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International Journal of Forensic Science	2	10500	10000	820	781
International Journal of Neurology and Neurosurgery	4	11000	10500	859	820
International Journal of Pediatric Nursing	3	6000	5500	469	430
International Journal of Political Science	2	6500	6000	508	469
International Journal of Practical Nursing	3	6000	5500	469	430
International Physiology	3	8000	7500	625	586
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Journal of Psychiatric Nursing	3	6000	5500	469	430
Journal of Radiology	2	8500	8000	664	625
Journal of Social Welfare and Management	4	8000	7500	625	586
New Indian Journal of Surgery	6	8500	7500	664	625
Ophthalmology and Allied Sciences	3	6500	6000	508	469
Pediatric Education and Research	4	8000	7500	625	586
Physiotherapy and Occupational Therapy Journal	4	9500	9000	742	703
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Contents

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Impact of Structured Teaching Program on Knowledge Regarding MEWS Score Among Student Nurses in Selected Nursing College, Amritsar

Vijayalakshmi

Abstract

Context: MEWS score is a simple, physiological score that may allow improvement in the quality and safety of management provided to patients.

Aims: The aim of the study is to evaluate the effectiveness of structured teaching program on level of knowledge regarding MEWS score among student nurses.

Methods and Material: The research design used in this study was one group pre-test and post-test Pre experimental design and conducted in selected Nursing College, Amritsar. Convenient sampling technique was used to select 30 student nurses. Structured knowledge questionnaire was used to before and after structured teaching program.

Statistical Analysis used: Collected data were coded, tabulated and analysed by descriptive and inferential statistics.

Results: Majority of the student nurses participated in the study belonged to 21–22 years of age (46.7%), Sikh religion (56.7%) and from rural area (56.6%). Most of the student nurses had monthly income of ₹10001–15000/- (43.3%) and got knowledge from multimedia (70%). The study findings revealed that in pre-test majority of the student nurses (53.3%) had inadequate knowledge whereas in post-test majority (56.7%) had adequate knowledge regarding MEWS score. The mean score was 6.80 in pre-test and 15.53 in post-test. The '*t*' value 11.25 which was highly significant at 0.01 level. Hence hypothesis (H1) is accepted. There was no significant association between post-test knowledge score with selected demographic variables of student nurses.

Conclusions: Based on statistical findings, it is evident that the provision of structured teaching programon MEWS score has increased the knowledge of student nurses.

Keywords: Structured teaching program; Knowledge; MEWS score; Student nurses.

Introduction

MEWS (Modified early warning score) is a simple physiological score to determine clinical deterioration and identify high risk patients who in need of intensive care. MEWS described as evidence based organized screening tool with aggregated scoring of multiple pre-determined indicators to assist in early recognition and intervention of physiologic signs of patient deterioration. It is a nursing decision tool. MEWS is an aid to good clinical judgement, not a substitute for critical thinking. The primary purpose is to prevent delay in intervention or transfer of critically ill patient.

Statement of the Problem

Impact of structured teaching program on

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knowledge regarding MEWS score among student nurses in selected Nursing College, Amritsar.

Objectives

1. To assess pre-test knowledge regarding MEWS score among student nurses.

2. To assess post-test knowledge regarding MEWS score among student nurses.

3. To find out the differences between pre-test and post-test knowledge regarding MEWS score among student nurses.

4. To evaluate the effectiveness of structured teaching program on post-test level of knowledge on MEWS score among student nurses.

5. To find out the association between post-test levels of knowledge on MEWS score and selected demographic variables of student nurses.

Research Hypothesis

H1: There will be a significant difference between pre-test and post-test knowledge score before and after structured teaching program on MEWS score

H2: There will be a significant association between post-test level of knowledge on MEWS score and selected demographic variables of student nurses.

Materials and Methods

In this study impact of structured teaching program on knowledge regarding MEWS score among student nurses in selected Nursing College was studied by using structured knowledge questionnaire on MEWS score. The purpose of the study was to assess the knowledge level of student nurses and need of teaching program. The aim of the study was to assess the effectiveness of structured teaching program on the level of knowledge regarding MEWS score among student nurses.

The research design used in this study was one group pre-test and post-test Pre-experimental design. Pre-experimental research design involves the manipulation of independent variable to observe the effect on dependent variable, but lacks randomisation and control group. In this study structured teaching program used as manipulation to observe the effect on knowledge score of student nurses.

The study was conducted in S B S Institute of Nursing, Amritsar. The sample of the study consists of 30 BSc nursing final year students who fulfilled the criteria. Convenient sampling technique was used to select the samples.

Description of the tool

- Part I: Demographic variables

- Part II: Structured knowledge questionnaire consists of 20 questions regarding MEWS score with multiple choices. The total score of structured knowledge questionnaire ranges between 0 (inadequate knowledge) and 20 (adequate knowledge). Each question carries right answer 1 marks and wrong answer 0 mark.

Content validity of the tool was established in terms of relevance and accuracy by sending to experts and incorporated their suggestions in the tool. Reliability of the tool was tested using Karl Pearson's method and the tool was found to be reliable.

The data was collected by using structured knowledge questionnaire after getting written consent from samples. First Pre-test was conducted and following with structured teaching on MEWS score given through PPT presentation on the same day. After seven days post-test was conducted by using the same tool. Collected data were coded, tabulated and analysed by descriptive and inferential statistics. Data were put to statistical inferences by using SPSS software package.

Results

Findings Related to Sample Characteristics of Student Nurses

- In relation to age sample characteristics revealed that the majority of subjects were belonged to 21–22 years of age 14 (46.7%), some of them were of 23–24 years 9 (30%), few were of 19–20 years 6 (20%) and very few were of 25–26 years 1 (3.3%) (Table1).

- According to religion, most of the subjects were of Sikh 17 (56.7%), some were of Hindu 10 (33.3%), few were of Christian 2 (6.7%) and very few were of Muslim 1 (3.3%) (Table 1).

- Regarding residence area, Maximum subjects were from rural area 17 (56.6%), modest were from urban area 11 (36.7%) and few were from hostel 2 (6.6%) (Table 1).

- When considering monthly family income, 13 (43.3%) had monthly income ₹10001–15000, 11(36.7%) had monthly income ₹5001–10000 and 3 (10%) had monthly income above ₹15000 and below ₹5000 (Table 1).

- Regarding source of knowledge, most of the student nurses 21 (70%) got knowledge from multimedia, few of them 6 (20%) got knowledge from newspaper and very few 2 (6.7%) and 1 (3.3%) got knowledge from health personnel and magazines respectively (Table 1).

Table 1: Frequency and percentage distribution of demographic variables of student nurses

$N = 30$

S. No	Demographic variables	Frequency (n)	Percentage (%)
1	**Age in years**		
	19–20 years	6	20.0
	21–22 years	14	46.7
	23–24 years	9	30.0
	25–26 years	1	3.3
2	**Religion**		
	Hindu	10	33.3
	Sikh	17	56.7
	Christian	2	6.7
	Muslim	1	3.3
3	**Residence area**		
	Rural area	17	56.6
	Urban area	11	36.7
	Hostel	2	6.6
4	**Monthly family income (in ₹)**		
	Below 5000	3	10.0
	5001–10000	11	36.7
	10001–15000	13	43.3
	Above 15000	3	10.0
5	**Source of knowledge**		
	Health personnel	2	6.7
	Multi Media	21	70.0
	News paper	6	20.0
	Magazines	1	3.3

Findings Related to Knowledge Score Regarding Mews Score

The result of knowledge score revealed that in pre-test majority of the student nurses 16 (53.3%) had inadequate knowledge and others 14 (46.7%) had moderately adequate knowledge whereas in post-test majority 17 (56.7%) had adequate knowledge and others 13 (43.3%) had moderately adequate knowledge (Table 2). No one had adequate knowledge in pre-test whereas markedly no one had inadequate knowledge in post-test (Fig. 1).

Table 2: Compare the pre-test and post-test level of knowledge regarding MEWS score among student nurses

$N = 30$

Level of knowledge	Pre-test		Post-test	
	f	%	f	%
Adequate knowledge	0	0	17	56.7
Moderately Adequate knowledge	14	46.7	13	43.3
Inadequate knowledge	16	53.3	0	0
Minimum score	0		10	
Maximum score	14		20	
Score range	14		10	
Mean ± SD	6.80 ± 3.699		15.53 ± 2.862	

Level of Knowledge Regarding Mews Score Among Student Nurses
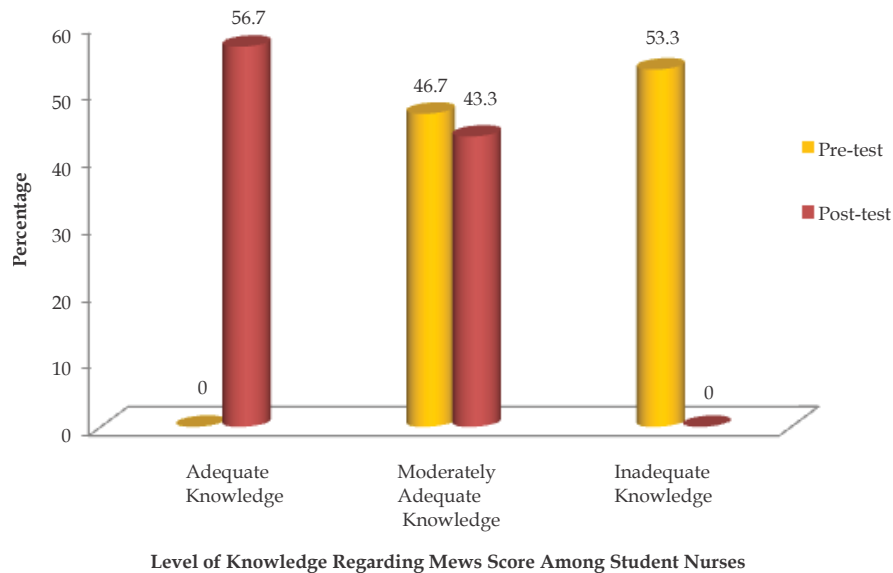
Fig 1: pre-test and post-test level of knowledge regarding MEWS score among student nurses.

The mean score was 6.80 in pre-test and 15.53 in post-test. The standard deviation was 3.699 in pre-test whereas 2.862 in post-test (Fig. 2). The 't' value 11.25 which was highly significant at 0.01 level. Hence there is a statistically significant difference between pre-test and post-test knowledge score before and after structured teaching program on MEWS score. So hypothesis ($H1$) is accepted (Table 3).

Table 3: Effectiveness of structured teaching program on post-test level of knowledge on MEWS score among student nurses.

$N = 30$

Level of knowledge	Mean	SD	't' value	df	'p' value
Pre-test	6.80	3.699	11.25	29	0.000*
Post-test	15.53	2.862			

*$p < 0.01$ level of significance (Highly Significant) NS-Non significant

Level of Knowledge Regarding Mews Score Among Student Nurses
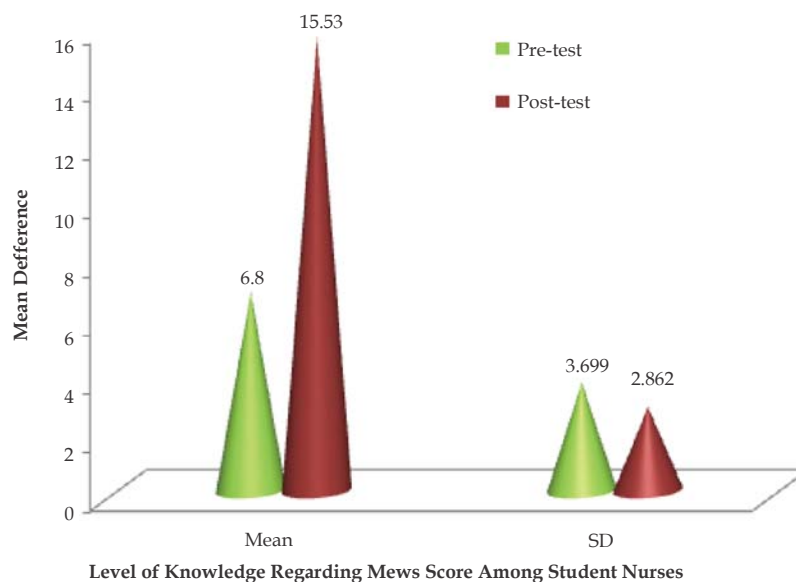
Fig 2: Mean and SD of pre-test and post-test level of knowledge regarding MEWS score among student nurses.

Vijayalakshmi / Impact of Structured Teaching Program on Knowledge Regarding MEWS Score Among
Student Nurses in Selected Nursing College, Amritsar

13

Findings Related to Association Between Post-Test Knowledge Score with Selected Demographic Variables

There was no significant association between post-test knowledge score with selected demographic variables of student nurses. So hypothesis (*H2*) not accepted (Table 4).

Table 4: Association between post-test level of knowledge on MEWS score and selected demographic variables of student nurses.

N = 30

S. No	Socio demographic variables	Moderately Adequate knowledge	Adequate knowledge	chi-value	df	*p*-value
1	**Age in years**					
	19–20 years	2	4	5.145	3	0.161
	21–22 years	9	5			NS
	23–24 years	2	7			
	25–26 years	0	1			
2	**Religion**					
	Hindu	6	4	3.817	3	0.282
	Sikh	5	12			NS
	Christian	1	1			
	Muslim	1	0			
3	**Residence area**					
	Rural area	7	10	0.089	2	0.957
	Urban area	5	6			NS
	Hostel	1	1			
4	**Monthly family income (in ₹)**					
	Below 5000	2	1	7.464	3	0.058
	5001–10000	2	9			NS
	10001–15000	6	7			
	Above 15000	3	0			
5	**Source of knowledge**					
	Health personnel	2	0	3.626	3	0.305
	Multi Media	9	12			NS
	News paper	2	4			
	Magazines	0	1			

P < 0.05 level of significance NS-Non significant

Discussion

Mohamad M. Saab et. al., conducted a systematic review on the effect of adult warning systems education on nurses knowledge, confidence and clinical performance using Cochrane methods. Eleven articles with 10 studies were included. The results showed that 9 studies addressed clinical performance, 4 addressed knowledge and 2 addressed confidence. Most of the studies revealed that knowledge, vital signs recording and early warning score calculation was improved in the short term. This review highlights the importance of measuring outcomes using standardized, valid and reliable instruments.

Conclusion

The study findings revealed that in pre-test majority of the student nurses 16 (53.3%) had inadequate knowledge whereas in post-test majority 17 (56.7%) had adequate knowledge regarding MEWS score. Based on statistical findings, it is evident that the provision of structured teaching program on MEWS score has increased the knowledge of student nurses.

Abbreviations

MEWS- Modified early warning score

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A Study to Assess the Effectiveness of Planned Teaching Program Regarding Knowledge Related to Ill Effects of Self Medication Among Adults in Selected Area of Ahmedabad

Vijesh Patel[1], Harimohan Singh[2]

Abstract

A true experimental study was conducted to assess the knowledge of adults regarding ill effects of self-medication. The study was conducted in partial fulfillment for the award of degree of B.Sc. Nursing at Apollo Institute of Nursing, Gandhinagar. 30 adults were chosen as samples for conducting the study. The main objective of study was to assess the knowledge regarding ill effect of self-medication among adult's in selected areas of Ahmedabad, before and after provision of planned teaching program. A structured questionnaire was used to assess the knowledge of people in order to achieve the objective of the study. Data gathered from the survey was analyzed and interpreted using true experimental study. The mean of knowledge regarding ill effects of self-medicationamong adults inpretest is 13.23 whereas the mean of posttest, after the planned teaching programme was administered came to be 19.8. The calculated '*t*' value was 8.09262 and 3.83 for the study conducted. Hence there was no evidence against null hypothesis. The result strongly suggests that adults were well acquainted with the knowledge regarding ill effects of self-medicationafter the provision of planned teaching programme.

Keywords: Ill effects; Medicine; Self-medication; Planned teaching.

Introduction

A Quantitative Research Approach is used in the study to assess the Effectiveness of a Planned Teaching Program on ill effect of self-medication in terms of Knowledge among Adults of Ahmedabad. The investigator adopted purposive sampling technique to select the samples and with this method investigator selected 30 samples from selected areas in Ahmedabad.

Investigator prepared questionnaires onill effect of self-medication. This tool is divided in to two sections:

Section I

Demographic variables:

- Age
- Gender
- Religion
- Education
- Occupation

Section II

Self–structured questionnaires regarding ill effect of self-medication

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Objective

1. To assess the knowledge regarding Ill effect of self-medication among adult's before and after provision of planned teaching program in selected area of Ahmadabad.

2. To find out association with their pretest and posttestvariables

Background of the Study

Self-medication is a part of self-care which is known to contribute to primary health care. If practiced appropriately, it has major benefits for the consumers such as self-reliance and decreased expenses. However, inappropriate practice can have potential dangers such as incorrect self-diagnosed, dangerous drug-drug interactions, incorrect manner of administration, incorrect dosage, incorrect choice of therapy, masking of a severe disease, and/or risk of dependence andabuse.[1]

A study awareness & use of OTC in society, Gujarat cross sectional study was conducted with a self-administered internet base OTC questionnaire among the respondent. From our society questionnaires were forwarded & requested to rate the responses. Half of the respondent rated use of OTC on weekly & 4.4–8.8% rated yearly & monthly bases. Headache 75.5%, body pain 68.1%, cough & cold 64.9%, fever 59.9%, acidity 54.2%, allergy 34.9%, diarrhea 36.2% & for other 4.9% where the common condition for which respondents used OTC. Some respondents unable to reply the name & strength of medicine, they were unaware about duration of medicine. Medical shop & general store was the common point of OTC medicine to purchase & they consumed it as perinstruction.[2]

Need of the Study

Survey was done on awareness about ill effect of self-medication in Indian population with 80 participations by an online link on survey planning result was over obtain and statistically analysis was done, finding was 76.3% people were taking self-medication.Conclusion of the study, most people take self-medication. The total 80 nearly 65% of the participants were aware of over dosage of self-medication, while 35% of them are not aware of over dosage. Only 53% of the participants were aware that over dosage of self-medication leads to organ failure and the remaining 47% of them were not aware of systemic failures due to over dosage of self-medication.[3]

A cross-sectional study was in implication of self-medication among the medical student was conduct January to June. The sample comprised student of first, second, third, fourth and fifth professional year. Data was collected using self-generated questionnaire. About 400 subjects approached.

A cross-sectional study was conducted online survey & snow ball technique by sultan alghadeer, Khalid aljuaydi, salmeenbabeghaith during January 2017 to May 2017 in Saudi Arabia. The sample was taken by random sampling in that 1264 responded & about 34% of respondent have antibiotic prescription & 81.3% of them knew that it might be harmful to health. The prevalence is high. Health awareness campaigns should be done to prevent misuse of antibiotic.[4]

A cross-sectional study was conducted by Cukovic JA, Miletic M, Pekmezovic T, Traykovic G, Ratkovic N, Aleksic D in 2014 to study self-medication practices & risk factor among medical students in Belgrade. The sample included 1296 by random sampling and data collected by questionnaire. The most frequent prescribed medications were analgesic (55.4%). Prevalence of self-medication could be controlled through regulatory authorities & further education.[5]

Operational Definition

Assess

Deciding the worth of structured teaching program among community people regarding I'll effect of self-medication.

Community

It is a small or large social unite that has something in common such as norms, religion, value, or identity.

Self-Medication[6]

It is the selection and uses of medicine by individuals to treat self-recognize illness or symptoms.

Planned Teaching Program

It refers to the extent to which the planning teaching program regarding effects of self-medication.

Ill Effect[7]

In medicine and adverse effect is a desired harmful effect resulting from medication.

Hypothesis

H_0: There is no significant difference between mean pre–test & post-test knowledge score before & after

the administration of a planned teaching program on ill effect of self-medication among community people of selected area of Ahmadabad.

H_1: The mean post–test knowledge score will be significantly higher than the pre-test knowledge score after the administration of planned teaching program on ill effect of self-medication among community people of selected area of Ahmadabad.

Materials and Methods

The study was conducted in selected areas of Ahmedabad. Quantitative Research approach was adopted along with purposive sampling technique for the study. The sample consisted of 30 Adults (17 years to 58 years) living in selected areas

of Ahmedabad. A true experimental approach with one group pretest post-test research design was selected for the study. Approval taken by selected area of medical officers of each PHC center. A pretest was conducted using self structured questionnaire followed by planned teaching, regarding ill effects of self-medication. Post-test was conducted one week later. The purpose of the study was explained, and informed consent was taken from all respondents prior to the study.

Results

An analysis of data related to assessment of knowledge regarding ill effects of self-medication before and after administration of planned teaching among adults in selected areas of Ahmedabad.

