A Pre Experimental Study to Assess the Effectiveness of Information Booklet on Knowledge Regarding Early Sign and Immediate Management of Cardiac Arrest Among the General Population in Selected Area in Rasmada, Durg,(C.G.)

Dr. Mrs. Ashulata Mishra

Principal, C.M. Nursing Institute, Bhilai (C.G)

***Abstract*—Sudden cardiac arrest outside medical facilities frequently results in fatalities due to its severe mortality rate exceeding 90%. New approaches are required to forecast and avoid fatal heart attacks, ultimately lowering death rates. A significant portion of individuals experiencing sudden cardiac arrest recall signs leading up to it within the hour, day, or several weeks prior, while others reach out to medical professionals during the immediate pre-arrest period. In our previous report concerning patients experiencing sudden cardiac arrests within the context of the Oregon Sudden Unexplained Death Study, it was observed that many individuals involved - both those affected directly as well as their family members - failed to respond promptly to initial indicators suggesting an impending event. Only approximately eight percent (eighteen out of four hundred thirty) sought immediate emergency assistance through contacting 911 when they noticed any pre-collapse symptoms. Individuals who contacted emergency services prior to experiencing heart failure were significantly less likely to survive an unexpected cardiac event compared to those without such intervention. Nevertheless, due to shared symptomatology overlapping with various non-sudden cardiac arrest ailments, EMS infrastructure might easily become inundated with erroneous alerts should such indicators prove predictive for sudden cardiac events. Consequently, it is imperative to determine how accurately distinct symptom manifestations can predict impending sudden cardiac arrest. Previous research examining signs preceding heart attacks has noted chest discomfort, shortness of breath, dizziness, rapid heartbeat, fainting spells, and additional symptoms; however, these findings were hindered due to insufficient control groups, modest participant numbers less than 100 each, or confining analyses only within specific demographic categories or those at higher risks for sudden cardiac events. Utilizing indicators of potential danger for prompt assessment might facilitate timely treatment and avoid fatalities due to impending heart attacks.**

Aim:- The aim of the present study was to assess the effectiveness of information booklet on knowledge regarding early sign and management of cardiac arrest among the general population in selected area at Rasmada Durg (C.G.)"

Methodology:- In view of the nature of the problem and to accomplish the objectives of the study, pre experimental research design was adopted. 60 general population were selected by purposive sampling method from self structured questionnaire. Tool was validated by experts. Reliability was also obtained. Data is collected from Rasmada Durg (C.G.) by using self structured knowledge questionnaire.. Data was analyzed by using descriptive and inferential statistics.

Findings:- The findings of the study reveal that in pre test 38(63.3%) are having average knowledge score, 22(36.67%) are having poor knowledge regarding early sign and management of cardiac arrest. But in post test 60(100%) were having good knowledge regarding early sign and management of cardiac arrest.

Conclusion:- The result of the study concluded that information booklet is effective to improve the knowledge regarding early sign and management of cardiac arrest among the general population in selected area at Rasmada Durg (C.G.)"

***Index Terms*—Assess, effectiveness Information booklet, knowledge, early sign and management of cardiac arrest.**

I. INTRODUCTION

The human heart can be compared to the engine of a car both are power units that keeps loading moving. Heart works as a pump that pushes blood to the organs, tissues, and cells of our body. The blood pumped by the heart delivers oxygen and nutrients to energy cell and remove carbondioxiode and waste products made by the cells, but if blood flow to the heart is slowed or stopped or the heart irregularly works our life may be in danger. How you treat and care your heart will determine how long and how well it will continue to work for you.

The heart is a muscular organ about the size of a closed fist that functions as the body's circulatory pump. It takes in deoxygenated blood through the veins and delivers it to the lungs for oxygenation before pumping it into the various arteries (which provide oxygen and nutrients to body tissues by transporting the blood throughout the body).

Each year, a number of persons suffer with an accident or illness, severe enough to stop their breathing and leads to respiratory arrest. In a small number of these cases, it will even stop their heart beating and leads to cardiac arrest. Sudden cardiac arrest is a major cause of death in developed countries. Sudden death occurs when heartbeat and breathing stops.

The other common causes of sudden death include heart attack, electrical shock, drowning, choking, suffocation, trauma, drug reactions, and allergic reactions. The best chance of ensuring their survival is to give them emergency treatment known as cardiopulmonary resuscitation (CPR).

A cardiac arrest occurs when the heart abruptly ceases its normal rhythm, necessitating immediate medical intervention. Acting swiftly upon noticing symptoms promptly saves life chances. A cardiac arrest represents an urgent health crisis involving sudden cessation of heartbeat, respiration, and mental alertness. When there is an issue in how the heart controls its own rhythm, it can lead to the heart not being able to pump enough oxygenated blood throughout the entire body. If not treated promptly, heart failure results in fatalities shortly after onset of symptoms.

