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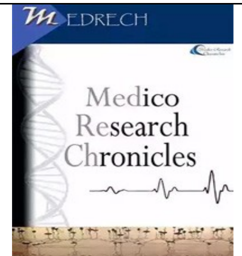

DOORSTEP INTERACTIVE HEART AWARENESS PROGRAM IN RAILWAY POPULATION- A REPORT OF 3 YEARS' FOLLOW UP

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The incidences of the heart disease at younger ages are increasing rapidly in the society irrespective to the gender, age, case, creed, socioeconomic distribution, etc. The heart disease is preventable as the major cause seems to be an unhealthy lifestyle. The objective of this study is to conduct a heart and lifestyle awareness and modification drive program at the doorstep, to identify asymptomatic hypertension, diabetes, and ischemic heart disease. Also to report mortality and morbidity associated with the acute coronary event and cardiac complications taken as the objective of the study. In this cohort study, a total of 4178 patients were Counselled at the doorstep and acute severity cases were compared with that of control (non-counseled) patients. As a result of the study, it was found that Hypertensive and Diabetic emergencies were significantly low in the Counselled group. Doorstep heart awareness program with active participation through difficult but highly effective in preventing major cardiac events and very helpful in identifying the asymptomatic pattern of hypertension, diabetes and ischemic heart diseases.

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BACKGROUND

There is a recent rise in incidences of heart diseases among Indians at a younger age. The bad news is that it is increasing very fast in our society irrespective of age, sex, caste, creed, and pattern of job. But the good news is that it is absolutely preventable since it is due to the faulty lifestyle of our own. It is high time to think, analyze and take action. Today the whole world is after this preventable disease with a promise to see its end. Being Indians we also have to prove ourselves fully capacious to fight and root out this disease from our country. Railwaymen are privileged because today Indian Railway has all infrastructures to fight against the heart diseases.

AIM

- To conduct multiple heart awareness and lifestyle modification drive programs at the doorstep in various parts of railway colonies with active participation by railwaymen.
- To identify asymptomatic hypertension, diabetes and ischemic heart disease among the railway population
- To record its effect in the form of morbidity and mortality from the acute coronary event and other acute complications of risk factors like hypertension and diabetes.

MATERIAL AND METHODS

Study design – Prospective Cohort Study

South East Central Railway head quarter Bilaspur has a railway colony with an area of 6.4 square km catering almost five thousand employees with their families and surrounding hubs harboring about 3 thousand employees and retired employees with families. Different pockets in the colonies were selected for heart awareness interactive programs at regular intervals using audio-visuals. In these 2 to 3 hours sittings, all the attendants were explained by multi-discipline experts and dieticians about the magnitude of the problem in the society, its various reversible risk factors and their ways of controls, causes of heart problems, its various preventive steps. All attendants are asked to write their conventional problems if any or otherwise. There were various types of health quizzes conducted for all including females and children regarding model lifestyle, ideal food, and heart diseases. The apparently asymptomatic healthy people are asked to attend central hospital a special clinic for basic evaluation like biometrics, blood pressure, and diabetic status, etc. Those who are residing outside the colony and not attending the programs are taken as control of this study. Three years observation from Aug' 2013 to July 2016 were made on the incidences of hospitalizations for acute coronary syndromes, acute left ventricular failure and acute diabetic emergencies among the population who had attended the program and those who did not [as control].

RESULTS

Results have been observed in two categories. First, the prevalence of risk factors in the railway population residing inside the colony. Second, the incidences of Acute Coronary Syndrome, Accelerated Hypertension with or without acute left ventricular failure and acute complicated uncontrolled Diabetes mellitus among the Counselled population and the control group.

Demographic Distribution of Patients:

Total of 4178 patients of both genders was Counselled. Out of which 43% were female patients and the rest of the male patients. All the patients Counselled were of the age between 22 to 82 years.

