# A QUASI EXPERIMENTAL DESIGN TO STUDY ARRHYTHMIA

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**Abstract:**

Many forms of heart disease can interrupt the normal contract-relax cycle cause abnormally fast or unusually slow heart rates called arrhythmias. These conditions make pump less effectively, so that not enough blood reacted to brain and other vital organs when the body's blood flow is inadequate. The person can faint or suffer chest pain even sudden death can occur. This study includes research approach, research design, research setting, sample and sample size, population, sampling technique, sampling criteria, data collection tool, presentation of the tool, score interpretation, validity and reliability, pilot study, data collection procedure and plan for analysis.

**Key Words:** Quasi experimental, heart, research design

**About Author:**

The author Mrs Harvinder Kaur has 23 years clinical experience including 8 years Operation Theater as Staff Nurse and 14 years 6 month onward Teaching experience. She is post graduate in Nursing (Medical-Surgical Nursing) and pursuing Ph.D.

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## Introduction

Arrhythmias are common in people with cardiac disorders but also occur in people with normal hearts. Arrhythmias are often detected because of associated manifestations of dizziness, palpitation and syncope. Abnormalities in conduction are dangerous because of reduced cardiac output, which can lead to improved cerebral perfusion. The most serious complication of a arrhythmia is sudden death. Because seconds can literally make the difference between life and death for the person who is experiencing a serious arrhythmia, evaluating responsiveness, quickly activating the emergency medical service, and initiating cardiopulmonary resuscitation can determine the outcome. Goodridge et al., (2013) conducted a Quasi-experimental study on cardiac rhythm interpretation in USA. Nurses care for increasing numbers of patients requiring cardiac monitoring. These findings suggest that need to improve staff development in the area of cardiac rhythm interpretation. Tai CK et al.,(2012) found that nurses improve in defibrillation decision-making skills and confidence after appropriate brief, focused in-house training.

Salah M S. Hassan, Hakim S. Hassan. (2012). A quasi-experimental study was conducted on effectiveness of nursing educational program on nurse's knowledge toward arrhythmia in Kirkuk's teaching hospitals at Bagdad.

The Schematic Representation of Research Study is depicted in Figure 1. In view of nature of the problem under study and to accomplish the objectives of the study Quasi-experimental research approach is adopted.

The selection of design depends upon the purpose of the study, research approach and variable to be studied. The design used in this study is pretest posttest control group design to assess the knowledge and practice of staff nurses regarding management of arrhythmias. The schematic representation of the research design is given in Table 1 & Table 2.

**Research Design**

**Table 1:** Schematic representation of research design

| | | | |
|---|---|---|---|
| **E** | O1 | X | O2 |
| **C** | O1 | _ | O2 |

Key: E = Experimental Group; C = Control Group
O1 = Pre-test X= Intervention, O2 = Post-test

