A Pre-Experimental Study to Assess the Effectiveness of Structured Teaching Programme on the Level of Knowledge Regarding Awareness about COVID-19 and Acceptance of COVID-19 Vaccine among Adults in District Hospital, Muzaffarnagar, Uttar Pradesh.

Ram Deshwal

Department of Bachelor of Nursing, Muzaffarnagar Nursing Institute, Chaudhary Charan Singh University

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ABSTRACT

A pre-experimental study was conducted to evaluate the effectiveness of a structured teaching programmed on knowledge and acceptance of the COVID-19 vaccine among adults at District Hospital, Muzaffarnagar, Uttar Pradesh. The results showed a significant increase in knowledge and positive attitude toward vaccination post-intervention, indicating that structured education plays a crucial role in improving awareness and vaccine acceptance".

Keywords – COVID-19, Vaccine, Knowledge, Awareness, Structured teaching programmed.

INTRODUCTION

Coronavirus infection 2019 (COVID-19), a severe acute respiratory condition brought on by a new strain of the coronavirus. A developing pandemic known as the coronavirus (SARS-CoV-2) was first reported in December 2019 from Wuhan, China.

Coronavirus disease 2019 (COVID-19), caused by the novel SARS-CoV-2, was declared a pandemic on March,12,2020, and to date has infected over 700 million people worldwide including over 6 million deaths, reported to WHO.

According to WHO, the elderly persons, children and those with underlying medical problems like cardiac disorders, diabetes, respiratory problems, tumors and cancer are more likely prone to this deadly virus. It can transmit by droplets. However, the corona affected patient with good immune health and having the access to medical facilities will experience mild to moderate effect of the virus and have more than 75% chance to get well, for our safety we should take hand sanitizer with when we go to get household essentials.

Coronavirus illness (COVID-19) is really an infectious disease caused by a recently discovered coronavirus. The majority of COVID-19 virus-infected individuals will develop mild to severe respiratory disease and recover without the need for special care. The elderly and individuals who have underlying medical diseases such as cancer, diabetes, lung disease, and cardiovascular disease are more prone to have serious illnesses.

The global emergence of the COVID-19 pandemic has not instigated profound health crises but has also significantly challenged societal norms, healthcare systems, and public health measures worldwide. Amidst this unprecedented health emergency, the importance of disseminating accurate information and fostering understanding about the virus, its transmission, preventive measures, and potential complications has become imperative. Consequently, structured educational programmed have emerged as crucial tools in empowering communities to combat the spread if the virus and mitigate its adverse impacts.

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MATERIALS AND METHODS

Methodology - The methodology of research indicates the general patterns of organizing the procedure for gathering valid and valuable data for the purpose of investigation. The methodology of this study includes the research approach, research design, setting of the study, population sample and sampling technique, development of tool, data collection procedure and plan for data analysis.

Research Design - Research design refers to the researcher's overall plan for obtaining answer to the research questions and it spells out the strategies that the research depots to develop information that is adequate, objective and interpretable.

The research design used for this study was

Pre-experimental.

One group pre-test – post-test design.

Research Approach - Research approach is an applied form of research that involves finding out, how well a program, practice, procedure or policies are working. Its goals is to assess or evaluate the success of a program.

Quantitative and evaluative approach will be used in this study. It is to evaluate the effectiveness of structured teaching programmed and assess the level of knowledge about COVID-19.

Setting of the study - The study will be conducted in District Hospital, Muzaffarnagar, Uttar Pradesh.

Population - Population refers to the aggregate or totally of those confronting to set of specification. The population of this study will be the adults come for OPD in District Hospital ofMuzaffarnagar, Uttar Pradesh.

Sampling and Sampling techniques

Sample - Sampling refers to the process of selecting the portion of population to represent the entire population. The sample consists of patients who met inclusion criteria, coming for OPD in District Hospital of Muzaffarnagar, Uttar Pradesh.

Sample size - Sample is subset of the population selected for a particular study and the number ofsamples is the size.

