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Study to Evaluate the Effectiveness of Structured Teaching Programme Regarding Lifestyle Modification for Prevention of Myocardial Infarction among Diabetes Mellitus Patients in Selected Hospital at Lucknow.

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ABSTRACT:

Introduction: Diabetes mellitus heightens the risk of myocardial infarction. Structured teaching programs on lifestyle modifications—diet, exercise, and stress management—are vital for reducing this risk and improving cardiovascular health in diabetic patients. **Methodology:** The study aims to evaluate diabetes mellitus patients' existing knowledge about lifestyle modifications for preventing myocardial infarction (MI), assess the impact of a structured teaching program on this knowledge, and analyze the relationship between posttest knowledge scores and various demographic variables. An evaluative research approach using a pre-experimental design with a single group pretest and posttest will be utilized. Data will be gathered through a structured questionnaire and the structured teaching program. The sample will consist of 60 participants, chosen through purposeful sampling, ensuring a focus on those relevant to the study's objectives. The research will be conducted at Chandra Hospital & Research Center and Axon Hospital in Lucknow. This approach aims to enhance diabetic patients' understanding of lifestyle changes crucial for MI prevention, ultimately contributing to improved health outcomes and effective preventive strategies. **Result:** In the study, pretest results showed that 55.5% of diabetes mellitus patients had insufficient knowledge about lifestyle modifications for preventing myocardial infarction (MI). Only 5% were well-informed, while 40% had moderate knowledge. The highest mean percentage (58.13%) was related to lifestyle changes for MI prevention, whereas overall concepts (47.6%), clinical aspects, diagnosis, and management of MI (43.75%), and MI etiology (43.66%) scored the lowest. The overall pretest knowledge score was 51.66% with a standard deviation of 3.9.Post-intervention, 25% of respondents had intermediate knowledge, 75% had appropriate knowledge, and no one had insufficient knowledge. The "t" value of 28.22, significant at the 0.01 level, confirmed a significant improvement in knowledge. Additionally, the chi-square analysis at the 0.05 level showed a significant relationship between posttest knowledge scores and demographic variables like income, education, and religion, but not with age, gender, or lifestyle factors. **Conclusion:** This highlights the effectiveness of the STP in enhancing knowledge and its relevance to specific demographic factors.

Keywords: Structured Teaching Program, Lifestyle Modification, Myocardial Infarction, Diabetes Mellitus, Prevention

1. INTRODUCTION

Diabetes mellitus, a chronic metabolic disorder characterized by elevated blood glucose levels, significantly increases the risk of developing cardiovascular diseases, including myocardial infarction (MI).[1] The intricate relationship between diabetes and cardiovascular health underscores the urgent need for effective preventive strategies. Myocardial infarction, commonly known as a heart attack, is a major contributor to morbidity and mortality among diabetic patients. Given the high prevalence of diabetes worldwide and its growing impact on cardiovascular health, addressing lifestyle factors through structured teaching programs has emerged as a pivotal approach to mitigating these risks.[2] Lifestyle modification plays a crucial role in the prevention of myocardial infarction among diabetes mellitus patients. Adopting healthy lifestyle behaviors—such as a balanced diet, regular physical activity, smoking cessation, and stress management—can substantially reduce the incidence of MI. However, despite the known benefits, many diabetic patients struggle to implement and sustain these lifestyle changes effectively.[3]

A structured teaching program offers a systematic approach to educating patients about the importance of lifestyle modifications and equipping them with practical strategies to integrate these changes into their daily lives.[4] Such programs typically include components like personalized dietary plans, exercise regimens, behavioral therapy, and regular follow-up support. The effectiveness of these programs lies in their ability to address the individual needs of patients, enhance their understanding of the relationship between lifestyle choices and heart health, and provide continuous motivation and support.[5] By focusing on structured education and support, these programs aim to empower diabetic patients to take proactive steps towards improving their health and preventing myocardial infarction. This approach not only enhances patients' knowledge but also fosters the adoption of sustainable lifestyle changes, ultimately contributing to a significant reduction in cardiovascular risk and improvement in overall health outcomes.[6]

2. NEED OF THE STUDY

The escalating global incidence of diabetes mellitus has underscored the urgent need to address its severe complications, including myocardial infarction (MI). Diabetic patients face a markedly increased risk of MI due to the detrimental effects of sustained hyperglycemia on cardiovascular health. Despite evidence showing that lifestyle modifications—such as improved diet, regular physical activity, and smoking cessation—can mitigate this risk, many diabetic individuals struggle to adopt and maintain these changes effectively.[7] A critical study by Al-Lawati et al. (2012) highlights this issue, demonstrating that structured educational interventions significantly improve lifestyle behaviors and glycemic control among diabetic patients. Their research underscores the potential of tailored educational programs in promoting effective lifestyle changes, which can substantially reduce the risk of MI. The study found that participants who engaged in structured programs showed marked improvements in dietary habits, physical activity, and overall cardiovascular risk factors compared to those who did not receive such interventions.[8]