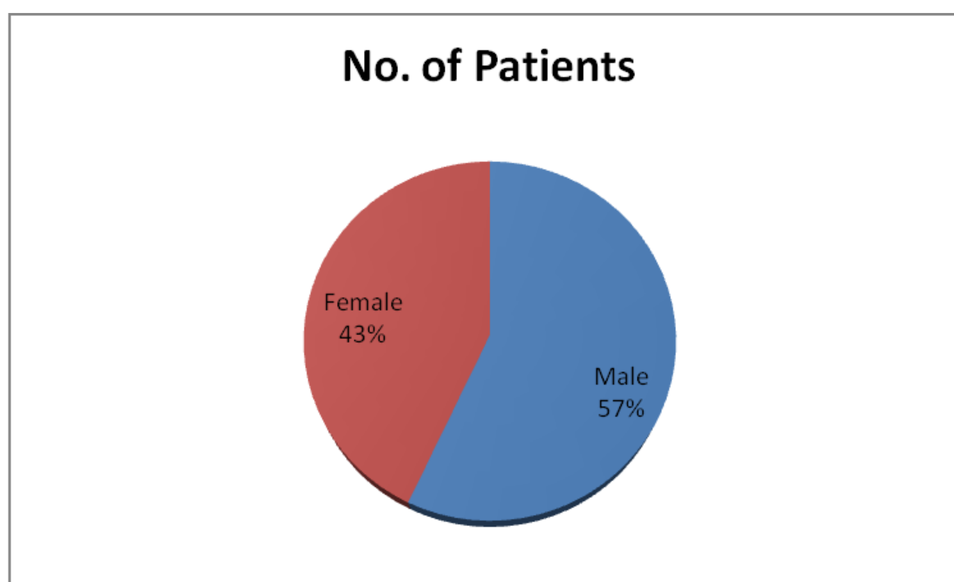

Fig 1: Percentage distribution of patients in both the genders

PREVALENCE OF RISK FACTORS

Habits and Disorders associated with patients

Table 1: Habits and Disorder associated with the patients

Class	Sub Class	No. of patients
Habits	Pure Vegetarian	960

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	Physical Inactivity	2841
	Tobacco users	1023
Disorder Associated	Old Diabetic	459
	Known Hypertensive	919
	Ischemic Heart Disease	292
Apparently Healthy	Hypertensive	668
	Diabetic	332
	Healthy	772

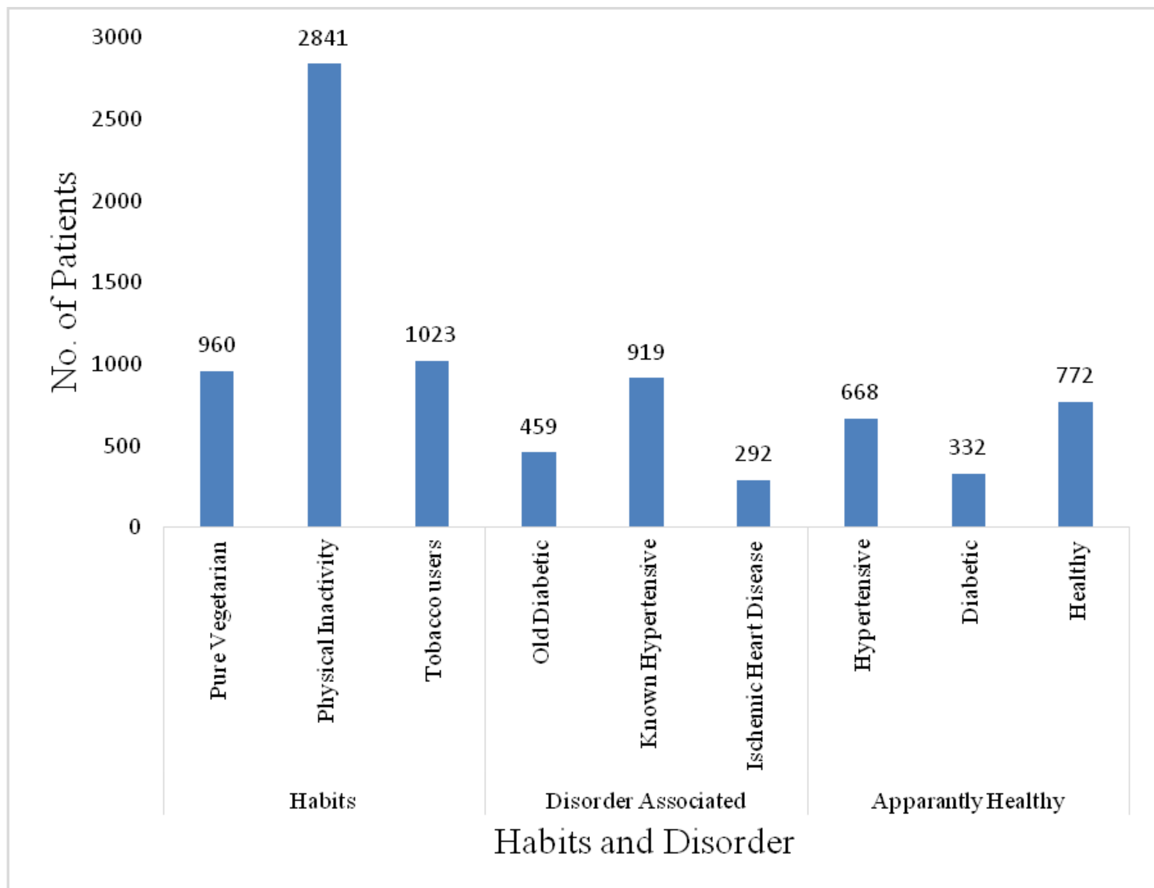

Fig 2: Distribution of patients with their habit and persistent disorder

Incidences of acute coronary syndrome accelerated hypertension with or without left ventricular failure and diabetic emergencies.