The sample size is 60.

Sampling Techniques - Sampling technique refers to the process of selecting a portion of the population to represent the entire population.

Convenient sampling technique is non-probability sampling method where units are selected for inclusion in the sample because they are the easiest for the research to access.

Convenient sampling technique used to select the subjects for the study.Sampling Criteria: -

Inclusive Criteria

People above 15 years of age.

People who can clearly hear and speak and understand also.

People who are willing to participate in the study.

People those who are available at the time of data collection.

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Exclusive Criteria

People who are not willing to participate.

People who belong to medical faculty.

People below 15 years and above 60 years of age.

People who are not able to hear and speak clearly.

People who are mentally retarded.

Developments of tools

The following tools used for the present study are –

A tool to assess the demographic variables.

A tool to assess the knowledge regarding COVID-19.

Steps used for preparing tools:

Review of related literature: - The literature from nursing books, journals, reports and articles is referred to prepare the tools.

Preparation of tool: - Questionnaire was formed to assess the demographic variables and the knowledgeregarding COVID-19 and acceptance of COVID-19 vaccine.

Description of the tool

The tool consists of three sections.

First section - Consists of demographic data of the sample.

Age, Sex, Education, Occupation, Religion, Income, Marital status, Source of information.

Second section - Consists of self-administered questionnaire of 25 questions to assess the knowledge ofCOVID-19.

Scoring of "1" will be given for every "CORRECT" answer and a score of "0" will be given for every "WRONG" answer. The maximum score will be 25 for 25 items.

Score Range

Poor-below 10Average-11 – 14

Good–15 - 18

Very Good –19 – 22 Excellent –above 22

Third section - Consists of descriptive details about the acceptance of COVID-19 vaccine, if not taken, reason for this.

Validity: - The content validity of the tool was consulted with experts and guides. The tool was modified as per the expert's suggestions and their recommendations.

Reliability: - Reliability of the tool is tested, by implementing the tool on 8 adults at the selected area. Test re-

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test method will be used to test the reliability of the tool.

Pilot Study: - In this study, 8 samples are used by getting prior permission. A convenient sampling technique will be used to select the sample. The data analysis will be done by using descriptive and inferential statistics.

Data collection procedure: - The investigators conducted pre-test by personally handling over the self-structured knowledge questionnaire to the subjects. Average time spent by the subjects for completing pre-test was approximately 10-15 minutes. After the pre-test, investigators provide a structured teaching programmed to adults then post-test was administered with same questionnaire to the same group on the same day.

Plan for data analysis: - The too is analyzed by using descriptive and inferential statistics and in the form oftables and figures.

Ethical Considerations: - Prior to data collection, the permission was obtained from the Chief Medical Superintendent of District Hospital, Muzaffarnagar and an oral consent was obtained from the samples. Confidentiality will be maintained.

Data analysis and interpretation: - Analysis is the method of organizing data in such a way that the research question can be answered. Interpretation is the process of making sense of the result and of examining the implication of the finding with in broader context.

Presentation of data

The presentation of data consists six sections are -

Section – 1: - This part deals with frequency and percentage distribution of the adults based on theirdemographic variables.

Section – 2: - This part deals with frequency and percentage distribution on the pre-test knowledge score of adults regarding COVID-19 and calculation of mean and standard deviation according to obtained data.

Section – 3: - This part deals with frequency and percentage distribution on post-test knowledge score of adults regarding COVID-19 and calculation of mean and standard deviation according to the obtained data.

Section – 4: - This part is associated with description on the effectiveness of structured teaching programmed by comparing the pre-test and post-test score on knowledge regarding COVID-19 in District Hospital, Muzaffarnagar, Uttar Pradesh.

Section – 5: - This part deals with the association of knowledge score regarding COVID-19 among adults with their demographic variables.

Section – 6: - This part deals with the percentage of acceptance and non-acceptance of COVID-19 vaccineamong adults.

Section – 1: Frequency and Percentage distribution of the adults based on their demographic variables.

