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A study to asses the effectiveness of structured teaching programme on knowledge and skill regarding emergency management of patients with organophosphate poisoning among staff nurses working in Shri Maharaja HariSingh hospital of Kashmir

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I. METHODOLOGY

Research methodology refers to the steps that are taken to obtain the data that is valid & reliable .The methodology of research depend upon the type of the study & is carefully choosen by the researcher after critical scrutiny of the problem at hand .The appropriateness of the methodology is extremely important for the data to be reliable & valid .[53]

This chapter deals with the methodology adapted by the researcher to address the proposed research problem .It presents the research approach, research design ,setting variable under study ,population ,sample ,sampling technique ,development, description & implementation of the tool & intervention, pilot study, data collection procedure used and the plan for data analysis.

The present study aims "to assess the effectiveness of structured teaching programme on knowledge and skill regarding emergency management of Organophosphate poisoning patients among the staff nurses working in Sheri-Maharaja-Hari-Singh hospital of Kashmir".

Research Approach

According to **Sharma Suresh K (2011)**, the research approach is the description of the plan to investigate the phenomenon under study. The approach of the study depends upon the several factors, especially on the nature of the phenomenon under study. The research approach has to be carefully selected by the researcher depending on the objectives of the study.[14]

In view of the nature of the problem selected under study and to accomplish the objectives of the study, quantitative pre – experimental approach was found to be appropriate to assess the effectiveness of Structured Teaching Programme on knowledge and skill regarding emergency management of patients with organophosphate poisoning among staff nurses in Shri-Maharaja-Hari Singh Hospital of Kashmir .

Quantitative research is a formal, objective, systematic process of generating information. In quantitative research study, variables are preselected and defined by investigator; data is collected and analyzed statically.[54]

Research design

The research design is the plan, structure and strategy of investigation for answering the research question. It is the overall plan or blue print, the researcher select to carry out their study.

The term research design refers to the plan or organization of a scientific investigation. Research design helps the researcher in selection of subjects, manipulation of experimental variables, control of extraneous variables, procedure of data collection and the type of statistical analysis to be used to interpret the data.[14]

Pre Experimental one group pre-test post-test design was selected as the research design for the present study. The primary objective of study was to find the effectiveness of structured teaching programme. In the present study a structured questionnaire & checklist was administered to staff nurses working in SMHS on day 1 as a pre test measure and intervention was given in the form of structured teaching programme on knowledge and skill regarding emergency management of patients with organophosphate poisoning. Post-test was conducted on day 6 after giving intervention.

The design chosen for the study is presented in the fig-2 as follows

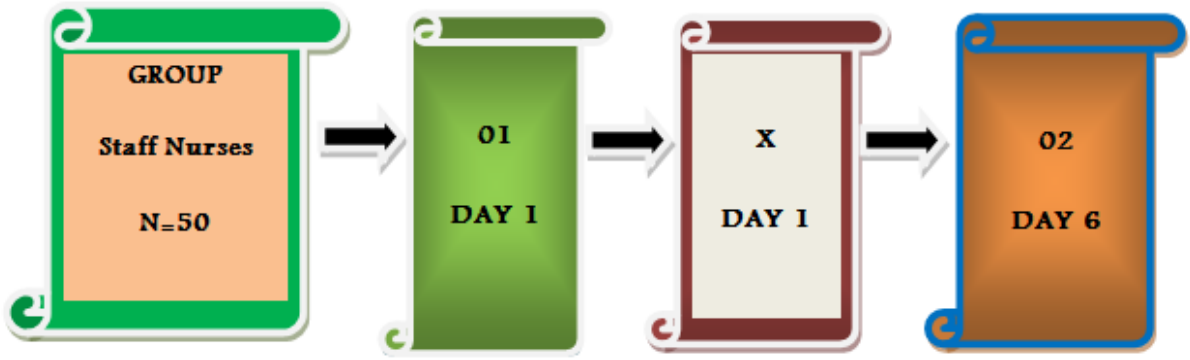

Figure 2: Schematic representation of Research design

Key:

0_1**:** pre test

- On knowledge with structured questionnaire regarding emergency management of patients with organo-phosphate poisoning.
- Of skill with observational checklist regarding Atropinisation.

