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A PRE-EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF PLANNED HEALTH EDUCATION ON KNOWLEDGE REGARDING PREVENTION OF MYOCARDIAL INFARCTION AMONG HYPERTENSIVE PATIENTS RESIDING IN SELECTED AREA OF JALANDHAR, PUNJAB

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ABSTRACT

The heart serves as a vital organ that pumps blood to the lungs for oxygenation and subsequently distributes this oxygenated blood throughout the body. It takes approximately 20 seconds for the heart to circulate blood to every cell in the body. Without oxygen-rich blood, cells would perish, resulting in significant organ damage. A heart-healthy lifestyle includes proper nutrition, consistent physical activity, keeping a healthy body weight, abstaining from smoking, consuming alcohol in moderation, abstaining from recreational drugs, managing hypertension, and effectively handling stress. The study used a Pre-Experimental design, specifically a one-group pre-test post-test design. The sample of 100 hypertension patients was selected using a non-probability purposive selection approach. A self-structured knowledge questionnaire was used to gather the data, which was then analyzed using descriptive and inferential statistics. The results indicated that the average pre-test knowledge score for hypertensive patients regarding preventing Myocardial Infarction was 14, with a standard deviation of 2.103. The average post-test knowledge score for hypertensive patients regarding the prevention of Myocardial Infarction was 19.26, with a standard deviation of 2.521. The mean difference between the two scores was 5.26. The obtained 't' value (39.09) was statistically significant at a significance level of 0.001. The study's results indicated that the execution of planned health education resulted in a significant improvement in the post-test knowledge of hypertensive patients about preventing Myocardial Infarction.

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INTRODUCTION

Hypertension is a growing public health concern due to its increasing prevalence and its role as a risk factor for several illnesses. Cardiovascular disease (CVD) is a significant risk factor that contributes to around 45% of worldwide mortality and morbidity. The prevalent risk factor for Myocardial Infarction (MI) in the general population is of significant importance.Hypertension, characterized by elevated blood pressure levels, stands as a significant risk factor for cardiovascular diseases (CVDs) like myocardial infarction (MI), commonly known as a heart attack. Myocardial infarction, a critical manifestation of CVDs, poses a considerable burden on public health globally. According to the World Health Organization (WHO), CVDs account for approximately 17.9 million deaths worldwide annually, with myocardial infarction contributing substantially to this mortality rate. Blood pressure above 140/90 mm/Hg is often referred to as hypertension. An increase in blood pressure is detrimental since it heightens the susceptibility to Myocardial Infarction. This phenomenon arises when the blood pressure resulting from cardiac pumping exceeds the established normal range.

Individuals with hypertension often experience a lack of symptoms. Indeed, it is often referred to as the "Silent Killer" and now stands as the primary cause of mortality on a global scale.In the year 2015, the World Health Organisation (WHO) estimated that the global prevalence of hypertension was 1.13 billion individuals, with 1 in 4 men and 1 in 5 women affected. In the year 2019, PGIMER conducted nationwide surveys that yielded findings indicating a significantly elevated prevalence of hypertension in the region of Punjab. across Punjab, the unadjusted prevalence of hypertension is 35.7%, with males accounting for 41% and women accounting for 25.4%. This is much higher than the prevalence of hypertension across India, which is at 25.3%. This disparity in prevalence correlates to an increased incidence of myocardial infarction and coronary heart disease. Myocardial infarction, sometimes referred to as a heart attack, is a condition characterised by the permanent death of heart muscle due to persistent ischemia. This phenomenon often arises due to a disparity between the supply and demand of oxygen to the myocardium.Heart attack, also known as myocardial infarction, is a significant consequence of coronary artery disease. Coronary artery disease arises from atherosclerosis, a condition characterised by the narrowing or hardening of arteries caused by the accumulation of cholesterol plaque. Additional constriction may arise as a result of

thrombi, which are blood clots that develop on the surfaces of plaques. In the context of a myocardial infarction, it is possible for a plaque to rupture, resulting in the release of cholesterol and several other chemicals into the circulatory system. A thrombus develops at the location of the rupture. If sufficiently big, the clot has the potential to obstruct the circulation of blood inside the coronary artery, resulting in a deprivation of oxygen and nutrients to the heart muscle (ischemia). It might be either completely blocked or partially blocked.The classification of infarctions often relies on the specific site of injury, such as anterior, inferior, lateral, or posterior wall infarction. Multiple areas may experience damage, including anterolateral myocardial infarction and anteroseptal myocardial infarction. The correlation between the site of the infarction and the affected coronary circulation has been observed. For instance, the occurrence of inferior wall infarctions may be attributed to the obstruction of the right coronary artery. Occlusions in the left anterior descending artery lead to anterior wall infarction. Occlusions in the left circumflex artery often result in myocardial infarctions affecting the lateral and posterior walls. The diagnostic procedures and therapeutic approaches may vary based on the specific patient's condition. An further factor contributing to a heart attack is the constriction of a coronary artery, resulting in the cessation of blood supply to a specific region of the myocardium. Non-modifiable risk factors for spasms include age, gender, and family history. On the other hand, modifiable risk factors contributing to life-threatening spasms include hypertension, stress, diabetes mellitus, obesity, smoking, physical inactivity, tobacco use, and illicit drug usage, such as cocaine.