Sr. No.	Demographic Variables	Frequency	Percentage %
1.	Age		
	15 – 30 years	19	31.6%
	31 – 45 years	27	45%
	46 – 60 years	14	23.3%

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2.	GENDER		
	Male	39	65%
	Female	21	35%
3.	EDUCATION		
	Illiterate	7	11.6%
	10th Pass	11	18.3%
	12th Pass	29	48.3%
	Graduate	13	21.6%
4.	RELIGION		
	Hindu	26	43%
	Muslim	24	40%
	Others	10	17%
5.	TYPE OF FAMILY		
	Nuclear	41	68.3%
	Joint	19	31.6%
6.	OCCUPATION		
	Unemployed	16	26.6%
	Self- employed	19	31.6%
	Daily Wages	8	13.3%
	Private Job	11	18.3%
	Government	6	10%
7.	INCOME (Monthly)		
	Below 5,000	18	30%
	5,001-10,000	9	15%
	10,001-20,000	16	26.6%
	Above 20,000	17	28.3%
8.	RESIDENCE		
	Urban	23	38.3%

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	Rural	37	61.6%
9.	MARITAL STATUS		
	Married	37	61.6%
	Un-married	15	25%
	Divorced	5	8.3%
	Widowed	3	5%
10.	SOURCE OF INFORMATION		
	Internet	21	35%
	Books	5	8%
	Friends	7	11.6%
	Mass Media	25	41.6%
	Teachers	2	3.3%

This illustrate that the distribution of demographic variables of 60 adults, which includes, 19 (31%) were between the age group of 15 to 30 years, 27 (45%) adults were between the age group of 31 to 45 years, and 14(23.3%) adults were between the age group of 46 to 60 years.

Regarding gender of the adults, majority 39 (65%) of adults were male and others adults 21 (35%) were female. Regarding educations status of adults, 7 (11.6%) adults were illiterate, 11 (18.3%) adults were 10^{th} pass, 29 (48.3%) adults were 12^{th} pass and 13 (21.6%) adults were graduates. Regarding residence of adults, 23 (38.3%) adults were from rural area and 37 (61.6%) adults were from urban area. Regarding religion of adult, 26 (43%) adults were Hindu and 24 (40%) adults were Muslim and 10 (16.6%) adults were belonging to other religion.

Regarding type of family of adults, majority 41 (68.3%) adults were from nuclear family and 19 (31.65) adults were from joint family. Regarding occupation of adults, 16 (26.6%) adults were employed, 19 (31.6%) adults were self-employed, 8 (13.3%) adults were daily wages, 11 (18.3%) adults were working in private sector and 6 (10%) adults were working in government sector. Regarding monthly income of adults, 18 (30%) adults were having less than Rs. 5000/-, 9 (15%) adults were having Rs. 5001-10,000/-, 16 (26.6%) were having Rs. 10,001-20,000/- and 17 (28.3%) adults were having above 20,000 monthly incomes. Regarding marital status, majority 37 (61.6%) adults were married, 15 (25%) adults were un-married, 5 (8.3%) adults were divorced and 3 (5%) adults were widowed. Considering the source of information regarding COVID-19 in the adults, 21 (35%) adults got information from internet, 5 (8%) adults got information form books, 7 (11.6%) adults got information from friends, 25 (41.6%) adults got information from mass media and 2 (3.3%) adults were received information from teachers.

Section – 2: - Frequency and Percentage distribution on the pre-test knowledge score of adults regardingCOVID-19.

