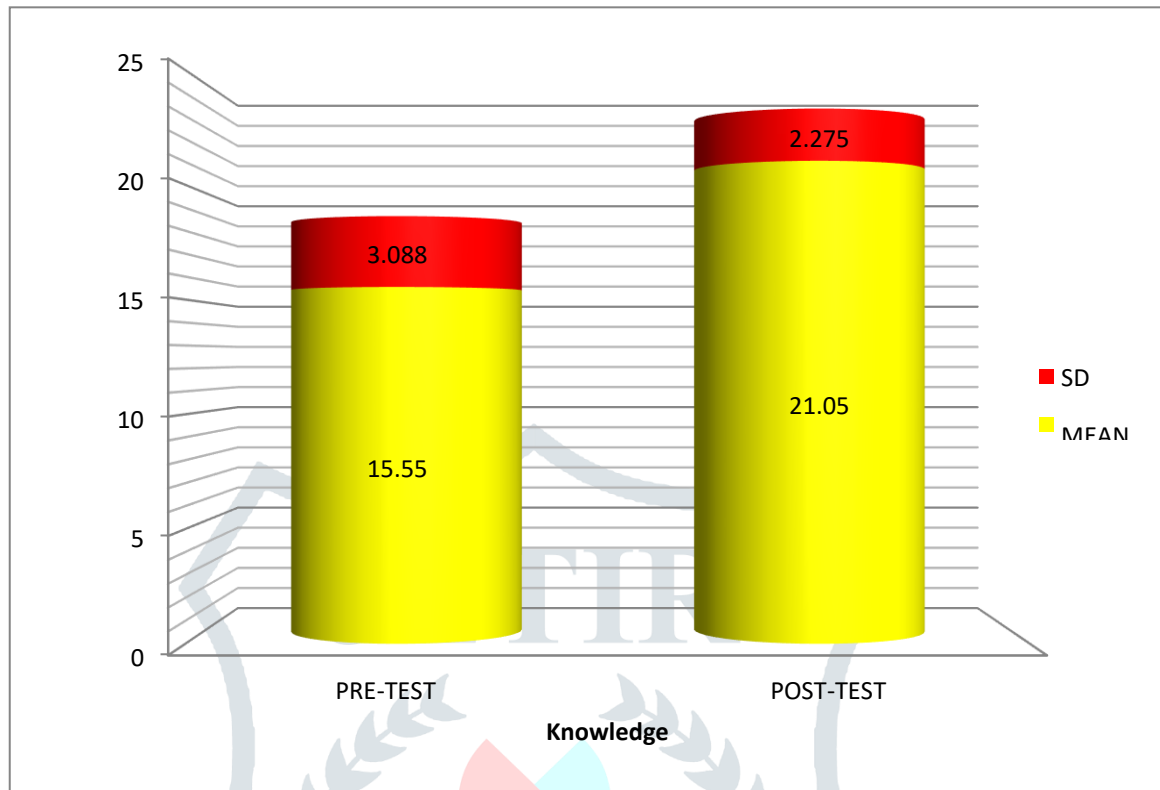


Fig.13. comparison of (mean + standard deviation) of pre test and post test

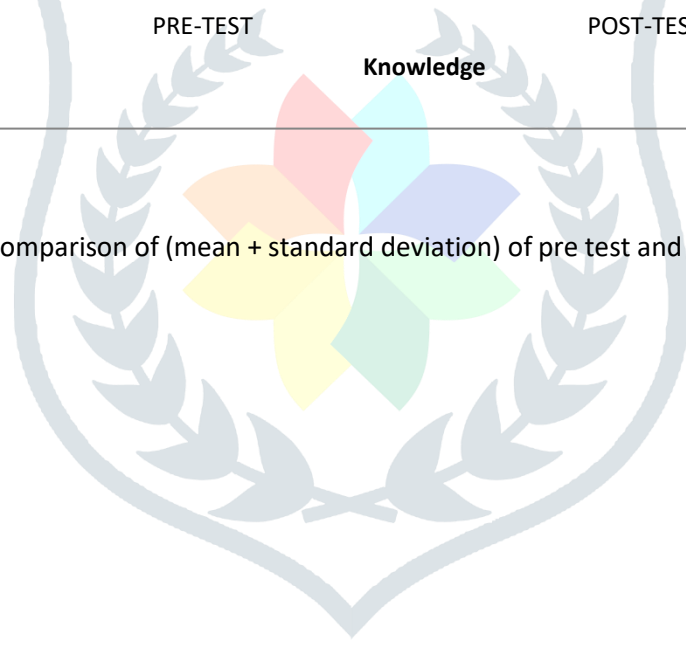


TABLE 8: ASSOCIATION OF SELECTED DEMOGRAPHIC VARIABLES WITH PRE-TEST KNOWLEDGE SCORE

Association Of Pre-test Knowledge Scores Of subjects With Selected Socio-Demographic Variables. N =40									
Variables	Opts	ADEQUATE	MODERATE	INADEQUATE	Chi Test	P Value	df	Table Value	Result
AGE(YEARS)	<18 OR 18	00	00	00					
	19-22	00	00	00					
	23 OR>23	00	12	28					
GENDER	MALE	00	2	06	0.119	0.7301	1	6.634	NS*
	FEMALE	00	10	22					
AREA OF PRACTICE	UNIT	00	04	04	1.9048	0.1675	1	6.634	NS*
	WARD	00	08	24					
EXPERIENCE	<2 YEARS	00	03	07	1.6931	0.4289	2	9.2103	NS*
	2 YEARS	00	07	11					
	>2YEARS	00	02	10					
SOURCE OF INFORMATION	CLINICS	00	11	24	0.2721	0.6019	1	6.634	NS*
	OTHER	00	01	04					
EXPOSURE TO COVID 19	YES		03	17	4.2857	0.0384	1	6.634	NS*
	NO		09	11					

Two tailed chi test at 0.01 level of significance

DISCUSSION:-

Overall knowledge scores of Nurses revealed that pretest knowledge mean was 15.55 with SD of 3.088. The maximum score achieved in pretest was 20 and minimum score achieved was 08. The result revealed that 28 (70%) nurses had inadequate knowledge, 12(30%) nurses had moderately adequate knowledge and 0 (0%) nurses had adequate knowledge. These findings are consistent with the study conducted by Hussein A. Al-Hassan Kadhim et-al on assessment of nurses' knowledge towards oxygen therapy administration for patients with COVID-19 in Al-Hussein teaching hospital in Iraq. The study revealed that majority (92%) of the nurses possesses poor level of knowledge., The data shows that over all posttest knowledge mean was 21.05 with SD 2.275. The maximum score achieved in posttest was 25 and minimum score achieved was 16. The results revealed most of the study subjects 24(60%) had adequate knowledge, 13(32.5%) study subjects had moderate knowledge and 03(7.5%) study subjects had inadequate knowledge in the posttest after administration of educational interventions.

