"A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURE PLANNED TEACHING PROGRAM ON KNOWLEDGE REGARDING LOW AND HIGH-FIDELITY CPR SIMULATION AMONG 1st YEAR B.SC. NURSING STUDENTS OF SCHOOL OF NURSING P P SAVANI UNIVERSITY, KOSAMBA, SURAT".

[1]Ms.Blessi Martuise, [2]Ms. Jannet Reena, [3]Ms.Harsidhdhi Patel , Hamzah Patel , Rushit Chaudhari, Nitiksha Patel

[1]Assistant Professor, [2]Assistant Professor, [3]Student Investigators,
[1]P P Savani University, Surat, India.

Abstract: To emphasize the positive experience of using innovative teaching methodologies among healthcare providers and the effectiveness of CPR through the use of high-fidelity mannequins rather than standard once. The aim of the study was to analyze how high-fidelity simulation training may impact knowledge, clinical performance and confidence levels of undergraduate students and compare this with low fidelity simulation traditional teaching methods. "An Quasi experimental design, Purposive sampling technique was used to select 50 students of first year B.Sc. nursing. Pretest was taken for initial knowledge assessment which was followed by a structured teaching program on high and low fidelity CPR simulation. Furthermore, post-test was taken to assess the knowledge and comparison between pre and post-test scores which are analyzed by using descriptive and inferential statistics. The experimental group shows that overall knowledge mean score in pretest was 14.26 that was increased with 19.22 in post-test. The mean difference found 4.96 after completion of the structure teaching program that clearly indicates thatthe knowledge among students has been increased.

Index Terms - **Innovative teaching methodologies，CPR, Low-fidelity simulation, High- fidelity simulation, Simulator, Mannequins, knowledge, effectiveness, comparison.**

I. INTRODUCTION

Learning-based simulation is considered a safe environment for training, as the patients and trainees are not exposed to risk. Also, it can be planned, designed, andredesigned with clinically required skills in mind, and can be used to enhance trainees' attainmentof clinical skills and competence by allowing the opportunity for repeated practice within a team. High-fidelity-based simulation can allow healthcare providers to experience uncommon and critical case scenarios in a safe setting. Furthermore, the standard of the program can be developedand allow time for debriefing. As students' progress through professional athletic training education, they engage in a variety ofclinical experiences. Unfortunately, circumstances that will provide opportunities to practice clinical skills during clinical rotations are unpredictable. Simulation has been widely used in the education of healthcare workers. In simulation training, there is an approximation to reality in which trainees are supposed to react to problems or conditions as they would under genuine circumstances. Simulation learning is the process where trainees practice a procedure or routine in a simulated learning environment (SLE) before treating actual

patients. These environments use different scenarios and equipment, and vary in realism. Repeating the practice of simulated scenarios and actions in a controlled environment enables a realistic and flexible alternative to traditional clinical training methods, and aids in improved learning and knowledge gained from theoretical studies

II. Objectives of the study

- To assess the existing knowledge regarding low and high-fidelity CPR simulation among1st year B.Sc. nursing students of school of nursing P P Savani University Kosamba, Surat.
- To evaluate the effectiveness of a structured teaching program in terms of gain in post-test knowledge.
- To find the association between pretest knowledge scores with the selected demographicvariables.

III. Assumptions

- The knowledge regarding Cardiopulmonary Resuscitation among 1st year B.Sc. nursing students may be influenced by their selected Demographic variable.
- Structured teaching programs may improve the knowledge regarding low and high-fidelityCPR simulation among 1st year B.Sc. nursing students of school of nursing P P Savani University Kosamba, Surat.

IV. Methods

The target population of the present study was based on Ludwig's modified general system of theory.The approach used for this study was Quantitative evaluation.Pre experimental study one group pretest and post test Pre-experimental design is used to attain the objectives of the present study. The independent variable of the study was Structured Teaching Programme on low & high-fidelity CPR Stimulation and dependent variable is knowledge of 1st year B.sc nursing students. The demographic variable selected for the study were Age, Gender, Area of residence, Board of education in school, Medium of education, Source of information regarding Cardiopulmonary resuscitation, previous Knowledge regarding low and high-fidelity simulation, attended anypractical section on low and high-fidelity CPR simulation, Performed CPR on low or high simulation any time.

Population and Sample

The target population of our research study is students of 1st year B.Sc. nursing, school of nursing, P P Savani University, Kosamba, Surat. The pilot study was conducted to find the feasibility of the study among 10 1st year B.sc nursing students. The main study was conducted among 50 subjects. Purposive sampling technique was adopted to select the samples for the present study based on inclusion criteria.

Sampling Criteria:

The samples were selected with the following predetermined set of criteria.

Inclusion Criteria:

- Both male and female students.
- Students who are willing to participate in this study.
- Students of 1st year B.Sc. nursing school of nursing P P Savani University.

Exclusion Criteria:

- The students who are not available during the data collection period.
- Students who are not willing to participate in this study.

Descriptions of the Tool:

The tool used to collect data was structured knowledge questionnaire observational practice check list. Structured questionnaire consists of 2 parts i.e., Part I and Part II   .

