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Abstract

The world these days is gripped with the fear of corona virus and face masks are a very important component to save us from catching an infection. Emerging and re-emerging infections have emerged as a threat to human health in recent decades. By nature. A pre – experimental study to assess the effectiveness of structured teaching program on knowledge regarding utilization and disposal of face mask among nursing students at selected shenbagha college of Nursing. **Methodology** Pre – experimental design one group pre and post – test design. The study was conducted at shenbagha college of nursing at Thiruverkadu. The target population for this study was all B.Sc 2 year Nursing students A study sample that fulfilled the inclusive and exclusive criteria from the samples who were studying in selected college by using convenience sampling technique .**Results.** The results out of 30 samples; In the pretest, 26(86.66%) had moderate knowledge and 2(6.67%) had inadequate and adequate knowledge regarding utilization and disposal of face mask among Nursing Students. Whereas in the post test after the administration of Structured Teaching Programme, all 30(100%) had adequate knowledge regarding utilization and disposal of face mask among Nursing Students. The overall improvement, the pretest mean score of knowledge was 16.93 ± 3.68 and the post test mean score of knowledge was 26.93 ± 1.05 . The mean difference score was 10.0. The calculated paired ‘t’ test value of $t = 14.094$ was found to be statistically highly significant at $p < 0.001$ level. The demographic variable age ($\chi^2 = 4.286$, $p = 0.038$) had shown statistically significant association with post test level of knowledge regarding utilization and disposal of face mask among Nursing Students at $p < 0.05$ level. And there is no association between the age, Educational status, occupation, religion, type of family, residency, monthly income. Subject belonged to the age of 18 - above had more knowledge (93.3%) were aged when compare to the other age group. Subject belonged to the religion of hindu had more knowledge (66.7%) were Hindus when compare to the other religion. Subject belonged to the type of family had more knowledge (80%) belonged to nuclear family when compare to the other type.

1. Introduction

The world these days is gripped with the fear of corona virus and face masks are a very important component to save us from catching an infection. Emerging and re-emerging infections have emerged as a threat to human health in recent decades. By nature, disposable face masks are estimated to be the largest segment in face mask market in 2020. The disposable face masks segment includes surgical, respirator, dust, and pitta masks. The increased use of respirators in hospitals to drive the demand for disposable face masks during the forecast period. Also, the ongoing pandemic is contributing to the increased use of disposable face masks, on a global.

World health organization (2020): The majority 71 percentage of the GDG members confirmed their support for previous recommendations issued by WHOM on 5 June 2020. In the absence of aerosol generating procedures (AGP'S) WHO recommends that health workers providing care to patients with suspected or confirmed COVID-19 should wear a medical mask. In care settings for COVID-19 patients where AGPS are performed, WHO recommends that health workers should wear a respirator (N95 or FFP2 or FFP3 standard, or equivalent) in addition to other PPE that are part of airborne and contact precautions.

IN INDIA STATED (2020): Utilization and disposal of Face masks, also referred to as half masks, are essential to protect healthcare professionals working in close contact with patients with COVID-19-related symptoms. Because of the Corona material shortages, healthcare institutions sought an approach to reuse face masks or to purchase new, imported masks. The filter quality of these masks remained unclear. Therefore, the aim of this study was to assess the quality of sterilized and imported FFP2/KN95 face masks. A 48-minute steam sterilization process of single-use FFP2/KN95 face masks with a 15 minute holding time at 121°C was developed, validated and implemented in the Central Sterilization Departments (CSSD) of 19 different hospitals. Masks sterilized by steam and H₂O₂ plasma as well as new, imported masks were tested for particle filtration efficiency (PFE) and pressure drop in a custom-made test setup.