**Figure.1:** Schematic Representation of Research Study

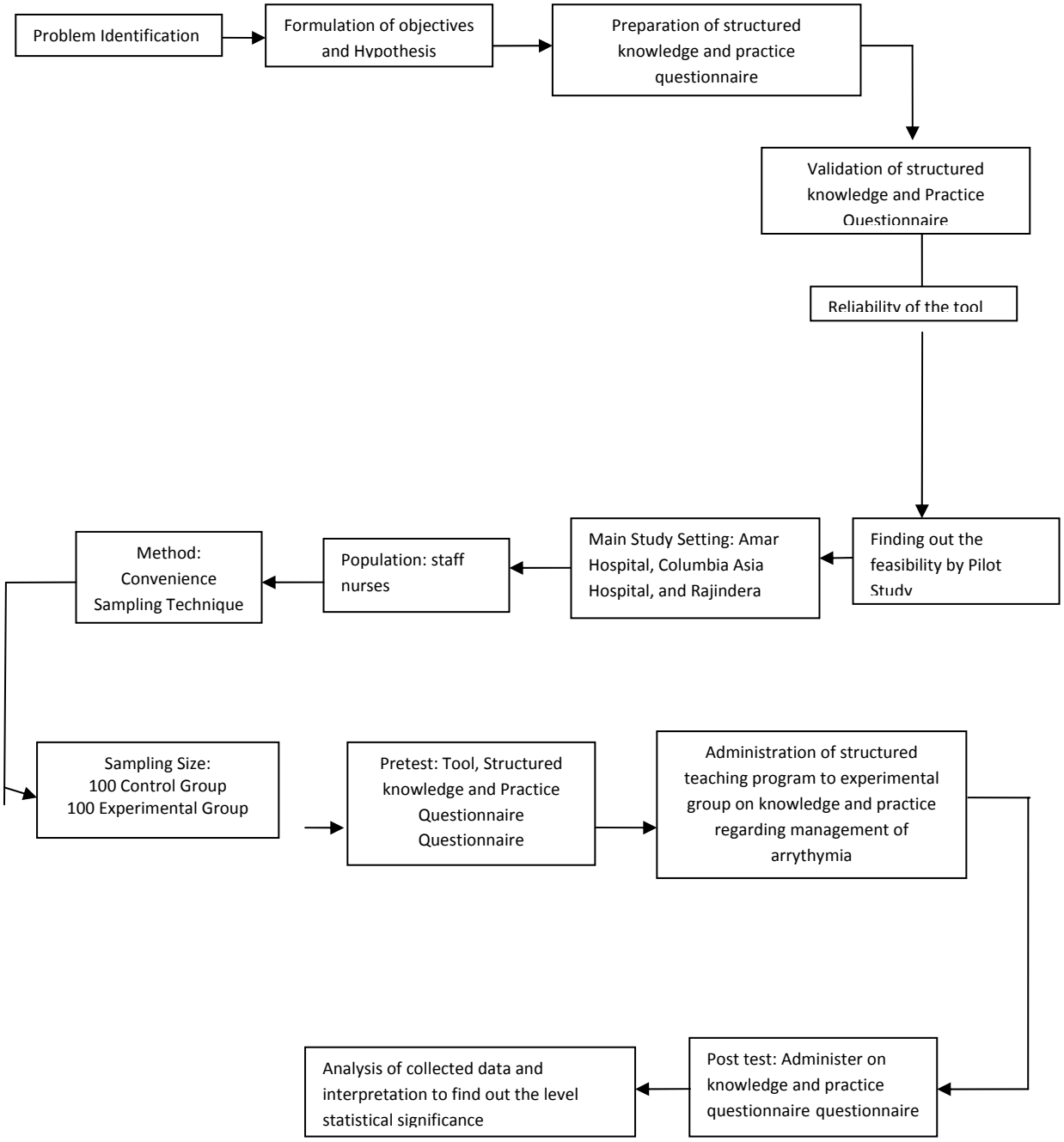

**Table 2:** Quasi-experimental pre-test post-test control group design of the study

| Study Group | Pre-test<br>Self administration of Structured knowledge And practice questionnaire on day-1 | Intervention<br>Administration of Structured teaching programme on day-1 | Post-test<br>Self administration of Structured knowledge And practice questionnaire after days-21 |
|---|---|---|---|
| **Experimental Group** | **O1** | **X** | **O2** |
| **Control group** | **O1** | **-** | **O2** |

Keys-

O1=Assessment of pretest knowledge and practice of staff nurses regarding management of arrhythmias by structured self administered knowledge questionnaire.

X =Administration of Structured teaching program to experimental group on knowledge and practice of arrhythmias.

O2=same structured self administered knowledge and practice questionnaire was administered after 21 days of structured teaching programme to assess the effectiveness.

**Sample and sample size**

In a particular study 200 staff nurses, working at Amar hospital, Block A in Patiala, Columbia Asia hospital and Rajindera hospital in Patiala who fulfill the inclusion criteria and gave their acceptance to the informed written consent were included in the study.

The sample size consisted of 200 staff nurses, 100 in experimental group and 100 in control group.

**Sampling Technique**

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

**Criteria for selection of samples**

The samples were selected with the following predetermined set criteria.

**(a) Inclusion Criteria**

1. Staff nurses in the age group 21-40 years and >40 years.
2. Both male and females.
3. Staff nurses who are willing to participate in the study.
4. Staff nurses who were present during the period of data collection.

**(b) Exclusion Criteria**

1. Staff nurses who were not willing to participate in the study.
2. Staff nurses who were on leave.
3. Staff nurses who have already attended the teaching programme.

**Allocation of group**

A multistage sampling technique was used to select the hospitals. The three hospitals selected by convenience sampling technique viz Amar Hospital, Block A; Columbia Asia Hospital; and Rajindera Hospital were divided into two strata: 1st strata comprise of one hospital i.e. Rajindera Hospital and 2nd strata comprises of 2 hospitals viz Amar Hospital; Columbia Asia Hospital. Simple random method i.e. non replacement lottery method was used for allocation of hospitals from each stratum into experiment and control group. Nurses working in Rajindera hospital in Patiala were allocated in control group and Nurses working in Amar hospital A Block, and Columbia Asia hospital respectively were allocated for experiment group.

All the nurses who fulfilled the inclusion criteria under each assigned group were included in the study. Thus each group i.e. experiment group and control group comprises of 100 staff nurses respectively. The study subjects under experiment group were administered STP on Management of arrhythmias and the study subjects under control group were not given structured teaching programme but distributed self prepared module on Management of arrhythmias at the end of posttest for ethical consideration point of view.