Table 1: Consist demographic data of samples

N = 30

Sr. No.	Demographic variable	Category	Frequency	Percentage
1	**Age of adults**	17–30 years	18	60.00
		31–44 years	6	20.00
		45-58 years	6	20.00
2	**Educational status**	Primary	1	3.33
		Secondary	12	40.00
		Higher secondary	3	10.00
		Graduate and above	14	46.6
3	**Gender**	Male	15	50.00
		Female	15	50.00
4	**Religion**	Hindu	27	90.00
		Muslim	1	3.33
		Sikh	1	3.33
		Other	1	3.33
5	**Occupation**	Self employed	10	33.33
		Govt. job	3	10.00
		Private job	8	26.67
		Other	9	30.00
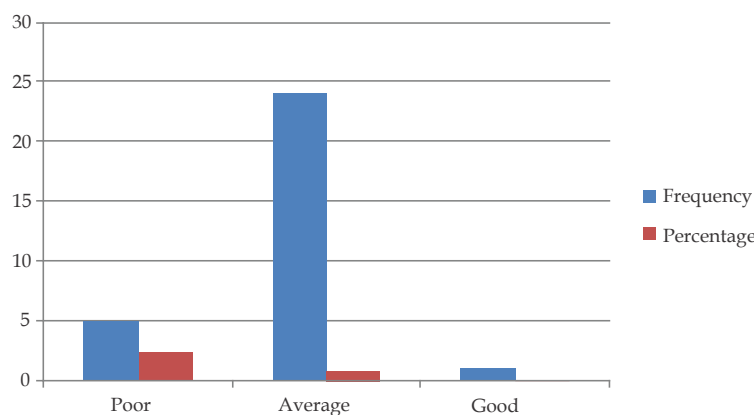
Fig. 1: Consists about knowledge of adults in selected areas of Ahmedabad regarding ill effects of self-medication before administration of planned teaching.
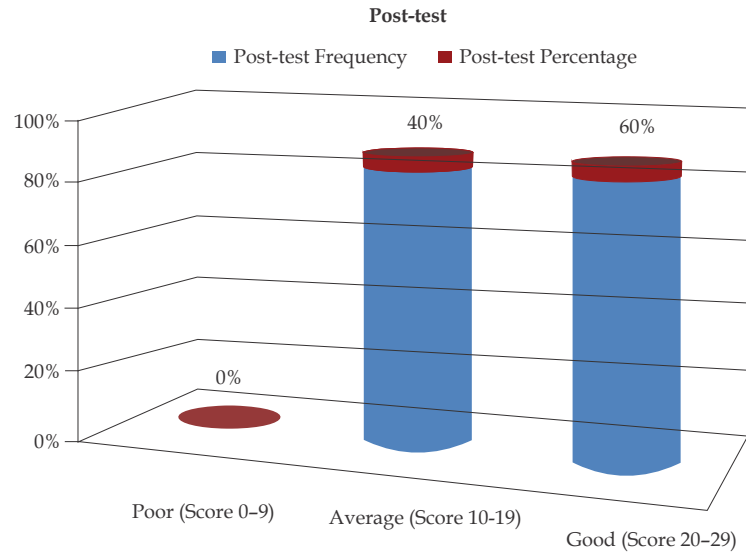
Fig. 2: Consist of knowledge of adults in selected areas of Ahmedabad regarding ill effects of self-medication after administration of planned teaching.

An analysis of the data related to the effectiveness of planned teaching program on the knowledge regarding ill effects of self-medication on adults in selected areas of Ahmedabad.

Table 2: Consist pretest and posttest knowledge of adults in selected areas of Ahmedabad

N = 30

Knowledge	Pretest		Posttest	
	Frequency	Percentage	Frequency	Percentage
Poor (Score 0–9)	5	16.67	0	0
Average (Score 10–19)	24	80.00	12	40
Good (Score 20–29)	1	3.33	18	60

Table 3: Consists of paired t-test for effectiveness of planned teaching on knowledge of adults in selected areas of Ahmedabad.

N = 30

Administration	Mean	SD	Calculated 't'value	Table value	*p*-value
Pretest	13.23	3.289			
Posttest	19.8	2.99	8.09262	3.460	0.05

Discusson

Self-medication is a part of self-care which is known to contribute to primary health care. If practiced appropriately, it has major benefits for the consumers such as self-reliance and decreasedexpenses.

A study regarding effectiveness of planned teaching program on knowledge regarding Alzheimer disease among the family members of elderly in a selected urban community of Mangalore was carried out. The findings reviled that the planned teaching programmed is an effective strategy for improving the knowledge of subject.

Hence it was decided to conduct a planned teaching program on ill effects of self-medication to increase knowledge of adults living in selected areas of Ahmedabad.

Major Findings of the Study

1. *Gender:* Among 30 samples 50% were male and 50% werefemale

2. *Age:* The majority, 60% of the samples were between the age group of 17 to 30 years, 20% of the samples were between the age group of 31 to 44 and 20% of the samples were between the age group of 45 to 58years.

3. *Educational qualification:* 3.33% samples were studying in primary, 40% of the samples were studying in secondary, 46.66% of samples weregraduate and 10% of the sampleshad other qualification.

4. *Religion:* 45% sample were Hindu, 3.33% Muslim, 3.33% were Sikh and 3.33% sample were from otherreligion.

5. *Occupation:* 33.33% sample were self-employed, 10% were having govt. job, and 26.66% were having private job and 30% samples were having other occupation.

6. Knowledge regarding ill effect ofself-medication:

7. *Pre-test:* In pre-test, 16.67% samples scored poor; 80% samples scored average and 3.33% samples scored good.

8. *Post-test:* In post-test, 0% samples scored poor, 40% samples scored average and 60% samples scored good.

Conclusion

The present study assessed the knowledge of adults from selected areas of Ahmedabad, related to ill effects of self-medication and concluded that planned teaching is an effective method of improving knowledge among the community people.

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A Study to Assess the Importance of Antioxidant in Reducing Risk of Heart Attack Among Middle Age People in Selected Urban Areas of Ahmedabad, Gujarat

Hina Patel[1], Harimohan Singh[2]

Abstract

Pre-experimental study was conducted to assess the effectiveness of information booklet regarding importance of antioxidant in reducing risk related to heart attack among middle age group people in selected urban areas of Ahmedabad, Gujarat. The study was conducted among middle age group people and selected areas of Ahmedabad, Gujarat.

The main objective of our study was to evaluate the effectiveness of information booklet regarding importance of antioxidant in reducing risk related to heart attack among middle age group people in selected urban areas of Ahmedabad, Gujarat.

The 'General system model' was used as the conceptual framework. A quantitative approach with experimental study design was used to achieve the objective of the study. The samples consisted of 30 middle age people in selected urban areas of Ahmedabad. The purposive sampling technique was used to collect the sample. A structured questionnaire was used to assess the knowledge regarding importance antioxidants in reducing risk related to heart attack among middle age people in selected urban areas of Ahmedabad.

Data gathered was analyzed and interpreted using both experimental and inferential statistics. The mean and SD on concept mapping in pretest was 7.53 and 4.956, whereas the mean and SD of post test was 14.76 and 6.67. the calculated 't' value was greater than tabulated 't' value. Hence the null hypothesis was rejected and the research hypothesis was accepted. The result shows that when information booklet was given to middle age people, they achieve the best scores. This study therefore, offers an encouraging solution towards improvement of middle age people's performance regarding importance of antioxidants.

Keywords: Importance of Antioxidant; Reducing Heart Attack; Information Booklet

Inroduction

An antioxidant is a molecule that inhibits the oxidation of other molecules in human body. Antioxidant protect the body from damage caused by harmful molecules called free radical. Antioxidants are manmade or natural substances that may prevent or delay some type of cell damages. Examples of antioxidants include: Beta-carotene, lycopene, lutein, Seleniu Vitamin A, Vitamin C, Vitamin E.[1]

Antioxidant are chiefly available to us through vitamins, enzymes, and minerals. Vitamin E is actually a group of eight tocopherols. Alpha tocopherols is the most widely available tocopherol and also the most potent in terms of its effect on

the body. Vitamin E is fat- soluble and protects cell membranes that are mainly composed of fatty acids. Vitamin C or ascorbic acid is water-soluble and it scavenges for free radicals that are present in aqueous environments within the human body. Beta carotene is also water soluble and is particularly effective in tackling free radicals in areas of low concentration. selenium, manganese and zinc are trace elements that are important components of several antioxidant enzymes such as superoxide dismutase (SOD), catalase (CAT) and glutathione peroxide. Enzymes work as both primary and secondary antioxidants and help repair oxidized DNA and target lipids that are oxidized.[2]

Vitamin A is also fat soluble and is designed to protect the body from certain types of pollutants that it is exposed to everyday. Vitamin C is typically deficiency in many people who suffer from heart disease. You can get a good dose of Vitamin C by eating a variety of citrus fruits, such as organs and tangenines. Vitamin E on the other hand, is a fat soluble antioxidant. it protects the fatty tissue of the body and it helps maintain a good cholesterol level by keeping the bad cholesterol from attaching itself to the blood vessels as it passes through. This helps to reduces the risk of heart disease. Beta-carotene is a red orange pigment found in plants and fruits, especially carrets and colorful vegetables. Lycopene is the antioxidant that gives tomatoes their rich red color, when tomatoes are heart treated, the lycopene becomes more bio-available. Lutein is called a carotenoid vitamin. It is related to beta-carotene and Vitamin A. Foods rich in lutein include broccoli, spinach, kale, corn, orange, pepper, kiwi, grapes, juices. Antioxidants prevent or repair the cell damage that free radical causes including damage to the inner most 3 layer of the arteries. They lower the risk of heart attack by preventing the formation of plaque is the arteries and the oxidation of LDL cholesterol.[3]

Background Of The Study

Antioxidant Vitamins C and E and also beta carotene could have an important role to play in the primary prevention of cardiovascular disease. Antioxidant in the studies were found to be most effective in early stage of arthrosclerosis the cause of heart attack, stroke and peripheral vascular disease. Daily intake of Vitamin C between 45 & 113 mg/dl was linked to a reduce risk of cardiovascular disease & below 41 micromoll/

liter in that case there is increase chance of cardiovascular disease.[4]

National health & nutrition examination survey epidemiological follow-up study with a cohort of more than 11000 adults show a reduction in cardiovascular mortality of 42% foe men and 25% for women who consumed at least 50 mg vitamin C daily in the diet As health professional's follow-up study the relative risk for cardiovascular disease was 29% lower for those with the higher beta carotene consumption. Second national health and nutritional examination survey, a representative study of 6624 men & women the relative risk for CHD and stroke was reduce by around 27%.[5]

In the US health professional follow up study of almost 40000 men employed in the health sector daily vitamin C consumption, 149 to 1162 mg/day compared to 92 mg was not associated with reduced risk of coronary heart disease. Coronary heart disease was 29% lower for those with the higher beta carotene consumption than it was for those with lower consumption. Many epidemiological study have reported that antioxidant vitamin intake from diet or supplement are associated with a lower risk of coronary heart disease Eur j cardiovascular prerehabil, 2008 undertook a meta analysis of cohort study to examine relation between antioxidant vitamin C, E & beta carotene and coronary heart disease risk. Increase dietary intake of antioxidant vitamin has encouraging prospect for possible CHD prevention. In the Oregon health and science university On September 2018, the study says that heart attack mice caused inflammatory cells and platelets to more easy stick to the inner lining of arteries.[6]

By the nurses health study and the Iowa women's study both reported that Vitamin E intake, either from food sources or supplements, had a protective effect and lowered the risk of cardiovascular disease 34%. Health professional follow-up study indicated that individuals taking 60IU/day had an 40% reduction of risk for cardiovascular disease compared to individual taking less than 7.5 IU/day.[7]

Need of the Study

According to Times of India on 6th November 2016, heart disease is the deadliest killer in Gujarat; statistics reveal that 24% of deaths among men and 19% of deaths among women due to cardiovascular diseases.[8]

According to world health organization in USA, an estimated 1 in 3 adults presents atherosclerotic

Hina Patel, Harimohan Singh / A Study to Assess the Importance of Antioxidant in Reducing Risk of Heart
Attack Among Middle Age People in Selected Urban Areas of Ahmedabad, Gujarat

23

vascular disease, and the global absolute risk of experiencing a major cardiovascular events after age 50 years is about 52% for men and 39% for women. thus cardiovascular disease represents a global health problem for health care systems in terms of both inability to work and pharmaceutical charges, and strategies to prevent cardiovascular disease have universal significance on health outcomes and health care expenditures.

Antioxidants come up frequently in discussion about good health and preventing diseases. There powerful substances, which mostly come from the fresh fruits, and vegetables.

We eat prohibit, the oxidation of other molecular in the body. The benefits of antioxidants are very important for good health because if free radicals are left unchallenged, they can cause a wide range of illness and chronic disease.

The human body naturally produces free radicals and the antioxidants to counteract their damaging effects. However, in most cases, free radicals far number the naturally occurring antioxidants. In order to maintain the balance, a continual supply of external sources of antioxidants is necessary in order to obtain the maximum benefits of antioxidants.[9]

Antioxidant benefits the body by neutralizing and removing the free radicals from the bloodstream. Boosting your antioxidant intake can help provide added protection for the body against a heart problems. Antioxidant supplement are an important part for any healthy lifestyle. The best sources of antioxidants are plant based foods, especially fruit and vegetables. Foods that are particularly highly in antioxidants are often referred to as a "superfood or functional food".

The body also produces some antioxidants, known as endogenous antioxidants. Antioxidants that come from outside the body are called exogenous. Antioxidant are said to help neutralize free radicals in our bodies, and their is through to boost overall health. Antioxidants can protect against the cell damage that free radicals cause, known as oxidative stress. Antioxidants prevents oxidative stress and have been 5 though to help reduce risk of cancer, diabetes, heart attack and other disease. To decrease the risk of cardiovascular death.[10]

Problem Statement

"A Study to Assess the Effectiveness of Information Booklet Regarding Importance of Antioxidants In Reducing Risk Related to Heart Attack Among Middle Age Group People in Selected Urban Areas of Ahmedabad, Gujarat."

Objectives

1. To assess the level of knowledge regarding reduction of risk related of heart attack through antioxidant among middle age people before and after administration of information booklet in selected urban areas of Ahmedabad.
2. To assess the effectiveness of information booklet regarding reduction of risk related heart attack through antioxidant.

Hypothesis

H0: There will be a no significant different between mean pre-test and post-test knowledge score of middle age people regarding importance risk related to heart attack through anti-oxidant after administration of information booklet at 0.05 level

H1: The mean post-test knowledge score of selected middle age people regarding importance of antioxidant related to heart attack through anti-oxidant will be significantly higher than mean pre-test knowledge score at 0.05 level.

Operational Definition

Assess: In our study assess refers to determine the level of knowledge regarding effects of antioxidants for reduction of risk related to heart attack.

Effectivness: It refers to expected improvement in knowledge as evidenced by difference between pre-test and post test result.

Knowledge: Knowledge is a familiarity, awareness, or understanding of someone or something such as fact, information, description, or skills, which is acquired through experience or education by perceiving, discovering, or learning.

Information Booklet: It is a book which provide all related information about effects of antioxidants for reduction of risk related to heart attack.[6]

Heart Attack: It is a medical emergency in which the supply of blood to the heart becomes blocked caused by the complete blockage of the coronary artery.

Antioxidants: Substance are believed to play a role in the prevention and treatment of a variety of chronic disease ranging from asthma to cardiovascular disease and cancer.

Middle Age: In the study refers to the people who come in age group between 45 to 65 year.

Urban Area: In the study, it refers to region surrounding city. most urban area have non agriculture jobs and area can refers to towns and cit

Materials and Methods

Research methodology indicates the general pattern of organizing the procedure for gathering valid and reliable data for an investigation. The content of this chapter includes research approach and its rationale, description of setting and population, description of sample, tool selection, construction, description and rational of the tool, procedure of data collection, data analysis and statistically methods used.

Results

Study findings are organized and presented under following section :

Section A: Area wise knowledge score of pre-test and post-test of samples on knowledge among middle age group people regarding importance of antioxidants in reducing risk related to heart attack.

Mean percentage according to area wise knowledge among middle age people for introduction is 15.76%, sources is 8.53% and in benefits is 0.76% for pre-test knowledge. Mean percentage according to area wise knowledge among middle age people for introduction is 25%, sources is 21.10% and in benefits is 3.10% for post-test knowledge.

Table 1: Area wise knowledge score of pre-test and post-test [*N* = 30]

S. No.	Areas	Max. Score	Pre-test score		Post-test score		Percentage gain	Mean difference
			Mean score	Mean %	Mean	Mean %		
1	Introduction	10	4.73	47.3	7.5	75.00	27.7	2.77
2	Sources	9	2.56	28.44	6.47	71.88	43.4	3.91
3	Benefits	1	0.23	23.00	0.98	98.00	75.0	0.75
	Total	20	7.52	37.6	14.95	74.75	37.15	7.43
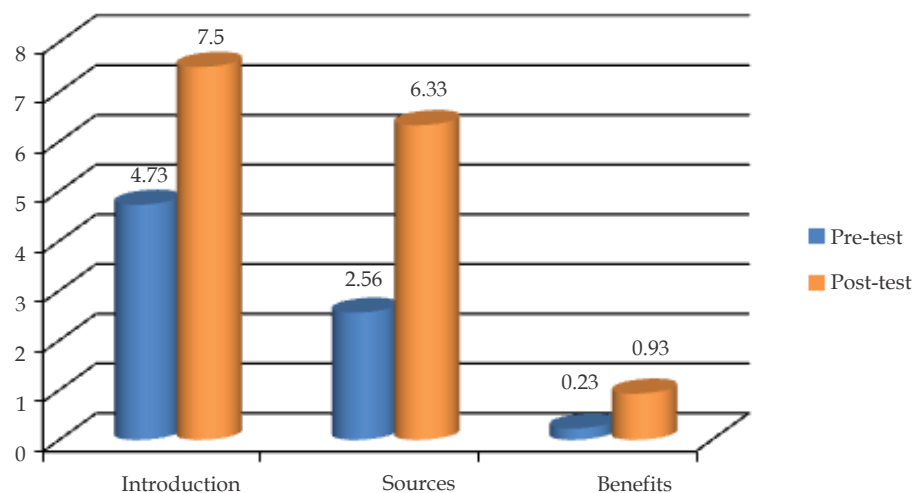
Fig 1: Area wise knowledge score of pre-test and post-test

Section B: To Assess the Effectiveness of Information Booklet Regarding Importance of Antioxidant. About 33.33% people have poor knowledge, about 66.66% people have average knowledge and about 0% people have good knowledge regarding importance of antioxidants in reducing risk related to heart attack for pre-test and for post-test 0% people have poor knowledge, about 16.66% people have average knowledge and about 83.33% people have good knowledge regarding importance of antioxidants in reducing risk related to heart attack.

Table 2: Effectiveness of Information Booklet Regarding Importance of Antioxidant [*N* = 30].

Level of knowledge	Pre-test		Post-test	
	Frequency	Percentage	Frequency	Percentage
Poor (0–6)	10	33.34	0	0.00
Average (7–13)	20	66.66	5	16.66
Good (14–20)	0	0.00	25	83.34
Total	30	100.00	30	100.00
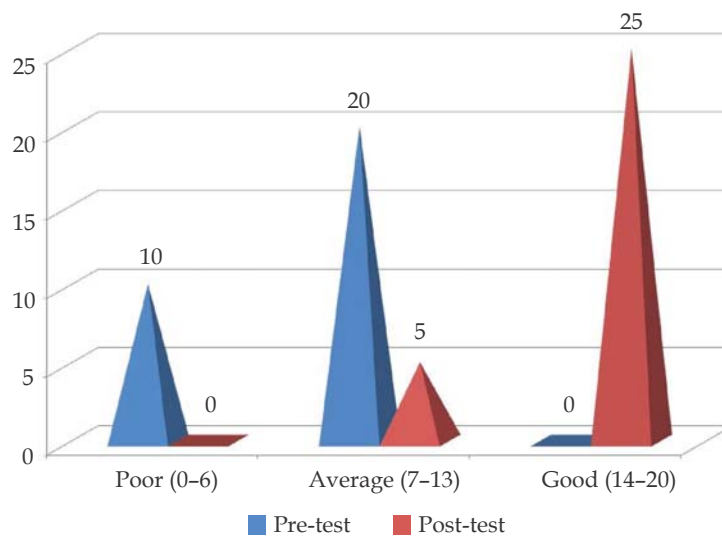
Fig. 2: Effectiveness of Information Booklet Regarding Importance of Antioxidant

Section C: Analysis and interpretation of data collected on structured knowledge questionnaire.

Knowledge among middle age group people regarding importance of antioxidants in reducing risk related to heart attack.

Pre-test mean score is 7.53 and post-test mean score is 14.76, hence calculated '*t*' value is 4.7880 is more the table '*t*' value. Thus, null hypothesis is rejected. Hence H1 is accepted.

Table 3: Analysis and interpretation of data collected on structured knowledge questionnaire [*N* = 30].