Score Level (N = 60)	Pre-test (F & %)	Mean Score	Standard Deviation
Poor (below 10)	10 (16.67%)		
Average (11-14)	31 (51.67%)		

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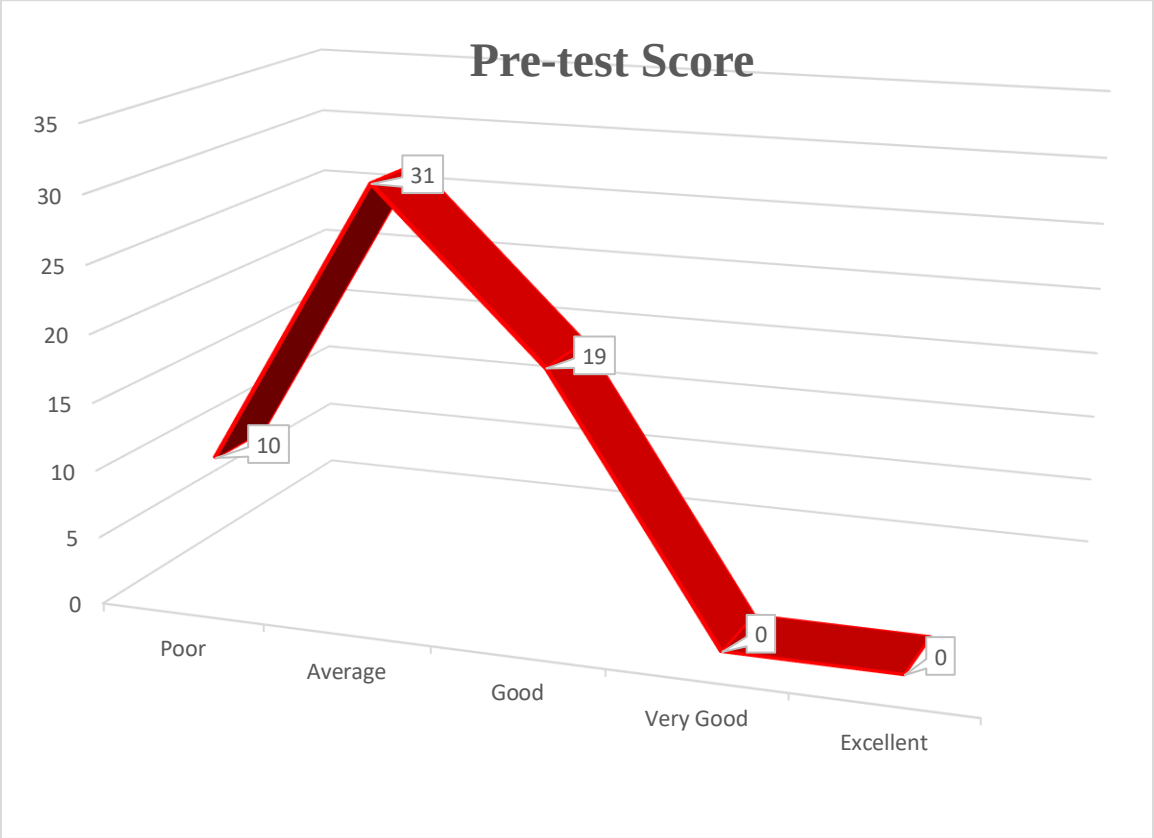
Good (15-18)	19 (31.67%)	12.95	3.21
Very Good (19-22)	0		
Excellent (above 22)	0		

The finding shows that, in pre-test 10 (16.67%) adults had poor level of knowledge, majority 31 (51.67%) adults had average level of knowledge and 19 (31.67%) adults had good level of knowledge while none of them came in very good and excellent level of knowledge.



Section – 3: - Frequency and Percentage distribution on post-test knowledge score of adults regarding COVID-19.

Score Level (N=60)	Post-test (F & %)	Mean Score	Standard Deviation
Poor (below 10)	0		
Average (11-14)	0		
Good (15-18)	28 (46.67%)	19.05	2.49
Very Good (19-22)	29 (48.33%)		
Excellent (above 22)	3 (5%)		

The finding shows that, in post-test 28 (46.67%), adults had good level of knowledge, majority 29 (48.33%) adults had very good level if knowledge and 3 (5%) adults had excellent level of knowledge while none of them came in poor and average level of knowledge.