THE TAMIL NADU (2020): A study to conducted the effects of prolonged use of facemask. The fundamental aim of this study is to determine the effects of prolonged usage of N95 respirators and surgical facemasks aimed health care workers in our institution. Cross-sectional study. SRM medical college hospital, Kattankulathur. A self-constructed questionnaire containing 20 queries regarding the effects of prolonged use of face masks, after being analysed by the experts of our institution were handed over to 250 participants.. All participants wore either surgical masks or N95 respirators for a minimum of 4 h per day. People aged between 20 and 48 years were selected for this study. Study period was from 20/07/2020 to 26/07/2020. Completed questionnaires were sent for statistical analysis. A total of 250 healthcare workers participated in the study, out of which 179 were females. The acquired results were excessive sweating around the mouth accounting to 67.6%, difficulty in breathing on exertion 58.2%, acne 56.0% and itchy nose 52.0%. This study suggests that prolonged use of facemasks induces difficulty in breathing on exertion and excessive sweating

around the mouth to the healthcare workers which results in poorer adherence and increased risk of susceptibility to infection.

Face masks may become an emerging means for the transmission of covid-19 pandemic, considering the potential risk of self-infection and environmental hazard when the masks are incorrectly disposed of or used. For implementing public face – mask policies, the government should consider local attributes, required resources, viability, stability, risks, and benefits-based strategies. Mask and respirators made of or coated with water – resistant materials are more effective against large virus – laden respiratory droplets and fluid spills. Mask wearing can be effective in the contaminated of communicable diseases and thus become a new normal in many societies in the covid-19 pandemic. As a result many people have resorted to making their own masks, recycling used masks, or settling for masks offering less protection than actually needed.

2. Subject and methods:

2.1 Development and Validation of Questionnaire

A study sample that fulfilled the inclusive and exclusive criteria from the samples who were studying in selected college by using convenience sampling technique.

2.2 study subject and data collection method

2.3. Variable of the study

The study adopted Dependent variables is knowledge level among nursing students. Independent variables is structured teaching programme on utilization and Demographic Variables: Age, education, sex, qualification, socio economic status, family pattern, sources of information. The tool for the present study was developed by the investigator based on the review of related literature and expert opinion of faculty members as it was found appropriate tool for data collection from nursing students.

3. Data analysis

SECTION A: DESCRIPTION OF THE DEMOGRAPHIC VARIABLES OF B.SC (N) II YEAR NURSING STUDENTS.

Table 1: Frequency and percentage distribution of demographic variables of B.sc (N) II year Nursing Students.

n = 30

Demographic Variables	No.	%
Age		
16 to 17 yrs	2	6.7
18 and above	28	93.3
Education status of the father		
Secondary	12	40.0
Higher secondary	3	10.0
Graduate	1	3.3
Non literate	14	46.7
Educational status of the mother		
Secondary	12	40.0
Higher secondary	5	16.7
Graduate	1	3.3
Non literate	12	40.0
Occupation status of the father		
Salaried	11	36.7
Farmer	3	10.0
Self employed	2	6.7
Others	14	46.6
Occupation status of the mother		
Homemaker	18	60.0

Demographic Variables	No.	%
Salaried	6	20.0
Self employed	1	3.3
Others	5	16.7
Religion		
Hindu	20	66.7
Christian	9	30.0
Muslim	1	3.3
Others	-	-
Type of family		
Nuclear	24	80.0
Joint	5	16.7
Extended	1	3.3
Residency		
Urban	15	50.0
Rural	12	40.0
Semi urban	3	10.0
Monthly income		
Rs.5000 – 10,000	16	53.3
Rs.10,000 – 15,000	10	33.3
Rs.16,000 – 25,000	2	6.7
Above Rs.25,000	2	6.7

The table 1 shows that most of the Nursing Students 28(93.3%) were aged between 18 and above, 14(46.7%) were non literate, 12(40%) of mothers had secondary and were non-literate respectively, 14(46.6%) of fathers belonged to other type of occupation, 18(60%) of mothers were homemakers, 20(66.7%) were Hindus, 24(80%) belonged to nuclear family, 15(50%) were residing in urban area and 16(53.3%) had a monthly income of Rs.5,000 – 10,000.