	Mean	SD	Mean %	Calculated '*t*' value	df	Table '*t*' value
Pre- test	7.53	4.956	25.1			
Post-test	14.76	6.67	49.2	4.7880	29	2.05
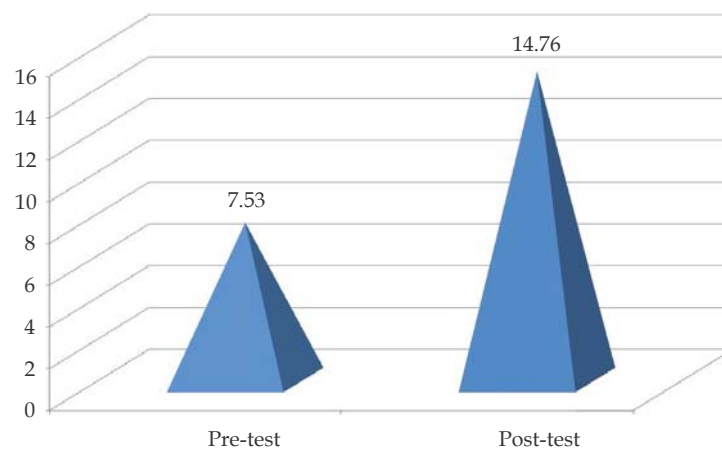
Fig. 3: Analysis and interpretation of data collected on structured knowledge questionnaire

Discussion

This section evaluated the findings of the present study in the light of previous research studies. The discussion is organized based on finding of the study. The theoretical framework of the present study was based on concept of General System Theory.

Conclusion

The study intends to assess the effectiveness of information booklet regarding importance of antioxidants in reducing risk related to heart attack among Middle age group people in selected urban areas of Ahmedabad, Gujarat. The study reveals that the post-test knowledge score is higher than the pre-test knowledge score regarding importance of antioxidants in reducing risk related to heart attack among middle age group people.

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Assess the Efficacy of Incentive Spirometer on Dyspnea and Pulmonary Functions of Chronic Obstructive Pulmonary Disease Patients at Sree Balaji Medical College and Hospital, Chennai

K Mageswari Mohanram

Abstract

Background: Chronic Obstructive Pulmonary Disease (COPD for short) occurs when permanent blockages form within the pulmonary system that interfere with the transfer of vital gasses. There are two underlying disorders that can cause COPD: Emphysema and chronic Bronchitis. Incentive spirometer is a type of bronchial hygiene therapy. This helps to increase the inhaled lung volume, improve in get rid of mucus or secretions and to avoid serious lung infections in COPD patients.

Objectives: (1) To assess the level of dyspnea and pulmonary functions before and after the use of incentive spirometer among COPD patients. (2) To evaluate the effectiveness of incentive spirometer between experimental and control group. (3) To findout the association between selected demographic variables and the levels of dyspnea and pulmonary functions in the experimental group after using incentive spirometer.

Materials and Methods: Quasi–experimental Pre-test – Post-test Control Group design were used. Non-probability purposive sampling technique used. The sample size for this study was fourty COPD patients out of which 20 patients were considered as Control group and another 20 patients as Experimental group.

Results: The obtained Paired '*t*' test value for the experimental group is 21.5 was markedly significant at p < 0.01 level whereas in the control group there was no significant difference found (t = 1.94, p = 0.06) and also there is significant difference noted in the pulmonary parameters (p = 0.01) between experimental and control group after using incentive spirometer.

Conclusion: The study proved that incentive spirometer is effective in improving pulmonary functions of COPD patients.

Keywords: Chronic Obstructive Pulmonary Disease; Vital gasses; Emphysema and chronic Bronchitis; Incentive spirometer.

Introduction

COPD is a disease state characterized by the presence of airflow obstruction caused by chronic bronchitis or emphysema. The airflow obstruction is generally progressive, may be accompanied by airway hyperactivity and may be partially reversible. It is a progressive lifethreatening lung disease that causes breathlessness (initially with exertion) and predisposes to exacerbations and serious illness.[1]

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WHO estimates that COPD affects 600 million people worldwide and is the 4th leading cause of death and 12th leading cause of disability, killing more than 2.74 million people each year. It's prevalence is highest in countries where cigarette smoking is very common. By 2020, COPD will become the 3rd leading cause of death and the 5th leading cause of disability worldwide.

COPD is one whose burden is rising fastest in the world. The magnitude of the disease spurred the Global initiative for Chronic Obstructive Lung Disease (GOLD) in 2001. COPD is an important public health challenge that is both preventable and treatable

GOLD criteria is "COPD is a disease state characterized by airflow limitation is usually both progressive and associated with an abnormal inflammatory response of the lungs to noxious particles or gases".[2]

Chronic obstructive pulmonary disease (COPD) is a progressive and debilitating respiratory condition that leads to significant burden, both medically and financially. Cigarette smoking is the main risk factor for developing COPD. An estimated 64–210 million people worldwide are living with a diagnosis of COPD.[3]

Smoking had been the prime cause for COPD, as 90% of cases reported with COPD were smokers. Sometimes even non-smokers could suffer from this disease by passive smoking. Due to its association with smoking and environmental pollution, the burden is much higher in low and middle-income countries.[4]

The patients with COPD is associated with a set of breathing related problems like chronic cough, spitting or coughing mucus (expectoration), breathlessness upon exertion and progressive reduction in the ability to exhale.[5]

Patients with acute exacerbations of COPD are at higher risk for disease detoriation, including reduced quality of life and increasing rates of hospitalisations. Exercises has emerged as a primary modality for improving quality of life of COPD patients. Incentive spirometer is a type of bronchial hygiene therapy. It's purpose is to promote complete lung expansion and to prevent pulmonary problems.[6]

Incentive Spirometer is a simple instrument which provides visual and auditory feed-back to the patient while performing inspiration, so that patient can achieve their preset goals. It encourages deep breathing and a sustained inspiration. The use of incentive spirometry improves respiratory muscle strength and Quality of Life of COPD patients.[6]

Statement of the problem

Assess the efficacy of incentive spirometer on dyspnea and pulmonary functions of chronic obstructive pulmonary disease patients at Sree Balaji Medical College and Hospital, Chennai.

Objectives

1. To assess the level of dyspnea and pulmonary functions before and after the use of incentive spirometer among COPD patients.

2. To evaluate the effectiveness of incentive spirometer between experimental and control group.

3. To findout the association between selected demographic variables and the levels of dyspnea and pulmonary functions in the experimental group after using incentive spirometer.

Materials and Methods

Research Approach

Quasi – experimental research approach

Research Design

Pre-test – Post-test Control Group design

Setting of the study

Medical wards at Sree Balaji Medical College & Hospital, Chennai.

Population

All the COPD patients who were admitted in the medical wards of Sree Balaji Medical College & Hospital, Chennai during the data collection period and were fulfilling the selection criteria.

Sampling Technique

Non-probability purposive sampling technique

Sample Size

The sample size for this study was fourty COPD patients out of which 20 patients were considered as Control group and another 20 patients as Experimental group.

K Mageswari Mohanram / Assess the Efficacy of Incentive Spirometer on Dyspnea and Pulmonary Functions of Chronic Obstructive Pulmonary Disease Patients at Sree Balaji Medical College and Hospital, Chennai

29

Description of the Tools

The research tool used for this study consisted of 2 sections.

Section I : Interview Schedule

(a) Demographic Data.

(b) Modified Borg's Rating Scale to assess the level of Dyspnea.

Section II : Observational Checklist

(a) Observational Checklist to assess the Pulmonary Functions namely Forced inspiratory volume, Peak expiratory flow rate, Oxygen saturation, Chest expansion and Breath holding time.

(b) Observational Checklist for monitering the performance of using incentive spirometer.

Section I

(a) Demographic Data: It included age, sex, education, marital status, occupation, family monthly income, family history of COPD, duration of illness, habits and chronic exposure.

(b) Modified form of Borg's Rating Scale to assess the subjective interpretation of dyspnea. This standardized scale was developed by G.V. Borg, 1982. This is a categorical scale with ratio properties.

Section II

(a) The observational checklist consisted of 5 parameters for assessing the pulmonary functions namely forced inspiratory volume, peak expiratory flow rate, oxygen saturation, chest expansion and breath holding time. Each pulmonary parameters was graded into four levels ; normal, mildly decreased, moderately decreased and severely decreased based on the value obtained. Each pulmonary parameters were measured as follows,

(i) *Forced Inspiratory Volume:* It was measured by using Triflo-II Incentive Spirometer, the patient was advised to sit and encouraged to hold the incentive spirometer to face level. Then placed the mouth piece in the mouth and instructed the patient to inhale to his maximum effort. This is repeated for three times with the interval of 30 seconds and best of three readings were taken.

(ii) *Peak Expiratory Flow Rate:* The patients was asked to sit and take a deep breath

and hold it. Adviced to blow forcefully through the mouth piece of peak flow meter 3 times with an interval of 30 seconds. The best of the three readings were taken and measured with 'Pulmo Peak' - Peak Flow Meter (Wright's Scale).

(iii) *Oxygen Saturation:* To measure Oxygen Saturation Pulse Oxymeter is connected and the probe is fixed to the index finger of the patients. The reading is monitered till a stabilized reading is got and then recorded.

(iv) *Chest Expansion:* To measure Chest Expansion, patient was asked to stand up and take a deep breath and hold the breath. The inch tape was placed around the chest and the measurement was taken at the midlevel of 4th intercostal space. Same way patient was asked to exhaled fully and the measurement was taken. The difference between these two measurements gives chest expansion.

(v) *Breath Holding Time:* The patient was made to sit in a comfortable position and was asked to take a deep breath and hold by pinching the nose. The patient was instructed to report when he/she was no longer able to hold the breath by raising the finger. This time was noted as breath holding time

(b) Obsevational Checklist was formulated to observe whether the patients followed all the steps of procedure when using incentive spirometer. It also included a column for number of days performed by the patients.

Scoring Procedure

The Modified Borg's Rating Scale graded the level of dyspnea into 10 levels with a score ranging from 0 to 10. The maximum score was 10. A low score of zero indicates no breathlessness and a high score of ten indicates maximum breathlessness.

The observational checklist consisted 5 parameters for assessing the pulmonary functions namely forced inspiratory volume, peak expiratory flow rate, oxygen saturation, chest expansion and breath holding time. Each pulmonary parameters was graded as follows,

(a) Normal   4

(b) Mildly decreased   3

(c) Moderately decreased   2

(d) Severely decreased   1

The possible maximum score was 20 and minimum score was 5. High score indicates good pulmonary functions and low score indicates poor pulmonary functions.

Methods of Data Collection

Formal Permission for Data collection was sought from the Dean, Sree Balaji Medical College & Hospital. COPD patients admitted in the medical wards were selected for the study according to the preset criteria and informed about the procedure and oral consent was obtained. The first 20 subjects were assigned to the control group and next 20 subjects were assigned to the experimental group.

Investigator collected the demographic data. Before administering the exercises to each group the dyspnea and pulmonary parameters such as forced inspiratory volume, peak expiratory flow rate, oxygen saturation, chest expansion and breath holding time were measured. The patient was given a clear explanation about the steps of using incentive spirometer and the advantages of doing it. The patients were made to perform the exercises in the separate room. The atmosphere of the room was quiet and pleasing.

Instructions of using Incentive Spirometer

In the fowlers position (at 45* angle) with back rest and one pillow underneath the knees, instruct the individual to exhale slowly and completely. At the end of quiet exhalation, the patient is instructed to inhale through the mouth piece of the incentive spirometer, so as to raise the first two balls in the container and touch at the top of the device taking slow deep inhalation. Following maximum inhalation the patient is instructed to hold the breath for two to five seconds. Following the end-inspiratory hold, the patient should inhale normally between breaths and should relax and breathe normally. Invert the Incentive spirometer and asked the patient to blow forcefully to the maximum extent through the mouth piece. Limit to 5 breaths per minute. The exercise was given 15 minutes per session for 2 times a day for 5 days. During the course of exercise the patients were monitered using an observational checklist which was prepared by the investigator. On 6th day post-

test was done by using the modified borg's rating scale and the same pulmonary parameters.

Results

The Data collected were analyzed and presented in the following sequence,

Section I: Distribution of demographic variables of patients with COPD.

Section II: Data on effectiveness of incentive spirometer on dyspnea among COPD patients in the experimental and control group.

Section III: Distribution of subjects according to pulmomary function measures in the experimental group and control group.

Section IV: Data on effectiveness of incentive spirometer on pulmonary functions among COPD patients in the experimental and control group.

Section V: Data on association of the selected demographic variables and the levels of dyspnea and pulmonary functions among COPD patients in the experimental group after using incentive spirometer.

Section 1

In this study majority 35% of COPD patients were in the age group of 61–70 yrs, 65% were males and 95% were married in both experimental and control group. Majority 35% in the experimental group and 50% in the control group were uneducated and having the family monthly income of less than ₹2,500. Regarding occupation majority 40% in the experimental group and 50% in the control group were coolies. Regarding family history of COPD 60% in the experimental group and 70% in the control group were not having any family history of COPD. Majority 30% in the experimental group and 40% in the control group had suffered from COPD between 1–3 yrs. Majority 60% were smokers and 20% were alcoholic in both experimental and control group. Majority 60% in the experimental group and 55% in the control group were not exposed to any chronic exposure like chemicals/paint or dust/cotton (Table 1 and Figs 1-10).

K Mageswari Mohanram / Assess the Efficacy of Incentive Spirometer on Dyspnea and Pulmonary Functions of Chronic Obstructive Pulmonary Disease Patients at Sree Balaji Medical College and Hospital, Chennai

31

Table 1: Distribution of Demographic Variables of patients With COPD

Demographic Variables	Experimental Group (*n* = 40)		Control Group (*n* = 40)	
	F	%	F	%
(1) Age (in years)				
(a) 30–40 yrs	3	15	3	15
(b) 41–50 yrs	5	25	5	25
(c) 51–60 yrs	5	25	5	25
(d) 61–70 yrs	7	35	7	35
(2) Sex				
(a) Male	13	65	13	65
(b) Female	7	35	7	35
(3) Education				
(a) Uneducated	7	35	10	50
(b) Primary/High school	5	25	5	25
(c) Higher secondary	6	30	2	10
(d) Degree/Diploma	2	10	3	15
(4) Marital Status				
(a) Married	19	95	19	95
(b) Unmarried	1	5	1	5
(5) Occupation				
(a) coolie	8	40	10	50
(b) Office workers	6	30	4	20
(c) Unemployed	6	30	6	30
(6) Family Income (per month)				
(a) less than ₹2,500/-	7	35	10	50
(b) ₹2,501–5,000/-	9	45	8	40
(c) ₹5,001–7,500/-	3	15	1	5
(d) Above ₹7,501/-	1	5	1	5
(7) Family history of COPD				
(a) Parents	5	25	3	15
(b) Siblings	3	15	3	15
(c) None	12	60	14	70
(8) Duration of illness				
(a) 1–3 yrs	6	30	8	40
(b) 4–6 yrs	6	30	5	25
(c) 7–9 yrs	6	30	3	15
(d) 10 yrs and above	2	10	4	20
(9) Habits				
(a) Smoking - Yes	12	60	8	40
No	8	40	12	60
(b) Alcoholic -Yes	4	20	4	20
No	16	80	16	80
(10) Chronic Exposure				
(a) Chemicals/Paint	5	25	3	15
(b) Dust/Cotton	3	15	6	30
(c) None	12	60	11	55
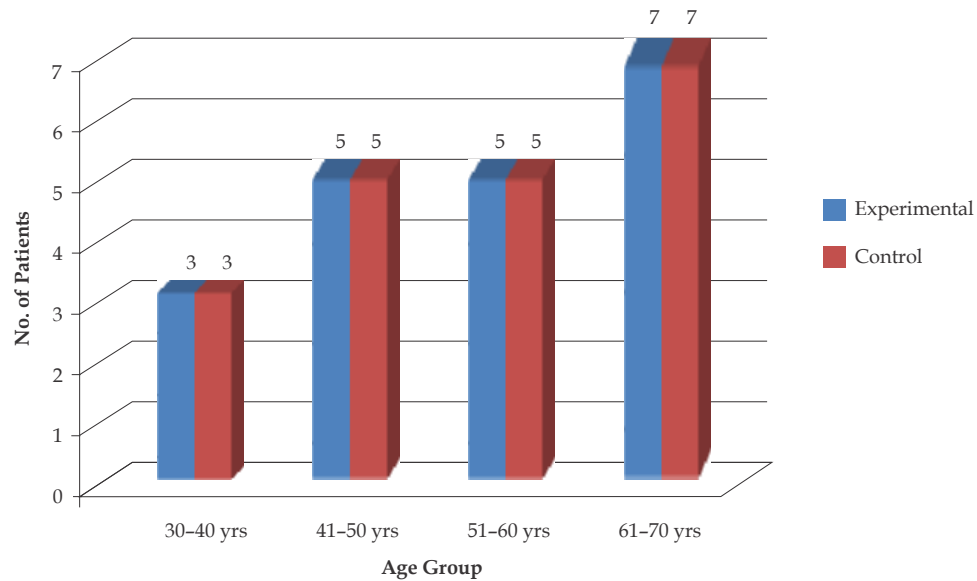
Fig. 1: Age Distribution of the Copd Patients.
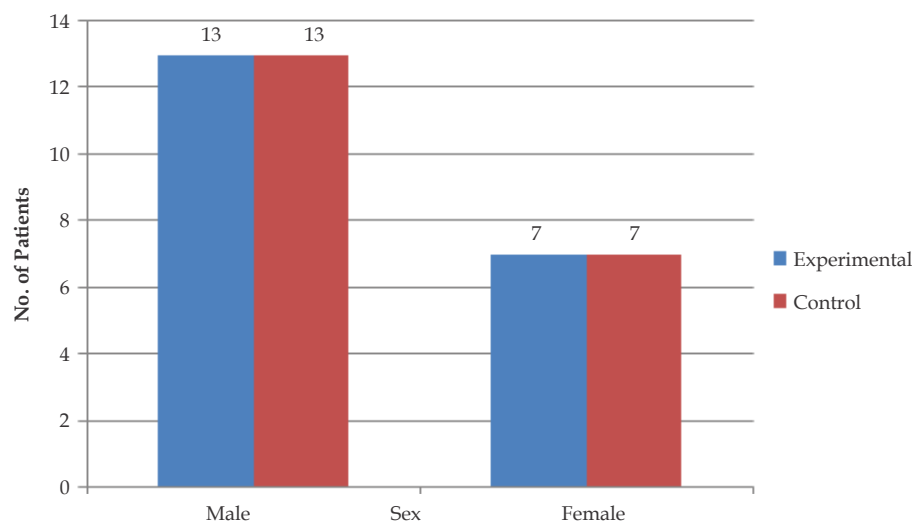
Fig 2: Sex of the Copd Patients.

Fig. 3: Educational Status of the Copd Patients.

