"A Study To Assess The Effectiveness Of The Nursing Care Strategies On Psychophysiological Parameters Among - Myocardial Infarction Patients In Coronary Care Unit At Selected Hospital Of Bareilly, Uttar Pradesh."

Section A-Research Paper

"A STUDY TO ASSESS THE EFFECTIVENESS OF THE NURSING CARE STRATEGIES ON PSYCHOPHYSIOLOGICAL PARAMETERS AMONG - MYOCARDIAL INFARCTION PATIENTS IN CORONARY CARE UNIT AT SELECTED HOSPITAL OF BAREILLY, UTTAR PRADESH."

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Abstract

A current study which analyzed all foremost world ethnic groups in relation to cardiac disease initiated that Indians have the maximum threat of coronary heart disease, with shows three to four times higher than Americans, six times greater than the Chinese and 20 times more than the Japanese. In North India, 7-10% of community have coronary heart disease (CAD) has gradually increased in India throughout the latter half of the century and is the major cause of mortality burden in the world. Global burden of cardiac disease study guesstimate that by the year 2020, the burden of atheroembolic cardiovascular disease in India would surpass that in any other province in the world. Regrettably, the participation of above factors has been evaluated typically in seclusion, even though their purposeful interrelations and links with behavioral factors. Additionally, there may be detailed dealings between individual symptoms of depression and certain psycho physiological mechanisms, somewhat with general depression, further complicating the notion of depressionas a cardio toxic factor. The comparatively understudied density of the relation among depression and CAD may give out as enlightenment for the decision that depression management does not or hardly influence cardiac upshot. Future studies should hub on the network of psycho- physiological and (behavioral) factors to elucidate their precise role and timing in depressed cardiac patients, that's why the study will be aim to involve the patient and family for the participation in care for the better outcome.

Keywords

1. NURSING CARE STRATEGIES –

- **Conceptual definition-**

A **Nursing Care Strategies** provides direction on the type of nursing care the individual/family/community may need. The main objective of a nursing care plan is to facilitate standardised, evidence-based and holistic care.

- **Operational definition**-

-Healthcare professional can help to improve the patient safety through patient-centred care strategies and incorporating the patient as part of the care team.

– Proper diet, exercise, medication adherence, some simple relaxation exercises for stress management given though video assisted teaching for 1hour (2 sessions each 30 minutes). After 72 hours of admission in CCU. It also includes helping the patient and family to have a friendly hospital environment with proper communication.

– Create a safe patient experience by explaining all care in the hospital.

– Create simple and timely appointment scheduling after discharge at least 6 times (every 15 days).

– Encourage family and caregiver engagement in follow up, medication adherence, cardiac diet, doing the physical activity and etc. (whenever they come for review in six sessions).

PSYCHO PHYSIOLOGICAL PARAMETERS

- **Conceptual definition-**

PSYCHOLOGICAL PARAMETERS are the measures for the gathering of data to evaluate a person's behaviour, abilities, and other characteristics, particularly for the purposes of making a diagnosis or treatment recommendation. Psychologists evaluate diverse psychiatric problems like anxiety, substance abuse and non-psychiatric concerns like intelligence, career interests in a range of clinical, educational, organizational, forensic, and other settings. Assessment data may be gathered through interviews, observation, standardized tests, self-report measures, physiological or psycho-physiological measurement devices, or other specialized procedures and apparatuses.

(https://dictionary.apa.org/psychological-assessment)

Eur. Chem. Bull. **2023**, *12(Special Issue 5), 6119 - 6126*

6119

PHYSIOLOGICAL PARAMETERS are the measures used to assess functions and mechanisms in a living system. (https://en.wikipedia.org/)

Operational definition-
− **PHYSIOLOGICAL:** Blood Pressure and low- density lipoprotein cholesterol levels, cardiac symptoms are measured through check list. It is assessed at 72 hours then 1month and 3rd month.
− **PSYCHOLOGICAL**: Level of anxiety which will be measured by (Hamilton anxiety rating scale) It is assessed at 72 hours then 1month and 3rd month.