X**:**

- Implementation of Structured teaching programme on emergency management of organophosphate poisoning.
- Demonstration on atropinisation on emergency management of OP poisoning .

0_2**:** post-test

- On knowledge with structured questionnaire regarding emergency management of organophosphate poisoning.
- Of skill with observational checklist regarding atropinisation.

Variables under investigation

A variable is a phenomena or characteristic or attribute under a study. Variables are the measurable characteristics of a concept and consist of a logical group of attributes.

Three types of attributes were identified in the study. They are independent variable, dependent and demographic variable.

Independent Variable:

According to Treece and Treece (1988) the independent variable is the one variable that stands alone and not dependent on any other. It is the cause of the action.[55]

In present study it refers to the structured teaching programme on knowledge and skill regarding emergency management of patients with organophosphate poisoning.

Dependent Variable:

Dependent variables are the effect of the independent variable and cannot exist by itself (Treece and Treece 1988).[55]

In the present study it refers to the knowledge gain and skill gain of staff nurses regarding emergency management of patients with organophosphate poisoning.

Demographic Variables:

Demographic variables selected for this study are gender, professional qualification, place of posting and years of experience.

Research Setting

The setting is the physical location and conditions in which data collection takes place based on the nature of the research question and the type of information needed to address it. This study was conducted in SMHS Hospital. The setting was selected for the study on the basis of feasibility of conducting study and the availability of the sample.

Study Population

A population is the entire aggregation of cases in which a researcher is interested. Population is a set of people or entities to which the results of a research are to be generalized**.**[55]

In the present study the population consists of all staff nurses working in SMHS Hospital during the period of data collection w.e.f 06-3-17 to15-4-17.

Sample and sampling technique

Sample & sample size A sample is a subset or portion of the population that has been selected to represent the population of interest.[56]

The present study was conducted among 50 staff nurses working in SMHS Hospital Srinagar.

Sampling Technique: Sampling is a process of selecting a group of people, events or position of the population to represent the entire population. [56] Sampling is a process of selecting a portion of the population to represent the entire population .[57]

Non-probability purposive sampling technique was used to select 50 staff nurses working in SMHS Hospital as the sample for the present study. The Investigator selected three wards of SMHS Hospital i.e. emergency ward, medical ward and surgical ward as per feasibility of conducting the study. Sample of 50 staff nurses were selected, 20 from emergency ward, , 15 from medical ward and 15 from surgical ward.

Criteria for selecting the sample

Inclusion criteria

The following criteria was set for selection of the sample:

a) Staff nurses who were working in emergency ward, medical ward and surgical ward of SMHS hospital.
b) Willing to participate in the study.
c) Available during data collection period.
d) Staff nurses who were registered and professionally qualified (i.e having GNM, B.sc nursing, Post basic).

Exclusion criteria

The staff nurses who were:

a) Working in areas other than emergency ward ,medical ward ,and surgical ward
b) Not willing to participate in the study.
c) Not available during data collection period.
d) Not meeting the eligibility criteria.

Data collection tool & technique:

An instrument is a device or technique that researcher uses to collect a data .The most important & crucial aspect of an investigation is the collection of appropriate information which provides necessary data for the study [14].in the present study data collection tool used was structured knowledge questionnaire & checklist for assessing the knowledge and skill regarding emergency management of organophosphate poisoning .

Development of tool

The main strengths behind development of the tool were:

- **Review of research and non-research materials** in the areas relevant to organophosphate poisoning.
- **Preparation of blue print.**
- **Experts' opinion and suggestions** were taken from the field of nursing and medicine in determining the important areas to be included.
- **Discussion with colleagues and personal experience in clinical settings, books**
- **Reliability testing of tool.**
- **Modification of tool based on suggestions.**

The data collection tool was divided into following parts

Part I: This part of the tool comprises of questions related to demographic variables and it consists of 4 items – Gender, professional qualification, place of posting and years of experience.