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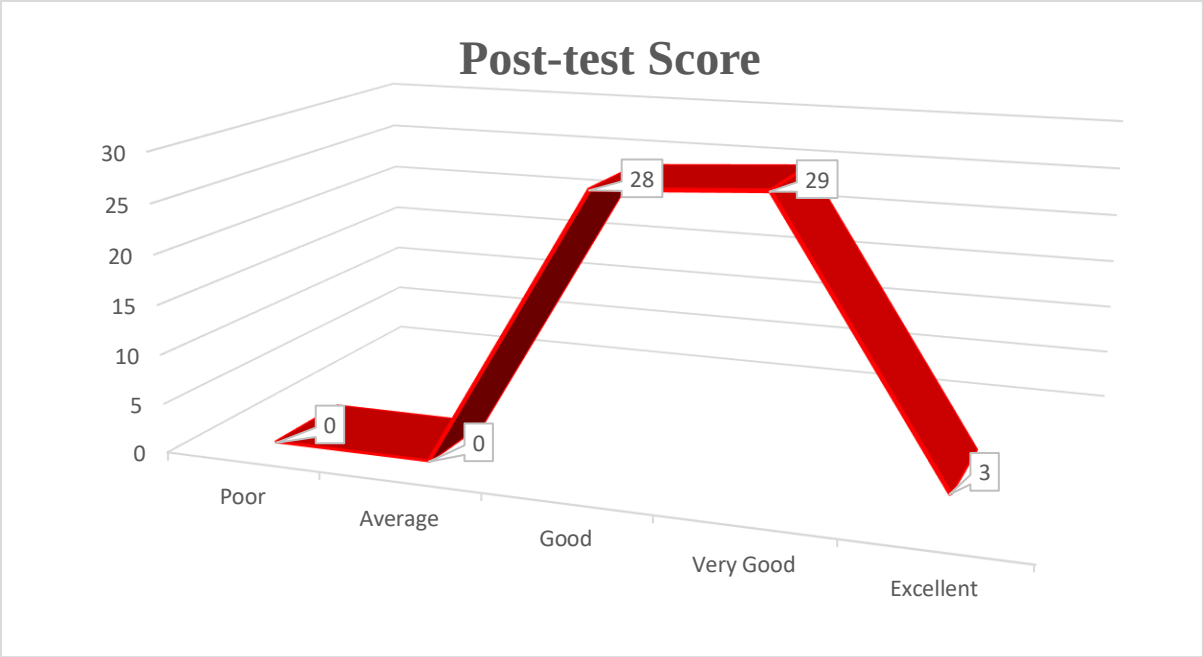
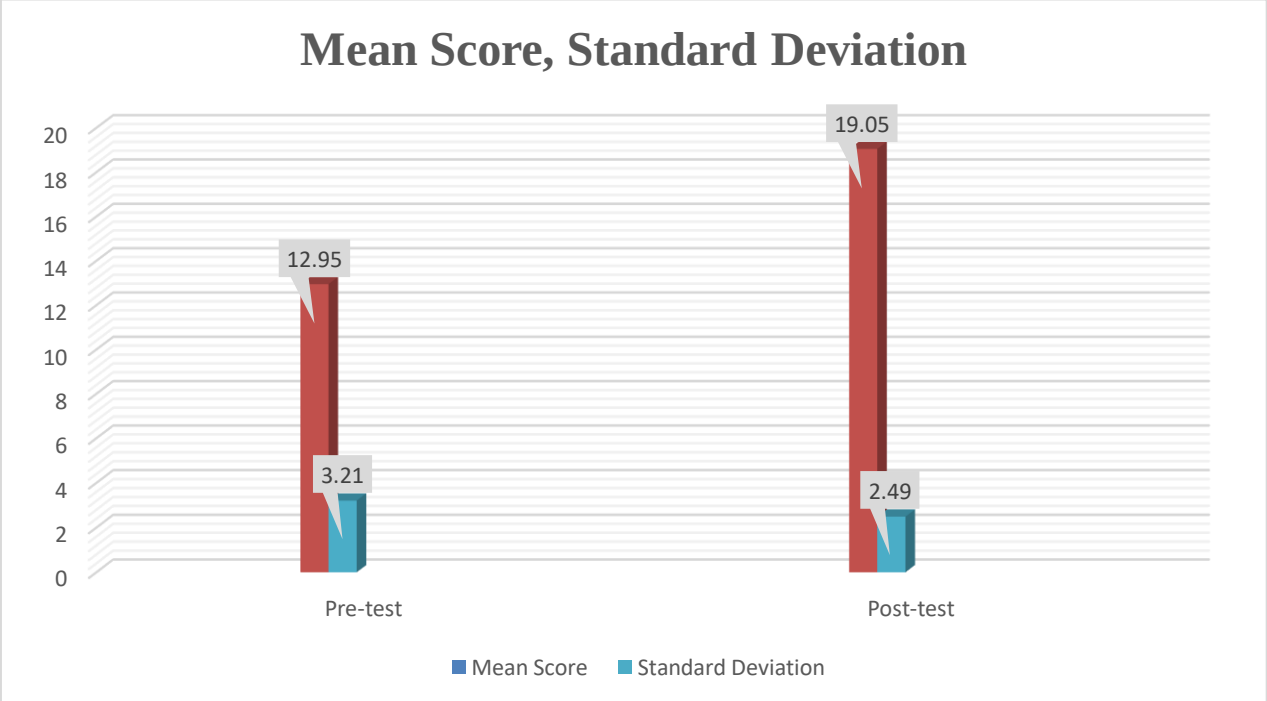