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Obstructive Pulmonary Disease Patients at Sree Balaji Medical College and Hospital, Chennai

33
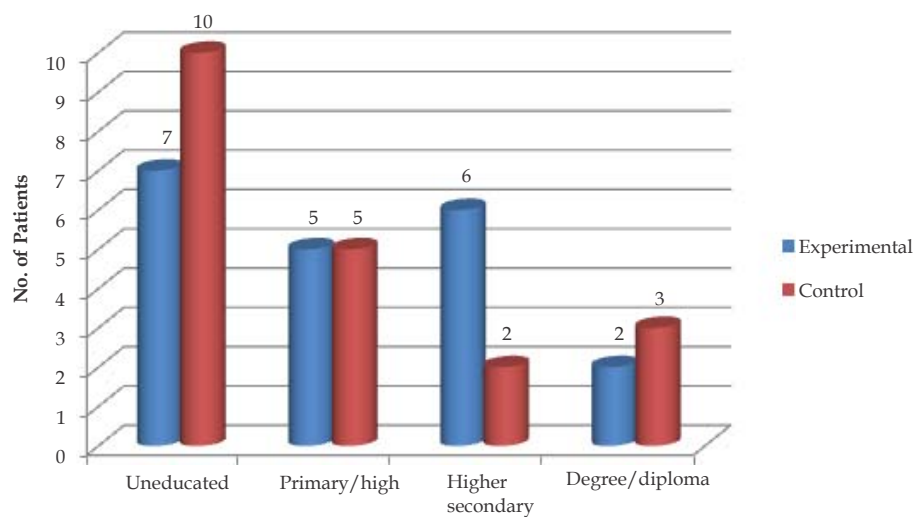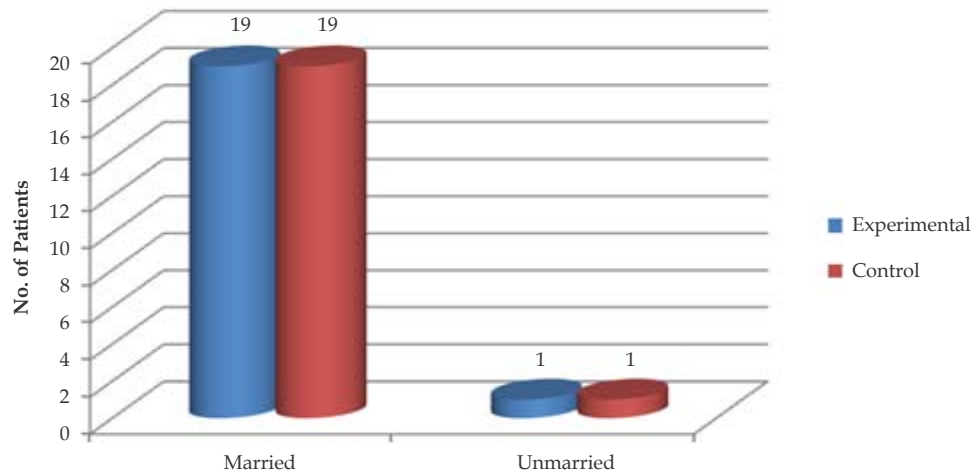
Fig 4: Marital Status of the Copd Patients.
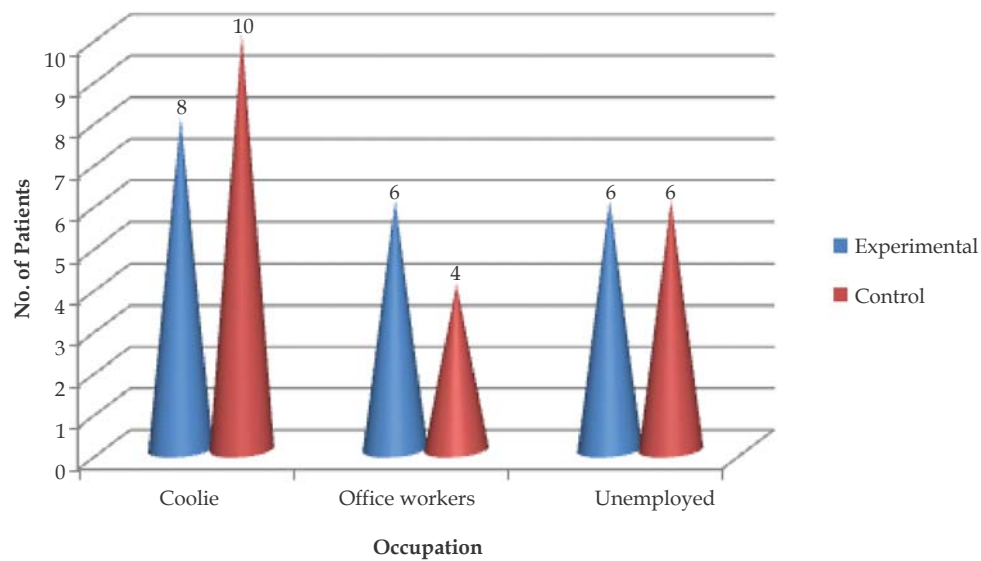
Fig. 5: Occupational Status of the Copd Patients.
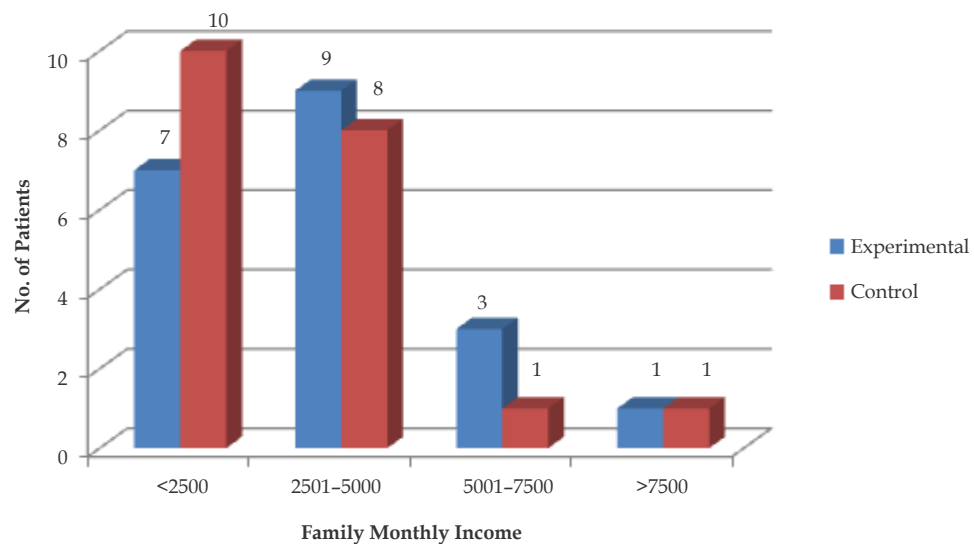
Fig. 6: Family Monthly Income of Copd Patients.
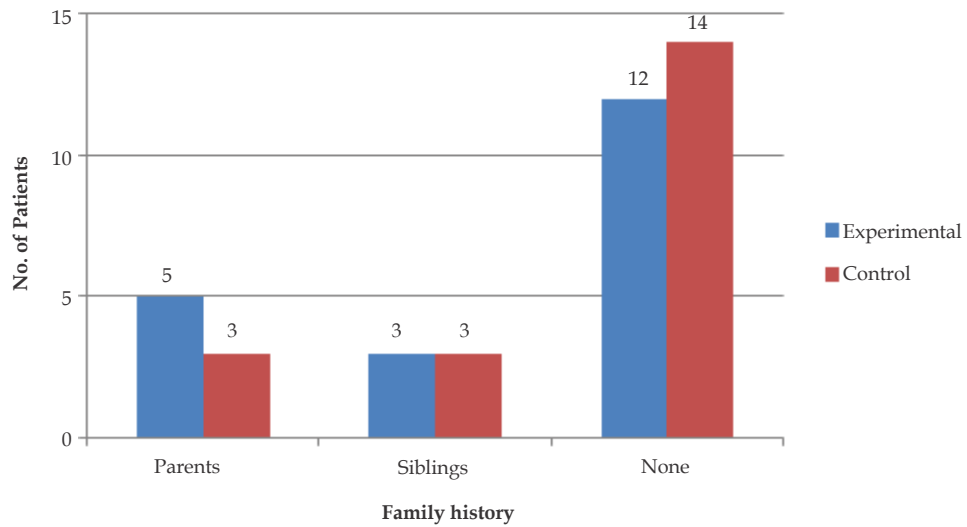
Fig. 7: Family History of Copd Patients.
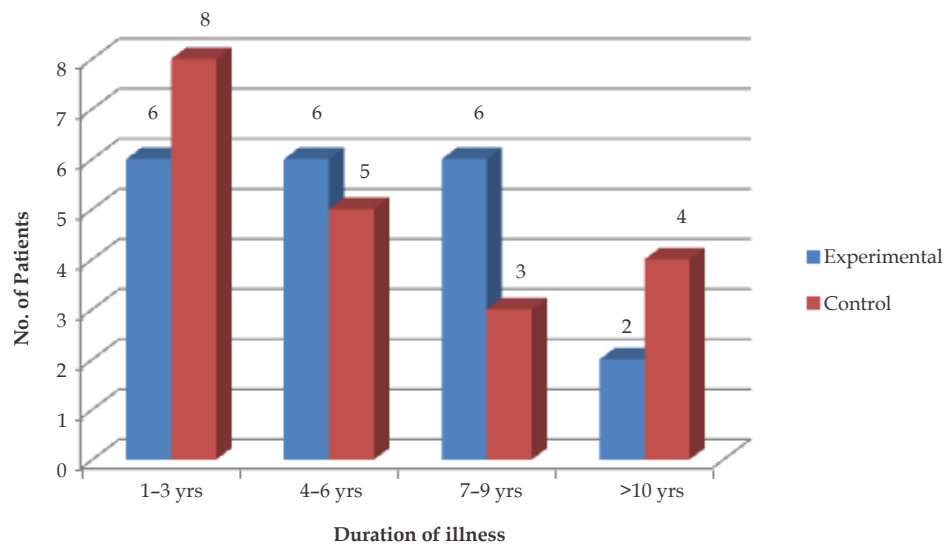
Fig. 8: Duration of Illness of the Copd Patients.
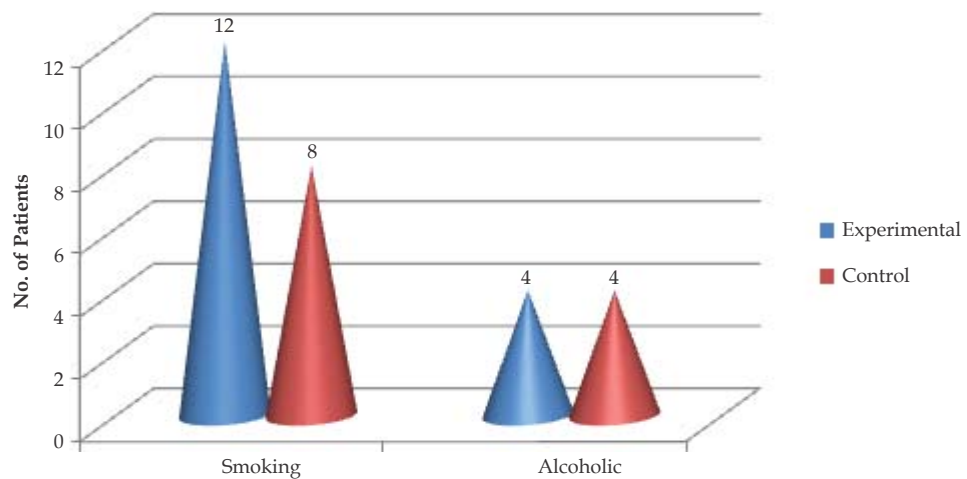
Fig. 9: Habits of the Copd Patients.
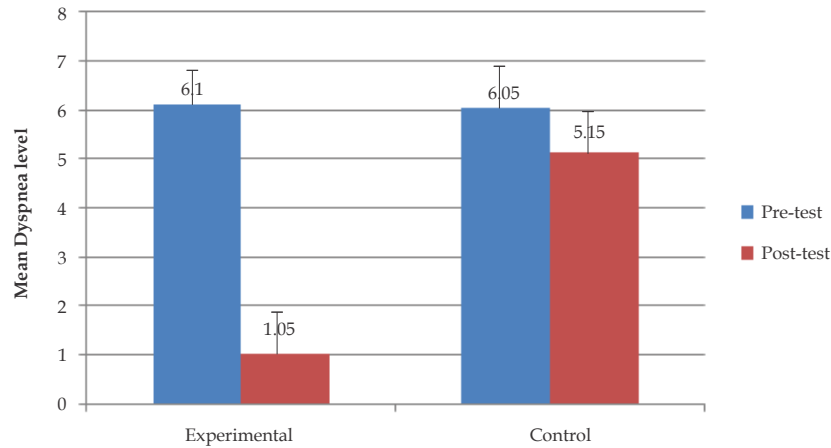
Fig 10: Chronic Exposure of Copd Patients.

Section 2

Table 2 revealed that the mean pre-test dyspnea levels for the experimental and control group were 6.10 and 6.05 whereas the mean post-test levels for the experimental and control group were 1.05 and 5.15 respectively.

The obtained Paired 't' test value for the experimental group is 21.5 was markedly significant at $p < 0.01$ level whereas in the control group there was no significant difference found ($t = 1.94$, $p = 0.06$). It showed that dyspnea level was reduced after using incentive spirometer in the experimental group (Table 2 and Fig. 11).

Table 2: Comparison of Mean Pre-test and Post-test Dyspnea Levels of the Experimental Group and Control Group

Experimental Group (*n* = 20)			Control Group (*n* = 20)		
Pre-test	Post-test	Paired 't' Test Value	Pre-test	Post-test	Paired 't' Test Value
Mean (SD)	Mean (SD)		Mean (SD)	Mean (SD)	
6.10 (0.91)	1.05 (1.15)	21.5 $p < 0.01$**	6.05 (1.32)	5.15 (1.74)	1.94 $p = 0.06$#

**Highly significant

#Not significant
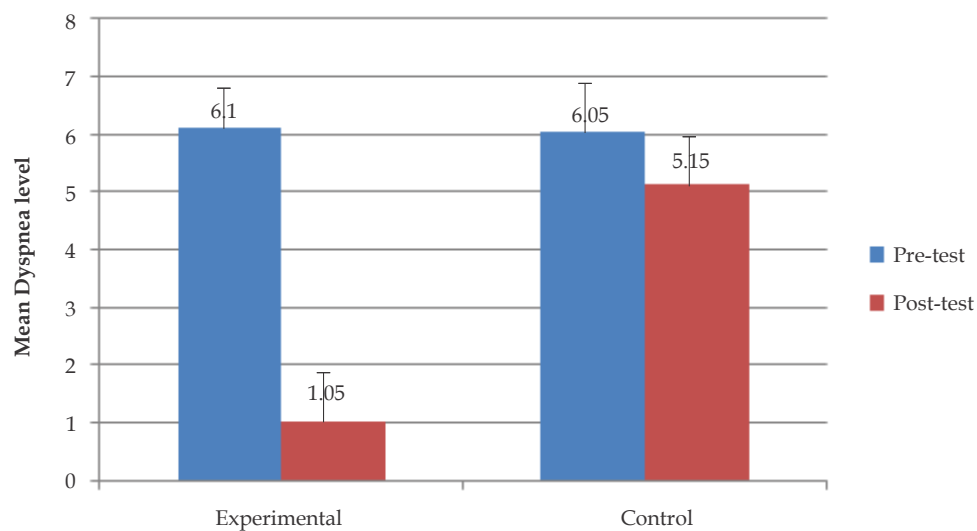
Fig. 11: Comparison of Mean Pretest and Posttest Dyspnea Levels of the Experimental Group and Control Group.

Table 3 revealed that the mean dyspnea level 1.05 of the experimental group after using incentive spirometer is lower than the mean dyspnea level 5.15 of the control group. The obtained 't' value is 10.65 which is significant at $P < 0.01$ level. This indicates that the difference between the means 4.10 is a true difference and has not occurred by chance. The difference between the two means could be due to the effect of incentive spirometer. It is inferred that the incentive spirometer is effective in reducing dyspnea (Fig. 12).

Table 3: Comparison of Mean Post-test Dyspnea Levels of the Experimental Group With Control Group After Using Incentive Spirometer

Group	Mean	SD	Mean Difference	Un-paired 't' Test Value	Level of significance
Experimental Group	1.05	1.15	4.10	10.65	$p < 0.01$**
Control Group	5.15	1.74			

**Highly significant
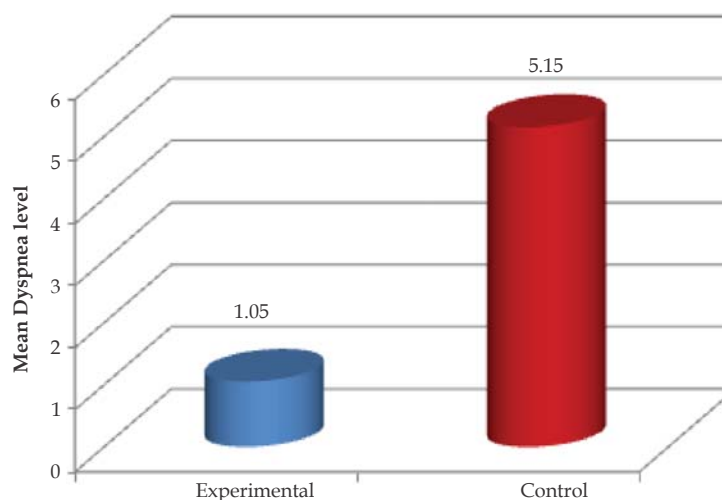
Fig 12: Comparison of Mean Posttest Dyspnea Levels of the Experimental Group with Control Group After Using Incentive Spirometer.

Section 3

Table 4 revealed that distribution of subjects according to the pulmonary function measures in the pre-test and post-test of the experimental group. Based on the pulmonary function measured the subjects were classified into 4 groups ; normal, mildly decreased, moderately decreased and severely decreased.

With regard to Forced inspiratory volume obtained in the experimental group, none of them had normal forced inspiratory volume in the pre-test, whereas majority 95% of them had normal forced inspiratory volume in the post-test. There is an increase in the forced inspiratory volume of the experimental group after using incentive spirometer.

Based on the Peak expiratory flow rate obtained, majority 55% of the subjects had severely decreased peak expiratory flow rate in the pre-test whereas 55% of them had normal peak expiratory flow rate in the post-test. The above data showed that the peak expiratory flow rate of the experimental group increased after using incentive spoirometer.

Based on the Oxygen saturation level obtained in the experimental group all the subjects had normal oxygen saturation both in the pre-test and post-test.

Based on the Chest expansion obtained, 85% had severely decreased chest expansion in the pre-test whereas none of them had severely decreased chest expansion in the post-test. This showed that the chest expansion improved after using incentive spirometer in the experimental group.

Regarding Breath holding time obtained, none of them had normal breath holding time in the pre-test, whereas in the post-test 55% of subjects had normal breath holding time and none of them had severely decreased breath holding time. The above data showed that the breath holding time of the experimental group increased after using incentive spirometer.

K Mageswari Mohanram / Assess the Efficacy of Incentive Spirometer on Dyspnea and Pulmonary Functions of Chronic Obstructive Pulmonary Disease Patients at Sree Balaji Medical College and Hospital, Chennai

37

Table 4: Distribution of Subjects According to Pulmonary Function Measures in the Experimental Group

Pulmonary Parameters	Pre-test		Post-test	
	f	%	f	%
(1) Forced inspiratory volume				
(a) Normal	0	0	19	95
(b) Mildly decreased	10	50	1	5
(c) Moderately decreased	7	35	0	0
(d) Severely decreased	3	15	0	0
(2) Peak expiratory flow Rate				
(a) Normal	0	0	11	55
(b) Mildly decreased	5	25	7	35
(c) Moderately decreased	4	20	2	10
(d) Severely decreased	11	55	0	0
(3) Oxygen saturation				
(a) Normal	20	100	20	100
(4) Chest expansion				
(a) Normal	0	0	3	15
(b) Mildly decreased	1	5	6	30
(c) Moderately decreased	2	10	11	55
(d) Severely decreased	17	85	0	0
(5) Breath holding time				
(a) Normal	0	0	11	55
(b) Mildly decreased	4	20	7	35
(c) Moderately decreased	12	60	2	10
(d) Severely decreased	4	20	0	0

Table 5: Distribution of Subjects According To Pulmonary Function Measures in the Control Group

Pulmonary Parameters	Pre-test		Post-test	
	f	%	f	%
(1) Forced inspiratory volume				
(a) Normal	0	0	1	5
(b) Mildly decreased	1 0	50	12	60
(c) Moderately decreased	5	25	6	30
(d) Severely decreased	5	25	1	5
(2) Peak expiratory flow rate				
(a) Normal	2	10	2	10
(b) Mildly decreased	2	10	4	20
(c) Moderately decreased	5	25	8	40
(d) Severely decreased	11	55	6	30
(3) Oxygen saturation				
(a) Normal	19	95	20	100
(b) Mildly decreased	1	5	0	0
(4) Chest expansion				
(a) Normal	0	0	0	0
(b) Mildly decreased	0	0	0	0
(c) Moderately decreased	2	10	5	25
(d) Severely decreased	18	90	15	75
(5) Breath holding time				
(a) Normal	1	5	1	5
(b) Mildly decreased	3	15	5	25
(c) Moderately decreased	12	60	9	45
(d) Severely decreased	4	20	4	20

Table 5 reveals the distribution of subjects according to the pulmonary function measures in the pre-test and post-test of the control group. As like experimental group subjects were classified as normal, mildly decreased, moderately decreased and severely decreased.

With regard to Forced inspiratory volume obtained in the control group, none of them had normal forced inspiratory volume in the pre-test while only one subject had normal forced inspiratory volume in the post-test. There was not much difference observed between the two readings.

Based on the peak expiratory flow rate obtained in the control group, 55% of the subjects had severely decreased peak expiratory flow rate and only 10% had normal peak expiratory flow rate in the pre-test while 30% had severely decreased and the 10% had normal peak expiratory flow rate in the post-test. This showed that there was not much difference observed between the two readings.

Based on the oxygen saturation obtained in the control group, 95% in the pre-test and 100% in the post-test had normal oxygen saturation

Based on the chest expansion obtained in the control group, majority 90% of the subjects had severely decreased and none of them had normal chest expansion in the pre-test while majority 75% of the subjects had severely decreased chest expansion and none of them had normal chest expansion in the post-test. This showed that there was not much difference observed between the two readings.

Based on the breath holding time obtained in the control group, majority 60% had moderately decreased and 20% of the subjects had severely decreased breath holding time in the pre-test while majority 45% had moderately decreased and 20% had severely decreased breath holding time in the post-test. This showed that there was not much difference observed between the two readings.

Section 4

Data on effectiveness of Incentive Spirometer on pulmonary functions among COPD patients in the experimental and control group

Table 6 revealed that there is significant difference exist between the mean pre-test and post-test pulmonary function values of the experimental group after using incentive spirometer. The obtained Paired 't' test values for forced inspiratory volume –15.31 ($p < 0.01$), subsequently for peak expiratory flow rate –8.11 ($p < 0.01$), oxygen saturation –1.97 ($p = 0.06$), chest expansion –31.01 ($p < 0.01$) and breath holding time –22.7 ($p < 0.01$). It reflects that there exist true difference between pre-test and post-test values of pulmonary parameters in the experimental group.