Part II: This part of tool is comprised of 4 sections. It Includes 30 knowledge questions of which 5 items were related to definition, physiology and Pathophysiology, 2 items regarding incidence, 3 items regarding signs and symptoms, 20 items regarding management of organophosphate poisoning.

Part III: This part of tool comprises of 10 steps related to atropinization.

Development of Structured Teaching Programme

Structured Teaching Programme was developed based on the topic under study; review of related research publications, non- research literature and also under the opinion of experts. The following steps were adopted to develop the Structured Teaching Programme (STP) on knowledge and skill regarding emergency management of patients with organophosphate poisoning in Shri-Maharaja-Hari Singh Hospital of Kashmir, the steps involved in the development of Structured Teaching Programme (STP) were:

- Preparation of first draft of Structured Teaching Programme.
- Content validity of Structured Teaching Programme.

- Preparation of final draft of Structured Teaching Programme.

Description of structured teaching programme

Structured teaching programme was prepared to enhance the knowledge of staff nurses regarding emergency management of organophosphate poisoning which consist of the following content.

- Introduction , definition of organophosphate & organophosphate poison.
- Types of poisoning
- Physiology of normal muscle contraction.
- Pathophysiology due to organophosphate poisoning.
- Clinical manifestation
- Diagnosis
- Management which includes pharmacological intervention like atropine therapy,2PAM,Activated charcoal & non – pharmacological intervention like gastric lavage, decontamination & psychiatric counselling

Preparation of the blueprint

- A blueprint on knowledge questionnaire regarding emergency management of organophosphate poisoning was prepared consisting of four sub-areas that include (1) definition, physiology and Pathophysiology, (2) incidence, (3)signs & symptoms, (4) management.
- The investigator prepared a blue print on skill before constructing the observational checklist. The observational checklist includes 10 items . It depicted the distribution of items according to the content areas based on three domains: knowledge, comprehension and application.

Content validity of tool and intervention:

Validity refers to the degree to which an instrument measures what it is supposed to measure.[32] the tool was given to twelve experts along with the criteria rating scale for establishing the content validity. Among these 10 experts, 8 were nursing experts from MMINSR, 1 nursing expert from nursing administration & 1 expert from critical care side SKIMS. The experts were requested to give their opinion and suggestions regarding the relevance, adequacy and appropriateness of items included to achieve the purpose of the study. Based on their suggestions and recommendations the structured questionnaire and observational checklist was modified.(annexure IV)

Development of the final draft the tool.

The final tool so developed comprised of 3 parts

Part I: This part of the tool comprises of questions related to demographic variables and it consists of 4 items – Gender, professional qualification, place of posting and years of experience.

Part II: This part of tool comprises of 4 sections. It Includes 30 knowledge questions of which 5 items were related to definition, physiology and Pathophysiology, 2 items regarding incidence, 3 items regarding signs and symptoms, 20 items regarding management of organophosphate poisoning.

Part III: This part of tool comprises of 10 steps related to atropinization.

Table .1 Description of Tool

Sections	Parts	Items related to	No. of itiems
1	Demographic variable	Gender Professional qualification Place of posting Years of experience	1 1 1 1
2	Itiems related to	definition, physiology and Pathophysiology, incidence signs & symptoms Management.	5 2 3 20
3	Checklist	Observation check list for observing skill regarding atropinization	10

Scoring criteria:

Scoring key is prepared for part I by coding demographic variables & part II knowledge regarding emergency management of organophosphate poisoning was measured in terms of knowledge score. Each correct answer was given a score of one mark (1) and wrong answer or unanswered was given a score of zero (0), the scores were summed up and the total score was divided by the number of the items (30), giving a mean score for

each step. The mean score was converted into a percent score by multiplying it by 100. The maximum score was 30. To interpret level of knowledge the scores were distributed into different levels.(Annexure XIV)
Maximum score =30 Minimum sore =0

