

The Role of Life Style in Development of Coronary Heart Disease

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The present study was designed to assess the role of life style in the development of Coronary Heart Disease (CHD). The data were analyzed to compare the patients of CHD with matched normal. Life style is defined as the general behaviour pattern of an individual including health behaviour, job involvement and work style, social interactions, intimacy, locus of control and values. For this purpose the matching of patients was carried out on one to one basis and on the parameters of the age, education, family size and socioeconomic status. Total sample size was 162. To measure life style, a structured interview schedule was prepared which included questions on the subparts, viz. Health Behaviour Pattern, job involvement and work style, social interactions, intimacy, locus of control, values. The coding of the responses was quantified. The higher is the scores more is the risky lifestyle where as lower scores indicate the healthy lifestyle. Qualitative and Quantitative analysis were carried out.

Keywords: Coronary Heart Disease, Life Style, Health Behaviour Pattern, Job involvement, Social interactions, Intimacy, Locus of control, Values.

Cardiovascular disease is reported to be the leading cause of death in world. In 1998, 12.4 million people died of heart attack and stroke. Of these 78% were in low and middle income countries. The high income countries had lower death rates because of better preventive and treatment program (Barker, Cox, Kumaran, & Osmond, 1996). Though, several clinical and biochemical risk factors have been identified, the role of psychological factors are also gaining importance during the past few decades. Several risk factors have been identified to be associated with CHD which include causative risk factors (hypertension, hyperlipidemia and diabetes), conditional risk factors (triglycerides and lipoprotein), and predisposing risk factors (obesity, physical activity, sex, family history, socioeconomic factors, insulin resistance and psychological factors) (Deepa, Pradeep & Mohan, 2001). Evidence of various studies has shown a strong association in psychological stress and CHD. Cardiovascular disorders pose a major health problem for industrialized societies in terms of excess of morbidity and mortality. It is evident from the review of literature that there is a strong relationship between coronary heart disease and some psychological factors. Psychological variables

like stress, personality, anxiety and life style are contributing along with high blood pressure, obesity; lack of exercise, cigarette smoking and high blood cholesterol to the development of CHD (Stephan, David, & Christopher, 2002). In present study, a comparative study is carried out between coronary heart disease patients and non coronary individuals in relation to life style.

Large number of clinical and biochemical factors have been identified in development of CHD, the role of psychosocial factors are also gaining importance during the past few decades. The World Health Organization has stated that since 1990, 80 to 90 % of people dying from CHD had one or more risk factors associated with life style (WHO Reports, 2002). Life style is a way person lives. This includes patterns of individual's health behaviour, social interactions, attitudes, values, belief and essentially the way the person perceived by himself/herself and at times also how he /she perceived by others. Life style is one of the major factors which have shown a strong association with CHD (Cohen, 2000). Life style is based on subjective perception, is purposeful and goal directed. It is motivated by a desire to overcome feeling of inadequacy coupled with an urge to succeed. The general

goals of life style are to understand, predict, and control life and self. Life style has been found, as pointed out earlier, to have influence on individual's health, adjustment to environment, psychosomatic and psychiatric illness (Rice, 1999). Health psychologists found that healthy life style and dietary intake are associated with positive effects on blood cholesterol (Williams, 2001). Diet, sleeping pattern, smoking, and alcohol taking habits have a negative effect on health (Williams, 2001).

Russek and Zohman (1958) observed in young coronary patients that prolonged emotional strain was associated with job responsibility. The Framingham study had demonstrated the significance of life style, employment and interpersonal stress. By showing that in males under 65, aging worries and daily stress and tension were associated with a greater risk of developing CHD, while for males and females over 65; marital dissatisfaction or disagreements were risk factors for CHD (Taylor, 1999). A diet high in fat, Obesity and lack of exercise increases the risk of heart disease. Tobacco use, whether it is smoking or chewing tobacco, increases risk of Cardiovascular disease (The Vestfold Heart Care Study Group, 2003).

There is a positive relationship between heart disease and fat intake, obesity, smoking and lack of exercise. The relationship between smoking and risk for CHD is simple and direct. Smoking has several negative effects on cardiovascular system (MacDougall, 1983, cited in Rice, 1999). Job dissatisfaction and work load in males emerged as a factor of predictive of CHD (Haynes & Feineib, 1982, cited in Rice, 1999).