Table 7 it indicates the mean pre-test and post-test pulmonary function values of the control group. The obtained Paired 't' test values for forced inspiratory volume –1.74 ($p = 0.09$) subsequently for peak expiratory flow rate –1.59 ($p = 0.11$), oxygen saturation –1.99 ($p = 0.06$), chest expansion –0.96 ($p = 0.34$) and breath holding time –0.97 ($p = 0.33$). It is inferred that there was no significant difference between pre-test and post-test pulmonary parameters in the control group (Figs. 13(A)-13(E)).

Table 6: Comparison of the Mean Pre-test and Post-test Pulmonary Function Values of the Experimental Group

Pulmonary Parameters	Experimental Group	Mean	SD	Paired 't' Test Value	Level of Significance
Forced Inspiratory Volume	Pre-test	810.00	120.96	15.31	$p < 0.01$**
	Post-test	1180.00	52.31		
Peak Expiratory Flow Rate	Pre-test	206.50	54.12	8.11	$p < 0.01$**
	Post-test	371.00	120.00		
Oxygen Saturation	Pre-test	98.05	1.64	1.97	$p = 0.06$#
	Post-test	98.85	0.22		
Chest Expansion	Pre-test	1.99	0.75	31.01	$p < 0.01$**
	Post-test	3.98	0.81		
Breath Holding Time	Pre-test	16.60	6.55	22.7	$p < 0.01$**
	Post-test	30.85	7.39		

**Highly significant

#Not significan

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Obstructive Pulmonary Disease Patients at Sree Balaji Medical College and Hospital, Chennai

39

Table 7: Comparison of the Mean Pre-test and Post-test Pulmonary Function Values of the Control Group

Pulmonary Parameters	Control Group	Mean	SD	Paired 't' Test Value	Level of Significance
Forced Inspiratory Volume	Pre-test	795	107.63	1.74	$p = 0.09$#
	Post-test	855.5	109.90		
Peak Expiratory Flow Rate	Pre-test	199.5	65.4	1.59	$p = 0.11$#
	Post-test	232.5	65.6		
Oxygen Saturation	Pre-test	98.15	2.41	1.99	$p = 0.06$#
	Post-test	98.30	1.54		
Chest Expansion	Pre-test	1.88	0.73	0.96	$p = 0.34$#
	Post-test	2.10	0.72		
Breath Holding Time	Pre-test	15.95	7.79	0.97	$p = 0.33$#
	Post-test	18.35	7.7		

#Not significant
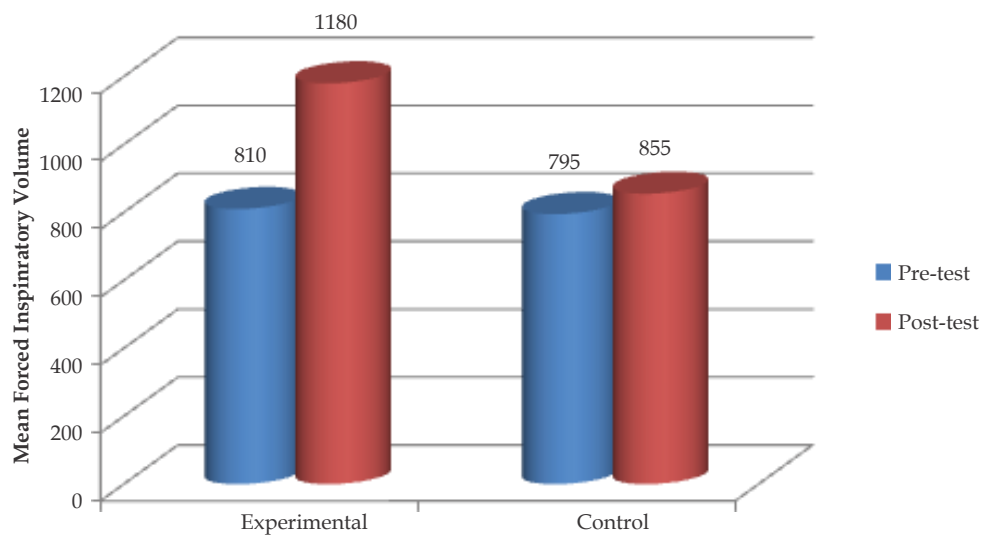
Fig. 13(A): Comparison of Mean Pretest and Posttest Forced Inspiratory Volume of the Experimental Group and Control Group.

Fig. 13(B): Comparison of Mean Pretest and Posttest Peak Expiratory Flow Rate of the Experimental Group and Control Group.
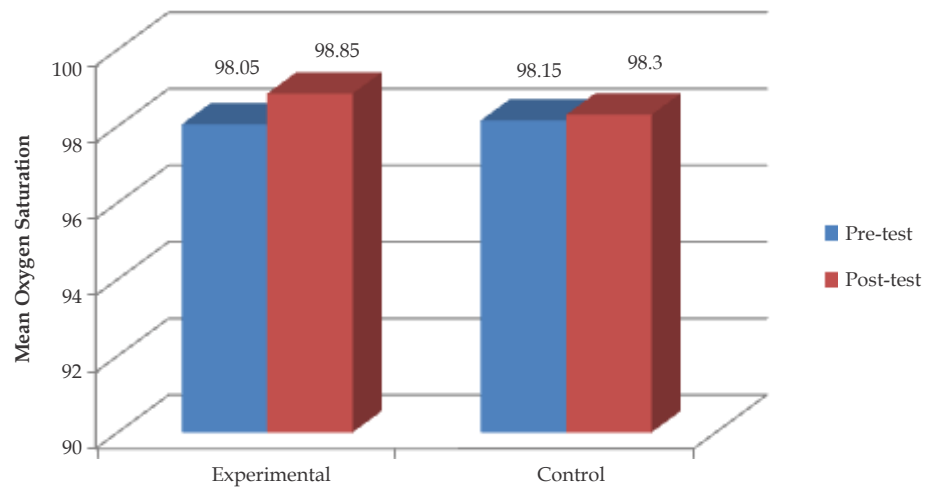
Fig. 13(C): Comparison of Mean Pretest and Posttest Oxygen Saturation of the Experimental Group and Control Group.
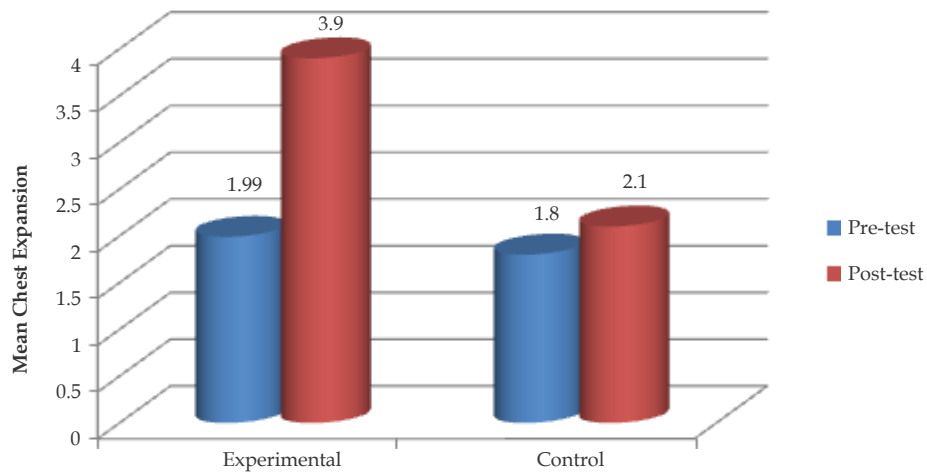
Fig. 13(D): Comparison of Mean Pretest and Posttest Chest Expansion of the Experimental Group and Control Group.
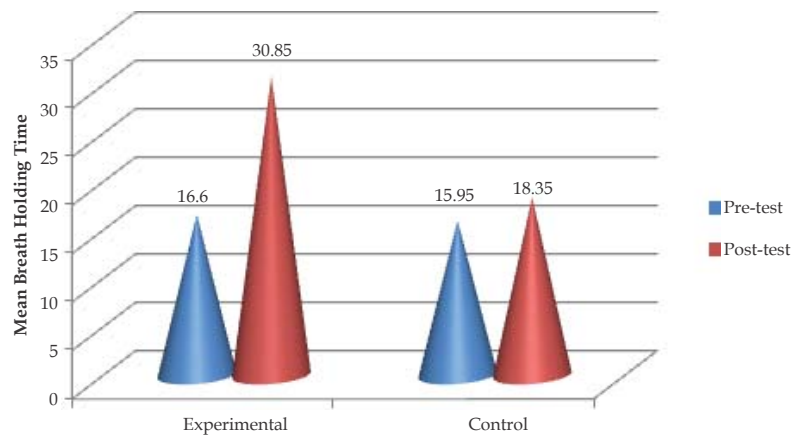
Fig. 13(E): Comparison of Mean Pretest and Posttest Breath Holding Time of the Experimental Group and Control Group

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41

Table 8 and Figs 14(A)-14(E) revealed that the comparison of the mean post-test pulmonary function values of the experimental group with control group after using incentive spirometer.

Regarding Forced inspiratory volume the mean 1180 and standard deviation 52.31 of the experimental group when computed with the mean 855 and standard deviation 109.9 of the control group reveals that the Unpaired 't' test value is 10.80 which showed a high significance at $p < 0.01$ level.

Regarding Peak expiratory flow rate the mean 371 and standard deviation 120 of the experimental group when computed with the mean 232.5 and standard deviation 65.6 of the control group reveals that the Unpaired 't' test value is 6.03 which showed a high significance at $p < 0.01$ level.

Regarding Oxygen saturation the mean 98.85 and standard deviation 0.22 of the experimental group when computed with the mean 98.30 and standard deviation 1.54 of the control group reveals that the Unpaired 't' test value is 1.56 ($p = 0.13$). There is no significant difference found with oxygen saturation.

Regarding chest expansion the mean 3.98 and standard deviation 0.81 of the experimental group when computed with the mean 2.10 and standard deviation 0.72 of the control group reveals that the Unpaired 't' test value is 17.5 which showed a high significance at $p < 0.01$ level.

Regarding Breath holding time the mean 30.85 and standard deviation 7.39 of the experimental group when computed with the mean 18.35 and standard deviation 7.7 of the control group reveals that the Unpaired 't' test value is 11.5 which showed a high significance at $p < 0.01$ level.

It is inferred that there exist significant difference in pulmonary functions of COPD patients mainly the forced inspiratory volume, peak expiratory flow rate, chest expansion and breath holding time between experimental group and control group after using incentive spirometer. It is inferred that incentive spirometer is effective in improving pulmonary functions of COPD patients.

Table 8: Comparison of Mean Post-test Pulmonary Function Values of The Experimental Group with Control Group After Using Incentive Spirometer

Pulmonary Parameters	Group	Mean	SD	MD	Un paired 't' Test Value	Level of Significance
Forced Inspiratory Volume	Experimental Group	1180	52.31	325	10.80	$p < 0.01$**
	Control Group	855	109.90			
Peak Expiratory Flow Rate	Experimental Group	371	120	138.5	6.03	$p < 0.01$**
	Control Group	232.5	65.6			
Oxygen Saturation	Experimental Group	98.85	0.22	0.55	1.56	$p = 0.13$#
	Control Group	98.30	1.54			
Chest Expansion	Experimental Group	3.98	0.81	1.88	17.5	$p < 0.01$**
	Control Group	2.10	0.72			
Breath Holding Time	Experimental Group	30.85	7.39	12.50	11.5	$p < 0.01$**
	Control Group	18.35	7.7			

**Highly Significant

#Not Significant

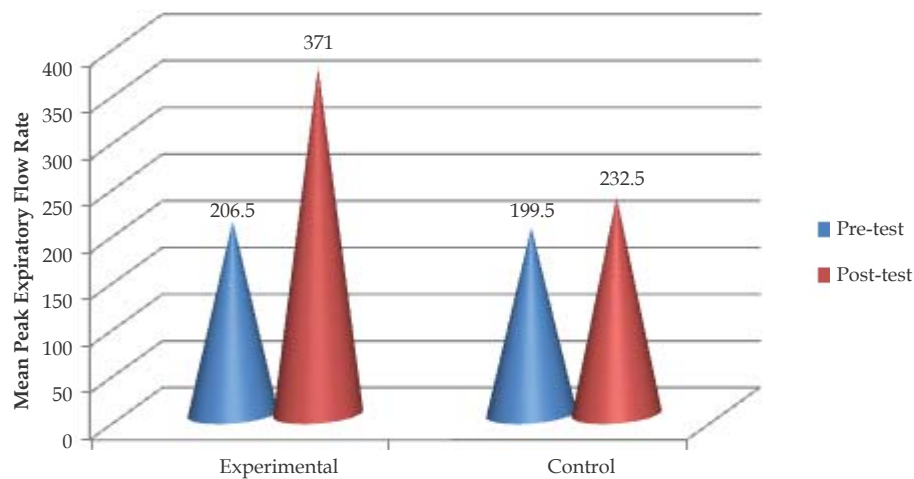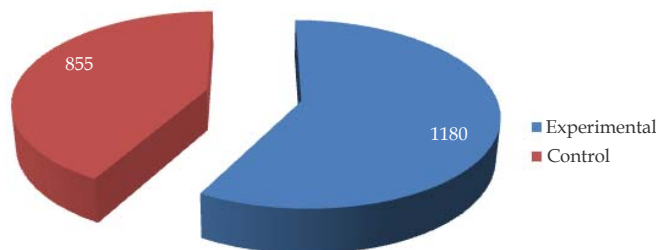**Fig. 14(A):** Comparison of Mean Posttest Forced Inspiratory Volume of the Experimental Group with Control Group After Using Incentive Spirometer.
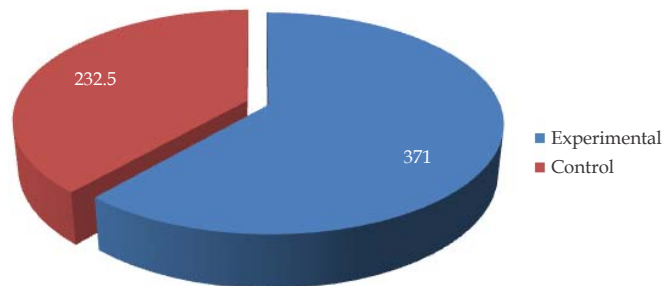
Fig. 14(B): Comparison of Mean Posttest Peak Expiratory Flow Rate of the Experimental Group with Control Group After Using Incentive Spirometer.
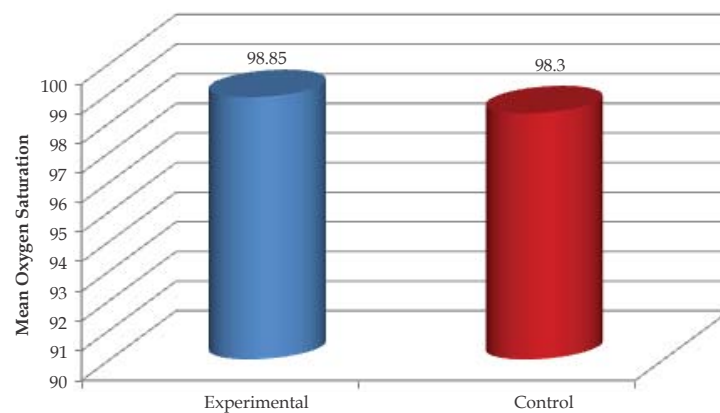
Fig. 14(C): Comparison of Mean Posttest Oxygen Saturation of the Experimental Group with Control Group After Using Incentive Spirometer.
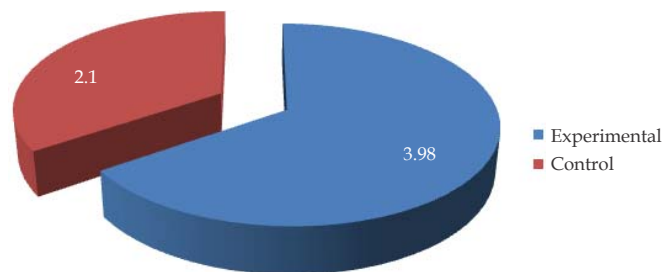
Fig. 14(D): Comparison of Mean Posttest Chest Expansion of the Experimental Group with Control Group After Using Incentive Spirometer.
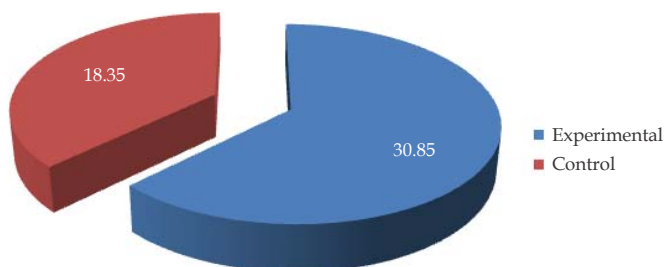
Fig. 14(E): Comparison of Mean Posttest Breath Holding Time of the Experimental Group with Control Group After Using Incentive Spirometer.

K Mageswari Mohanram / Assess the Efficacy of Incentive Spirometer on Dyspnea and Pulmonary Functions of Chronic
Obstructive Pulmonary Disease Patients at Sree Balaji Medical College and Hospital, Chennai

43

Section 5

Data on association of the selected demographic variables and the levels of dyspnea and pulmonary functions among COPD patients in the experimental group after using incentive spirometer

Table 9 revealed that there is no significant association between dyspnea level and the demographic variables like age, sex, education, smoking, chronic exposure and duration of illness.

Table 10 revealed that there is no statistically significant association between Forced inspiratory volume and the demographic variables like age, sex, education, smoking, chronic exposure, and duration of illness.

Table 9: Association of the Selected Demographic Variables and the Dyspnea Levels of The Experimental Group After Using Incentive Spirometer

Demographic Variables	Dyspnea Level			X^2 Value	Significance
	No Breathlessness	Very Slight Breathlessness	Very Slight Breathlessness		
(1) Age					
(a) 30–40 yrs	3	0	0		
(b) 41–50 yrs	4	0	1	10.2	*p* = 0.12#
(c) 51–60 yrs	1	4	0		
(d) 61–70 yrs	3	3	1		
(2) Sex					
(a) Male	7	4	2	1.2	p = 0.53#
(b) Female	4	3	0		
(3) Education					
(a) Uneducated	5	2	0		
(b) Primary/High School	2	3	0	8.1	p = 0.22#
(c) Higher secondary	2	2	2		
(d) Degree/Diploma	2	0	0		
(4) Smoking					
(a) Yes	6	4	2	1.49	p = 0.47#
(b) No	5	3	0		
(5) Chronic exposure					
(a) Chemicals/Paint	1	3	1		
(b) Dust/Cotton	3	0	0	4.6	p = 0.32#
(c) None	7	4	1		
(6) Duration of illness					
(a) 1–3 yrs	4	1	1		
(b) 4–6 yrs	3	3	0	4.8	p = 0.56#
(c) 7–9 yrs	2	3	1		
(d) 10 yrs and above	2	0	0		

#Not Significant

Table 10: Association of the selected Demographic Variables and the Forced Inspiratory Volume of the Experimental Group After Using Incentive Spirometer

Demographic Variables	Forced Inspiratory Volume		X^2 Value	Level of Significance
	Normal	Mildly Decreased		
(1) Age (in years)				
(a) 30–40 yrs	3	0		
(b) 41–50 yrs	5	0	1.95	p = 0.58#
(c) 51–60 yrs	5	0		
(d) 61–70 yrs	6	1		
(2) Sex				
(a) Male	12	1	0.57	p = 0.45#
(b) Female	7	0		

Demographic Variables	Forced Inspiratory Volume		X² Value	Level of Significance
	Normal	Mildly Decreased		
(3) Education				
(a) Uneducated	7	0		
(b) Primary/High school	5	0	2.46	p = 0.48#
(c) Higher Secondary	5	1		
(d) Degree/Diploma	2	0		
(4) Smoking				
(a) Yes	1	11	0.04	p = 0.83#
(b) No	0	8		
(5) Chronic exposure				
(a) Chemicals/Paint	0	5		
(b) Dust/Cotton	0	3	0.70	p = 0.71#
(c) None	1	11		
(6) Duration of illness				
(a) 1–3 yrs	5	1		
(b) 4–6 yrs	6	0	2.46	p = 0.49#
(c) 7–9 yrs	6	0		
(d) 10 yrs and above	2	0		

\# = Not significant

Table 11 reveals that there is a statistically significant association with Peak expiratory flow rate and age at the level of $P < 0.05$. Remaining variables such as sex, education, smoking, chronic exposure and duration of illness were not have significant association with peak expiratory flow rate (Fig. 15).

