# Socioeconomic Status and Coronary Heart Disease

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## ABSTRACT

**Background:** Iran has undergone a remarkable demographic transition over the last three decades. Socioeconomic status (SES) indicators including education, income, and occupation are associated with coronary heart disease (CHD) risk factors, morbidity, and mortality. The aim of the present study was to describe demographic and socioeconomic characteristics, their association to the diseases, and to explore the predictive risk of CHD in Tabriz, the fourth largest city in Iran and the capital of East Azerbaijan Province.

**Methods:** This cross-sectional descriptive study was carried out to explore and analyze the current SES status of CHD patients. The study was conducted in Tabriz and all patients (n=189) refereed to the Central Referral Hospital for cardiac patients (Shahid Madani Hospital) from 2009 to 2010 were considered. A researcher structured questionnaire with 15 questions was used to collect data. Descriptive statistics were used to describe the basic SES features of the CHD patients and data analysis was done using SPSS ver. 16.

**Results:** Less educated participants were more susceptible to CHD. Regarding to occupational status, housewives and retired men were in higher risk of CHD than the rest of the people. Studied patients also reported to be mostly from urban areas that were living in apartment complexes.

**Conclusion:** In line with some international research evidence the study results suggested that people from lower/middle social classes were in greater CHD risk than higher social classes. This epidemic might be halted through the promotion of healthier lifestyles and the support of environmental and policy changes.

*Keywords***:** Coronary Heart Disease, Socioeconomic Status, Health Determinants.

## Introduction

Socioeconomic inequalities in health can be defined as systematic differences in the prevalence or incidence of health problems between people of higher and lower socioeconomic status distinguished by level of education, occupational class, or income [1]. There is a pronounced socioeconomic gradient in coronary heart disease, with greater morbidity and mortality among people of lower socioeco

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nomic status (SES) as defined by occupational position, education and income [2].

Death due to cardiovascular disease (CVD) has significantly increased in developing countries. According to World Health Organization, 41% of all deaths in 2005 owned to this problem [3]. Understanding social and economic indicators including income, education, employment, and social class play an undoubted role in improving health and quality of life. Socioeconomic status (SES) has been shown to be associated with health problems in general and non-communicable diseases such as diabetes, hypertension, hyperlipidaemia and coronary artery disease (CAD) in particular [4-6].

In fact, the most important factor affecting the health of communities is related to social and economic elements. Vulnerable people who have less access to health and social facilities get sicker and die earlier than people in more fortunate social condition [7].

Since last 40 years, a majority of studies in developed countries have shown a reliable inverse relationship between cardiovascular diseases with many of socioeconomic status which may act as an independent risk factors [8]. However, the results of other studies from developing countries indicated that the prevalence of cardiovascular disease is more common among middle and above socioeconomic groups as compared to low socioeconomic groups [9-13]. Therefore, there is apparently a paradox in the impact of socioeconomic indicators between developed and developing countries.

Although CAD is a leading cause of mortality, morbidity, and disability with high cost of health care in Iran [14], there have been little studies in relation to SES and cardiovascular diseases.

The present study was carried out to describe demographic and socioeconomic characteristics and their association to

CAD and to explore and analyze the current SES status of CHD patients in Tabriz.

## Materials and Methods

### *Sampling and participants*

All patients (n=189) who were candidate for angiography and admitted from 2009 to 2010 to the surgical units of the central referral hospital for cardiac patients (Shahid Madani hospital) were considered. Those patients who were suffering from congenital heart disease or complications other than CHD were excluded.

### *Materials*

A semi-structured questionnaire with 15 questions was used to collect data. Face validity of the applied questionnaire was checked by a panel of experts and after several amendments they approved the final version.

### *Data analysis*

Descriptive statistics were used to describe the basic SES features of the CHD patients. Data analysis was done using SPSS ver. 16. The study data were coded and entered to a personal computer twice by two independent coders to verify the data quality.

### *Ethical considerations*

Ethical approval was obtained from the responsible committee in the Faculty of Health and Nutrition within the Tabriz University of Medical Sciences. Authorities in the Shahid Madani hospital were also contacted for permission to approach study participants and arrange interviews.

The hazards or difficulties that might arise for the participants in relation to facilities and safety, full understanding of the study aim, and description of study procedures were main ethical considerations. All attempts were performed to minimise probability of any harm to the study par-

ticipants through cooperation with the study. The study respondents' informed consent was obtained after explanation of the study aims and procedures. In addition, their right to withdraw from investigation and confidentiality of the study data were addressed. Therefore the interviewees were aware of their right to request the re-searcher to stop the interview at any time, and withdraw from the study without having to give a reason.

## Results

### *Demographic characteristics of the sample*

In this section, the characteristics of the 189 respondents including gender, age, insurance and socioeconomic status is de-scribed. As can be seen from Table 1, 56 per cent of participants were male. As for their age distribution, 6 (3%) were aged 30-40 years, 29 (15%) aged 41-50 years, 66 (35%) aged 51-60 years, and 88 (47%) aged 61 or more years. Eighty per cent of those interviewed (n=151) reported their marital status as married and 20% wid-owed.