Section – 4: - Description on the effectiveness of structured teaching programmed on knowledge regarding COVID-19 in District Hospital, Muzaffarnagar, Uttar Pradesh.

Assessment	Mean score	Standard Deviation	Performance Percentage	Mean Difference	Paired "t" value
Pre-test Knowledge	12.95	3.21	51.8%	7.90	10.78
Post-test knowledge	19.05	2.49	76.2%		

When compare the pre-test total mean score value of 12.95 with standard deviation of 3.21, to post-test total mean score value of 19.05 with standard deviation of 2.49. The mean difference between the pre-test and post-test value is 7.90. At the 0.05 level of significance, the estimated "t" value is 10.78. As a result, H1 is approved.



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Section – 5: - Description on the association of knowledge score regarding COVID-19 among adults with their demographic variables.

	Demographic	**Pre – Test**					
Sr. No.	**Variables**	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**	**Chi-Square Value**
1.	Age (in years)						9.791
	15-30	3	10	6	0	0	
	30-45	2	12	13	0	0	
	45-60	5	9	0	0	0	
2.	Gender						0.5631
	Male	6	19	14	0	0	
	Female	4	12	5	0	0	
3.	Education						1.039
	Illiterate	3	4	0	0	0	
	10^{th}	2	5	4	0	0	
	12^{th}	3	19	7	0	0	
	Graduate	2	3	8	0	0	
4.	Residence						5.792
	Rural	6	14	3	0	0	
	Urban	4	17	16	0	0	
5.	Religion						10.135
	Hindu	5	11	10	0	0	
	Muslim	4	11	9	0	0	
	Others	1	9	0	0	0	
6.	Type of family						1.461
	Nuclear	7	23	11	0	0	
	Joint	3	8	8	0	0	
7.	Occupation						

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	Unemployed	3	9	4	0	0	21.195
	Self-employed	2	12	5	0	0	
	Daily wages	5	3	0	0	0	
	Private	0	5	6	0	0	
	Government	0	2	4	0	0	
8.	Income						8.5
	Below 5,000	4	11	3	0	0	
	5000-10,000	1	4	4	0	0	
	10,000-20,000	2	11	3	0	0	
	Above 20,000	3	5	9	0	0	
9.	Marital Status						11.869
	Married	7	14	16	0	0	
	Unmarried	3	12	0	0	0	
	Divorced	0	3	2	0	0	
	Widowed	0	2	1	0	0	
10.	Source of information						8.407
	Internet	5	11	5	0	0	
	Books	0	4	1	0	0	
	Friends	2	3	2	0	0	
	Mass media	3	13	9	0	0	
	Teachers	0	0	2	0	0	