For part III a score of 1 was assigned for each correct step and a score of 0 was given for each incorrect step for each, the scores were summed up and the total score was divided by the number of the items (10), giving a mean score for each step. The mean score was converted into a percent score by multiplying it by 100.(Annexure XV)

Reliability of the tool (Test -Retest method)

Reliability means the degree of consistency or accuracy with which an instrument measures the attribute it is designed to measure.[13]

The tool after validation was tested for reliability by using test retest method.The reliability of the tool was determined by administering it to 5% of the sample size i.e.3 staff nurses working in emergency ward, medical ward and surgical ward of SMHS Hospital of Kashmir. In order to establish reliability of the tool, Correlation of the test re-test was found by using Karl Pearson correlation coefficient formula and reliability co-efficient of the whole test was established by formula and the reliability computed was 'r' =0.99 and the questionnaire was found to be reliable. The interrater reliability of checklist was determined by administering checklist to 2 staff nurses working in emergency ward, of SMHS Hospital of Kashmir. The skill was obtained from 2 staff nurses by two different observers. The two scores obtained at two different occasions were compared and calculated by using interrater reliability .The interrater reliability computed was r=0.85 & the checklist was found to be reliable.

Pre-testing of tool / tool try out:

Pre-testing of the structured knowledge questionnaire & checklist was done to check the clarity of items, their feasibility and practicability. Tool try out was carried out from 26-02-17 to 28-02-17. The prepared questionnaire was administered to 3 staff nurses. The sample chosen were similar in characteristics to those of the population under study.

The investigator found that the language of tool was simple and practicable, the average time taken to complete the questionnaire & checklist for each sample was 45 minutes & 15minutes respectively .

Pilot study

Pilot study is a small scale version of the proposed study conducted to refine the methodology. It is conducted similar to the proposed study, using similar subjects, the similar setting, the same treatment, the same data collection and the same analysis technique.[58]

The pilot study was conducted in SMHS Hospital, Srinagar from 1.3.2017 to 6.3.2017 to find the feasibility of the study. 3 staff nurses were selected using purposive sampling technique. The subjects for the pilot study possessed the same characteristics as that of the sample for the final study, but were not included in the main study. Prior to the study permission was obtained from the concerned authority. The selected subjects were informed of the purpose of the study and consent was obtained.

1**).** **Conduction of Pre-test** : The researcher selected the subjects who were fulfilling the inclusion criteria. After taking the informed consent ,the data was collected individually from the subjects through 30 itiemed structured knowledge questionnaire and 10 itiemed checklist .The data was collected in the nurses room at casuality ward where the knowledge questionnaire adminstered to 3 staff nurses jointly in the morning for the period of 40- 45 minutes as & shown in the table and observational checklist was used to assess the pre-test skill regarding by using the observation checklist on atropinization for 15-20 min. Same procedure was repeated for other subjects selected .

2). **Intervention** (Structured teaching programme) was carried out with the help of power point slides. It took about (40- 45) minutes to give structured teaching programme on knowledge regarding emergency management of patients with organophosphate poisoning and it took about (15) minutes to give the demonstration on the skill ,doubts and confusions were cleared.

3). **Post test** was carried on 6th day by administering the same structured knowledge questionnaire and same observational checklist on atropinization. Time taken for post test was 20 & 20 minutes for knowledge questionnaire and observational checklist .Same procedure was repeated for other subjects. Data collected was analyzed and tabulated by using both inferential and descriptive statistics. The findings of pilot study were as below. In pre-test knowledge score mean was (8.40),SD (3.62) mean %(28.00) ,the mean post test knowledge score was mean (26.40),SD (1.673), mean %(88.00) the mean difference between pre-test and post test mean difference(18.0).After conducting the pilot study, it was found that the study was feasible & researchable. The concerned authority and the sample were found to be cooperative, the questionnaire, checklist and structured teaching programme were relevant. The time and cost of the study was within the limit.