Table 11: Association of the Selected Demographic Variables and the Peak Expiratory Flow Rate of the Experimental Group After Using Incentive Spirometer

Demographic Variables	Peak Expiratory Flow Rate			X² Value	Level of Significance
	Normal	Mildly Decreased	Moderate Decreased		
(1) Age (in years)	3	0	0		
(a) 30–40 yrs	4	1	0		
(b) 41–50 yrs	3	1	1	10.36	p < 0.05*
(c) 51–60 yrs	1	5	1		
(d) 61–70 yrs					
(2) Sex	6	5	2		
(a) Male	5	2	0	1.73	p = 0.42#
(b) Female					
(3) Education					
(a) Uneducated	3	3	1		
(b) Primary/High school	3	2	0	2.93	p = 0.82#
(c) Higher Secondary	3	2	1		
(d) Degree/Diploma	2	0	0		
(4) Smoking	2	5	5		
(a) Yes	0	2	6	2.68	p = 0.26#
(b) No					
(5) Chronic exposure					
(a) Chemicals/Paint	0	3	2		
(b) Dust/Cotton	0	0	3	4.64	p = 0.32#
(c) None	0	6	6		
(6) Duration of illness					
(a) 1–3 yrs	4	1	1		
(b) 4–6 yrs	4	1	1	5.15	p = 0.53#
(c) 7–9 yrs	2	4	0		
(d) 10 yrs and above	1	1	0		

\# = Not significant
* = Significant

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45

Fig. 15: Association of the Age and Peak Expiratory Flow Rate tf the Experimental Group After Using Incentive Spirometer.

Table 12 reveals that there is no statistically significant association between oxygen saturation and the demographic variables like age, sex, education, smoking, chronic exposure and duration of illness.

Table: 13 reveals that there is a statistically significant association with Chest expansion and the demographic variables like age and education at the level of P<0.05. Remaining variables such as sex, smoking, chronic exposure and duration of illness were not have significant association with chest expansion (Figs.16 and 17).

Table 12: Association of the Selected Demographic Variables and the Oxygen Saturation of the Experimental Group After Using Incentive Spirometer

Demographic ariables	Oxygen Saturation Normal	X^2 Value	Level of Significance
1 Age (in years)			
(a) 30–40 yrs	3		
(b) 41–50 yrs	5	0	$p = 1.0$#
(c) 51–60 yrs	5		
(d) 61–70 yrs	7		
2 Sex			
(a) Male	13	0	$p = 1.0$#
(b) Female	7		
3 Education			
(a) Uneducated	7		
(a) Primary/High School	5	0	$p = 1.0$#
(c) Higher Secondary	6		
(d) Degree/Diploma	2		
4 Smoking			
(a) Yes	12	0	$p = 1.0$#
(b) No	8		
5 Chronic exposure			
(a) Chemicals/Paint	5		
(b) Dust/Cotton	3	0	$p = 1.0$#
(c) None	12		
6 Duration of illness			
(a) 1–3 yrs	6		
(b) 4-6 yrs	6	0	$p = 1.0$ #
(c) 7–9 yrs	6		
(d) 10 yrs and above	2		

= Not significant

Table 13: Association of the Selected Demographic Variables and the Chest Expansion of the Experimental Group After Using Incentive Spirometer

Demographic Variables		Chest Expansion			X^2 Value	Level of Significance
		Normal	Mildly Decreased	Moderate Decreased		
1	**Age (in years)**					
	(a)　30–40 yrs	2	1.	0		
	(b)　41–50 yrs	1	1	3	10.76	$p < 0.05$*
	(c)　51–60 yrs	0	2	3		
	(d)　61–70 yrs	0	2	5		
2	**Sex**					
	(a)　Male	3	4	6	2.15	$p = 0.32$#
	(b)　Female	0	2	5		
3	**Education**					
	(a)　Uneducated	0	1	6		
	(b)　Primary/High School	0	2	3	16.4	$p < 0.05$*
	(c)　Higher Secondary	1	3	2		
	(d)　Degree/Diploma	2	0	0		
4	**Smoking**					
	(a)　Yes	6	4	2	1.49	$p = 0.29$#
	(b)　No	5	2	1		
5	**Chronic exposure**					
	(a)　Chemicals/Paint	3	1	1	2.47	$p = 0.65$#
	(b)　Dust/Cotton	1	2	0		
	(c)　None	7	3	2		
6	**Duration of illness**					
	(a)　1–3 yrs	2	2	2		
	(b)　4–6 yrs	0	2	4	6.26	$p = 0.39$#
	(c)　7–9 yrs	0	2	4		
	(d)　10 yrs and above	1	0	1		

= Not significant.

* = Significant.
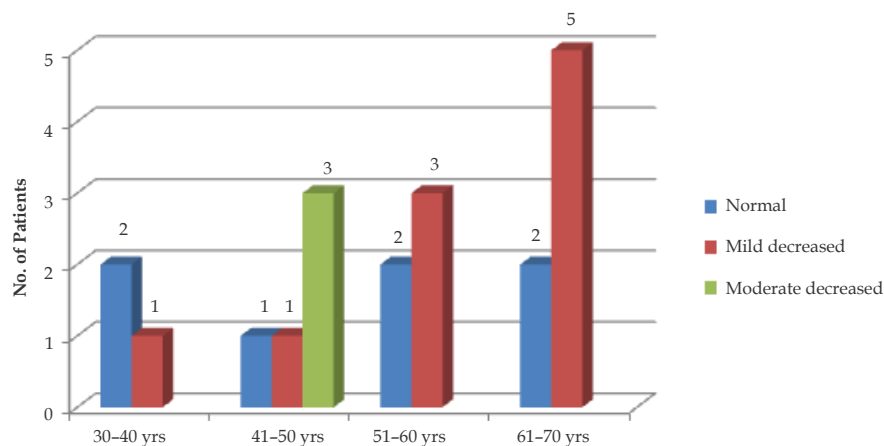
Fig. 16: Association of the Age and Chest Expansion of the Experimental Group After Using Incentive Spirometer.

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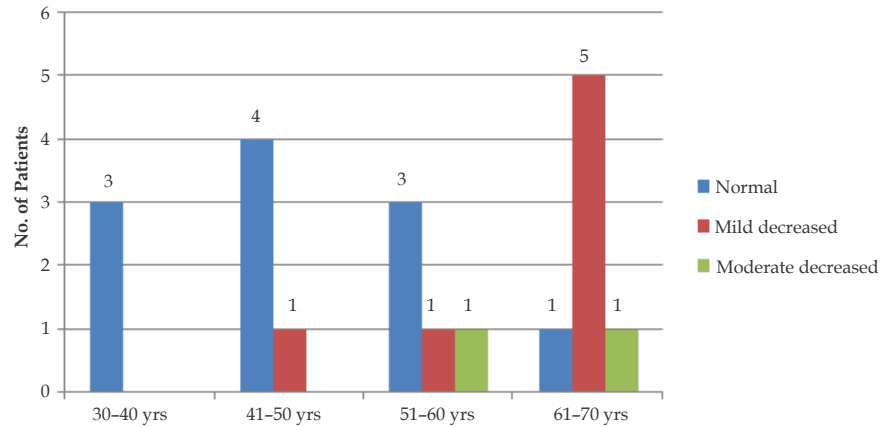
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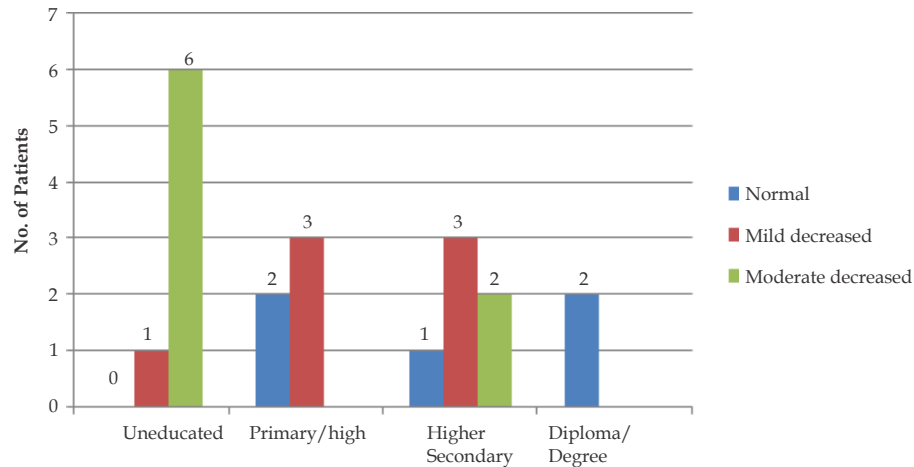
Fig. 17: Association of the Education and Chest Expansion of the Experimental Group After Using Incentive Spirometer.

Table 14 reveals that there is a statistically significant association with Breath holding time and education at the level of $p < 0.05$. Remaining variables such as age, sex, smoking, chronic exposure and duration of illness were not have significant association with breath holding time (Fig. 18).

Table 14: Association of the Selected Demographic Variables and the Breath Holding Time of the Experimental Group After Using incentive Spirometer

Demographic Variables	Breath Holding Time			X^2 Value	Level of Significance
	Normal	Mildly Decreased	Moderate Decreased		
1 Age (in years)					
(a) 30–40 yrs	3	0	0		
(b) 41–50 yrs	2	2	1	6.58	$p = 0.36$#
(c) 51–60 yrs	4	1	0		
(d) 61–70 yrs	2	4	1		
2 Sex					
(a) Male	9	3	1	3.07	$p = 0.21$#
(b) Female	2	4	1		
3 Education					
(a) Uneducated	2	4	1		
(a) Primary/High School	4	1	0	12.3	$p < 0.05$*
(c) Higher Secondary	3	2	1		
(d) Degree/Diploma	2	0	0		
4 Smoking					
(a) Yes	1	3	8	1.68	$p = 0.43$#
(b) No	1	4	3		
5 Chronic exposure					
(a) Chemicals/Paint	0	2	3		$p = 0.39$#
(b) Dust/Cotton	0	0	3	4.08	
(c) None	2	5	5		
6 Duration of illness					
(a) 1–3 yrs	4	1	1		
(b) 4–6 yrs	3	3	0	2.64	$p = 0.85$#
(c) 7–9 yrs	3	2	1		
(d) 10 yrs and above	1	1	0		

* = Significant

= Not significant

Fig. 18: Association of the Education and Breath Holding Time of the Experimental Group After Using Incentive Spirometer.
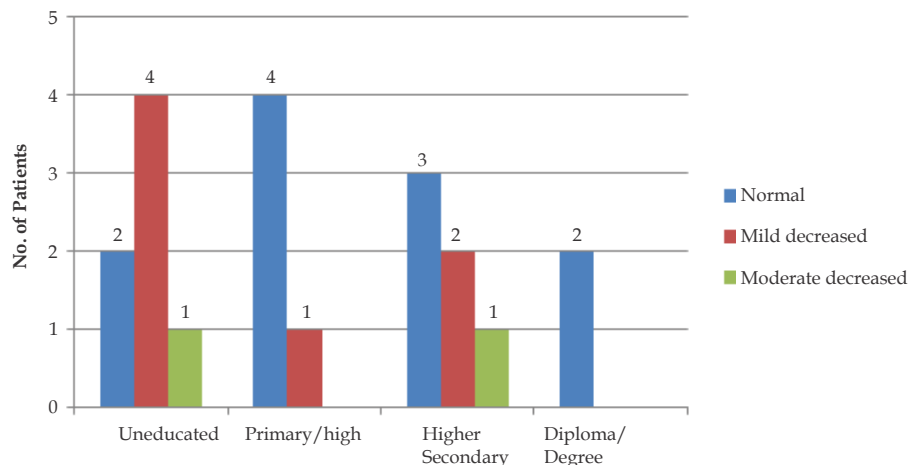
Discussion

The use of incentive spirometer for COPD patients is beneficial in reducing dyspnea and improving pulmonary functions. It prevents pulmonary problems by increasing ventilation to the dependent parts of the lungs by increasing inhaled lung volume. Incentive spirometer motivates the patient by visual feedback. It is inferred that there exist significant difference in pulmonary parameters ($p < 0.01$) and the level of dyspnea (t' value –10.65, $p < 0.01$) among COPD patients in experimental and control group. It is inferred that incentive spirometer is effective in improving pulmonary functions of COPD patients.

Discussion

A study was conducted among COPD patients with the aim to evaluate the effects of Incentive Spirometry on pulmonary function tests, arterial blood gases, dyspnoea and health-related quality of life in patients hospitalized for COPD. A total of 27 consecutive patients admitted for COPD exacerbations were recruited for the study. In total, 15 used IS for 2 months, together with medical treatment. The remaining 12 were given only medical treatment. Pulmonary function and blood gases were measured. Assessment of dyspnoea by visual analogue scale (VAS) and quality of life using the St. George's Respiratory Questionnaire (SGRQ) were performed at admission and after 2 months of treatment. The result showed that the activity, impact and total scores for the SGRQ improved (all $p = 0.0001$), $PaCO_2 \leq$ values decreased ($p = 0.02$), PaO_2 and PAO_2 values increased ($p = 0.02$ and p

= 0.01, respectively) in the Incentive Spirometry treatment group. It proved that the use of Incentive Spirometry appears to improve arterial blood gases and health-related quality of life in patients with COPD exacerbations

Conclusion

The use of incentive spirometer for COPD patients is beneficial in reducing dyspnea and improving pulmonary functions. It prevents pulmonary problems by increasing ventilation to the dependent parts of the lungs by increasing inhaled lung volume. Incentive spirometer motivates the patient by visual feedback.

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49

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A Descriptive Study to Assess the Knowledge & Attitude Regarding Premenstrual Syndrome of Adolescent Girls From Selected Schools of Ahmedabad, Gujarat

Harimohan Singh[1], Hemangi Chaudhari[2]

Abstract

A descriptive study was conducted to assess the knowledge and attitude regarding premenstrual syndrome of adolescent girls from selected schools of Ahmedabad, Gujarat. The main objective of the study was to assess the knowledge and attitude regarding PMS of adolescent girls from selected schools of Ahmedabad, Gujarat. The 'General System Model' adopted from Ludwig Von Bertalanaffy was used as the conceptual frame work. A quantitative approach with descriptive study design was used to achieve the objective of the study. The samples consisted of 150 students of selected schools of Ahmedabad. The simple random sampling technique was use to collect the sample. A structured questionnaire was used to assess the knowledge and attitude scale was used to assess attitude regarding premenstrual syndrome among adolescent girls. The tool was validated by the experts. Cronbach alpha was used to establish the reliability of tools. The tool was found to be valid and reliable. Data gathered was analyzed and interpreted using both descriptive and inferential statistics. The study shows 15.5% adolescent girls having adequate, 81% adolescent girls having average and 3.5% having inadequate amount of knowledge regarding premenstrual syndrome and 55.5% adolescent girls having good attitude, 44.5% adolescent girls having average attitude and no participant having poor attitude regarding premenstrual syndrome. There was positive co-relation between knowledge and attitude regarding premenstrual syndrome among adolescent girls. Based on the findings the following recommendations were proposed for the future research: A similar study can be replicated on a large sample with the similar baseline characteristics.

Keywords: Premenstrual Syndrome; Adolescent.

Introduction

Background of the Study

Health is wealth goes the saying. Health is essential factor for a happy contented life. Based on the ALMA- ATAS declaration, much emphasis is being placed on health promotion and preventive health care. Encouraging people to adopt healthy life style.[1] Adolescent health, around 1.2 billion people, or 1 in 6 of the world's population, is adolescents aging 10 to 19. Most are healthy, but there is still substantial premature death, illnesses can jeopardize not only their current health, but also their health as adults, and even the health of their future children.[2] Menstruation, the regular discharge of blood and mucosal tissue from the inner lining of the uterus through the vagina. Usually initiating between twelve and fifteen years of age, a point in time known as menarche. The typical length of time

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between the first day of one period and the first day of the next is 21 to 45 days in young women, and 21 to 31 days in adults in an average of about 28 days. And the Bleeding usually lasts around 2 to 7 days.[3] The formal medical description of premenstrual syndrome (PMS) The specific term premenstrual syndrome appears to date from an article published in 1953 by Dalton and Green in the British Medical Journal. And the more severe, related diagnosis of premenstrual dysphoric disorder (PMDD) was paper presented at the New York Academy of Medicine by Robert T. Frank titled "Hormonal Causes of Premenstrual Tension".[4] Premenstrual syndrome (PMS) is a combination of symptoms that many women get about a week or two before their period. Most women, over 90%, say they get some premenstrual symptoms, such as bloating, headaches, and moodiness. For some women, these symptoms may be so severe that they miss work or school, but other women are not bothered in presence of milder symptoms. On average, women in their 30s are most likely to have premenstrual syndrome.[5]

Need of the Study

According to World Health Organization, sadness, loss of confidence, low self-esteem, and less energy are more common among females. In India, about one-fourth (27.7%) of the female population falls in the 15–29 years' age group. This age is a transition phase of life associated with spurt of physical, mental, emotional, and social development. Some degrees of premenstrual problems are experienced especially in the initial years of reproductive life by majority of young women. Epidemiologic surveys have estimated that as many as 80% of women of reproductive age experience some symptoms attributed to the premenstrual phase of the menstrual cycle.

Premenstrual symptoms are experienced by up to 90% of women of child bearing age. A smaller subset meets criteria for premenstrual syndrome (PMS) and less than 10% of them are diagnosed as having premenstrual dysphoric disorder (PMDD) (American Psychiatric Association 2000). The world health organization estimates that 199 million women have premenstrual syndrome as of 2010 (5.8% of the female population) While 80% of menstruating women have experienced at least one symptom that could be attributed to PMS, estimates of prevalence range from as low as 3% to as high as 30%. 30–40% women suffer some impairment of daily activity, 75% women have 0-40% women suffer some impairment of

daily activity, 75%women have some symptoms, 3–8% women have sever, 1 in 6 or 15.00% or 40.8 million people in USA.[6] In India the prevalence with PMS is 20% of which 8% suffer with severe symptoms. It has also been reported by the same group of authors that 10% of the sufferers were found to have suicidal ideas. Hence, it is important to identify the knowledge and attitude of the adolescent girls regarding premenstrual syndrome among the adolescent girls in the Ahmedabad, Gujarat.

Objectives

1. To assess knowledge regarding Premenstrual Syndrome among adolescent girls in selected schools of Ahmedabad, Gujarat.

2. To assess attitude regarding Premenstrual Syndrome among adolescent girls in selected schools of Ahmedabad, Gujarat.

3. To identify the co-relation between the knowledge and attitude regarding premenstrual syndrome among adolescent girls in selected schools of Ahmedabad, Gujarat.

Assumptions

There will be significantly lesser percentage of total population having adequate knowledge regarding pre-menstrual syndrome.

There will be significant association between demographic variables and the knowledge of pre-menstrual syndrome among the participants.

Operational Definition

Assess: It refers to act of ascertaining or judge about the premenstrual syndrome among Adolescent girl.

Knowledge: Knowledge is information and understanding regarding a premenstrual syndrome to adolescent girl.

Attitude: A predisposition or a tendency to respond positively or negatively towards a Premenstrual syndrome by adolescent girls.

School: School is defined as an educational institution where groups of pupils pursue defined studies at defined levels, receive instructions from one or more teachers, frequently interact with other officers and employees such as principal, various supervisors/instructors, maintenance staff etc., usually housed in a single building.

Harimohan Singh, Hemangi Chaudhari / A Descriptive Study to Assess the Knowledge & Attitude
Regarding Premenstrual Syndrome of Adolescent Girls From Selected Schools of Ahmedabad, Gujarat

53

Adolescent Girls: The period of life when a girls entered in the age of 14–18, who are studying in 10th to 12th standard, the period from puberty to maturity terminating legally at the age of majority.

Premenstrual syndrome: A varying group of symptoms manifested by some women prior to menstruation that may include emotional instability, irritability, insomnia, fatigue, anxiety, depression, headache, edema, and abdominal pain.

Materials and Methods

Research methodology indicates the general pattern of organizing the procedure for gathering valid and reliable data for an investigation. The content of this chapter includes research approach and its rationale, description of setting and population, description of sample, tool selection, construction, description and rational of the tool, procedure of data collection, data analysis and statistically methods used.

Results

Study findings are organized and presented under following section:

Section 1: Description of samples based on their personal characteristics.

According to mean percentage of sample characteristics, majority of samples 28.5% were 15 years of age, 39.5% studied 12th standard, 67% from science field of education, 48% having ₹0–20,000 monthly income, 81.5% were vegetarian, 65.5% having junk food in diet once in a week, 77% samples attend menarche at the age of 13-14 years, 89% having 28–30 days of time between two menstrual cycle and 56.5% having 5–7 days of blood flow (Table 1).

Table 1: Description of sample based on their personal characteristics in terms of frequency and percentage (*N* = 200).