Furthermore, amongst the majority of participants the place of life was different from the place of birth. Forty-five per cent of the respondents (n=85) lived in a prov-ince environment, followed by urban (n=83, 44%), and rural locations (n=21, 11%).

Regarding health care insurance cov-erage, 39 per cent of participants were supported by medical services insurance, followed by social security (26%), military services (12%), rural insurance (11%), self employed (4%), other (5%), and no insur-ance (3%).

Concerning living arrangement, 12 per cent of the participants (n=23) were living alone and 88 per cent (n=166) with spouse/ another person. Based on the number of family members, 13 per cent of respondents (n=25) reported a large family size (more than four people).

The most common professions were housekeeper (34%, n=65) and retired (33%, n=62) while just four per cent of participants were unemployed. Six per cent of those interviewed (n=11) had official/semi-official positions. Interestingly, 23% of the respondents were much more likely to be self-employed such as carpet weaving, selling, and tent making. Income, defined as the earnings in 2010, was recorded as one of 3 catego-ries. Approximately half of the partici-pants were classified as having a low in-come (<500 $ per month), followed by 43 per cent (n=82) were categorised in middle income level (510-1000 $) and eight per cent (n=15) in high income level (>1000 $).

Among women, 70 per cent were il-literate, 25 per cent possessed no academic qualifications and just five per cent were on the college graduate level, but, by con-trast, 21 per cent of men were illiterate, 66 per cent were ranged from pri-mary/secondary to post secondary level and 13 per cent graduated from a univer-sity respectively.

**Table 1:** Socio: Demographic characteristics of participants (n=189)

| Characteristic | | Frequency and percentage No. (%) |
|---|---|---|
| **Gender** | | |
| Women | | 83 (44) |
| Men | | 106 (56) |
| **Age group (Yr)** | | |
| 30-40 | | 6 (3) |
| 41-50 | | 29 (15) |
| 51-60 | | 66 (35) |
| 61> | | 88 (47) |
| **Marital status** | | |
| Married | | 151 (80) |
| Widowed | | 38 (20) |
| **Living arrangement** | | |
| Alone | | 23 (12) |
| With spouse/another person | | 166 (88) |
| **Living areas** | | |
| Province | | 85 (45) |
| Urban | | 83 (44) |
| Rural | | 21 (11) |
| **Insurance coverage** | | |
| Medical services insurance | | 73 (39) |
| Social security | | 48 (26) |
| Military services | | 23 (12) |
| Rural insurance | | 21 (11) |
| Self employed | | 8 (4) |
| Other | | 9 (5) |
| No insurance | | 6 (3) |
| **Family size** | | |
| Large (More than four people | | 25 (13) |
| **Profession** | | |
| Housekeeper | | 65 (34) |
| Retired | | 62 (33) |
| Self-employed | | 44 (23) |
| Official/semi official position | | 11 (6) |
| Unemployed | | 7 (4) |
| **Income level** | | |
| Low | | 93 (49) |
| Middle | | 81 (43) |
| High | | 15 (8) |
| **Educational level** | | |
| Illiterate | Women | 58 (70) |
| | Men | 22 (21) |
| Primary/secondary | Women | 21 (25) |
| | Men | 70 (66) |
| College | Women | 4 (5) |
| | Men | 14 (13) |

## Discussion

The aim of the present study was to describe demographic and socioeconomic characteristics and their association to the diseases and to explore the predictive risk of CHD.

Several studies in developing countries indicated that coronary risk factors may be related to SES and urbanisation [15, 16]. Amongst city dwellers in India, for instance, the prevalence of obesity, diabetes, hypertension and CHD have dramatically increased [17]. Furthermore, other studies in rural areas have indicated a lower prevalence of CHD compared to urban areas, however an increasing trend is seen among them as well [18]. Similar results have been reported from developed countries, where the lower SES groups suffer higher CHD and deaths due to non-communicable diseases [16]. These patterns may be related to enormous changes in dietary customs and living styles due to rapid industrialisation and urbanisation. In addition, increased awareness and education about risk factors in daily life activities may have been partly responsible for the decline in CHD prevalence among the higher social classes [19]. All these findings support the results of our study which revealed that most of patients were male, aged 51-60 yr or over, illiterate or at the primary/ secondary level and categorised in low/middle income level.

To halt the disease process and its consequences for patient, his/her family and also to the wider community it is suggested to better understand the SES phenomena behind the CHD in local settings. Planning intervention programmes that are especially tailored for lower/middle social classes in developing countries may also have greater impact in prevention of CHD risks. Thus we need further information about the way people live and policy changes in our educational, economic and welfare programmes. This epidemic may be halted through the promotion of healthier lifestyles and the support of environmental and policy changes.

## Limitations of the study

1. Due to socio-cultural reasons, some personal questions e.g. level of income may have responded incorrectly.

2. As patients candidate for angiography were investigated, the results of this study cannot be generalised to all CHD patients

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