

## RISK FACTORS AND AWARENESS LEVELS REGARDING ISCHEMIC HEART DISEASES AMONG MEDICAL STUDENTS OF A PRIVATE MEDICAL COLLEGE OF PESHAWAR, KHYBER PAKHTUNKHWA

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### ABSTRACT

**Introduction:** Ischemic Heart Disease (IHD) is a major cause of illness and disability and a leading cause of death in the modern world and that is why is considered as great epidemic menace of mid-twentieth century. It is the “Black Death” of our time. This study was conducted to determine the awareness levels regarding risk factors of Ischemic Heart Disease among preclinical students of RMC and to determine risk factors currently present among the included students of RMC.

**Materials & Methods:** It was a cross-sectional study conducted from February to May 2012 on all 200 students from first and second year MBBS of Rehman Medical College. Data were collected using a Universal Sampling approach through an interview based questionnaire, which included questions related to awareness level of students and their risk factors regarding IHD. Descriptive statistics were obtained using SPSS 20.0. The Chi Square test was used to test for associations, keeping  $p \leq 0.05$  as significant.

**Results:** Mean age of the 143(71.5% response rate) student respondents was  $19.8 \pm 1.004$  years (range 18-23 years). Of these, 84(58.7%) students were male and 59(41.3%) were females. Vast majority of the students (90.2%) were well aware of the risk factors associated with IHD. Students were found to be vulnerable to various risk factors associated with IHD such as lack of exercise (43%), family history of IHD (27.3%), presence of stress (66.3%) and use of junk food per week (39.1%). No association was found between awareness levels of students with smoking habits, exercise, and stress, use of oil or ghee and consumption of junk food

**Conclusions:** Despite the fact that over whelming majority of the students were well aware of the risk factors for IHD, a fairly large proportion were prone to common risk factors such as lack of exercise, use of junk food, family history of IHD and presence of stress. These factors may impose both short term as well as long term threats to the overall health of the medical students.

**Keywords:** Ischemic Heart Disease; Awareness; Risk Factors; Medical Students; Life Stress; Smoking.

### INTRODUCTION

Ischemic heart disease is, undoubtedly, one of the most vexing and crucial medical problem that face the civilized world today. It does not respect class, race or locality. Nowadays average healthy adult has got one in five chance of attainment of myocardial infarction before the age of 60 year and has one in fifteen chance of dying from it. Populations who live the “good life” are much more likely to have ischemic heart disease than their leaner brethren.<sup>1</sup>

Current estimates are that cardiovascular diseases (CVDs) cause over 17 million deaths globally (30% of all annual deaths) with low- and middle-income countries accounting for 80% of these deaths. This figure is predicted to reach 23.6 million by 2030.<sup>2</sup> In 2010, 7 million global deaths were caused by Ischemic Heart Disease (IHD) alone, an increase of 35% since 1990.<sup>3</sup> The Global Burden of Disease Study, started in 1980, provides the most reliable estimates of prevalence for 235 causes of mortality<sup>2</sup> along with the 67 different risk factors of diseases in 21 regions of the world.<sup>4</sup> Globally, the greatest morbidity and mortality are

caused by Non Communicable diseases, of which CVDs are the most prevalent. Heart disease, stroke, and diabetes mellitus can be prevented up to 80% simply by eliminating the modifiable risk factors of obesity, unhealthy diets, and physical inactivity.<sup>1</sup> Whereas disease incidences vary by country, gender, and ethnic background, the largest contributor to CVD is Coronary heart disease (CHD). As an example, death rates from CHD vary 20-fold in men (from 35 in South Korea to over 733 in Ukraine per 100,000 population) and nearly 30-fold in women (from 11 in France to nearly 313 in Ukraine per 100,000 population).<sup>5</sup>

Pakistan has among the highest incidence of Ischemic heart disease (IHD), based on a large community based study from Karachi<sup>6</sup> where 3143 subjects, stratified by gender, were enrolled; though males were twice more likely to have CAD, women had two times more Ischemic ECG changes. An overall estimate of 25% of the population  $\geq$  40 years age having CAD was made. IHD may manifest as angina pectoris, acute myocardial insufficiency or myocardial infarction. According to most careful estimates based on sound scientific studies nearly one hundred thousand individuals suffered an acute myocardial infarction in Pakistan in the calendar year 2002.<sup>7</sup> This is against the background of only seven patients suffering heart attack being admitted during a five year period (1944-1948) to the Mayo Hospital Lahore, the only major medical facility providing health care to almost all the population of the region.<sup>8</sup>

Coronary artery disease (CAD) is thus a major health issue in Pakistan, placing a significant burden in terms of morbidity and mortality on the population and the terms of cost on the individual and the public health system. Being one of the leading cause of death of preventable disease it is putting extra burden on our health budget which is too low i.e. 0.8%. In the nutshell we are facing great challenges in the form of direct and indirect

cost of the disease. Direct cost relates to the management of disease by paying from our health budget and indirect cost patient who survive and lost working years of patient who die.