This evidence points to a pressing need for more comprehensive evaluations of structured teaching programs designed to prevent MI in diabetic patients. By assessing the effectiveness of these programs, we can refine strategies to better support lifestyle modifications, ultimately reducing MI incidence and enhancing patient outcomes. Addressing this need will contribute to more effective prevention and management of cardiovascular risks in the diabetic population.[9]

3. AIM OF THE STUDY

To evaluate the effectiveness of a structured teaching program in promoting lifestyle modifications for the prevention of myocardial infarction among patients with diabetes mellitus.

4. METHODOLOGY

The study aims to assess the existing knowledge of diabetes mellitus patients regarding lifestyle modifications for myocardial infarction prevention, evaluate the effectiveness of a structured teaching program on this knowledge, and explore the association between posttest knowledge scores and selected demographic variables. An evaluative research approach has been selected, utilizing a pre-experimental design with a single group pretest and posttest to achieve the study's objectives. Data will be collected using a structured questionnaire and a structured teaching program. A sample of 60 subjects will be included, providing sufficient data for analysis and generalizations. Purposeful sampling will be employed to select participants, ensuring a focus on those most relevant to the study's goals. The research will be conducted at Chandra Hospital & Research Center and Axon Hospital in Lucknow, targeting patients with diabetes mellitus to gauge and improve their understanding of lifestyle modifications essential for preventing myocardial infarction.

5. RESULT

SECTION I: DEMOGRAPHIC VARIABLES

1. Age: Most of the DM patients (35%) are between the ages of 50 and 59 and older than 60, respectively: 18.3% are between the ages of 40 and 49. and only (11.7%) are between the ages of 30-39.
2. Gender: 50% of the patients with DM were female, according to the individuals' gender distribution.
3. Religion: Most of the people who have DM (31.7%) identify as Christians. followed by Hindus (28.3%), Muslims (25.0%), and other people (15%).
4. Type of family: Most of the people with DM (43.3%) are members of a nuclear family, followed by extended families (30%) and joint families (26.7%).
5. Marital status: The majority of people with diabetes mellitus (86.7%) were married, followed by single people (6.7%), widows (5%) and divorced people (1.7%).
6. Education: The majority of people with diabetes mellitus (40%) have completed secondary education, followed by graduates (28.3%), elementary school graduates (25.0%), and illiterates (6.7%).
7. Occupation: The majority of people with diabetes mellitus (33.3%) worked in the private sector, (31.7%) in government. (21.7%) in other occupations, and just 13.3% were housewives,
8. Income: Most of the patients with DM (55%), had incomes over Rs. 15000, 28.3% had incomes between Rs. 10001 and 15000, 11.7% had incomes between Rs 5001 and 10000, and just 5% had incomes below Rs. 5000
9. Diet: Only 31.7% of DM patients were vegetarians, with the majority (68%) being non-vegetarians.
10. Habits: The majority of DM patients (65%) had no habits at all, whereas 11.7% of them used smoking, alcohol, or tobacco.

11. Duration of diabetes mellitus: Most of the patients with DM (33.3%) had the discase for five to ten years, 25% for ten to fifteen years, 21.7% for less than five years, and barely 20% for fifteen years or more.
12. Other Associated conditions: Most of the patients with DM (45%) did not have any other co-occurring diseases. Of those with diabetes, 25% had hypertension, 18.3% had elevated cholesterol, and 11.7% had obesity.
13. Lifestyle: The majority of those with diabetes mellitus (51.7%) had adopted a different lifestyle, followed by regular exercise (28.3%), a balanced diet (11.7%). and smoking (8.3%).
14. Source of information: Patients having DM obtain the majority of their health information (45%) from outside sources, including health professionals (28.3%), the media (16.7%), and magazines (10.0%).

SECTION-II: Existing knowledge of diabetes mellitus patients, regarding lifestyle modification for prevention of myocardial infarction.

According to respondents' pretest knowledge scores in the current study, 55.5% of patients with diabetes mellitus lacked sufficient information. Just 5% had sufficient understanding, compared to 40% who had moderate knowledge. The subject with the greatest mean percentage (58.13%) was the one who modified their lifestyle in order to avoid MI. The idea as a whole (47.6%), clinical aspects, diagnosis, and management of myocardial infarction (43.75%), and etiology of MI (43.66%) earned the lowest mean score. In the pretest, the respondents' overall knowledge scores came out to be 51.66% with a standard deviation of 3.9.