Serial Number	Characteristics	Category	Respondents	
			Frequency	Percentage (%)
1	Age	14 years	5	2.5
		15 years	57	28.5
		16 years	91	45.5
		17 years	43	21.5
		18 years	4	2.0
2	Standard	10th	29	14.5
		11th	92	46.0
		12th	79	39.5
3	Field of education	Science	134	67.0
		Commerce	11	5.5
		Arts	9	4.5
		Others	46	23.0
4	Monthly family income	₹0–20,000 per month	96	48.0
		₹21,000–40,000 per month	68	34.0
		₹41,000–60,000 per month	21	10.5
		₹61,000–80,000 per month	6	3.0
		Above 80,000	9	4.5
5	Type of diet	Vegetarian	163	81.5
		Non-vegetarian	23	11.5
		Vegetarian + eggs	14	7.0
6	Frequency of junk food in diet per week	Once in a week	131	65.5
		Twice in a week	38	19.0
		Three times a week	19	9.5
		More than 4 times a week	12	6.0

Serial Number	Characteristics	Category	Respondents	
			Frequency	Percentage (%)
7	Age at the time of menarche	11–12 years	29	14.5
		13–14 years	154	77.0
		15–17 years	17	8.5
8	Time period between two menstrual cycles	15–27 days	8	4.0
		28–30 days	178	89.0
		31 above days	14	7.0
9	Days of blood flow	2–4 days	66	33.0
		5–7 days	113	56.5
		8–12 days	21	10.5

Section 2: Analysis of knowledge among adolescent girls regarding premenstrual syndrome.

15.5% adolescent girls having adequate, 81% adolescent girls having average and 3.5% having inadequate amount of knowledge regarding premenstrual syndrome (Table 2).

Table 2: Analysis of knowledge among adolescent girls regarding premenstrual syndrome ($N = 200$).

Knowledge level	Number of respondents	Percentage
Adequate (7–10)	31	15.5
Average (4–7)	162	81.0
Inadequate (1–3)	7	3.5
Total	200	100.0

Section 3: Analysis of attitude among adolescent girls regarding premenstrual syndrome.

55.5% adolescent girls having good attitude, 44.5% adolescent girls having average attitude and no participant having poor attitude regarding premenstrual syndrome (Table 3).

Table 3: Analysis of attitude among adolescent girls regarding premenstrual syndrome ($N = 200$).

Level of attitude	Number of respondents	Percentage
Good (41–60)	111	55.5
Average (21–40)	89	44.5
Poor (12–20)	0	0.0
Total	200	100.0

Section 4: Determination of co-relation between knowledge and attitude regarding premenstrual syndrome.

The determination of relationship between knowledge and attitude regarding premenstrual syndrome is $r = 0.064$ which is more than 0. Hence, there is positive co-relation between knowledge and attitude regarding premenstrual syndrome (Table 4).

Table 4: Standard deviation, mean and co-relation between knowledge and attitude ($N = 200$).

Variables	Standarddeviation	Mean	Co-relation	Result
Knowledge	0.434099	1.95	0.064	Positive co-relation
Attitude	0.498213	2.555		

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Premenstrual Syndrome of Adolescent Girls From Selected Schools of Ahmedabad, Gujarat

55

Discussion

This section evaluated the findings of the present study in the light of previous research studies. The discussion is organized based on finding of the study. The theoretical framework of the present study was based on concept of General System Theory.

Conclusion

The study intends to assess the knowledge and attitude regarding premenstrual syndrome of adolescent girls from selected schools of Ahmedabad, Gujarat. The study reveals that positive co-relation between knowledge and attitude regarding premenstrual syndrome among adolescent girls from selected schools of Ahmedabad, Gujarat.

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A Descriptive Study to Assess the Level of Knowledge Regarding Food Hygiene Among the Mothers of Nursing Students of Manikaka Topawala Institute of Nursing, Charusat, Changa

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Abstract

Good food hygiene is an important practice that we need to observe to ensure our food is safe for consumption, without this healthy practice, harmful germs that cause food poisoning can spread very easily during food preparation process, it is their for our full responsibility to keep the food that we and our loved ones it very clean and safe during and after preparation on a daily basis. The increasing number of food poisoning outbreak sand food-related scares has led to calls for better hygiene and quality practices. Food poisoning outbreaks are due to the inadequate time and temperature control of food. Poor sanitary practices in food storage, handling, and preparation can create an environment which bacteria such as campylobacters, salmonella, and other infectious agents are more easily transmitted. The spread of diseases through food is still a common problem which results in appreciable morbidity and occasional mortality. Food handlers play an important role in ensuring food safety throughout the chain of production, processing, storage and preparation. This article explores the evidence base of knowledge regarding the food hygiene among the mothers of nursing students. The result of the study shows that the majority of nursing student's mothers 69 (69%) had adequate knowledge, 21 (21%) had excellent knowledge and 10 (10%) had inadequate knowledge regarding food hygiene. The result of structured knowledge questionnaire will classify nursing student's mother in good, average, poor knowledge categories. Mothers of nursing students having adequate knowledge would continue with health promotive behaviour whereas the mothers of nursing students having inadequate knowledge have to improve their health related knowledge.

Keywords: Assess; Level of Knowledge; Food Hygiene; Mothers; Nursing Students.

Introduction

"An ounce of prevention is worth a pound of cure" –Anonymous

Food hygiene is a broad term used to describe the prevention and preparation of food in a manner that ensures the food is safe for human consumption.[1] The process to kitchen safety includes proper storage of food items prior to use, maintaining a clean environment when preparing the food and making sure that all serving dishes are clean and free of bacteria that could lead to some type of contamination.[2] Contaminated

food is responsible for much diarrheal disease in young children, yet the education of mothers and caregivers about the preparation of food under hygienic conditions tends to be neglected. Prevent contaminating food with pathogens spreading from people.[3] Mothers play a major role in ensuring food safety throughout the chain of producing, processing, storage and preparation. Mishandling and disregard for hygiene measures on their part may result in food contamination and its attendant consequences.[4]

The increasing number of food poisoning outbreak sand food-related scares has led to calls for better hygiene and quality practices. Food poisoning outbreaks are due to the inadequate time and temperature control of food.[4] Poor sanitary practices in food storage, handling, and preparation can create an environment which bacteria such as campylobacters, salmonella, and other infectious agents are more easily transmitted.[5] Contaminated food is responsible for much diarrheal disease in young children, yet the education of mothers and caregivers about the preparation of food under hygienic conditions tends to be neglected.[6] The World Health Organization Golden Rules for Safe Food Preparation need to be observed. Food should be thoroughly cooked and fed to infants once it is cool enough; food should not be stored where there are no facilities for storage below 10 degrees Celsius

or for keeping food at or above 60 degrees Celsius.[7] Mothers should be advised about food safety within the framework of educational programs.[8]

Materials and Methods

The research approach adopted for this study was quantitative research approach. The research design is Descriptive. The sampling technique used in present study is Non Probability Purposive Sampling technique. The sample size of the present study comprises of 100 mothers of students from Manikaka Topawala Institute of Nursing, Charusat, Changa. The final tool consist of three sections.

Section 1: Information on socio-demographic variables of respondents contains 7 questions.

Section 2: Information on knowledge regarding food hygiene, which contains 20 questions.

A score of '1' was given to all correct answers while a score '0' was given to all incorrect answers.

Result

Section 1: Findings Related to socio demographic variables (Table 1 and Figs 1-7).

Table 1: Socio demographic variables

Socio Demographic variables	Category	Frequency	Percentage	Number (X)
Age	40–45 years	64	64	100
	46–50 years	33	33	
	51–55 years	1	1	
	56 year and abover	2	2	
Religion	Hindu	91	91	100
	Muslim	3	3	
	Christian	6	6	
	Others	0	0	
Education	Primary	5	5	100
	Secondary	24	24	
	Higher Secondery	24	24	
	Graduation	47	47	
Occupation	Housewife	80	80	100
	Job	18	18	
	Business	1	1	
	Skill Worker	1	1	
Source of Information	Media	37	37	100
	Friends	7	7	
	Family members	48	48	
	Others	8	8	
Area	Rural	52	52	100
	Urban	48	48	

Divya Jain Pachori, Khushbu Malek, Anjali Ganvit, et al. / A Descriptive Study to Assess the Level of   59
Knowledge Regarding Food Hygiene Among the Mothers of Nursing Students of Manikaka
Topawala Institute of Nursing, Charusat, Changa

Socio Demographic variables	Category	Frequency	Percentage	Number (X)
Income	Less than 20000	13	13	100
	20000–30000	21	21	
	30000–40000	18	18	
	More than 40000	48	48	
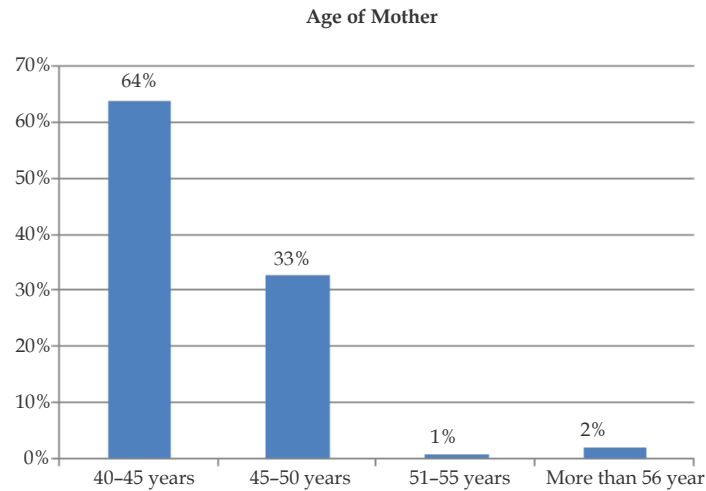
Fig. 1: Column graph showing the distribution of mothers according to age in years.
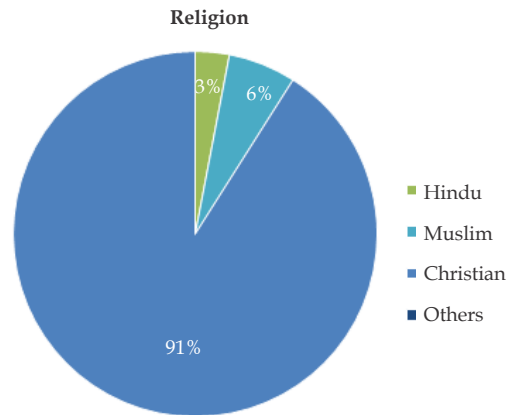
Fig. 2: Pie graph showing the distribution of mothers according to religion.

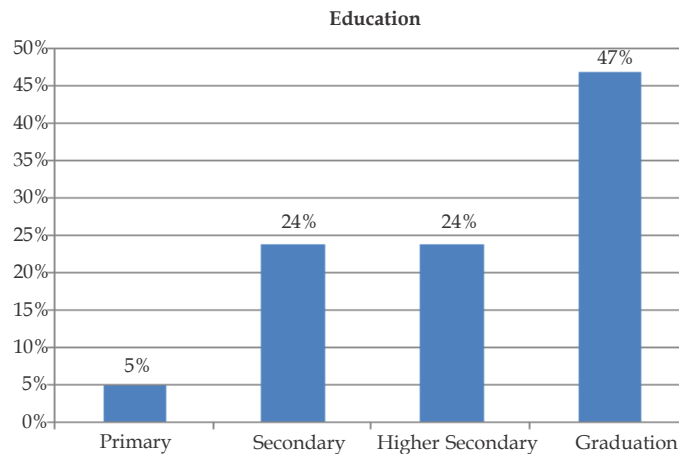**Fig. 3:** Graph showing the distribution of mothers according to educational status.

Occupation

Fig. 4: Pie graph showing the distribution of mothers according to occupation.

Source of Information
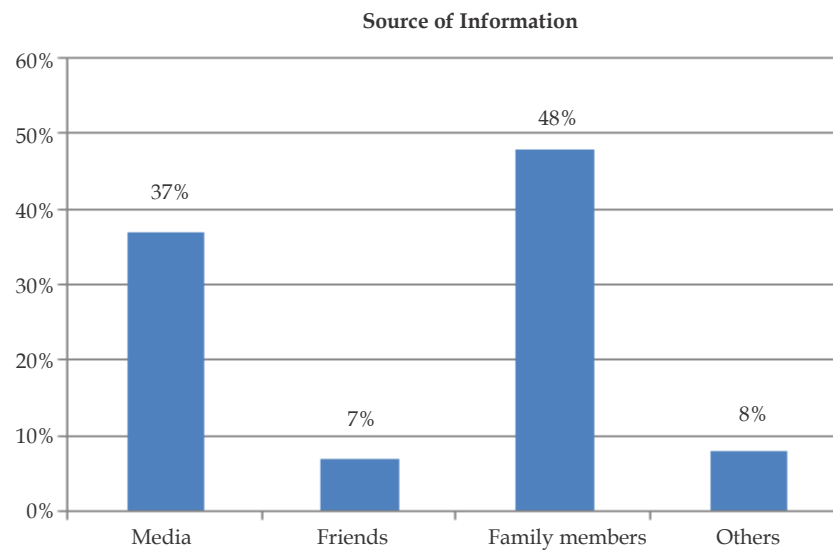
Fig. 5: Column graph showing the mothers of nursing students sources for health information.
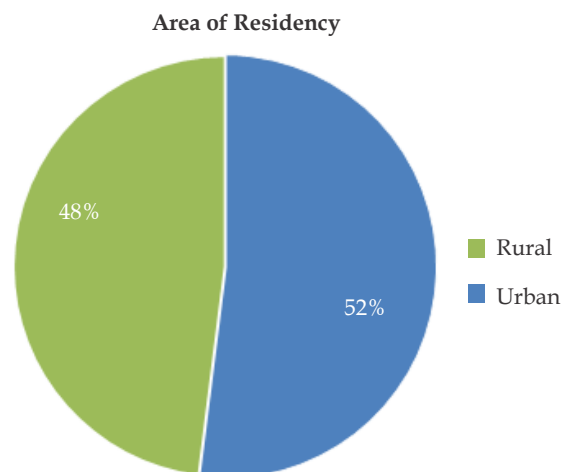
Area of Residency

Fig. 6: Pie graph showing the distribution of area of mother residency.

Divya Jain Pachori, Khushbu Malek, Anjali Ganvit, et al. / A Descriptive Study to Assess the Level of
Knowledge Regarding Food Hygiene Among the Mothers of Nursing Students of Manikaka
Topawala Institute of Nursing, Charusat, Changa

61
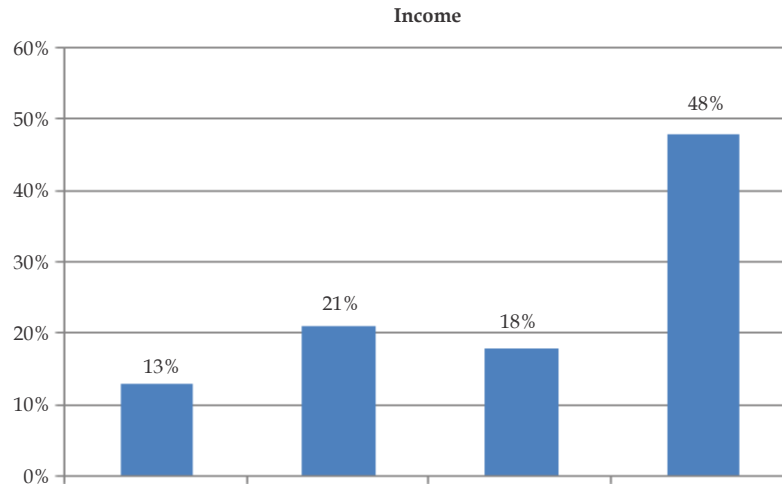
Income

Fig. 7: Column graph showing the distribution of mothers according to monthly family income in rupees.

Section 2: Findings related to knowledge of mothers of nursing students regarding food hygiene.

Table 2 and Fig. 8 Depicts that majority of nursing students mothers 69 (69%) had adequate knowledge, 21 (21%) had excellent knowledge and 10 (10%) had inadequate knowledge regarding food hygiene.

Table 2: Frequency and percentage distribution of knowledge score of mothers of nursing students regarding food hygiene.

Level of knowledge	Score range	Frequency	Percentage
Inadequate	1–7	10	10
Adequate	8–14	69	69
Excellent	15–29	21	21

Level of knowledge

Fig. 8: Column graph showing the level of knowledge of mothers.

Section 3: Findings related to association between mothers knowledge with their selected demographic variables.

Finding revealed that the knowledge of mothers is associated with religion and area of residency at $p < 0.05$ and CI 95%. So H1 is accepted (Table 3).

Table 3: Association between mothers knowledge with their selected demographic variables.

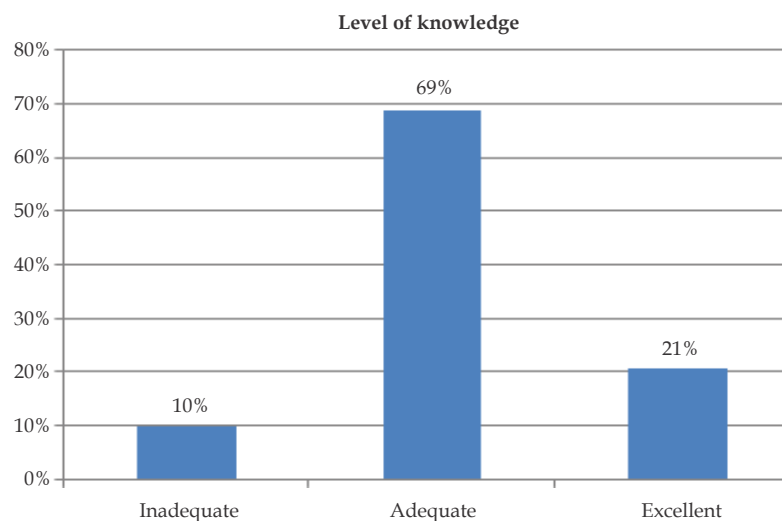| Socio Demographic variables	Category	Frequency	Percentage	Degree of Freedom	Table Value	Chi-square Value	Level of significance
Age	40–45 years	64	64				
	46–50 years	33	33				
	51–55 years	1	1	2	5.99	2.393	NS
	56 year and above	2	2				
Religion	Hindu	91	91				
	Muslim	3	3				
	Christian	6	6	2	5.99	14.76	S
	Others	0	0				
Education	Primary	5	5				
	Secondary	24	24				
	Higher Secondery	24	24	2	5.99	0.399	NS
	Graduation	47	47				
Occupation	Housewife	80	80%				
	Job	18	18%				
	Business	1	1%	2	5.99	3.313	
	Skill Worker	1	1%				
Source of Information	Media	37	37%				
	Friends	7	7%				
	Family members	48	48%	2	5.99	2.086	
	Others	8	8%				
Area	Rural	52	52%				
	Urban	48	48%	2	5.99	6.793	
Income	Less than 20000	13	13%				
	20000–30000	21	21%				
	30000–40000	18	18%	2	5.99	1.236	
	More than 40000	48	48%				

Discussion

The present study focus on assessment of knowledge regarding food hygiene among the mothers of nursing students of Manikaka Topawala Institute of Nursing, Charusat, Changa. The finding of study are discussed under the following heading:

- Findings related to socio-demographic variables.
- Findings related to knowledge score of mothers of nursing student's regarding food hygiene.
- Findings related to on association knowledge score, with selected socio-demographic variables.
- Completed secondary, higher secondary and diploma/graduation are 24 (24%), 24 (24%), 47 (47%) respectively.

In terms of education, more than one-third (39.3%) of the food handlers had primary school education. In this study out of 417 food handlers, majority 342 (82%) had good food safety knowledge (mean score ≥ 6), in the similar study conducted by Terefe Derso c corresponding author Amare Tariku Fekadu Ambaw Marew Alemenhew Gashaw Andargie Biks and Ansha Nega, revealed that 252 (67.6%) mothers were getting the information from mass media about food hygiene.

In the terms of monthly income, the household monthly income of most (216 of 350, 62%) of households was less than US $100 (8,000 Taka), out of 350. This finding corresponds with the study conducted by Fosiul A. Nizame, Leanne Unicomb, Tina Sanghvi, Sumitro Roy, Md. Nuruzzaman, Probir K. Ghosh, Peter J. Winch, and Stephen P. Luby, where it was noted that out of total 350 respondent only 167 were found respondent had more than a primary education were as remaining above primary education.

Findings related to knowledge score of mothers of nursing student's regarding food hygiene.

Divya Jain Pachori, Khushbu Malek, Anjali Ganvit, et al. / A Descriptive Study to Assess the Level of 63
Knowledge Regarding Food Hygiene Among the Mothers of Nursing Students of Manikaka
Topawala Institute of Nursing, Charusat, Changa

In the present study, findings related to knowledge scores showed that majority of nursing students mothers 69 (69%) had adequate knowledge, 21 (21%) had excellent knowledge and 10 (10%) had inadequate knowledge regarding food hygiene. Mohamed fawzi, mona E.shama did study on knowledge of food safety in Alex andria university in 2009. The result showed that the highest percentage of cases was 46.8% while the lowest was 23%.[16]

Findings related to on association knowledge score, with selected socio-demographic variables.

Analysis was done for identifying association between knowledge and selected demographic variables by computing Chi-square test.

The study findings showed that there is significant association between religion, area of residence with knowledge score of food hygiene.