Major risk factors for IHD are divided into non modifiable and modifiable. Non modifiable are age, sex, and family history of IHD in a parent or a sibling. Modifiable include dyslipidemia, smoking, Hypertension, obesity, Diabetes mellitus, physical inactivity and stress.<sup>5</sup>

Studies indicate the medical students experience highest degree of pressure from studies leading to severe depression.<sup>9-11</sup> Inam SN reported (60%) anxiety and depression in medical students,<sup>10</sup> while another study in Karachi reported 70% anxiety and depression among medical students.<sup>10</sup> Several lines of evidence suggest that clinical depression may be a risk factor for coronary artery disease (CAD).<sup>10-13</sup>

Keeping in view the burden of ischemic heart disease, this study is being conducted to find out the frequency of risk factors and awareness among medical students so that better planning and treatment strategies be adopted right from the beginning and disease be prevented in the way to help the community as well as economy of country.

## MATERIALS & METHODS

It was a cross sectional study conducted at Rehman Medical College Peshawar, Khyber Pakhtunkhwa from February to May 2012. All 200 students from 1<sup>st</sup> and 2<sup>nd</sup> year MBBS were invited. An interview based questionnaire was used, divided into two sections. Section A dealt with the awareness levels of the students regarding risk factors for Ischemic Heart Disease, while Section B had questions to determine the frequency of risk factors for Ischemic Heart Disease. The questionnaire contained 15 questions including both open ended and close ended questions. A verbal consent was taken from all the respondents before handing over the questionnaire and they

were informed of the professional secrecy that would be maintained.

Data were collected through a self-administered questionnaire after pre-testing in a pilot sample. Universal sampling technique was used for gathering data from students; data were collected from those who consented to filling the questionnaire. The respondents were briefed about professional secrecy before filling the questionnaires. Awareness levels of students were graded according to the self-designed grid given in Table 1.

**Table 1: Awareness level Grid**

| Score (Obtained Marks %)  | Status           |
|---------------------------|------------------|
| ≤ 5 score (≤ 34%)         | Less aware       |
| 6 to 10 score (35% - 66%) | Moderately aware |
| ≥ 11 score (≥ 67%)        | Well aware       |

SPSS version 20.0 was used for data analysis. Frequencies were determined in terms of percentages and presented in the form of bar charts/pie charts. Chi square test was used to compare categorical data to determine any association. The Ethical Review Board of Rehman Medical College, Peshawar, Pakistan approved the study on 1<sup>st</sup> January 2012. The guidelines of the Strengthening of the Reporting of Observational Studies in Epidemiology (STROBE) statement checklist was followed in writing the present article.<sup>14</sup>

## RESULTS

A total number of 143 students participated in the study with 84 students from 1<sup>st</sup> year MBBS and 60 from second year MBBS. The response rate was 71.5%. Mean age of the study population  $19.8 \pm 1.004$  years, with a range of 18-23 years. Out of total, 58.7% (n=84) students were male while

48.3% (n=59) were females. Vast majority of the students were well aware of the risk factors associated with Ischemic heart disease i.e. 90.2%. Only 8.4% of students were moderately aware with 1.4% less aware (Table 2).

**Table 2: Awareness level of Medical Students**

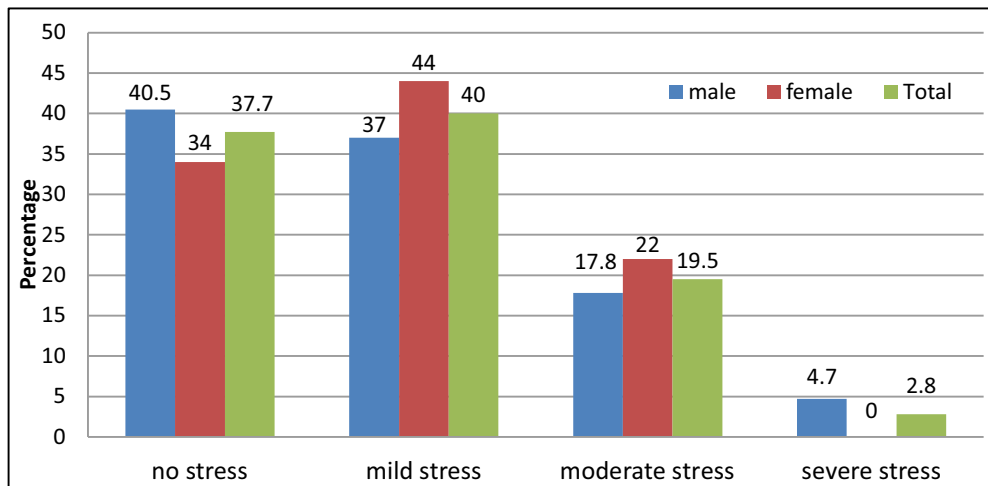
| Awareness Level  | Frequency (%) |
|------------------|---------------|
| Less aware       | 02 (01.4)     |
| Moderately aware | 12 (08.4)     |
| Well aware       | 129 (90.2)    |
| Total            | 143 (100)     |