2. MYOCARDIAL INFARCTION PATIENTS

Conceptual definition: Myocardial infarction patients are those who are diagnosed with myocardial infarction. www.google.com

Operational definition- Patients diagnosed with myocardial infarction admitted in the selected hospital (within 72 hours or 6 days of diagnosis).

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INTRODUCTION

Myocardial infarction (MI), or acute heart attack occur when blood circulation lessens or stops to a part of the heart, causing harm to the cardiac muscle and necrosis of muscles cells and tissue. Blood clot (thrombus) blocks vessel supplying the heart, leading to inadequate blood supply Pain or tightness in centre of chest may radiate to arms, throat or jaw. Patient may become pale and perspire, blood pressure may fall and pulse may become rapid and shallow.1

Myocardial infarction refers to the process in which myocardial tissue is destroyed in region of the heart that is deprived of their blood supply because of reduced coronary blood flow.

Myocardial Infarction is a acute coronary syndrome, which explains an abrupt or short term change in symptoms related to blood flow to the heart.2

There is growing evidence of connection between psychological stress and the risk of coronary heart disease (CHD). In approximately 17% patients with clinically stable CHD, acute mental stress in the laboratory can trigger myocardial ischemia detected with myocardial perfusion imaging. In contrast to myocardial decreased perfusion of blood induced by a conventional test, such as exercise stress testing, mental stress–induced myocardial ischemia is usually asymptomatic, occurs at a lower hemodynamic workload, and can occur in patients who do not have a positive conventional stress test result. Factors that can take place in patients with mental stress–induced ischemia include abnormal vasomotion, psychological conditions, and platelet reactivity, although the exact mechanisms are not clear.

Chronic stress frequently produces hormonal imbalances. The hormonal changes caused by stress can give rise to tears in the walls of arteries. The body repairs these tears by using cholesterol plaques (a type of scar tissue) to patch up the torn artery. But too many plagues cause hardening of the arteries. The cholesterol plaques may also block the hearts major coronary arteries; causing part of the heart muscle to die, resulting in myocardial infarction and heart failure.

OBJECTIVES OF THE STUDY:

- To assess the psycho-physiological parameters, among myocardial infarction patients in study and control group.
- To determine the effectiveness of nursing care strategies on psycho- physiological parameters among myocardial infarction patients.
- To correlate the relationship between the psychological and physiological parameters among myocardial infarction patients.
- To associate the psychological and physiological parameters with their selected variables among myocardial infarction patients.

NEED FOR STUDY:

- A recent study which analyzed all major world ethnic groups in relation to heart disease found that Indians have the highest risk of coronary heart disease, with rates three to four times higher than Americans, six times more than the Chinese and twenty times more than the Japanese. In North India, 7-10% of people have coronary heart disease (CAD) has progressively increased in India during the late half of the century and is the major cause of mortality burden in the world. Global burden of disease study estimate that by the year 2020, the burden of atheroembolic ardiovascular disease in India would surpass that in any other region in the world. Unfortunately, the involvement of above factors has been evaluated mostly in isolation, despite their functional interrelations and associations with behavioural factors.
- Moreover, there may be specific relations between individual symptoms of depression and certain psycho physiological mechanisms, rather than with general depression, further complicating the notion of depression as a cardio toxic factor. The relatively understudied complexity of the relation between depression and coronary artery disease may provide an explanation for the finding that depression treatment either does not or barely affects cardiac outcome. Future studies should focus on the network of psycho-physiological (and behavioural) factors to elucidate their precise role and timing in depressed cardiac patients.
- Hence the study will be aim to involve the patient and family for the participation in care for the better outcome.
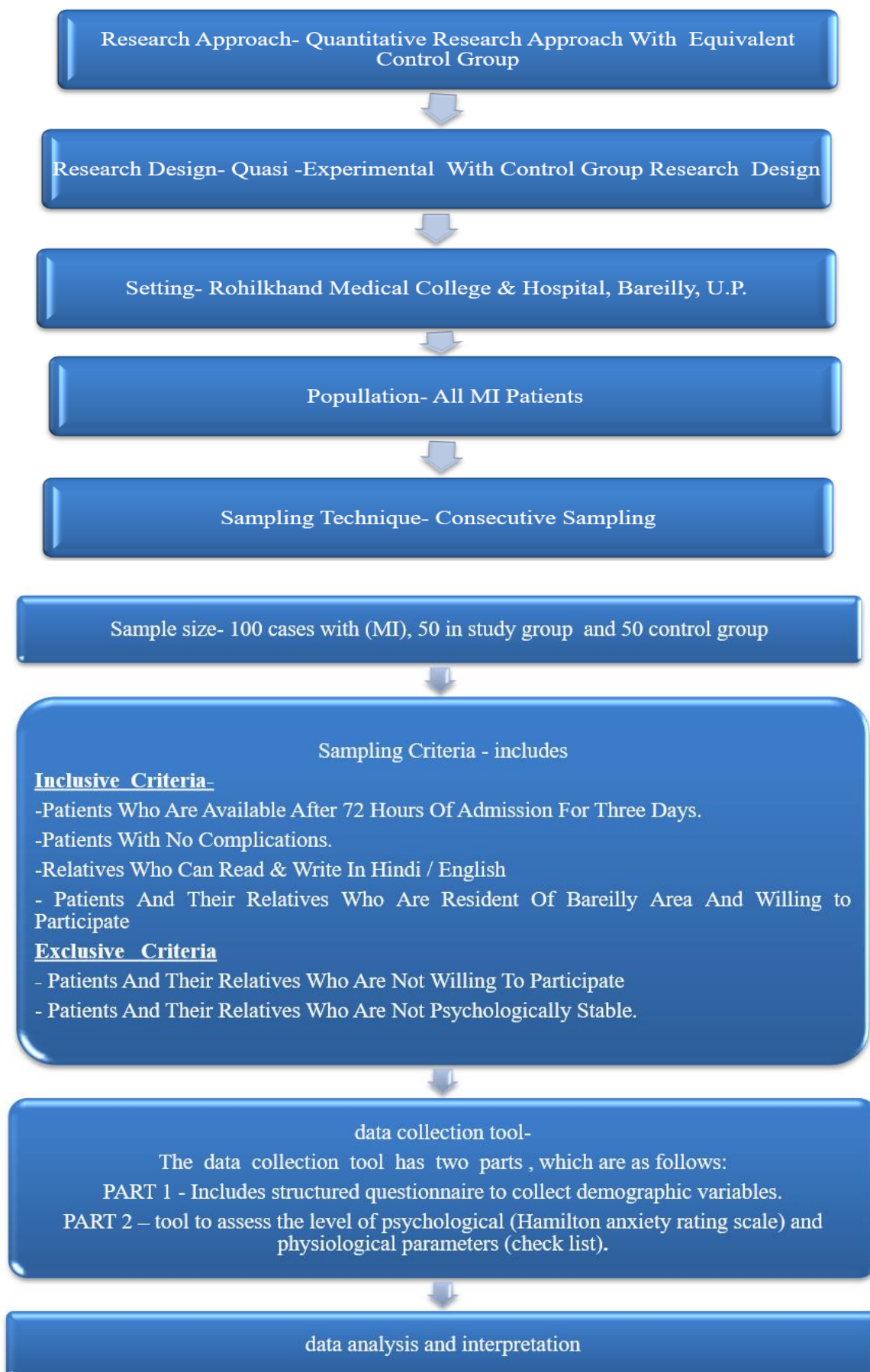
RESEARCH METHODOLOGY

Research Approach- Quantitative Research Approach With Equivalent Control Group

Research Design- Quasi -Experimental With Control Group Research Design

Setting- Rohilkhand Medical College & Hospital, Bareilly, U.P.

Popullation- All MI Patients

Sampling Technique- Consecutive Sampling

Sample size- 100 cases with (MI), 50 in study group and 50 control group

Sampling Criteria - includes

Inclusive Criteria-

-Patients Who Are Available After 72 Hours Of Admission For Three Days.

-Patients With No Complications.

-Relatives Who Can Read & Write In Hindi / English

- Patients And Their Relatives Who Are Resident Of Bareilly Area And Willing to Participate

Exclusive Criteria

- Patients And Their Relatives Who Are Not Willing To Participate

- Patients And Their Relatives Who Are Not Psychologically Stable.

data collection tool-

The data collection tool has two parts , which are as follows:

PART 1 - Includes structured questionnaire to collect demographic variables.