Complications frequently arise from the cardiac injury caused by Myocardial Infarction, perhaps resulting in Electrical malfunctions known as "short circuits" can occur, causing irregular cardiac rhythms, some of which can be severe and potentially fatal. Myocardial Infarction can result in the impairment of cardiac tissues, leading to insufficient blood pumping by the remaining heart muscle. Heart failure can manifest as either a transient or a persistent condition, the latter being caused by substantial and irreversible harm to the heart. Sudden cardiac arrest occurs when the heart abruptly ceases to function due to an electrical disruption that leads to an irregular heart rhythm (arrhythmia). Myocardial Infarction raises the likelihood of experiencing sudden cardiac arrest, a condition that can result in death if not promptly treated. Cardiogenic shock is a condition that arises when the tissues do not receive sufficient oxygen and nutrients due to acute failure of the left ventricle. The death rate is significantly high. Cardiogenic shock necessitates assertive treatment, which involves managing dysrhythmias and enhancing contractility by the use of vasoactive medications.

Need of the Study

India, a country with a burgeoning population and rapidly evolving healthcare landscape, grapples with a growing burden of non-communicable diseases (NCDs), including hypertension and its associated complications such as myocardial infarction (MI). Hypertension affects a significant proportion of the Indian population, contributing substantially to the country's disease burden and mortality rates. According to recent data from the Indian Council of Medical Research (ICMR), the prevalence of hypertension in India stands at approximately 29%, with projections indicating a steady increase in the coming years. The heart is an essential organ that is crucial for human survival. The heart serves as the central pumping organ of the body, responsible for circulating blood to the lungs for oxygenation and then distributing this oxygenated blood throughout the entire body. Remarkably, the heart is capable of completing this process in just 20 seconds, ensuring that every cell receives the necessary oxygen. Without this oxygen-rich blood supply, cells would inevitably perish, resulting in significant organ impairment. From the moment the foetus develops in the womb, the heart begins to beat incessantly without any pause until the individual's demise. The heart valves produce a 'Lub-dub' sound when they open and close in response to the heartbeat. On average, the heart has about 2.5 billion contractions throughout a person's lifetime, generating the necessary energy for sustaining life.Hypertension is a widely recognised risk factor for Myocardial Infarction (MI). Studies have shown that the likelihood of experiencing a heart attack (myocardial infarction or MI) is twice as high for every 20 mmHg increase in systolic blood pressure and every 10 mmHg increase in diastolic blood pressure. Based on the 2012 health statistics from the World Health Organisation (WHO), the occurrence of hypertension in India was 23.1% among men and 22.6% among women who were 25 years of age or older. The prevalence of hypertension in rural regions of Punjab state is roughly 14.5%, whereas in urban areas it is approximately 22.8%.In 2016, the American Heart Association (AHA) reported that around 15.5 million individuals aged 20 and above in the United States suffer from Coronary Heart Disease (CHD). The AHA estimated that an American experiences an acute myocardial infarction (AMI) every 42 seconds. According to the World Health Organisation (WHO), in 2011, 32% of deaths in India were caused by myocardial infarction (MI), and more than a quarter (25%) of all individuals with cardiac conditions worldwide is of Indian origin. The World Health Organisation has reported a higher occurrence of heart attacks in underdeveloped nations due to a lack of adherence to modifiable risk factors, specifically hypertension, diet, tobacco smoking, drunkenness, and sedentary job.

Myocardial Infarction is the leading cause of mortality. It is employed interchangeably with coronary occlusion and myocardial infarction. Upon diagnosing Myocardial Infarction, it is crucial to minimise harm to the afflicted tissue and maintain the integrity of unaffected tissues in order to prevent life-threatening consequences. Concurrently, myocardial infarction remains a leading cause of morbidity and mortality in India, with a considerable portion of cases linked to underlying hypertension. The Global Burden of Disease Study 2019 reports ischemic heart disease, including myocardial infarction, as the leading cause of death in India, accounting for over 1.7 million deaths annually. Furthermore, individuals with hypertension in India often face challenges related to inadequate awareness, suboptimal management, and limited access to healthcare resources, exacerbating their risk of cardiovascular complications.Given the substantial burden of hypertension and myocardial infarction in India, there exists a pressing need to implement targeted interventions aimed at enhancing preventive measures and improving disease management among hypertensive patients. Health education programs tailored to address the specific needs and challenges of the Indian population have the potential to mitigate the impact of hypertension-related complications, including myocardial infarction.This study seeks to address the gap in research regarding the effectiveness of planned health education interventions on knowledge acquisition and behavior modification related to myocardial infarction prevention among hypertensive patients in India. By conducting this study in the Indian context, we aim to generate evidence-based insights that can inform the development and implementation of culturally appropriate interventions to combat the rising burden of cardiovascular diseases in the country.