**Selection and development of tools**

**Selection of tools**

Due to non-availability of any relevant standardized research tool, the researcher prepared preliminary drafts of the tools, based on the study objectives from the following sources:

- An extensive and systematic review of literature like books, journals, articles, periodicals, published research studies
- Consultation and discussion with experts in the field of nursing, research, statistics,

medical surgical experts and computer information experts.

- An informal observation in the concerned area of study

**Description of tools**

**A. Demographic profile data sheet**

The bio demographic variables include age, gender, marital status, academic qualification, professional qualification; socio demographic variables included are habitat, type of family, residence, family monthly income' and job related variable including working area, experience before joining the institution, experience before joining the institution, experience in cardiac units and attendance of in service education.

**B. Structured Knowledge Questionnaire**

A Structured Knowledge Questionnaire was used to assess the knowledge of study subject on management of arrhythmias (Annexure 4.2). It consists of 30 multiple choice questions consists of six components i.e. Anatomy and physiology of conduction system of heart; electrocardiography (ECG); Arrhythmias; Assessment; Interpretation; and Management of arrhythmias. Each sub area has five questions as given below:

**Sub Areas** **No of items (Q. No)**

- Anatomy and physiology of conduction system of heart 5 (1-5)
- Electrocardiography (ECG) 5 (6-10)
- Arrhythmias 5 (11-15)
- Assessment 5 (16-20)
- Interpretation 5 (21-25)
- Management 5 (26-30)

Each multiple choice question has 4 options; out of which one is the correct response. For every correct response a score of "one" and for every wrong response a "zero" was assigned. Thus the total score for knowledge was 30, ranging between 0-30.

**Interpretation /criterion measures of knowledge score**

The obtained scores are interpreted for level of knowledge as:

**Level of knowledge** **Scores**

- Excellent 25-30
- Good 20-24
- Average 15-19
- Below average <15

**Practice response sheet**

The Practice response sheet consists of 10 items to gather the information regarding the practice on management of arrhythmias by the study subjects in 4 point Likert scale. Each item is with 4 options 'Always', 'Most of the times', 'Sometimes', 'and 'Never' ranging the scores 0 to 3. The subjects are to tick mark one the most appropriate response. Thus the total scores for practice or performance of staff nurses on management of arrhythmias ranging from 0-30.

**Interpretation/criterion measures of practice scores**

The obtained scores are interpreted for practice /performance level as:

**Practice/Performance Level** **Scores**

- Excellent 25-30
- Good 20-24
- Average 15-19
- Below average <15

**Validity of Research Tools**

Validity refers to the degree to which an instrument measures what it is intended to measure. To ensure content validity, the tool along with blue print, objectives, hypothesis and criteria checklist were given to10 experts from different area such as Nursing (6), Cardiology (2), and Medicine (2). The experts were requested to judge items for relevance,

clarity, appropriateness of the content area. The modifications were done in the tool based on expert's suggestions and in consultation with the guide.

The first draft tool of Structured Knowledge questionnaire consisted of 35 items and then based on experts suggestions and opinions item 30 items were retained and modification in 10, 23, 24, 25, 27 were done. The final draft was reframed with 30 items. The rough draft of Practice Response Sheet consisted of 20 items in 5 point scale but after checking the validity by the experts only 10 items were retained and in 4 point Likert scale. Later the tools were edited by language expert.

**Difficulty index and discriminatory index**

The difficulty index and discriminatory index of 'Structured knowledge questionnaire' was tested after administering the questionnaire on 5 subjects, who were not the part of study. Difficulty index was found between the range 0.3 to 0.7 and discriminatory index of all the questions except question no. 24, 25 and27 questions found to be 0.33 to 0.67. Discriminatory index for 24, 25, and27 was 1 so these were modified.

**Reliability of the tools**

Reliability of an instrument is degree of consistency with which it measures the attribute it is supposed to be measuring.

In the present study, the reliability of the '**Demographic profile data sheet'** was tested by using 'test-retest method'. The tool was administered to 10 subjects who were not included in the study. The tool was again administered at an interval of seven days to gather the same information. Reliability co-efficient was calculated by Karl Pearson's co-efficient. The reliability obtained is 0.86 indicating tool is stable and found significant at 5 % level.

The reliability of **'Structured knowledge questionnaire', 'Practice response sheet',** was tested on 50 subjects, who were not the part of main study and was computed by using split half using Spearman Brown prophecy formula. The reliability obtained was 0.906, and 0.75 respectively indicating the tools are reliable.

**References:**

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