PART 2 – tool to assess the level of psychological (Hamilton anxiety rating scale) and physiological parameters (check list).

data analysis and interpretation

FIGURE – SCHEMATIC REPRESENTATION OF STUDY DESIGN

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Section A-Research Paper

Research Approach
A Quantitative research approach with equivalent control group

Research Design
A Quasi-Experimental with control group research design

Research Setting
Rohilkhand Medical College & Hospital, Bareilly, U.P.

Study Population
All Myocardial Infarction Patients

Sample
Sample consists of patient with myocardial infarction who met the eligibility criteria.

Sample Size

$$n = \frac{2\left[Z_{1-\alpha/2} + Z_{1-\beta}\right]^2}{\left(\frac{d}{\sigma}\right)^2}$$

$\left(\frac{d}{\sigma}\right)$ is called effect size

The sample size is calculated using Cohen 'd effect size formula.
5% level of Significance z1-α/2 value is 1.96
90 % Power z1-β value is 1.28
d/σ is effect size = 0.5 (Acc. To cohen'd effect size)
The calculated sample size is 100. With 10% attritition
50 samples in Experimental group
50 samples in the control group

Sample Criteria
• Inclusive Criteria-
✓ Patients who are available after 72 hours of admission for three days.
✓ Patients with no complications and stable vital signs.
✓ Relatives who can read & write in Hindi / English
✓ Patients and their relatives who are resident of Bareilly area and willing to participate
✓ The patients cardiac enzymes within normal limits.

• Exclusive Criteria-
✓ Patients and their relatives who are not willing to participate

✓ Patients and their relatives who are not psychologically stable.

Sampling Technique
A consecutive sampling technique was used to select the participants. (Consecutive sampling is very similar to convenience sampling except that it seeks to include all accessible subjects as part of the sample, which is sometimes considered as the best type of non-probability sampling. Snowball sampling is usually done when there is a very small population size)

Data collection techniques
Data was collected by self-assessment method through rating scale & check-list. The data collected by Self-assessment method is known as self-monitored data. This method also involves asking a participant about their feeling, attitude, beliefs or other symptoms etc. This helped in identification of symptoms and intervention which have reduced patients suffering and improves the working productivity and creativity.

Ethical Consideration
1. Informed Consent
2. Confidentiality
3. Beneficence (Ethical Principle was followed)
4. Nursing Care Strategies was given for controlled group also after post-tests.

Tools and techniques
Structured knowledge questionnaire and Hamilton anxiety rating scale and check list were used to collect the data from the participants.

Development of tool
The following steps was undertaken to prepare the research tool-
- Extension review of literature on the relevant topic
- Discuss with experts and guide
- Preparation of blue print
- Preparation of rough draft
- Preparation of final draft of the tool

Description of the tool
The data collection tool has two parts on it which are as follows:
▪ **PART 1 -** Includes structured questionnaire to collect demographic variables. It includes Age, Gender, Education, Marital Status, Personal Bad Habits/Life Style, Socio-Economic Status, Diet/ Nutritional Status, Types of Exercise Activities/ Hobbies, Work And Family History of Heart Disease etc.

Eur. Chem. Bull. **2023**, *12(Special Issue 5), 6119 - 6126*

6123

- **PART 2 –** tool to assess the level of psychological (Hamilton anxiety rating scale) and physiological parameters (check list).

Intervention / Procedure [A written permission taken from medical superintendent to collect data for the research study]
- Permission from the setting.
- Consent from the patients.
- Dividing for study and control group
- Pre test level of physiological parameters.
- Information providing through VAT, flash cards and issuing booklet on aspects like diet, exercise, medication adherence, symptom identification and management Etc. only to study group followed by issuing of Information booklet.
- Follow up with reinforcement every 15 days for a period of 3 months.
- Post test level of physiological parameters and psychological parameters at the end of 1st and 3rd month.