In the present study, life style is measured on the basis of health and behaviour pattern, job involvement, social interactions, intimacy, locus of control and values.

Status in India: In India, in the past five decades, rates of coronary disease among urban populations have risen from 4 percent to 11 percent and four Indians die every minute due to heart disease. In India, 50% of heart patients are under 45 yrs of age (World Health Report, WHO, 2008). CHD is emerging as a major cause of death in India. It has been projected that 15

years from now India would have highest CHD deaths compared to any other country (Reddy & Yusuf, 1998). ICMR and WHO have predicted that cardiovascular diseases would be the most important cause of mortality and morbidity in India by the year 2015 (Dholapuria, Raja, Gupta, Chahar, Gupta, Purohit, 2007). Data from Christian Medical College, Vellore and All India Institute of Medical Sciences, New Delhi, over a period of 30 years showed a decline in admission for Rheumatic Heart Disease (RHD) and increase in admission for CHD (Rissam, Kishore & Trehan, 2001). A comparative study in Singapore on Indians and Chinese, revealed stronger cardiovascular reactivity to stress among Indians than compared to Chinese men (Bhishop and Robinson, 2000). Chronic anxiety and tension have been suggested as factors in the development of CHD. There is strong evidence supporting prognostic associations with social isolation and low perceived emotional support and unhealthy life style behaviors in the development of CHD (Scheiderman, Michael, Antoni, & Ironson, 2001). In India, it has been observed that there is age related increase in CHD. The incidence of myocardial infarction (MI) was more common in urban India than rural areas of India (Ahmad & Bhopal, 2005). Studies in India have shown that heart attacks in India occur 10 yrs earlier than in West. Hence it is needed to undertake well designed prospective studies for evaluation of CHD in relation to psychological factors (Gupta, & Gupta, 1996). According to Theorell, Karasek, Baker, Marxer, and Ahlbom (2005), cases of CHD may increase from about 2.9 crore in 2000 to as many as 6.4 crore in 2015. The prevalence rates among younger adults (age group of 40 yrs and above) are also likely to increase. Prevalence rates among women will keep pace with those of men across all age groups. Data also suggest that prevalence rates of CHD in rural populations will remain lower than that of urban population (Ahmad & Bhopal, 2005).

In brief the rationale of the study is the limited research available in this area related to psychological factors in India. This study was carried on matched subjects to contribute to this significant domain of research. .

Objective:

To study the role of Life Style in development of CHD

Hypothesis:

Patients of Coronary Heart Disease (CHD) would score higher on subscales of lifestyle as compared to matched Non-CHD individuals

Method**Sample:**

This being a study of life style variables in relation to coronary heart disease (CHD), 81 male patients were selected from Cardiac Care Unit (CCU) of hospitals from Pune city. In the present study selection of 81 Non-CHD individuals were done keeping in view their matching with the patients. The patients and the normal were matched; one to one on the variables likes age, education, occupation, family type and socioeconomic status. The Non-CHD individuals were selected after the medical checkup by the clinicians who labeled them as normal as they were not suffering from any disease.

Tools:

Personal Data Sheet: A personal data sheet comprising 14 items was prepared and was required to be filled in by the patients and normal before the actual administration of psychological scales. The items were designed to get the information about age, education, occupation, family type and socioeconomic status.

Interview Schedule: To measure life style in CHD patients and normal individuals, structured interview schedule was prepared on the basis of operational definition of life style. Interview schedule includes five subparts in which questions are formulated beforehand and asked in a set order in a specified manner, viz.

A) Health Behaviour Pattern: It includes information about sleeping habits, dietary habits, daily exercise, smoking habits and about physical and mental health.

B) Job involvement and work style: It includes information about how the person is involved in his job and his work style.

C) Social interactions: It includes the information about job style, social awareness and social life of the person.

D) Intimacy: It includes the information about family and personal life.

E) Locus of control: It includes information about the individuals own interpretation of personal control.

F) Values: It includes the information of values of the person. Values hold a central place in culture, identity and lifestyle of the individual.

The coding of the responses was quantified. A five point rating scale i.e. always, often, sometime, rarely, never is used to measure the responses of the person. Higher the scores more risky and unhealthy lifestyle where as lower scores indicate healthy lifestyle. Split half reliability was calculated and found satisfactory (0.89).