Research problem: A pre-experimental study to assess the effectiveness of planned health education on knowledge regarding prevention of myocardial infarction among hypertensive patients residing in selected area of Jalandhar, Punjab.

Objectives

1. To assess the pre-test knowledge regarding prevention of myocardial infarction among hypertensive patients.
2. To plan and implement planned health education on knowledge regarding prevention of myocardial infarction among hypertensive patients.
3. To assess the post-test knowledge regarding prevention of myocardial infarction among hypertensive patients.
4. To compare the pre-test & post-test knowledge regarding prevention of myocardial infarction among hypertensive patients.

5. To find out the association of knowledge regarding prevention of myocardial infarction among hypertensive patients with their selected socio-demographic variables.

REVIEW OF LITERATURE

Investigator discussed the review of literature under following headings:

Section I: Literature related to prevalence and incidence of Myocardial Infarction among hypertensive patients.
Section II: Literature related to knowledge regarding prevention of Myocardial Infarction among hypertensive patients.
Section III: Literature related to health education on prevention of Myocardial Infarction among hypertensive patients.

MATERIAL AND METHODS

Research approach: Quantitative research approach was inspected and found suitable for the study.

Study design: Pre-experimental one group pre-test post-test design was used.

Sample size: A total of 100 hypertensive patients, who fulfill the inclusion criteria from selected community were included in the study.

Sample technique: The technique to draw the sample used was Non-probability purposive sampling.

Development of tool

Part I: Socio-demographic variable performa to collect the general information of subjects on like age, gender, education, religion, occupation, personal unhealthy habits, dietary pattern, monthly income, family history of heart disease, associated morbidity and source of information received regarding prevention of Myocardial Infarction.
Part II: It consisted of a self structured knowledge questionnaire regarding prevention of Myocardial Infarction. It consists of 32 questions regardingprevention of Myocardial Infarction.

Data Collection Procedure: The collection of final data occurred subsequent to its authorization by the administration. The researcher provided a description of the study objectives to the participants, ensuring them that their data would be kept confidential and anonymous for the duration of the experiment. Subsequently, the participants provided their informed consent to participate in the study. The self structured knowledge questionnaire was used to evaluate the knowledge of hypertensive patients regarding prevention of Myocardial Infarction.

Statistical analysis: Data was gathered and analysed using descriptive and inferential statistics.

RESULTS

The majority of hypertension patients, specifically 72 individuals (72%), were aged 42 years and beyond. Out of the total hypertensive patients, 51% were males, 49% belonged to the Hindu religion, 36% had a primary education, 48% were homemakers, 38% had a monthly income between 10001-20000, and 60% were vegetarian. Out of the hypertension individuals, 77% did not have any personal habits. Out of the total of 84 hypertension patients, 84% did not have a family history of heart disease. Out of the total number of hypertension individuals, 79% did not have any associated morbidity. 57% of hypertensive individuals did not obtain any health information about the prevention of Myocardial Infarction.

The average pre-test knowledge score for preventing Myocardial Infarction in hypertension patients was 14 (±2.013), corresponding to an average percentage of 43.75%.Approximately 79% of hypertensive individuals have below average awareness regarding the prevention of Myocardial Infarction.The average post-test knowledge score for preventing Myocardial Infarction among hypertension patients was 19.26 (±2.521), corresponding to an average percentage of 60.18%.The vast majority of hypertension patients, specifically 91 out of 100 (91%), have an average level of knowledge regarding the prevention of Myocardial Infarction.

Table 1.Comparison of the pre- test and post- test level of knowledge level regarding prevention of myocardial infarction

N=100

Test	n	Mean	SD	df	't'
Pre-test knowledge	50	14	2.103	99	39.09***
Post-test knowledge	50	19.26	2.521		