SECTION-III: Effectiveness of structured teaching program regarding lifestyle modification for prevention of myocardial infarction.

Following the introduction of a structured teaching program about changing one's lifestyle to prevent myocardial infarction. 25 percent of respondents had intermediate knowledge, 75 percent had appropriate knowledge, and none of the respondents had insufficient knowledge, according to the findings. Moreover, the resulting "t" value of 28.22 is greater than the value at the 0.01 level of significance. Accordingly, it is concluded that the "t" value is significant. It indicates that individuals with diabetes mellitus are becoming more knowledgeable. This demonstrates how improving DM patients' understanding through an STP about modification in lifestyle for MI prevention is beneficial.

SECTION-IV: Association of the posttest knowledge scores of diabetes mellitus patients with the selected demographic variables.

The results showed that, at 0.05 levels of significance, the generated x2 value is greater as compared to the table value. As a result, there is a significant relationship between the post-test knowledge scores of individuals with DM and certain demographic variables, such as income, education, and religion. The results showed that, at 0.05 levels of significance, the computed x2 value is smaller than the table value. Therefore, there is no discernible relationship between the posttest knowledge scores of patients with diabetes mellitus and particular demographic variables, including age, gender, employment, marital status, family type, food, habits, duration of DM, associated conditions, lifestyle, and information source

6. DISCUSSION

In the current study, pretest knowledge scores revealed that 55.5% of diabetes mellitus patients had insufficient information regarding lifestyle modifications to prevent myocardial infarction (MI). Only 5% demonstrated sufficient knowledge, while 40% had moderate knowledge. The highest mean percentage of knowledge (58.13%) was related to lifestyle modifications for MI prevention. However, the lowest mean scores were in areas such as overall concept (47.6%), clinical aspects, diagnosis and management of MI (43.75%), and the etiology of MI (43.66%).

The pretest scores indicated an overall knowledge level of 51.66% with a standard deviation of 3.9. Following the introduction of a structured teaching program (STP), the results showed significant improvements. Post-intervention, 25% of respondents had intermediate knowledge, 75% had appropriate knowledge, and none had insufficient knowledge. The "t" value of 28.22, exceeding the threshold at the 0.01 level of significance, confirmed that the STP significantly enhanced the participants' knowledge.

This improvement is consistent with a similar study conducted in Tiruvannamalai, Tamil Nadu, which evaluated the impact of an STP on ischemic heart disease (IHD) and cardiac rehabilitation knowledge. In that study, a semi-structured interview schedule revealed that patients' understanding of cardiac rehabilitation significantly improved after the STP. The results were statistically significant, with the chi-square (x2) value surpassing the table value at the 0.05 level, indicating a notable relationship between knowledge scores and demographic variables such as income, education, and religion.[10] Conversely, the study found no significant relationship between posttest knowledge scores and other demographic variables including age, gender, employment status, marital status, family type, dietary habits, duration of diabetes mellitus, associated conditions, lifestyle, and information sources. This highlights that while certain demographic factors affect knowledge acquisition, others do not show a discernible impact, emphasizing the broader effectiveness of structured educational interventions.

Conversely, the study did not find significant relationships between posttest knowledge scores and several other demographic variables, including age, gender, employment, marital status, family type, dietary habits, duration of diabetes mellitus, associated conditions, lifestyle, and information sources. These findings suggest that while certain demographic factors influence knowledge acquisition, other variables do not show a discernible impact. Overall, the study reinforces the value of structured educational programs in enhancing knowledge about lifestyle modifications for MI prevention among diabetic patients.

7. CONCLUSION

The study underscores the critical role of structured educational programs in enhancing the knowledge of diabetes mellitus patients regarding lifestyle modifications for myocardial infarction (MI) prevention. Prior to the intervention, a substantial portion of the participants lacked sufficient information, indicating a significant knowledge gap. The structured teaching program (STP) successfully addressed this issue by significantly improving participants' understanding, with most achieving appropriate knowledge levels post-intervention. This improvement reflects the efficacy of targeted educational interventions in fostering better health practices among individuals with diabetes. The findings also reveal that while some demographic factors such as income, education, and religion impact knowledge levels, others do not show a clear correlation. This highlights the effectiveness of educational programs in reaching diverse groups and improving health outcomes regardless of certain personal characteristics. Overall, the study supports the continued use and development of structured educational programs to enhance the understanding of lifestyle modifications necessary for the prevention of MI among diabetic patients. Future research should explore the long-term impact of such programs and their potential to address the remaining knowledge gaps identified in different demographic contexts.

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