Statistical Analysis
- Total of 50 cases with (MI) and 50 control group and matched for age and gender were selected using consecutive sampling from a medical college and hospital in Bareilly, Uttar Pradesh, India.
- Data analysis will be done by both descriptive and inferential statistics on the basis of objective and hypothesis of the study.

Content Validity of Tool
The constructed tool along with
- Objectives,
- Operational definitions,
- Demographic variables,
- Hamilton anxiety rating scale and
- Patient's checklist for symptoms of myocardial infarction.
- Blue print & criteria checklist for the content validation of demographic variables & criteria checklist for the content validation of Hamilton anxiety scale to assess psychological parameters and physiological parameters were sent to 7 experts.

The structured knowledge questionnaire the item level content validity index CVIs was ranged from 0.4 to 1 and the scale level content validity index using the averaging were 0.94

Pretesting of tool
Pretesting of tool was done on 10 subjects (5 from experimental group and 5 from control group) to

check the difficulty in comprehending the study tool and the finding regarding tool was:
- Self-explanatory
- Simple language
- Vocabulary used according to their level
- Time period taken 20 minutes.

Reliability
In order to assess the reliability of structured knowledge questionnaire and checklist, the tool was on 10 participants. Split half method (spearman's correlation coefficient formula) was used to out the reliability of the tool (r=0.8) and test re-test method was used to find out the reliability of nursing care strategies through psycho-physiological parameters (r=0.78) and it was found reliable.

Pilot study
Pilot study was conducted on 10 participants from date 1st December 2020 to 5th December 2020.
Pilot study was conducted after getting written permission from the medical superintendent from Gangasheel Hospital, Gangasheel Advanced Medical Research Institute, Bareilly, Uttar Pradesh. Written informed consent was obtained from the participants by explaining the purpose of study. A consecutive sampling technique was used to select the participants. Result of Pilot study reveals that it was easily assessable, no significant problem was faced during the study.

HYPOTHESES
H1: There is a significant difference in the level of psychological and physiological parameters between study and control group.
H2: There is a significant correlation between the psychological and physiological parameters in study and control group.
H3: There is a significant association between the level of psychological and physiological parameters and their background variables in study and control group

LITERATURE REVIEW
Based on psychological parameters -
Farquhar et al. (2018). A study was conducted to assess research into the treatment of anxiety in 119 patients with heart disease. Randomized clinical trials RCTs was conducted to measure anxiety before and after an intervention for patient with heart disease. The hospital anxiety and depression scale and state- trait anxiety inventory were the most frequently used instruments to gauge anxiety. Intervention included pharmacological, counselling, relaxation based,

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Section A-Research Paper

educational or alternative therapy. 33 % of total reported that the intervention reduced anxiety, treatment efficacy varied by study and type of intervention. Although in most cases anxiety were reduced with intervention. Future studies need to target anxious patients and evaluate the effects of intervention on anxiety and relevant clinical endpoints.

Jayalalitha G. et al. (2016). A pre-experimental study was carried out to assess the effectiveness of alternative therapies on anxiety among 60 patients with cardiac disorder at Coimbatore hospital. Non – equivalent post-test on control group design was used. The calculated mean level of anxiety was 75.9 and 118.26 and standard deviation was 7.16 and 8.04 in the experimental and control group, respectively. The mean difference was 42.3. Hence, alternative strategies are an effective therapeutic intervention in reducing the level of anxiety among cardiac patients.

S. Srinivasan et al. (1983), he wrote, that Hans Selye has done the most work in the effect on man. His research lab at the University of Montreal is on international centre for stress research. He has described the G.A.S. (general adaptation syndrome) in three phases i) the alarm reaction, ii) the stage of resistance and iii) the stage of exhaustion. Most illnesses occur in stage three. During every illness we are in one of these three phases of stress and to regain our health, our diets must be planned accordingly. Hans Selye further says that stress is good and needed for people to grow to their full potential. When stress increases the problem occurs. He calls optimal stress level, Distress and this reaches a maximal point where stress increases health and performance he calls overload, distress, where stress increases to reduce the stress some simple exercises are needed.

S.C. Manchanda et al. (1991), a study was conducted to assess a strong relationship between stress and mental tension and heart attacks. People who worry excessively and who are always in haste can get high blood pressure and more heart attacks.