Ethical consideration:

- Formal permission to conduct the study was taken from ethical committee of SKIMS, Srinagar Kashmir .(annexure –II)
- Formal permission was obtained from the Medical superintendent, nursing superintendent of SMHS Hospital of Srinagar Kashmir for conducting pilot study and the final study (Annexure-III).
- Confidentiality of information given by the staff nurses was maintained while conducting the study, Written consent was taken from the subjects (Annexure--VIII).

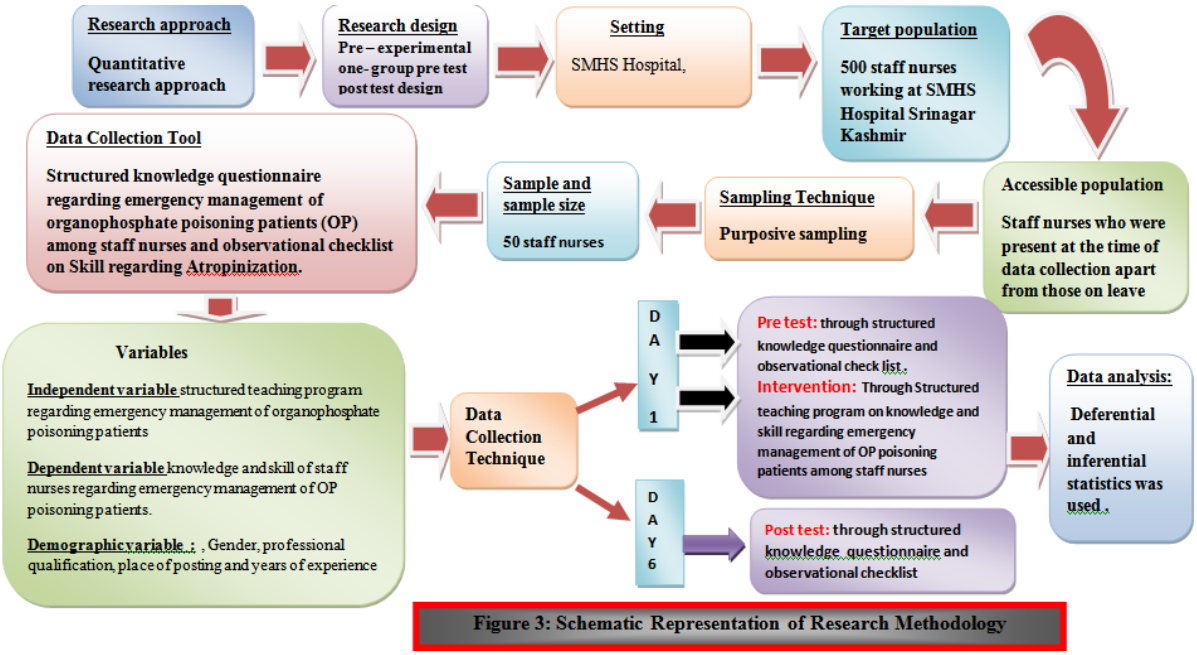

Figure 3: Schematic Representation of Research Methodology

Data collection procedure:

A formal written permission was obtained from the Medical Super-intendent, nursing superintendent of SMHS Hospital (Annexure III) .The data collection was scheduled from **6th** of March 2017 to 1**0th** of April 2017.The investigator introduced herself to the study subjects and explained the purpose of the study. Participants were assured of confidentiality and anonymity.

Steps used for data collection

The investigator introduced her-self to the senior medical and nursing personnel of the concerned wards and explained the purpose of the study. All the faculty members were co-operative along with other subordinates in the selected wards.50 staff nurses were selected from emergency ward, medical ward and surgical ward of SMHS Hospital.