In contrast to present study, their was study conducted by Thilde Rheinländer, Mette Olsen, John Abubakar Bakang, Harriet Takyi, Flemming Konradsen, and Helle Samuelsen the data revealed that their was a positive association of Food safety instruction at home from the subjects' mothers was significantly associated with proper hand washing ($P < 0.001$,); that is, subjects whose mothers stressed food safety at home had higher scores of hand-washing while subjects who received no instruction from their mothers had a poor average score.[17]

Conclusion

Based on the analysis of the findings of the study, the following inferences were drawn.

Majority of the study samples have adequate knowledge regarding food hygiene.

Nursing Implications

The findings of the study have implication for nursing practice, nursing education, nursing administration and nursing research.

Nursing Practice

Information regarding food hygiene among mothers will be useful for prevention of food borne diseases.

As the nurse play a very vital role in health promotion the nurse can educate the mothers regarding food hygiene and their by prevent the diseases related to food contamination.

Educative teaching by nurse may motivate mothers to practice good techniques of food preparation.

The information collected through this study will be not only useful on mothers but also can be useful for family members, caterers and other food management staff.

Nursing Education

This study highlights the knowledge level of mothers regarding food hygiene which will help nursing students to understand need of food hygiene in better way.

Reinforcement of known ideas and impartation of new ones, will allow the mothers to take good care of children regarding good practices of food hygiene. The tool and findings of the study will provides guide line to develop teaching and education programs for both mothers as well nursing students.

It is through nursing education only, that the nurses impart knowledge and provide information to nurses who in turn will share this information not only mothers and community but also providing education in hospital setting like to patients, relatives, hospital staff of food management regarding food hygiene.

To arrange one day seminar related to food hygiene for mothers as well as for students, their by increasing their knowledge towards food hygiene.

Nursing Administration

Nurse administration can plan and organize programme and make use of information guideline regarding food hygiene.

The nurse administrator should take interest in disseminating the information through instructional materials such as pamphlets, poster, flip book, demonstrating hand washing that impart health information to mothers

Nursing Research

The findings and results of this research will motive all nursing students researchers to take up similar study in different setting or take more experimental approach and this can serve as a guideline for further research.

The outcome of the study can be evaluated and the reports can be submitted to statutory bodies like Indian nursing council, TNAI etc. who can utilize this evidenced- based data for developing effective

teaching and educational materials for benefits of nursing students as well as nursing students mothers.

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A Study to Assess Knowledge Andpractice of Basic Life Supportamong Nurses Working in Tertiary Care Hospital, New Delhi

Seema Sachdeva

Abstract

Cardiovascular disease is the world's largest killer. Nurses are often the first to activate life support measures when a cardio-respiratory arrest happens. Hence, they should be well-equipped with knowledge and skills of Cardiopulmonary resuscitation to save the life of patient. The aim of the present study was to assess the knowledge and practice of basic life support among nursing officers working in tertiary care hospital, Delhi, India. A cross sectional survey analysis was carried out among 112 nursing officers working in various departments, in March 2019, using convenient sampling technique. A semi structured questionnaire containing knowledge and skill items were used to assess knowledge and skill related to CPR. The results showed average knowledge and poor skill among subjects. Whereas the subjects working in ICU and emergency departments had better knowledge and performance than other selected areas. Both Knowledge and skill were significantly associated with variables like clinical area, in-service training on BLS at $p < 0.05$. The results strongly recommend the need for regular basic life support training sessions for health care professionals.

Keywords: Basic Life Support (BLS); Cardio respiratory arrest (CPR).

Introduction

Cardiac arrest is a substantial health problem estimated to account for approximately 15–20 percent of all deaths in both developing and developed countries.[1] Cardiopulmonary resuscitation (CPR) is considered a core emergency skill in which all health care professionals must be proficient. Early initiation of cardiopulmonary resuscitation (CPR) and activation of the chain of survival are key factors in the saving life of patients with cardiac arrest.[2]

As the nurses remain with patient round the clock and spend significant time alongside patients they are often the first to realize in hospital cardiac arrest.[3] Literature indicates differences in Nurses CPR knowledge and skills from their area of work and experience.[4] In western world and other developing countries too, CPR knowledge and skills differs among health-care workers.[4-5] In India, there is no established compulsory CPR training schedules and stringent need to renew the license/certification for basic life support for hospital-based health care providers which results in wide gap in knowledge and practice of CPR.[5] Hence, in light of international guidelines and recommendations, the researchers have felt the need of assessing knowledge and skills of Basic Life support among nursing officers working in tertiary care centre, Delhi, India. The secondary objective was to find its association with selected variables.

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Materials and Methods

The Non- experimental descriptive survey was conducted among 112 nursing officers (estimated sample size, $N = 100$) selected by using convenient sampling technique in February and March 2019. The study was conducted among full time working nursing officers in various departments like Emergency ward, Medicine ward, Surgical ward, Intensive care Unit and Operating room. The senior administrative and managerial staff who were not involved in direct patient care and those who did not wish to participate in study were excluded. Tools used were Demographic profile (items like age, sex, qualification, clinical area, clinical experience, in-service BLS training); a 20 items multiple Choice semi-structured questionnaire to assess the knowledge and 12 items skill checklist to assess the practice of BLS (using mannequin in simulation lab) based upon 2015 Basic Life Support guidelines laid by American Heart Association. The main items were related to primary assessment, airway management, positioning, effective chest compression and ventilation and use of automated external defibrillator. Each correct answer was given 1 mark in knowledge questionnaire with total marks 20. A score greater than 15 was categorized under good knowledge, 11–15 score under average knowledge and ≤ 10 under poor knowledge. For skill assessment, coding was done for performance or not performance of the particular step with total marks as 12. The performance of the step which was not correctly done or missing step was coded as zero while correctly performing the step was marked 1 score. The skill was assessed under two categories i.e. poor skill (scores ≤ 9; <75%) and good skill (score > 9; >75%). The tool was validated by 5 experts and reliability was checked using test rest method for knowledge questionnaire ($r = 0.75$) inter rater reliability for skill checklist (r = 0.82). Written informed consent was taken from subjects to conduct the study after obtaining ethical approval from institute. Pilot study was conducted among 15 subjects in cardiothoracic department and study was found feasible. Data collection was done in morning and evening shift as per the convenience and availability of subjects. Self-reported questionnaire was distributed for knowledge and subjects demonstrated BLS procedure on mannequin for assessment of skill. The data was entered in Excel sheet and analyzed using SPSS 15. Descriptive statistics (Frequencies, proportions, mean and standard deviation) were used in data analysis. ANOVA was used to find the association of knowledge and skill with selected variables. Level of significance (α) was kept at 0.05.

Results

A total of 112 subjects participated in the study, out of which majority (65%) had done B.Sc Nursing and were females (51%). Majority of the subjects were from medicine department (28%) and surgery department (25%) followed by emergency department (23%) and ICU (14%) and OT (10%). 56% subjects had clinical experience of > 5 years. With regards to in-service education 61% subjects had never got any training related to basic life support.

For knowledge of subjects regarding BLS, the average score was 12.2 ± 3.2 with a range = 5–19. Majority of the subjects (68%) subjects had average level of knowledge as shown in (Table 1).

Table 1: Level of knowledge of subjects for BLS

Total Scores = 20

Level of knowledge	F (%)	Mean ± SD
Good (>15)	22 (20)	16.3 ± 2.1
Average (11–15)	76 (68)	12.2 ± 3.2
Poor (≤10)	14 (12)	8.4 ± 2.04

Item wise assessment for knowledge of CPR showed that most of subjects correctly responded for primary assessment (76%), chain of survival steps (74%), hand position in CPR (90%), ventilation compression ratio (80%) whereas there was lack of knowledge for items like cardinal signs of arrest (42%), carotid pulse assessment (19%), change of compressor (38%), location of chest compression (54%) and indication of defibrillation (41%) as shown in (Table 2).

Table 2: Frequency distribution of the subjects as per the correct responses in knowledge questionnaire

N = 112

S. No	Knowledge items	Correct responses	
		F	%
1	Indications of basic life support	75	67
2	Primary assessment	87	76
3	Cardinal signs of arrest	47	42
4	Chain of survival steps	83	74
5	Time of assessing carotid pulse	21	19
6	Location of chest compression	61	54
7	Hand position for effective CPR	101	90
8	Compression Rate	76	68
9	Compression-ventilation ratio	90	80
10	Depth of compression	75	67
11	Chest recoiling	84	74
12	Airway maintenance	70	65
13	Number of rescue breaths	84	74
14	Pulse reassessment	74	66
15	Switch time of compressor	42	38
16	Indication of Defibrillation	46	41
17	Pad placement in AED	62	55
18	Caution to use defibrillator	90	80
19	Importance of Continued CPR	95	85
20	Recovery position	39	35

With regard to skill for BLS, the average skill scores of the subjects were 7.12 ± 2.16 (total scores = 12) with Range = 4–11. Majority (64%) of the subjects showed poor performance i.e. <9 as shown in (Table 3).

Table 3: Level of skill of study subjects for BLS

Total scores = 12

Level of skill	F (%)	Mean ± SD
Poor (<9)	71 (64)	6.33 ± 1.21
Good (>9)	41 (36)	9.25 ± 1.08

In terms of association of knowledge and skill of the subjects with demographic variables, there was significant association of knowledge and skill with experience, clinical area and in service education with *p*-value <0.05 as shown in (Table 4)

Table 4: Association of knowledge and skills with the selected variables

Variables		Mean ± Std. deviation (Knowledge)	*p*-value	Mean ± Std. deviation (Skills)	*p*-value
Sex	Male	10.31 ± 1.63	0.14	7.08 ± 2.603	0.001
	Female	12.14 ± 1.37		6.09 ± 2.16	
Qualification	GNM	10.63 ± 3.388	0.14	6.17 ± 1.31	0.312
	B. Sc.	12.89 ± 2.782		7.02 ± 1.18	
	M. Sc.	13.50 ± 4.726		8.2 ± 1.43	
Clinical area	ICU	15 ± 2.4	0.016*	9.1 ± 3.13	0.024*
	Emergency	14.5 ± 3.05		8.5 ± 3.20	
	OT	9.05 ± 2.42		6.1 ± 3.19	
	Medicine	10.85 ± 3.4		6.8 ± 3.06	
	Surgery	10.2 ± 1.12		6.5 ± 1.27	

Variables		Mean ± Std. deviation (Knowledge)	*p*-value	Mean ± Std. deviation (Skills)	*p*-value
Experience (in years)	< 1	8.5 ± 1.19	0.05*	5.30 ± 2.16	0.03*
	1-5	10.85 ± 2.12		7.58 ± 1.09	
	>5	14.5 ± 2.05		8.41 ± 1.4	
In-service education	Yes	14.65 ± 3.31	0.004*	9.5 ± 1.14	0.018*
	No	9.16 ± 2.17		6.62 ± 2.24	

ANOVA test (*p* < 0.05 statistically significant)

In item wise skill assessment, the common incorrect or missed steps were like calling for help (62%), Quality chest compression (rate, depth and recoiling of chest) 66%, pulse reassessment (77%) and correct AED pads placement (62%) as shown in Fig. 1.
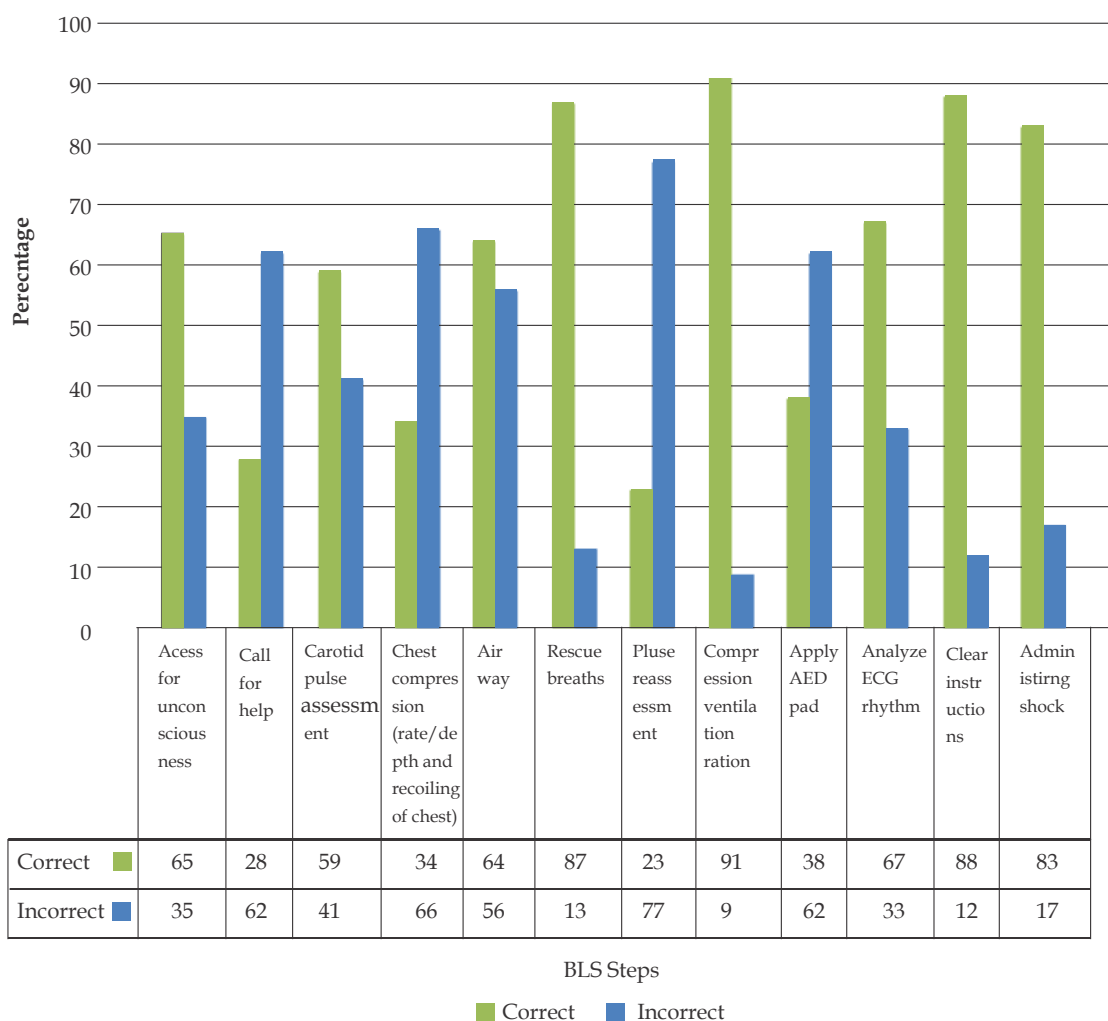

	Acess for unconsciousness	Call for help	Carotid pulse assessment	Chest compression (rate/depth and recoiling of chest)	Air way	Rescue breaths	Pluse reassessment	Compression ventilation ration	Apply AED pad	Analyze ECG rhythm	Clear instructions	Administring shock
Correct	65	28	59	34	64	87	23	91	38	67	88	83
Incorrect	35	62	41	66	56	13	77	9	62	33	12	17

BLS Steps

■ Correct ■ Incorrect

Fig. 1: Percentage wise distribution of correct and in-correct steps in CPR.

With regard to knowledge and skill of subjects posted in different departments, the nursing officers from ICU, emergency department had better knowledge and skill as show in Fig. 2.
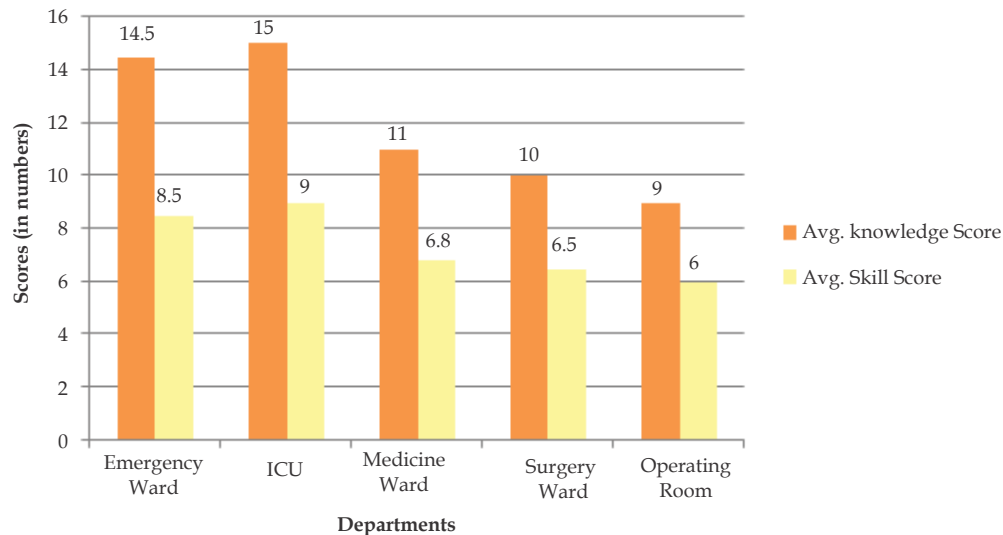
Seema Sachdeva / A Study to Assess Knowledge Andpractice of Basic Life Supportamong Nurses
Working in Tertiary Care Hospital, New Delhi

69

Fig. 2: Distribution of Knowledge and skill scores among subjects in different departments.

Discussion

The finding of the study showed that most of the subjects had average knowledge (64%) and poor skill (66%) for basic life support. Most of the subjects had less knowledge about the critical components of CPR likecardinal signs of arrest, carotid pulse assessment, change of compressor, location of chest compression and indication of defibrillation.Skill was found poor in components like Calling for help, quality CPR (rate/depth and recoiling of chest), pulse reassessment, location of AED pads on chest. The findings of this study concurs with a study done in Bahrain which reported that only 15% (total subjects 200) of the nurses passed the CPR skills test based on the standard pass mark of 85.[6] Other similar supporting studies also quoted the lack of knowledge and skill among health care professionals, including nurses and physicians. Basic aspects of CPR, such as the correct compression and ventilation sequence, did not appear to be correctly understood by all healthcare professionals and it was suggested that CPR training needs to be improved in medical and nursing schools.[5,7] Another study that concur with the findings showed that there is a significant gap in theoretical and practical knowledge on CPR among nurses. This gap shows considerable room for improvement.[8] The present study findings highlighted that emergency area and ICU area nurses had comparatively better knowledge and skill scores than other areas like OT, medicine and surgery department as shown in figure 2. Other studies with supportive findings reported that nurses working in high-risk areas such as Intensive

Care Unit (ICU) and nurses who work continuously in close contact with patients are more motivated to maintain their competence in CPR than other area nurses where there is lack of frequent exposure.[9] While on the contrary, a recent study conducted in Botswana indicated that regardless of the setting of the hospitals like acute and non acute patient care units, CPR knowledge and skills was found poor among nurses working in different areas after a gap of more than 6 months after initial training in CPR which further reduced nurse's initiation in performance of CPR.[10] In present study, participants with more experience and who underwent BLS training performed better than nurses who never had any exposure to BLS training programme. This is also supported by recent studies conducted in Indiawhere nurses with higher experience with BLS training performed better than the nurses who never had any training.[6,11] Another supported findings suggested by Mohsenabadi reports that debriefing-based training promotes improved knowledge and competence in CPR.[12] In 2010 the International Liaison Committee on Resuscitation (ILCOR) reported thatbasic and advanced life-support knowledge and skills are likely to deteriorate over ashort period of time, approximately 3–6 months and it recommends periodic evaluations to identify thoseprofessionals who need to refresh their knowledge and skills.[13]

Conclusion

The study showed that majority of the subjects had average knowledge and poor skill for Basic

Life Support. Majority of subjects were lacking in critical steps like quality CPR (chest compression rate, depth), carotid pulse assessment, calling for help and location of AED placement. The staff working in critical areas like emergency ward and Intensive care unit showed better performance than other units like medicine and surgery ward. The main limitations of study were that the non-probability sampling method was used and there was less sample size for generalization of the findings. The practice of BLS was assessed in a simulated environment rather than observing actual performance of subjects in real life situation which can add to the bias.

Acknowledgement

Abbreviations: CPR, BLS

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Standard journal article

[1] Flink H, Tegelberg Å, Thörn M, Lagerlöf F. Effect of oral iron supplementation on unstimulated salivary flow rate: A randomized, double-blind, placebo-controlled trial. J Oral Pathol Med 2006; 35: 540–7.

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Article in supplement or special issue

[3] Fleischer W, Reimer K. Povidone-iodine antisepsis. State of the art. Dermatology 1997; 195 Suppl 2: 3–9.

Corporate (collective) author

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Reference from electronic media

[9] National Statistics Online—Trends in suicide by method in England and Wales, 1979–2001. www.statistics.gov.uk/downloads/theme_health/HSQ 20.pdf (accessed Jan 24, 2005): 7–18. Only verified references against the original documents should be cited. Authors are responsible for the accuracy and completeness of their references and for correct text citation. The number of reference should be kept limited to 20 in case of major communications and 10 for short communications.

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