Sr. No.	**Demographic Variables**	**Post – Test**					
		Poor	**Average**	**Good**	**VeryGood**	**Excellent**	**Chi-SquareValue**
1.	Age (in years)						10.107
	15-30	0	0	9	7	3	
	30-45	0	0	10	17	0	

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	45-60	0	0	9	5	0	
2.	Gender						0.016
	Male	0	0	21	17	1	
	Female	0	0	7	12	2	
3.	Education						14.213
	Illiterate	0	0	5	2	0	
	10^{th}	0	0	6	5	0	
	12^{th}	0	0	14	15	0	
	Graduate	0	0	3	7	3	
4.	Residence						16.432
	Rural	0	0	18	4	1	
	Urban	0	0	10	25	2	
5.	Religion						4.194
	Hindu	0	0	11	12	3	
	Muslim	0	0	12	12	0	
	Others	0	0	5	5	0	
6.	Type of family						2.366
	Nuclear	0	0	17	21	3	
	Joint	0	0	11	8	0	
7.	Occupation						14.315
	Unemployed	0	0	7	9	0	
	Self-employed	0	0	10	9	0	
	Daily wages	0	0	5	3	0	
	Private	0	0	5	5	1	
	Government	0	0	1	3	2	
8.	Income						5.242
	Below 5,000	0	0	10	8	0	
	5000-10,000	0	0	2	7	0	

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	10,000-20,000	0	0	7	8	1	
	Above 20,000	0	0	9	6	2	
9.	Marital Status						4.702
	Married	0	0	15	19	3	
	Unmarried	0	0	8	7	0	
	Divorced	0	0	4	1	0	
	Widowed	0	0	1	2	0	
10.	Source of information						7.766
	Internet	0	0	9	10	2	
	Books	0	0	2	2	1	
	Friends	0	0	5	2	0	
	Mass media	0	0	12	13	0	
	Teachers	0	0	0	2	0	

The demographic data shows that there was no significant association between the selected demographic variable of age (chi- square value in pre-test is 9.791 and in post-test is 10.107); gender (chi-square value in pre-test is 0.563 and in post-test is 5.385); education (chi-square value in pre-test is 1.039 and in post-test is 14.213); residence (chi square value in pre-test is 5.729 and post-test is 16.432); religion (chi-square value in pre-test is

10.135 and in post-test is 4.139); type of family (chi-square value in pre-test is 1.461 and in post-test is 2.366); occupation (chi-square value in pre-test is 21.195 and in post-test is 14.315); Income (chi-square value in pre-test is 8.5 and in post-test is 5.242); marital status (chi-square value in pre-test is 11.869 and in post-test is 4.702); source of information (chi-square value in pre-test is 8.407 and in post-test is 7.766).

Section – 6: - The percentage of acceptance and non-acceptance of COVID-19 vaccine among adults.

Condition	**Frequency**	**Percentage %**
Vaccinated	51	85%
Un-vaccinated	7	15%

The study reveals that majority 51 (85%) adults were vaccinated and left 7 (15%) were Un-vaccinated.Result: -

Finding of the study: -

To assess the level of knowledge about COVID-19 among adults in District Hospital, Muzaffarnagar, Uttar Pradesh.

The result for this objective was-

Pre-test reveals that 10 (16.67%) having poor level of knowledge, majority 31 (51.67%) adults had average level of knowledge and 19 (31.67%) adults had good level of knowledge while none of them came in very good and

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excellent level of knowledge.

The post-test reveals that 28 (46.67%), adults had good level of knowledge, majority 29 (48.33%) adults had very good level if knowledge and 3 (5%) adults had excellent level of knowledge while none of them came in poor and average level of knowledge.