1. **Conduction of Pre-test** : The researcher selected the subjects who were fulfilling the inclusion criteria. After taking the informed consent ,the data was collected individually from the subjects through 30 itiemed structured knowledge questionnaire and 10 itiemed checklist .The data was collected in the nurses room at casuality ward where the knowledge questionnaire adminstered to 4 staff nurses jointly in the morning for the period of 40- 45 minutes as & shown in the table and observational checklist was used to assess the pre-test skill regarding by using the observation checklist on atropinization for 15-20 min. Same procedure was repeated for other subjects selected .
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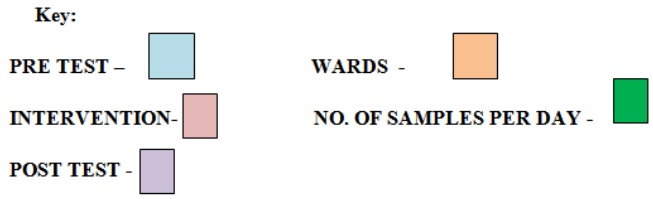
Table no. 4 : Data collection schedule W.e.f 07-03-17 to 15-03-2017

Day	Date	Time	Wards	Number of Subjects (n=50)	Action
Day 1	7-3-17	10.00 am – 12.00 am	Emergency ward	4	Pre-test
Day 1	7-3-17	12.00 pm – 1. 00 pm			S.T.P & skill demonstration
Day 6	13-3-17	1.00 am – 3.30 Pm			Post-test
Day 2	8-3-17	10.00 am -12.00pm	Emergency ward	4	Pre-test
Day 2	8-3-17	12.00 pm -1.00 pm			S.T.P & skill demonstration
Day 7	14-3-17	1.00 pm – 3:30pm			Post-test
Day 3	9-3-17	10.am-12 00.pm	Emergency ward	4	Pre-test
Day 3	9-3-17	12 00.pm – 1.00pm			S.T.P & skill demonstration
Day 8	15-3-17	1.00 pm - 3:30 pm			Post –test
Day 4	10-3-17	10.00am – 12:00.pm	Emergency ward	5	Pre-test
Day 4	10-3-17	12:30pm – 1:30 pm			S.T.P & skill demonstration
Day 9	16-3-17	2.00pm - 4 :00pm			Post test
Day 5	11-3-17	10.00.am -1200.am	Emergency ward	3	Pre-test
Day 5	11-3-17	12:30pm – 1:30pm			S.T.P & Skill demonstration
Day 10	17-3-17	1:00pm – 3:30 pm			Post –test
Day 6	12-3-17	10.00am – 12:00 pm	Medical ward	4	Pre-test
Day 6	12-3-17	12.00 pm -1.00 pm			STP & Demonstration
Day 11	18-3-17	1.00 pm – 3.30 pm			Post-test
Day 7	13-3-17	10.00 am – 12 .00 pm	Medical ward	4	Pre-test
Day 7	13-3-17	12.30 pm – 1:30 pm			S.T.P & demonstration.
Day 12	19-3-17	1.30 pm- 3.30pm			Post-test
Day 8	14-3-17	10.00 am -11.30 am	Medical ward	4	Pre-test
Day 8	14-3-17	12.00 pm -1.00 pm			S.T.P & demonstration
Day 13	20-3-17	2. 00 pm – 3.00 Pm			Post-test
Day 9	15-3-17	10.00 am -12.00 pm	Medical ward	3	Pre-test
Day 9	15-3-17	12.00 pm -1.00 pm			S.T.P & demonstration
Day 14	21-3-17	1:00 pm- 3:00pm			Post-test
Day 10	16-3-17	10.30 – 12.30pm	Surgical ward	5	Pre-test
Day 10	16-3-17	12:30 pm -1.30 pm			S.T.P Demonstration
Day 15	22-3-17	1:30pm -3.30 pm			Post-Test
Day 11	17-3-17	10:30am -12:30pm	Surgical ward	5	Pre-test
Day 11	17-3-17	12:30am -1:30pm			S.T.P & skill demonstration
Day 16	23-3-17	1:30pm -3:30 pm			Post-test
Day 12	18-317	10:30am-12:30 pm	Surgical ward	**5**	Pre test
Day 12	18-3-17	12:30am-1:30 pm	Surgical ward		STP & demonstration
Day 17	**24 – 3-17**	1:30-3:30pm	Surgical ward		Post test



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