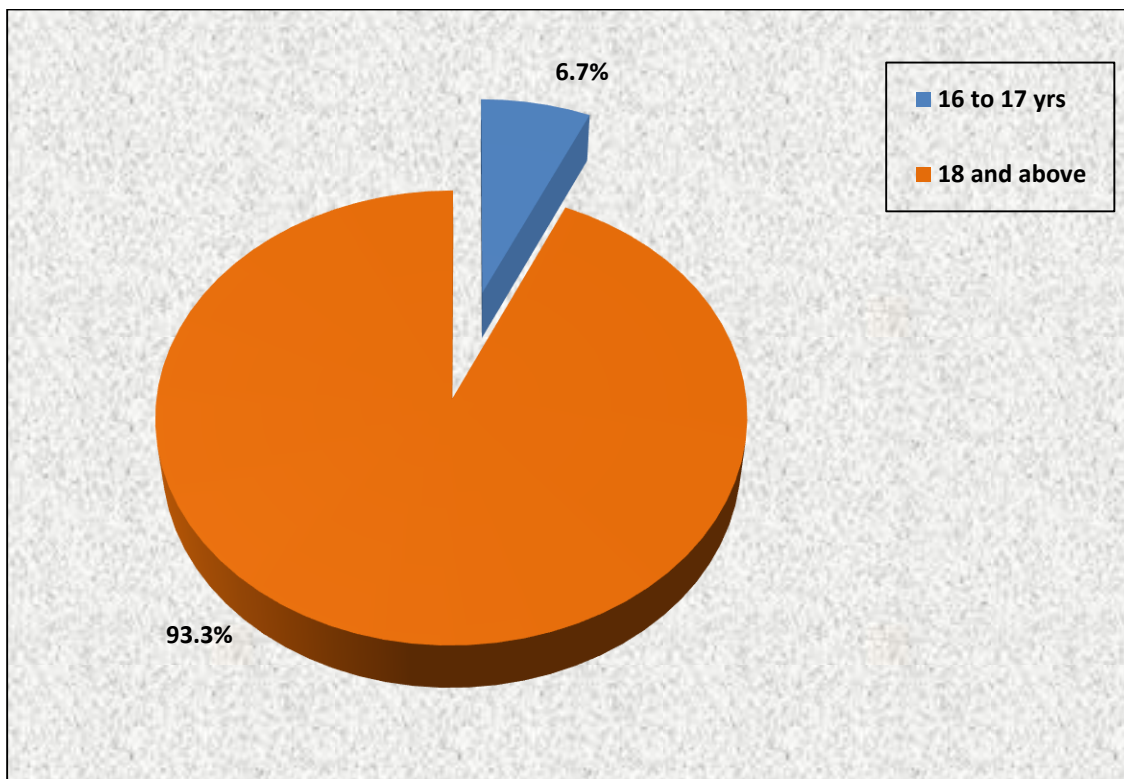


Fig – 3 The Percentage distribution of age of the B.sc (N) II year Nursing Student