Procedure:

A special permission was sought to collect the data of CHD male patients from Cardiac Care Unit (CCU) of Pune city which includes Ruby Hall Clinic, Jahangir Hospital, DinDayal Heart Institute, Dinanath Mangeshkar Hospital, Joshi Hospital, Kashibai Navale Hospital and Sasoon Hospital.

On the initial contact, after noting down residential address of the patients, a formal permission was sought to see them at home after discharge from CCU within 10 days. Special visits were made to see the CHD patients from Khadki, Dapodi, Aund, Pimpri, Chinchwad, Vishrantwadi and Katraj etc. in Pune city to interview and complete the psychological measures. After establishing proper rapport and explaining the objectives and purpose of the study the patients of CHD co-operated whole heartedly. All the scales and interview schedule used for this study were given individually to each patient at his residence. All the patients were assured that information given by them would be kept confidential and utilized solely for research purpose only. They were also instructed to ask for clarification of any doubtful

item, specific instructions for each scale were printed at the beginning of the scale. No time limit was imposed for the completion of the scales.

Immediately within a week the sample of Non-CHD individuals were selected after medical check up by the physician who labeled them as normal as they were not suffering from any disease. The patients and Non-CHD individuals were matched one to one on each of the variables of age, education, occupation, family type and socioeconomic status. A matched normal was assessed by psychological tests and was interviewed personally by visiting their houses. Initially it was proposed to take 75 numbers of data for both CHD patients and matched normal. But effective rapport and co-operation by CHD patients and matched Non-CHD individuals the sample size was increased to 85, out of which 4 were rejected because the questionnaires were incomplete. In the present study the no of CHD patients were 81 and matched Non-CHD individuals were 81. So the total sample size was 162.

Results and Discussion

Data were analyzed with the help of statistical techniques like descriptive statistics, and 't' test. However, a few cases were explained to understand the qualitative analysis.

Qualitative Analysis: In qualitative analysis, a few important aspects like age, education, family type and socioeconomic status from personal data sheet were calculated in form of percentages. It was found that 50 % CHD patients belonged to age group 40-50 yrs, 34.6% belonged to 50-60 yrs and 14.8% belonged to 30-40 yrs. There were 53% CHD patients having graduation whereas 36% were post graduates and 11 % had completed their H.S.C. It was found that 72% CHD patients belonged to the nuclear family and 28 % belonged to joint family. According to Socioeconomic status, it was found that 58% were from 4,00,000 to 8,00,000 annual income group. Two case studies have been given to understand experiences of CHD male patients in greater detail. As mentioned earlier, a life style was referred as a general behaviour pattern of an individual which includes health behaviour pattern, job involvement and

work style, social interactions, intimacy, locus of control and values. Health behaviour pattern is a set of habits includes sleeping habits, dietary habits, daily exercise, smoking habit and physical and mental health.

Case Study 1: A CHD patient of 37 yrs old working as a senior manager from last 2 yrs. He represents a nuclear family having a wife and a daughter. He had no family history of any disease. He is non vegetarian and most of the time had outside eatables. He is a chain smoker. He is workaholic, carrier and money oriented and no time to spend with his family. A matched Non-CHD individual also non vegetarian but most of time take his meal with family and rarely had outside eatables. He doesn't have any bad habit like smoking, chewing tobacco etc. He had perfect compartment of work place and for family. He spends his weekends with picnic, get-together with friends, His priority to people and money.

Case Study 2: A CHD patient of 45 yrs working as a senior lecturer from last 14 yrs. He represents a nuclear family of a wife and two daughters. He had no family history of any disease. He is vegetarian, not spend a single minute for exercise. He always chews tobacco. He is very competitive and always feels unhappy about his life and feels unlucky. He is religious and always depends on god. "I am very unlucky". "Asel debauch manat tar milel" such type of dialog often with him. He doesn't spend money, always worried about dowry and marriage of daughters. A matched Non-CHD individual is vegetarian as well as non-vegetarian. He daily takes a walk for half an hour. He is happy go lucky enjoy all the moments and takes responsibility of his work. The qualitative description of the two representative cases of CHD and Non CHD groups clearly demonstrate the noticeable differences in Life Style factors. Results have been now discussed quantitatively.