These findings are consistent with the study conducted by Elgneid ahmed Heba et.al to assess the effect of implementing oxygen administration guidelines on nurses performance caring for patients with Chest disorders. The study findings revealed that majority of study subjects (91.4%) had satisfactory knowledge after the administration of interventions. The data revealed that the mean score was enhanced to 21.05 in posttest from 15.55 in pretest and the dispersion i.e. standard deviation was reduced to 2.275 in posttest from 3.088 in pretest. The mean percentage was enhanced to 84.2 from 62.2 and overall knowledge improvement was 22%. The (mean +SD) of the post –test knowledge score of the study subjects i.e. (21.05+2.275) is greater than (mean +SD) score of the pre-test knowledge score i.e. (15.55+3.088) .This shows that the educational interventions were effective.

The data revealed the effectiveness of educational interventions. The overall improvement in mean was 5.5 with 0.813 standard deviation and the t- value calculated was 42.78 which was highly significant at $p < 0.001$ level.

It revealed that the improvement mean percentage obtained for over all knowledge was 22% with t value 42.78 at $p < 0.001$ level of significance. It revealed that there is an enhancement of knowledge indicating the effectiveness of educational intervention.

Conclusion

The present study assessed the knowledge of staff nurses regarding oxygen therapy for COVID-19 patients. The overall pretest score shows that 70% of staff nurses had inadequate knowledge, 30% of nurses had moderately adequate knowledge and 0% of nurses had adequate knowledge. Educational interventions were provided to enhance the knowledge of staff nurses which is essential for their professional performance by making awareness regarding administration of oxygen therapy for COVID patients and thereby to update their knowledge in patient care. The posttest knowledge score of the nurses revealed that 60% of nurses had adequate knowledge and 13% of nurses had moderately adequate knowledge and 7.5% had inadequate knowledge. The results revealed that teaching programme was very informative and it would help them to get aware about oxygen therapy. Hence, the educational interventions were effective, appropriate and feasible.

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