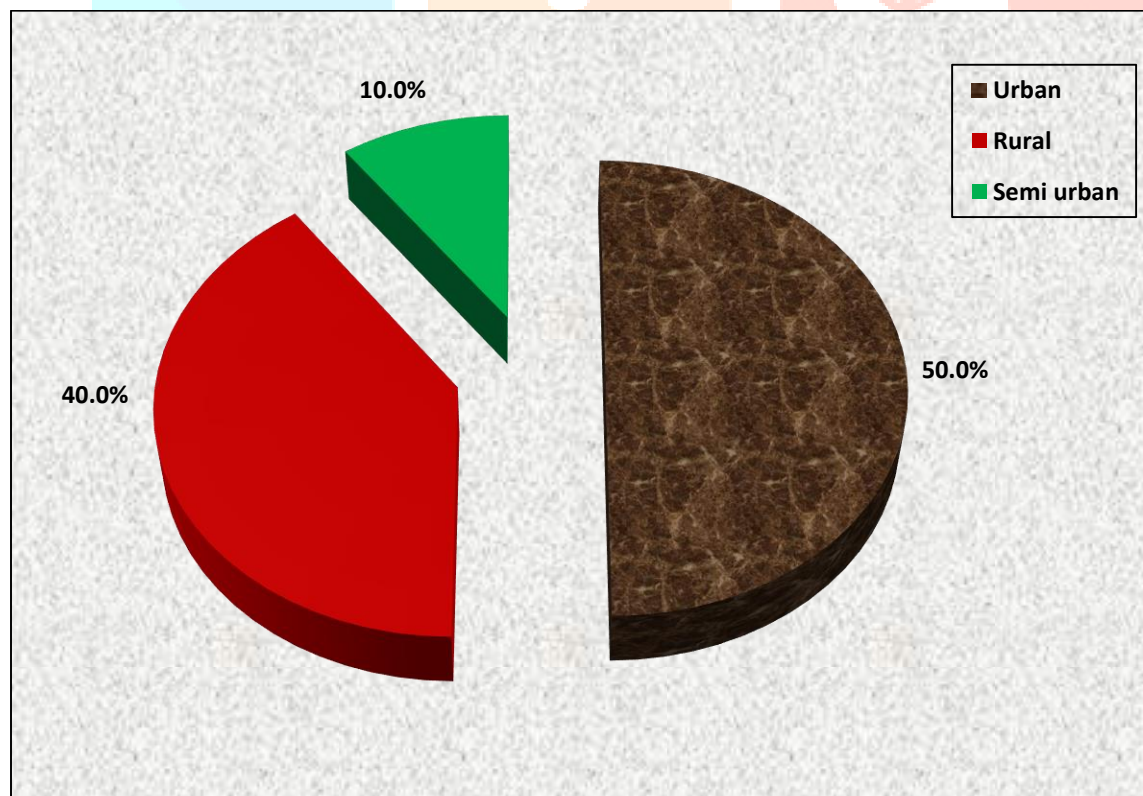


Fig – 4 The Percentage distribution of residency of the B.sc (N) II year Nursing Student.

SECTION B: ASSESSMENT OF LEVEL OF KNOWLEDGE REGARDING UTILIZATION AND DISPOSAL OF FACE MASK AMONG B.SC (N) II YEARNURSING STUDENTS.

Table 2: Frequency and percentage distribution of pre and post test level of knowledge regarding utilization and disposal of face mask among B.sc (N) II year Nursing Student.

n = 30

Knowledge	Inadequate (1 – 10)		Moderate (11 – 20)		Adequate (21 – 30)	
	No.	%	No.	%	No.	%
Pretest	2	6.67	26	86.66	2	6.67
Post Test	0	0	0	0	30	100.0

The above table 2 shows that in the pretest, 26(86.66%) had moderate knowledge and 2(6.67%) had inadequate and adequate knowledge regarding utilization and disposal of face mask among Nursing Students. Whereas in the post test after the administration of Structured Teaching Programme, all 30(100%) had adequate knowledge regarding utilization and disposal of face mask among nursing students.