Part I: Demographic Variables like were Age, Gender, Area of residence, Board of education in school, Medium ofeducation, Source of information regarding Cardiopulmonary resuscitation, previous Knowledge regarding low and high-fidelity simulation, attended any practical section on low and high-fidelity CPR simulation, Performed CPR on low or high simulation any time.

Part II: Structured knowledge Questionnaire on low and high-fidelity CPR simulation ,Risk factor, Sign & Symptoms of CPR and about Steps & treatment for victims.

DATA COLLECTION:

The study was conducted for 7 days from 19/09/2022 to 26/09/2022 prior permission was taken from the principal of school of nursing P P Savani University, submitting an application giving assurance to follow rules and regulation. The researcher explained the purpose of the study in a compassionate manner and informed consent was taken from students. 50 samples were selected from the class by using purposive sampling technique. The knowledge was assessed by the structured questionnaire. After the structured teaching program was given to 1st year B.Sc. nursing students regarding low and fidelityCPR simulation. After a period of lecture, the post-test was conducted by using the same questionnaire to determine the extent of effects of the structured teaching program.

Data Analysis:

The investigator had planned to analyze the data by using descriptive and inferential statistics. All the data were analyzed by using frequency distribution, percentage and cross tabulation and it waspresented in the form of the Tables and Graphs. Chi square test was used to find out association between selected demographic variables and knowledge.

The data will be analyzed under the following headings:

Section I: Demographic variables perform 1st year B.Sc. nursing students.
Section II: Distribution of 1st year B.Sc. nursing students according to their knowledge score.
Section III: Effectiveness of structured teaching program on low and fidelity CPR simulation in terms of gain in knowledge score.
Section IV: Association of pretest knowledge score of 1st year B.Sc. nursing students with selecteddemographic variables.

V. MAJOR FINDINGS OF THE STUDY:

The findings were presented under the following headings.

- Findings related to the demographic data of the variables.
- Findings regarding mean score and standard deviation between pre and post level of overall knowledge regarding low and high-fidelity CPR simulation.
- Findings regarding association of knowledge with selected demographic variables.

Findings related to the demographic data of the variables.

Many of the samples were between the age group of 17-18 years 24 (48%) and 18-19 years were 26 (52 %). There were more Hindu variables 43 (68%), Muslim were 13 (26%), Christian was 2 (4%), and others were 1 (2%). Majority of variables were females 43 (86%) and males were 7 (14%). Area of residence of samples in urban areas was 25 (50%) and in rural areas was 25 (50%). Majority of variables were from the GSEB 40 (80%), CBSE 5 (10%) and Others 5(10%) board of education in school. There were 35 students who studied from Guajarati medium 35 (70%), 14 (28%) students from English medium followed by 1(2%) Hindi medium. There were 35(70%) students who gained knowledge from books, 9(18%) students gained knowledge from video which was followed by 3(6%) of both others and workshop. There were 21 (42%) students who were having previous knowledge, the rest of them were not having previous knowledge regarding low and high-fidelity CPR simulation 29 (58%). There were 43 (86%) students who attended any practical section on low and high-fidelity CPR simulation; the rest of them did not attend any practical section 43(86%).

Findings regarding mean score and standard deviation between pre and post level of overall knowledge regarding low and high-fidelity CPR simulation.

According to findings, the overall knowledge mean score in pretest was 14.26 that was increased with 19.22 in post-test. The overall Standard deviation score was 3.430 that was increased with 3.824 in post-test after the planned teaching program. The mean difference was found 4.96 after completion of the planned teaching program.

Findings regarding association of knowledge with selected demographic variables.

In the association between knowledge and selected demographic variables, the findings revealed that there was significant association between knowledge and Age, Religion , Area of residence, Board of education, source of education, Medium of education, Previous knowledge regarding high and low fidelity, Attended any practical section on low and high-fidelity CPR simulation.

VI NURSING IMPLICATION:

The findings of study have several implications for Nursing practice, Nursing Education and Nursing Administration and Nursing Research.

NURSING PRACTICE:

The extended and expanded role of the professional nurse emphasizes those activities which promote health and prevent illness. The Roles of Nurses are multifaceted and numerous. Nurses are innovators, guides and also teachers. They are a vital link in the Health Care delivery system.Nurses play the roles of teacher and a guide in a community and hospital setting; Hence Nurse could play a crucial role in increasing knowledge regarding low and high-fidelity CPR simulation.The study findings can

NURSING EDUCATION:

Nurses play a necessary role to function as a health educator. Development in the selected topic isan essential component of routine life. The responsibility of instructor or educator is meeting the learner's need in acquiring relevant knowledge and attitude. Attempts should be made to ensure that the learner is taught in such a way that it allows them to construct learning in a simulated context and then apply it into real situations. The focus should be on the learner's understanding of the process of acquisition. For community and other health education programs related to low and high-fidelity CPR simulation and its management may conduct for the institutes and hospitalsalso. It will be helpful for students during hospital posting, community posting and also in daily routine life so they can identify the symptoms of disease or accident and perform appropriate stepsof CPR according to the situation and its management without harming the victim.