To determine the effectiveness of structured teaching programmed by comparing pre-test and post-testknowledge score.

The result for this objective was-

When compare the pre-test total mean score value of 12.95 with standard deviation of 3.21, to post-test total mean score value of 19.05 with standard deviation of 2.49. The mean difference between the pre-test and post-test value is 7.90. At the 0.05 level of significance, the estimated "t" value is 10.78.

To assess the acceptance of COVID-19 vaccine among adults.

The study reveals that majority 51 (85%) adults were vaccinated and left 7 (15%) were un-vaccinated.

To associate the level of knowledge regarding COVID-19 among adults with their selected demographic variables.

The demographic data shows that there was no significant association between the selected demographic variable of age (chi- square value in pre-test is 9.791 and in post-test is 10.107); gender (chi-square value in pre-test is 0.563 and in post-test is 5.385); education (chi-square value in pre-test is 1.039 and in post-test is 14.213); residence (chi square value in pre-test is 5.729 and post-test is 16.432); religion (chi-square value in pre-test is

10.135 and in post-test is 4.139); type of family (chi-square value in pre-test is 1.461 and in post-test is 2.366); occupation (chi-square value in pre-test is 21.195 and in post-test is 14.315); Income (chi-square value in pre-test is 8.5 and in post-test is 5.242); marital status (chi-square value in pre-test is 11.869 and in post-test is 4.702); source of information (chi-square value in pre-test is 8.407 and in post-test is 7.766).

Objectives of the study

To assess the level of knowledge related to COVID-19 among adults.

To determine the effectiveness of structured teaching program.

To assess the degree of acceptance of COVID-19 vaccine among adults.

To associate the level of knowledge regarding COVID-19 among adults with their selected demographic variables.

Method of study

A pre-experimental study was conducted to determine the level of knowledge regarding awareness aboutCOVID-19 among adults in District Hospital of Muzaffarnagar.

The research design was one-group pre-test and post-test pre-experimental design.The sample size was 60.

Non-probability convenient sampling technique was used to select the sample.

The aim of the study was to determine the level of knowledge regarding awareness about COVID-19 among adults in District Hospital of Muzaffarnagar, Uttar Pradesh.

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RESULT

Finding –1: Pre-test reveals that 10 (16.67%) having poor level of knowledge, 31 (51.6%) having average level of knowledge and 19 (31.67%) having good level of knowledge while none of them came in very good and excellent level of knowledge.

Post-test reveals that 28 (46.67%) having good level of knowledge, 29 (48.33%) having very good level of knowledge and 3 (5%) having excellent level of knowledge while none of them came in poor and average level of knowledge.

Finding – 2: Pre-test mean level of knowledge score was 12.95 with the standard deviation of 3.21 and Post-test mean level of knowledge score was 19.05 with the standard deviation of 2.49. The mean difference between the pre-test and post-test value was 7.90.

With this we are able to say that our structured teaching programmed is effective for increasing the level of knowledge among adults.

Finding – 3: Association of the demographic variables with the level of knowledge among adults. The demographic data shows that there was no significant association between the selected demographic variable of age (chi- square value in pre-test is 9.791 and in post-test is 10.107); gender (chi-square value in pre-test is

0.563 and in post-test is 5.385); education (chi-square value in pre-test is 1.039 and in post-test is 14.213); residence (chi square value in pre-test is 5.729 and post-test is 16.432); religion (chi-square value in pre-test is

10.135 and in post-test is 4.139); type of family (chi-square value in pre-test is 1.461 and in post-test is 2.366); occupation (chi-square value in pre-test is 21.195 and in post-test is 14.315); Income (chi-square value in pre-test is 8.5 and in post-test is 5.242); marital status (chi-square value in pre-test is 11.869 and in post-test is 4.702); source of information (chi-square value in pre-test is 8.407 and in post-test is 7.766).

Finding – 4: The study reveals that majority 51 (85%) adults were vaccinated and left 7 (15%) were un-vaccinated.

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