Cardyn. L. Morris et al. , nurse clinician describes her experience in when she applied relaxation technique for 300 patients (MI) and found it was a useful intervention in helping patients cope with stress (type 'A' behaviour) Reinforcement of daily practice in applying relaxation skills during stress and non-stress

situation is essential in cardiac rehabilitation. It has been shown that modification of type 'A' behaviours may be effective for secondary CAD prevention.

Peter, D. wood et al., says that, exercise improves health and well-being in a number of ways. Here are some of the more important effects that might be seen over a year in a sedentary person who adopts a regular programme of jogging, cycling or brisk walking, for instance. Most noticeable may be change in body composition. Body fat is progressively lost and fat in the abdominal region is reduced. It now seems clear that fat in the tummy area is particularly related to risk of heart disease and diabetes.

Peter D wood wrote that, research shows that a progressive programme of low-level exercise in older people comparatively reverse the ravages of many sedentary years and to some degree restore endurance capacity and muscular strength.

Based on nursing care strategies-
Lakshmi KN et al. (2018). A study was conducted to assess the level of knowledge regarding assessment and nursing management of myocardial infarction among 60 nursing staff at Mysore Hospital, Mysore. Descriptive design was used for the study. Samples were selected by convenience sampling technique. Data was collected by administering personal proforma and structured knowledge questionnaire regarding assessment and nursing management of myocardial infarction. Out of 60 participant% only 15% had a poor knowledge, 71.66% had average knowledge and 13.33% had good knowledge regarding assessment and nursing management of myocardial infarction.

IMPLICATIONS OF THE STUDY
NURSING PRACTICE
• Nurses should be trained regarding MI patient care.
• Should involve themselves in regular teaching session in ccu.
• Also conduct home visit to guide, supervise and provide individual/group health education regarding MI.

NURSING EDUCATION
• Myocardial Infarction is a deadly disease, causes sudden attack, so the patient and relatives should have appropriate knowledge regarding nursing care strategies and awareness in prevention.

"A Study To Assess The Effectiveness Of The Nursing Care Strategies On Psychophysiological Parameters Among - Myocardial Infarction Patients In Coronary Care Unit At Selected Hospital Of Bareilly, Uttar Pradesh."

Section A-Research Paper

- Nursing students should be allowed to participate in health education campaigns.

NURSING ADMINISTRATION
- The nurse as an administrator should plan, organize, and conduct activities to motivate nursing personal in conducting health education programme beneficial to Myocardial infarction patients and their relatives.

NURSING RESEARCH
- Nurse researcher should encourage further research on awareness and utilization of health care services provided by the government hospitals as there is very less research conducted in this area.
- Nurse should also disseminate the findings of the study through conferences, seminars and journals.

RECOMMENDATIONS
- The same study can be done in a different setting with different populations.
- The study can be conducted on large sample.
- A comparative study can be done between urban and rural myocardial infarction patients.

CONCLUSION
From the findings it can be concluded that Mostly heart patients having hypertension, type 2 DM, ultimately leads to kidney disease acute and chronic, Anaemia & Patients age group 28 to 67 years.

This study aims to provide an overview of the current state of affairs on psycho physiological factors that may explain the link between depression and adverse outcome in coronary artery disease (CAD) patients. Evidence suggests the involvement of each of these factors in both depression and CAD, together contributing to the prospective association between depression and cardiac outcome. The heart failure can be avoided through some simple habit formulation like sleeping early[9to10pm] for 6 to 8 hours. In diet, avoid oil, cream, nuts and animal food, take fruits and green vegetables in plenty. Stress management, meditation, yoga for at least for10 minutes, walking for 15 minutes, maintaining simple life style, knowledge regarding cholesterol, triglyceride, sugar and blood pressure control. The calculated t value was (t=13.86) more than the tabled value ($t_{98} = 1.66$).

Hence there is significance difference in the mean post-test physiological parameters scores which indicates that the nursing care strategies are effective to reduce the physiological symptoms among the myocardial infarction patients

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Eur. Chem. Bull. 2023, 12(Special Issue 5), 6119 - 6126

6126