They differ from each other; however, a heart attack may occasionally precipitate their occurrence. In an average heartbeat pattern, electric impulses traverse the cardiac tissue, leading to contraction of the heart muscles and facilitating blood circulation. In cases of cardiac arrest, disruptions in signal patterns occur, often resulting in arrhythmias such as ventricular fibrillation (Ventricular Fibrillation - VF) or ventricular tachycardia (Ventricular Tachycardia - VT), which can lead to irregular heartbeats. Decrease in Heart Function Leads To Blood Flow Interruption In Critical Organs; Oxygen Deprivation Causes Immediate Brain Damage Within Minutes Of Lack Of Supply. Various medical issues may lead to cardiac arrest; these typically fall under two categories - cardiac causes such as coronary artery disease being the most frequent type, along with other factors like cardiomyopathy, congenital heart problems, and valve disorders causing it. Causes of Non-cardiac nature include respiratory distress due to poisoning by drugs, major injuries like cardiac arrest caused by blunt force impact on heart tissue, disturbances in body fluids leading to abnormal blood concentrations such as elevated potassium levels, and electrical shocks resulting from contact between live wires.

Sometimes heart attacks occur unexpectedly; however, many people notice warning signs like pain or discomfort in their chests - tightness, pressure, or heaviness. Breathlessness: The sensation of being incapable of taking in sufficient air without assistance during quiet moments. Jumbled Heartbeats: An accelerated, thumping, or quivering feeling within the breast area. Fainting or near-fainting episodes characterized by sudden feelings of light-headedness or loss of consciousness. Muddled Discomfort: Experiencing unusual tiredness or an ominous foreboding sensation. .

Quick intervention entails verifying scene safety and responsiveness, ensuring it's secure enough for both rescuers and victims. Press on someone's shoulder while shouting to determine their reaction. Immediately contact Local Police Service at either 911 in United States or 112 elsewhere by dialing these numbers promptly. Should you spot another individual in proximity, gesture towards him/her and instruct them to contact emergency services for assistance by locating an AED unit immediately. Ensure high-quality CPR by performing push-and-pull actions quickly: begin chest compressions if there's no visible response or minimal breaths. • Assume your position by placing the palm of one arm over the sternum, followed immediately by another supporting hand atop it. • Pressures should be maintained at a rate

between 60 and 80 beats per minute in sync with the rhythm of "Stayin' Alive". • Extent: Aim for penetration of approximately two inches (about five centimeters), ensuring it does not exceed this limit. Four inches equals six centimeters. • Allow your chest to completely return after each compression. Reduce distractions as much as possible. Activate an Automated External Defibrillator immediately upon its availability; press the device's buttons according to audio instructions provided by the machine. The system will scrutinize cardiac rhythms and provide guidance on whether an electric stimulus might be required. Advanced Life Support Persist in performing chest compressions while awaiting emergency services or observing for any indication of consciousness such as movement, breathability, or coughing.

In India, heart disease is the single largest cause of death with cardiac arrest being responsible for 1/3rd of all deaths caused by heart diseases. According to the projection by the WHO and the Indian Council for Medical Research (ICMR), India will not only be the cardiac arrest capital but also the capital of diabetes and hypertension by 2020 Heart beat represents life and lack of it pronounces death". Myocardial infarction is the technical name for a cardiac arrest. Nowadays heart attack threatens to occur more frequently as the disease has reached alarming proportions in the developed countries. Developing countries also showing greater incidence of the disease. (National heart lung blood institute).

According to WHO, 60 percent of the world's cardiac patients will be Indians by 2020. And according to the International Obesity Task Force, a medical NGO that coordinates with the WHO on obesity issues, of all Asians, South Asians have the worst problems when it comes to heart disease.

The first studies on cardiovascular health were performed in 1949 by Jerry Morris (physician) using occupational health data and were published in 1958. A cross sectional studies in 2003, the prevalence of cardiac arrest in India was estimated to be 3-4% in rural areas and 8-10% in urban areas with a total of 29.8 million affected according to population-based cross-sectional surveys. The estimate is comparable to the 31.8 million affected, derived from extrapolations of the Global Burden of Diseases study. In 1990 there were an estimated 1.17 million deaths from myocardial infarction in India, and the number is expected to almost double to 2.03 million by 2010. Background information and Rationale Coronary artery disease as assumed epidemic proportion in India. Over 80% of deaths and 85% of disability from cardiovascular disease occur in low- and middle-income countries

II. OBJECTIVES OF THE STUDY

1. To assess the pre and post-test knowledge score regarding early sign and immediate management of cardiac arrest among the general population.
2. To determine the effectiveness of information booklet by comparing pretest and post-test of knowledge score regarding early sign and immediate management of cardiac arrest among the general population.
3. To find out the association between pre-test of knowledge score with their selected socio-demographic variables.

HYPOTHESIS

- H1: There will be significant difference in pre-test and post-test level of knowledge on general population regarding early sign and immediate management of cardiac arrest.
- H2: There will be significant association between the pre-test knowledge and post-test levels regarding early sign and immediate management of cardiac arrest.

III. MATERIALS AND METHODS

Pre experimental one group pre-test and post-test research design was utilized to assess the level of knowledge score regarding early sign and immediate management of cardiac arrest among the general population where subjects were selected by purposive sampling.