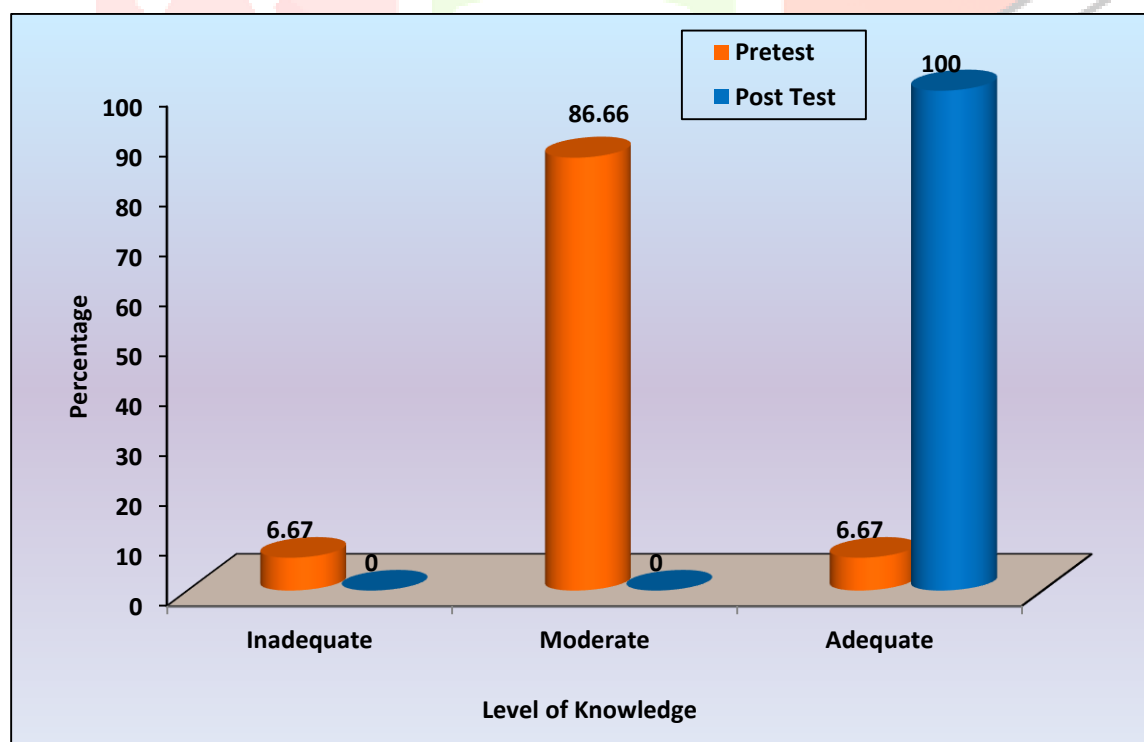


Fig – 5 The Percentage distribution of level of knowledge regarding utilization and disposal of face mask among B.sc (N) II year Nursing Student.

SECTION C: COMPARISON OF PRE TEST AND POST TEST OF KNOWLEDGE REGARDING UTILIZATION AND DISPOSAL OF FACE MASK AMONG B.SC (N) II YEAR NURSING STUDENTS.

Table 3: Comparison of pretest and post test level of knowledge regarding utilization and disposal of face mask among B.sc (N) II year Nursing Student.

n = 30

Knowledge	Mean	S.D	Mean Difference Score	Paired 't' test Value
Pretest	16.93	3.68	10.0	t = 14.094 p = 0.0001 S***
Post Test	26.93	1.05		

***p<0.001, S – Significant

The table 3 shows that, the pretest mean score of knowledge was 16.93 ± 3.68 and the post test mean score of knowledge was 26.93 ± 1.05 . The mean difference score was 10.0. The calculated paired 't' test value of $t = 14.094$ was found to be statistically highly significant at $p < 0.001$ level. This clearly infers that administration of structured teaching programme among Nursing Students was found to be effective in improving the level of knowledge regarding utilization and disposal of face mask in the post test.

SECTION D: ASSOCIATION OF POST LEVEL OF KNOWLEDGE AMONG B.SC (N) II YEAR NURSING STUDENTS WITH SELECTED DEMOGRAPHIC VARIABLES.