NURSING ADMINISTRATION:

- Nurses should be provided with necessary administrative support to develop and administereducational material i.e., High-fidelity CPR simulation to perform CPR procedure.

- Nursing administrators should develop such policies with the help of the government forthe availability of adequate facilities for giving the knowledge regarding CPR procedure.

- Administrators should conduct the in-service education program for nurses so they can alsoimprove knowledge and apply it to the patients.

- Periodically inspection should be done in institutes to find out the students havingappropriate knowledge regarding CPR procedure.

- Necessary administrative support should be provided for development of such educationalmaterial, motivated by planned teaching programs etc.

NURSING RESEARCH:

The result of the study contributes to the body of knowledge of nursing. In future, the investigatorscan use the findings and the methodology as reference material. It highlights the areas that requirefuture exploration. Other researchers, conducting further study in the same field, can utilize the suggestions and recommendations. Further studies can be conducted on this topic for broader andin-depth coverage of the sample population so as to get more detailed information regarding low and high-fidelity CPR simulation among BSc nursing students. A behavior change communication, which will be effective in creating awareness regarding low and high-fidelity CPRsimulation.

VII. RECOMMENDATIONS

The following recommendations are made on the basis of the findings of the study:

- A similar study can be undertaken on a large scale for making a more valid generalization.
- A comparative study can be arranged between knowledge and practice.
- A similar study can be arranged for staff nurses working in specialist hospitals or multispecialist hospitals in different settings.
- An experimental study can be conducted to evaluate effectiveness of self-instructionalmodule in terms of knowledge and attitude of nursing students.
- Periodical assessment of staff nurses who work into hospitals, knowledge and attituderegarding CPR procedure.
- A similar study can be undertaken with a descriptive survey research design.

VIII. ACKNOWLEDGMENT

IX. REFERENCES

- Dipak Sethi, Dr. Shardha Ramesh and Maj. Kirti. "Essentials of Medical Surgical Nursing I& II" Springfield Publication (P) Ltd. Page no: 41- 54.
- Suresh K Sharma (2018). "Textbook of Nursing Research and Statistics". 3rd Edition,Elsevier Publisher.
- Padmaja Uday Kumar, Textbook of Pharmacology for Nurses. Fourth Edition, Jaypee Brothers Medical Publishers (P) Ltd. Page no: 91-116.
- S.Vikas and company Pee Vee. "Textbook of Medical Surgical Nursing- I". Edition 2015, (Medical Publisher) India. Page no: 289- 290.
- Ross and Wilson (2014) "Textbook of Anatomy and Physiology in Health and Illness". 12thEdition, Elsevier Publisher. Page no: 81-100,261-265.
- Rimple Sharma "Essential of Pediatric Nursing" 2nd Edition Jaypee Brothers Medical Publishers (P) Ltd. New Delhi. Page no:141-145.
- UN Panda (2014) "Jaypee's Nurses' Dictionary" 4th Edition Jaypee Brothers Medical Publishers (P) Ltd. Page no:493.
- Alan, Sustic, Et al (2010). Cardiac Arrest. European Journal of Emergency Medicine, 17(3),146-149.
- Anderson, Et al (2013). Rates of Cardiopulmonary Resuscitation Training in the United States. JAMA Internal Medicine, 320-25.
- Baird, Et al (2013). Attitudes and practices regarding resuscitation in emergency departments in Trinidad and Tobago. Emergency Medical Journal.
- Bawazeer Et al (2013). Applicability of Adult Guidelines for Withholding or Terminating Resuscitation for Prehospital Traumatic Cardiopulmonary Arrest in Pediatrics. European Journal of Pediatric Surgery.
- Birkenes, Et al (2013). Quality of Cardiopulmonary Resuscitation performed by trained bystanders with optimized pre-arrival instructions. Resuscitation Journal, 85 (1), 124-30.
- Bobrow, Et al (2010). Chest compression-only Cardio Pulmonary Resuscitation by lay rescuers and survival from out-of-hospital cardiac arrest. Journal of American Medical Association, 304 (13), 1447-54.
- https://www.nottingham.ac.uk/nursing/practice/resources/cardiology/function/anatomy.php#:~:text=The%20heart%20itself%20is%20made,released%20and%20 oxygen%20is%20 absorbed.
- https://www.healthleadersmedia.com/nursing/many-forms-simulation-training#:~:text=Low%2Dfidelity%20simulations%20are%20described,learner%20interaction%20within%20the%20simulation.
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3415625/#:~:text=High%20 fidelity%20 simulation%20is%20able,fear%20of%20compromising%20patient%20safety.
- https://oatext.com/the-use-of-high-fidelity-mannequin-training-to-improve-the-quality- of-healthcare-providers-performance-of-cp.php.
- https://pdf.manuscriptpro.com/search/Author-Yue-Yi-Li/1/19c5ab1e.

- https://pubmed.ncbi.nlm.nih.gov/25213578/
- https://pubmed.ncbi.nlm.nih.gov/30798316/
- https://pubmed.ncbi.nlm.nih.gov/27091261/
- https://www.sciencedirect.com/science/article/abs/pii/S2588994X20300828
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6324716/