Pilot study was conducted in Housing Board Bhilai, Chhattisgarh to find out the feasibility of conducting the study. Necessary modifications were as per experts' guidance.

The main study was conducted in Rasmada Durg, Bhilai, Chhattisgarh. The sample of the population of the present study is 60 general population. Pre experimental research design is used in which subjects were selected according to specific criteria established by the investigator.

The reliability of the tool was calculated using Karl Pearson methods. The tool was found to be reliable (r=0.87) for data collection.

The data was collected after taking formal approval from principal of C.M Nursing Institute, Nehru Nagar, Bhilai (C.G.). Purpose of the study was explained to the group and confidentiality was assured.

The data collected was analyzed using descriptive and inferential statistics in terms of frequency, mean, standard deviation, and associated by chi square test.

RESULT:

Part – I: Analysis to assess the level of knowledge score

It depicts that pretest knowledge score of general population regarding early sign and immediate management of cardiac arrest. In pre-test, 38 (63.3%) are having average knowledge score, 22 (36.7%) are having poor knowledge. In pre-test average knowledge score mean 16.2 SD(2.0), Mean score % is 27%, poor knowledge score mean is 8.1, SD(1.3), Mean score percentage is 13.5%. In post-test knowledge score 60 (100%) were having good knowledge score. In post-test good knowledge score mean is 24.7, SD(2.1), Mean score percentage is 41.16%.

Part – II: Analysis to assess the effectiveness of information booklet

It depicts that the comparison between the pre-test and post-test of knowledge score of general population. There is a significant difference between pretest and post test score of general population is 2.63, degree of freedom = 59 which is found statistically significant at P value = 0.05 and this result indicates that the post-test knowledge score was higher than pre-test knowledge score at 0.05 level.

Part – III: To find the association between level of pre-test and demographic variables

It shows the association between pre-test level of knowledge of general population with their socio demographic characteristics such as age, education, occupation, religion, type of family, family monthly income, previous knowledge, source of information.

IV. CONCLUSION

The calculated value of chi square for age (12.6), occupation (10.1), religion (9.90), type of family (8.86), source of information (19.9) were significant whereas education (5.25), family monthly income (4.09), previous knowledge (1.78) were not significant.

Hence it is concluded that age, occupation, religion, type of family, source of information were associated with pre-test level of knowledge whereas education, family monthly income, previous knowledge were not associated with pre-test level of knowledge.

IMPLICATION

Nursing Practice and Education

- Standardized Education: The information booklet should be integrated into community outreach programs, as it was proven effective in significantly increasing knowledge scores from an average/poor level to a "good" level (100% of participants in the post-test).
- Demographic Targeting: Nursing interventions should specifically target different age groups, occupations, and religions, as these factors were found to be significantly associated with the initial knowledge levels of the general population.
- Public Health Campaigns: Community health nurses should utilize various "sources of information" (which showed a significant chi-square value of 19.9) to disseminate knowledge about early signs and immediate management of cardiac arrest.

Nursing Administration

- Policy Development: Nursing administrators at institutes like C.M. Nursing Institute can use this data to advocate for mandatory basic life support (BLS) awareness sessions for the general public in rural and urban areas of Chhattisgarh.
- Resource Allocation: Funds and resources should be allocated for the mass production of validated information booklets, as the tool in this study was found to be highly reliable ($r=0.87$).

Nursing Research

- Longitudinal Studies: Future research should be conducted to evaluate the long-term retention of knowledge provided by the information booklet over several months.
- Experimental Replication: A true experimental study with a control group and an experimental

group should be performed to further validate these findings beyond the pre-experimental design.

- Skills Assessment: While this study assessed "knowledge," future research should include an observational component to assess the actual "skills" or "practice" of the general population in performing CPR.

V. RECOMMENDATIONS

Clinical and Community Recommendations

- Implement Information Booklets: Since the study proved the information booklet was effective in improving knowledge among the general population, these booklets should be distributed in community centers and public health clinics to raise awareness about cardiac arrest.
- Targeted Education Programs: Health education should be prioritized for demographic groups that showed a significant association with lower pre-test knowledge, specifically focusing on different age groups and occupations identified in your study.
- Focus on Immediate Management: Educational sessions should emphasize "immediate management" and the "Chain of Survival," as these are critical to improving the 10% survival rate for out-of-hospital cardiac arrest.
- Utilize Diverse Information Sources: Since the "source of information" was significantly associated with knowledge levels, community health nurses should use multiple platforms—such as social media, local radio, and pamphlets to reach a wider audience.

Recommendations for Future Research

- Comparative Studies: Conduct a similar study comparing the effectiveness of an information booklet against other teaching methods, such as video-based demonstrations or hands-on CPR manikin training.
- Long-term Retention: Perform a follow-up study (longitudinal design) to assess how much knowledge the general population retains 3 to 6 months after receiving the information booklet.
- Larger Sample Size: Replicate the study with a larger and more diverse sample size beyond the 60 participants in Rasmada, Durg, to generalize the findings to the entire state or country.
- Qualitative Exploration: Conduct interviews or focus group discussions to understand the barriers the general population faces when attempting to provide immediate management during a real-life cardiac arrest.

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