Table 4: Association of post level of knowledge regarding utilization and disposal of face mask among B.sc (N) II year Nursing Students with their selected demographic variables.

n = 30

Demographic Variables	≤ Mean		> Mean		Chi-Square Value
	No.	%	No.	%	
Age					$\chi^2 = 4.286$ d.f=1 p = 0.038 S*
16 to 17 yrs	2	6.7	0	0	
18 and above	8	26.7	20	66.7	
Education status of the father					$\chi^2 = 3.750$
Secondary	2	6.7	10	33.3	

Demographic Variables	≤Mean		>Mean		Chi-Square Value
	No.	%	No.	%	
Higher secondary	1	3.3	2	6.7	d.f=3
Graduate	0	0	1	3.3	p = 0.290
Non literate	7	23.3	7	23.3	N.S
Educational status of the mother					$\chi^2=1.275$
Secondary	4	13.3	8	26.7	d.f=3
Higher secondary	1	3.3	4	13.3	p = 0.735
Graduate	0	0	1	3.3	N.S
Non literate	5	16.7	7	23.3	
Occupation status of the father					$\chi^2=1.870$
Salaried	5	16.7	6	20.0	d.f=3
Farmer	1	3.3	2	6.7	p = 0.600
Self employed	0	0	2	6.7	N.S
Others	4	13.3	10	33.3	
Occupation status of the mother					$\chi^2=2.350$
Homemaker	5	16.7	13	43.3	d.f=3
Salaried	2	6.7	4	13.3	p = 0.503
Self employed	1	3.3	0	0	N.S
Others	2	6.7	3	10.0	
Religion					$\chi^2=2.525$
Hindu	7	23.3	13	43.4	d.f=2
Christian	2	6.7	7	23.3	p = 0.283
Muslim	1	3.3	0	0	N.S
Others	-	-	-	-	
Type of family					$\chi^2=2.288$
Nuclear	7	23.3	17	56.7	

Demographic Variables	≤Mean		>Mean		Chi-Square Value
	No.	%	No.	%	
Joint	1	3.3	3	10.0	d.f=2
Extended	2	6.7	0	0	p = 0.319 N.S
Residency					$\chi^2=0.675$
Urban	4	13.3	11	36.7	d.f=2
Rural	5	16.7	7	23.3	p = 0.714
Semi urban	1	3.3	2	6.7	N.S
Monthly income					$\chi^2=2.325$
Rs.5000 – 10,000	6	20.0	10	33.3	d.f=3
Rs.10,000 – 15,000	4	13.3	6	20.0	p = 0.508
Rs.16,000 – 25,000	0	0	2	6.7	N.S
Above Rs.25,000	0	0	2	6.7	

*p<0.05, S – Significant, N.S – Not Significant

The table 4 shows that the demographic variable age ($\chi^2=4.286$, $p=0.038$) had shown statistically significant association with post test level of knowledge regarding utilization and disposal of face mask among Nursing Students at p<0.05 level. The other demographic variables had not shown statistically significant association with post test level of knowledge regarding utilization and disposal of face mask among B.sc (N) II year Nursing Students.

5. Discussion

This chapter deals with the discussion of the results of the data analysed based on the objectives of the study hypothesis. The statement of the problem is ‘‘ A pre - experimental study to assess the effectiveness of structured teaching program on knowledge regarding utilization And disposal of face mask among nursing students.

The first objective of the study was to assess the pre and post test level of knowledge regarding utilization and disposable of face mask among B.sc (N) II year nursing students .

The finally of the present study revealed that majority of the frequency and percentage distribution of level of knowledge regarding utilization and disposal of face mask among nursing students. In pre- test 2(6.67%) had inadequate knowledge , and 26(86.66%) had moderate knowledge and 2 (6.67%) had adequate knowledge in the pre-test . In post -test 0% of inadequate and moderate knowledge and 30 (100%) adequate knowledge in post – test.

Linda Yin King Lee, Chung Wai Wu (2020)The research was conducted Practice and technique of using face mask amongst adults in the community. A quota sample of 1500 adults was recruited in Hong Kong during a nonepidemic state between January and February 2017. The participants’ practice of using face mask in five given situations was assessed using a questionnaire. More than 90% of the participants did not perform hand hygiene before putting on (91.5%), taking off (97.3%), or after disposing (91.5%) face mask. Adults aged 55 and above performed poorer than adults in the younger age groups.