Cases for Observation = 4178 (Counselled Group), Controls = 3761 (Non Counselled Group)

Table 2: Comparison of incidences between both Counselled and Non-Counselled Group

Medical emergencies	**Counseled group[4178]**	**The non-counseled group[3761]**	**P value**
Acute Cor Syndrome	37	51	0.005
STEMI	03	05	0.35
Hypertensive LVF	06	14	0.02
Diabetic Emergency	05	14	0.009

Acute coronary syndrome [NSTMI & STEMI] were 37 and 51 among the Counselled and non-Counselled groups were respectively [p <0.005]. STEMI occurrences were non-significantly less in the Counselled group. Hypertensive and Diabetic emergencies were significantly low in the counseled group [06 vs 14, p=0.02 and 05 vs 14, p=0.009]

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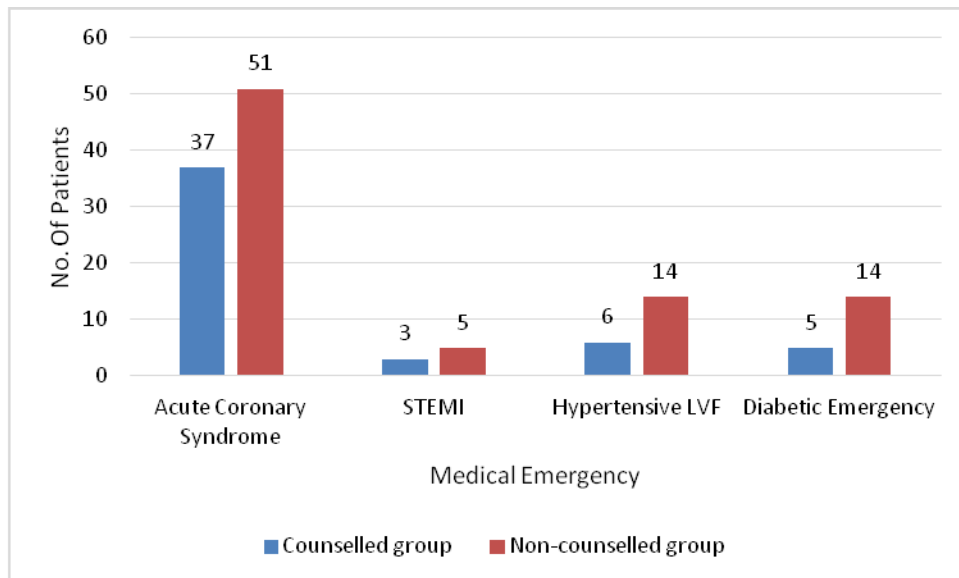

Fig 3: Comparison of medical emergencies between Counselled and non-Counselled group

DISCUSSION

South Asians (Indians, Pakistanis, Bangladeshis, and Sri Lankans) have the highest incidence of coronary artery disease (CAD), compared to any other ethnic group in the world. According to the World Health Organization estimates, India ranks number one in the list of countries with a high incidence of type 2 diabetes (T2D). This number will double in the next two decades. Therefore, according to healthcare experts, early detection of the risk factors for CAD and T2D and effective management of these risks is a better choice than efforts to cure these complex metabolic disorders**. (1).** South Asians including Indians have a tendency for metabolic obesity, characterized by preferential deposition of fat around the abdomen – also called "abdominal or central obesity" and increase the risk of hypertension, diabetes mellitus, and cardiovascular disease. These biochemical or metabolic abnormalities can be reduced by more than 95% by controlling the key modifiable factors – diet and exercise**.** (**2**). Two major trials exploring the benefits of lifestyle modifications for primary and secondary prevention of cardiovascular events failed to achieve their primary endpoints, which were to lower levels of low-density lipoprotein cholesterol (LDL-C) and mortality and hospitalization(**3**). Findings of the study have shown that the planned teaching program is an effective teaching strategy in improving the knowledge of middle-aged rural people regarding angina pectoris**. (4).** This is a pilot study to conduct multi-faceted heart awareness program by active participation of target population at their doorstep to assess the present status of the health, educate about the importance of lifestyle modification, fish out asymptomatic population for detection of asymptomatic hypertension, diabetes and ischemic heart disease and to observe the effectiveness of the morbidity, mortality and hospitalization for major cardiovascular events. Conducting such programs at the central hospital or in the health centers does not serve the purpose as seen in the above references. Today people have no time to come to hospitals to get educated or even for preventive checkups. But they have shown optimum responses when it is conducted at their doorsteps. Hence it has multiple benefits if such programs are conducted at the doorstep with group discussions and active participation. In this study, the benefits are observed in the form of the reduced number of hospitalization for acute cardiac events.

CONCLUSIONS

Doorstep heart awareness program with active participation through difficult but highly effective in preventing major cardiac events and very helpful in identifying the

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asymptomatic pattern of hypertension, diabetes and ischemic heart diseases. Though it is a study in a small and confined area the effect of the doorstep counseling definitely scores above the passive program at the health centers. Larger studies by other organizations are required to get better results. But there is no doubt that this is the need of Today

LIMITATIONS

Small sample volume.

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