Quantitative Analysis

Life style among patients of CHD and matched Non-CHD individuals.

The results of present study indicate that the mean differences were statistically significant for subscales of life style.

Table 1. Mean, SD, and 't' ratio on life style for CHD patients and matched Non-CHD individuals.

Life style	CHD patients		Non- CHD individuals		t ratio
	Mean	SD	Mean	SD	
Sleeping Habit	12.02	1.71	5.40	1.35	27.01**
Dietary Habit	22.44	2.20	9.41	2.16	37.10**
Daily exercise	9.42	1.49	5.16	1.20	19.90**
Smoking Habit	26.88	4.50	13.04	2.14	24.98**
Health	12.40	2.19	7.64	1.77	15.15**
Job Style	65.30	10.53	33.90	5.66	23.61**
Social Interactions	62.74	7.92	26.35	3.88	37.09**
Intimacy	21.75	2.92	12.31	2.17	23.32**
Locus of Control	43.68	4.94	18.05	4.42	31.43**
Values	21.89	4.08	13.14	3.36	14.88**

**P < 0.01

With reference to Table 1, CHD and life style risk factors showed a significant positive association with sleeping habits, dietary habits, exercise and Smoking respectively. It was also appeared that there was a positive link between poor social interactions, poor intimacy, more external locus of control and more money and religious values. So, the hypothesis, "Patients of Coronary Heart Disease (CHD) would score higher on subscales of lifestyle as compared to matched Non-CHD individuals" is accepted.

The results of the present study support the findings of the earlier studies in association with life style and risk of Coronary Heart Disease (CHD). Gupta and Gupta (1996) carried out a study on Indian male. In the present study, it was found that life style risk factors like diet, smoking habits plays an important role in development of CHD. Orth-Gomer, Rosengren and Wilhelmsen (1993) have demonstrated that low social support and poor social integration predicted incidence of major coronary events. The results revealed that the patients of CHD showed significant differences on locus of control, it indicates that the patients were tilted towards external locus of control due to which they experienced the high stress on the other hand the matched Non-CHD individuals due to their internal locus of control experienced less amount

of stress and remain healthy (Younger, 1991). The obtained results were discussed in the light of violation of assumption and compared with the results of earlier studies with necessary caution. A positive family history of premature coronary heart disease is recognized as an independent predictor for cardiovascular mortality in the first degree relatives. This will enable public health and behavioral epidemiologists to plan and target appropriate and effective preventive lifestyle techniques to adults. Therefore, its primary prevention is an important factor. Several studies have shown that primary prevention of Coronary Heart Disease by family life education in the community has better benefits compared to secondary prevention for cardiovascular mortality as well as morbidity. Prevention programmers should have a multi-level focus, including individual, family and other social institutions. It is also important to identify subgroups for intervention, so that necessary steps at earlier level itself can be taken for the prevention of lifestyle diseases like Coronary Heart Disease.

Limitations

CHD is a life time disorder; it is difficult to detect the sufferer as this illness does not reveal any overt causal symptoms. Moreover to get the authentic data, it was highly essential to consult the medical practioners or cardiologists.

Therefore, the researcher had to fully depend upon on the data which was available only in hospitals and clinics.

1. As mentioned in literature, the incidence of CHD is a global health problem which is given only medical attention, the psychological part of it is almost neglected. Though there are many psychological dimensions to it, only life style has been studied in the present research, the other dimensions also needed to be studied.
2. The research is based on the data from Pune only.
3. This study was limited to male population only.

Implications

Healthy behaviour patterns like sufficient sleep, healthy diet, regular exercise, more social interactions, intimacy, and internal locus of control have beneficial effects among the Non-CHD individuals. It is therefore reasonable to promote such a healthy lifestyle to the patients of CHD.

Suggestions

The following suggestions are made for future research:

1. Further research in this area may examine effects of emotions and coping behaviour in the development of Coronary Heart Disease.
2. A comparison could be made on urban and rural population to find out development of Coronary Heart Disease.
3. A similar study may be conducted on a sample of female.
4. The further research in Coronary Heart Disease may use multidimensional model encompassing both environmental variables (stressors) and social variables.

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