The second objective of the study was to comparison of pre testand post test of knowledge regarding utilization and disposable of face mask amongB.sc (N) II year nursing students.

Thepretest mean score of knowledge was 16.93 ± 3.68 and the post test mean score of knowledge was 26.93 ± 1.05 . The mean difference score was 10.0. The calculated paired ‘t’ test value of $t = 14.094$ was found to be statistically highly significant at $p < 0.001$ level.

This clearly infers that administration of structured teaching programme among Nursing Students was found to be effective in improving the level of knowledge regarding utilization and disposal of face mask in the post test.

MassimilinaoScalvenziEt . Al(2020) : The Research Was Conducted ,In Italy, as well as in almost all countries, the use of masks in public with several other measures has been an important health measure during the ongoing COVID-19 pandemic. The correct use of masks is essential, as a wrong use and disposal may increase the rate of contagious. The correct use of masks is essential, as a wrong use and disposal may increase. A total of 2655 patients anonymously completed the questionnaires and were consecutively enrolled in the study. However, 93 questionnaires were not considered due to the lack of answers. Hence, a total of 2562 full complete patients’ questionnaires were considered for the study. The study population included 1381 (52.1%) female and 1271 (47.9%) male. The most frequent age range was 30–50 year-old (35.4%, $n = 907$), followedby 50–70 year-old (31.4%, $n = 804$), 18–30 year-old (22.6%, $n = 579$), over 70 year-old (7.7%, $n = 197$) and under 18 year-old ($n = 75$, 2.9%).

The third objective of the study was to find out association of post level of knowledge regarding utilization and disposal of face mask among B.sc (N) II year Nursing Students with their selected demographic variables.

The demographic variable age ($\chi^2=4.286$, $p=0.038$) had shown statistically significant association with post test level of knowledge regarding utilization and disposal of face mask among Nursing Students at $p<0.05$ level.

The other demographic variables had not shown statistically significant association with post test level of knowledge regarding utilization and disposal of face mask among Nursing Student.

Comparison of pretest and post test level of knowledge regarding utilization and disposal of face mask among B.sc (N) II year Nursing Student.

6.Results

The results out of 30 samples; In the pretest, 26(86.66%) had moderate knowledge and 2(6.67%) had inadequate and adequate knowledge regarding utilization and disposal of face mask among Nursing Students.

Whereas in the post test after the administration of Structured Teaching Programme, all 30(100%) had adequate knowledge regarding utilization and disposal of face mask among Nursing Students.

The overall improvement, the pretest mean score of knowledge was 16.93 ± 3.68 and the post test mean score of knowledge was 26.93 ± 1.05 . The mean difference score was 10.0. The calculated paired 't' test value of $t = 14.094$ was found to be statistically highly significant at $p<0.001$ level.

The demographic variable age ($\chi^2=4.286$, $p=0.038$) had shown statistically significant association with post test level of knowledge regarding utilization and disposal of face mask among Nursing Students at $p<0.05$ level. And there is no association between the age, Educational status, occupation, religion, type of family, residency, monthly income.

- Subject belonged to the age of 18 - above had more knowledge (93.3%) were aged when compare to the other age group.
- Subject belonged to the religion of hindu had more knowledge(66.7%) were Hindus when compare to the other religion.
- Subject belonged to the type of family had more knowledge (80%) belonged to nuclear family when compare to the other type.

7. Conclusion:

The present study assessed the knowledge of utilization and disposable of face mask. The study findings revealed that there was significant improvement in the post – test . The improvement mean score was 26.93 with ‘t’ value ($t = 14.094$) which significant at $p < 0.05$ shows the effectiveness of structured teaching programme . The findings of the study demonstrated that on educated session increase the knowledge and compliance .

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