Maximum score =32 ***significant at p<0.001 level
Minimum score= 00

Table 1 illustrates the comparison between pre-test and post-test knowledge levels concerning prevention of myocardial infarction. The average pre-test knowledge score for preventing Myocardial Infarction in hypertension individuals was 14 (±2.103), while the average post-test knowledge score was 19.26 (±+2.521). The estimated 't' value of 39.09 was determined to be statistically significant at a level of significance of p<0.001.Therefore, it was determined that the disparity in the average pre-test and post-test knowledge scores regarding the prevention of Myocardial Infarction among hypertensive patients was a genuine difference and not a result of chance.The study found a statistically significant association between pre-test knowledge about preventing Myocardial Infarction in Hypertensive patients and their socio-demographic characteristics, such as monthly income (10.94), at a significance level of p<0.01. Therefore, it was discovered that socio-demographic factors, such as monthly income, had an impact on the level of information that hypertension patients possessed regarding the prevention of Myocardial Infarction. The study examined the relationship between pre-test knowledge about preventing Myocardial Infarction in hypertensive patients and their socio-demographic variables, including age, gender, religion, education, occupation, diet, personal habits, family history of heart disease, associated morbidity, and the source of health information received about preventing Myocardial Infarction. The calculated Chi-Square value was lower than the table value, indicating that the results were not statistically significant at the p<0.05 level.

DISCUSSION

The analysis of the first objective of the study, which aimed to evaluate the pre-test knowledge about the prevention of Myocardial Infarction among hypertensive patients, showed that the average pre-test knowledge score was 14. Furthermore, the majority of hypertensive patients (79%) had below average knowledge regarding the prevention of Myocardial Infarction. The results of the study conducted by Mane D.K, Mathew A, Alate1 M, Satish V. (April 2019) at Rural Tertiary care hospital, Karad, showed that a majority of hypertension patients (59%) had limited understanding of the risk factors and preventative methods for Myocardial Infarction.The analysis of the study's third objective, which was to evaluate the post-test knowledge on the prevention of Myocardial Infarction among hypertensive patients, showed that the average post-test knowledge score was 19.26. The majority of hypertensive patients, 91 out of 100 (91%), had an average level of knowledge regarding the prevention of Myocardial Infarction. The results align with the research conducted by Pradeep L.P (2014) at a Government hospital in Mumbai. The study found that after implementing planned teaching on the subject of early signs, symptoms, and immediate treatment of myocardial infarction, a significant majority of hypertensive patients (90%) demonstrated sufficient knowledge on preventing myocardial infarction.The analysis of the fourth objective of the study, which aimed to compare the pre-test and post-test knowledge on the

prevention of Myocardial Infarction among hypertensive patients, showed a significant increase in post-test knowledge after the implementation of Planned Health Education. This increase was statistically significant at a significance level of $P<0.05$. The study demonstrated the efficacy of Planned Health Education in improving awareness about preventing Myocardial Infarction among patients with hypertension. Therefore, the hypothesis was deemed valid. The results align with the study conducted by Kaur M, Cheema PK (2016) at Civil Hospital Mukerian, Jalandhar, Punjab. The study revealed that the implementation of a planned teaching programme (PTP) led to a notable improvement in the post-test knowledge of hypertensive patients regarding the early signs and symptoms of myocardial infarction (MI). The average pre-test knowledge score was 13.87, while the average post-test knowledge score was 23.57. The results were statistically significant at a significance level of $P < 0.001$. This indicates that the planned teaching programme (PTP) was helpful in improving awareness of early signs and symptoms of myocardial infarction (MI) among hypertensive patients. Therefore, the hypothesis was deemed valid.The analysis of the 5th objective of the study, which aimed to determine the relationship between pre-test knowledge about preventing Myocardial Infarction among hypertensive patients and their socio-demographic variables, showed that there was a statistically significant association between pre-test knowledge and monthly income (10.94) at a significance level of $p<0.01$. Therefore, it was discovered that socio-demographic factors, such as monthly income, had an impact on the level of information that hypertension patients possessed regarding the prevention of Myocardial Infarction. The results of the study conducted by Mane D.K, Mathew A, Alate1 M, Satish V. (April 2019) at a Rural Tertiary Care facility in Karad showed that there was a statistically significant relationship between monthly income (0.0209) and the outcome, with a p-value of less than 0.05. Therefore, it was found that socio-demographic characteristics, such as monthly income, had an impact on the knowledge of hypertension patients regarding Myocardial Infarction.

CONCLUSION

The notable improvement in knowledge levels post-intervention suggests the positive impact of the PTP on enhancing understanding and awareness among hypertensive patients regarding the prevention of myocardial infarction. The statistically significant difference between pre-test and post-test scores reinforces the effectiveness of the educational intervention. In conclusion, study focused on assessing knowledge levels among hypertensive patients in India regarding myocardial infarction (MI) prevention and the effectiveness of planned health education interventions. Results revealed initially low awareness, with only 43.75% scoring above average on the pre-test. However, after the intervention, there was a significant increase in knowledge, with the average post-test score reaching 60.18%. Socio-demographic factors, notably monthly income, influenced pre-test knowledge levels. These findings underscore the importance of targeted health education initiatives in improving MI prevention awareness among hypertensive populations, ultimately contributing to better health outcomes.

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