On comparison no statistical difference was found between awareness levels of first year and second year MBBS students ( $P = 0.382$ ). Cross tabulation of awareness levels between male and female students also came out to be statistically insignificant ( $P = 0.47$ ). There was no association found between awareness levels of students with smoking habits, exercise, stress or use of oil or ghee.

**Table 3: Common Risk Factors (n=143)**

| Variables              |      | Frequency (%) |
|------------------------|------|---------------|
| Do you exercise?       | Yes  | 81(56%)       |
|                        | No   | 62(43%)       |
| Do you smoke?          | Yes  | 6(4.2%)       |
|                        | No   | 137(95.8%)    |
| Family history of IHD? | Yes  | 39(27.3%)     |
|                        | No   | 104(72.7%)    |
| Medium of cooking?     | Oil  | 123(86%)      |
|                        | Ghee | 20(14%)       |
| Do you use Steroids?   | Yes  | 9(6.3%)       |
|                        | No   | 134(93.7%)    |

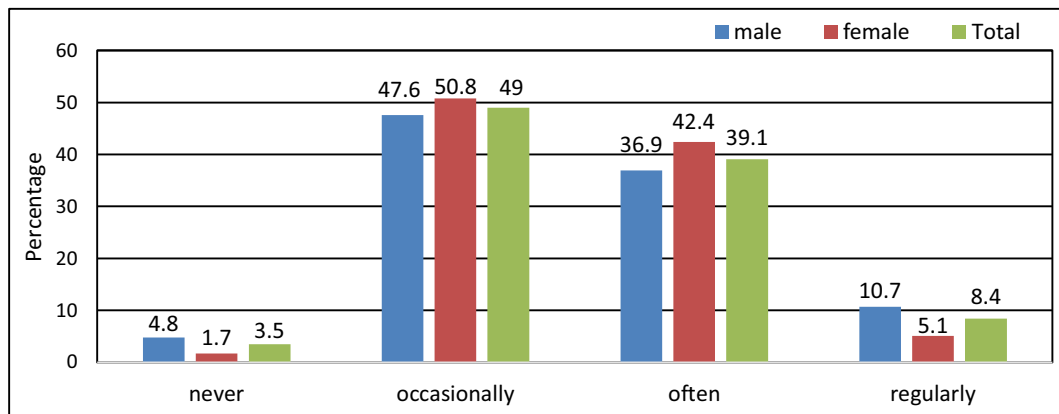
The following figure (Figure 1) shows the stress levels by gender among the medical students.



**Figure 1: Stress levels among male & female students (n=143)**

Junk food consumption is a reported risk factor for obesity and related cardiovascular diseases. Student responses to frequencies of junk food consumption are shown in Figure 2, along with gender-based distribution. Majority of students

(49.0%) reported occasional consumption of junk food, followed by 39.1% who consumed junk food often; only 8.1% consumed junk food regularly. No differences were found for gender groups.



**Figure 2: Consumption of junk food by male & female students (n=143)**

## DISCUSSION

The results have demonstrated that a large proportion of the medical students are well aware of the risk factors of IHD (90.2%); however despite this high level of awareness many students are exposed to a number of risk factors which might contribute to developing Ischemic Heart Disease later on in their lives.

A good number (43%) of the students did not exercise, putting them at risk of IHD. A research carried out Al Refae and Al-Hazza reported in 2001 from Riyadh, KSA that over 53% of Saudi students were totally physically inactive.<sup>15</sup> A similar study carried out in 2012 at Peshawar on patients reported that sedentary lifestyle and lack of exercise was the most common risk factor present in 53.84% of the patients in this study.<sup>16</sup> Another study done to improve cardiovascular function

through awareness stated that only 25% of the respondents regularly exercised.<sup>17</sup>

Presence of stress was found to be the second most common risk factor among the medical students in the present study. Above 60% of the respondents were exposed to it of which 19.5% experienced moderate stress and 2.8% experienced severe stress. This is similar to another study carried out in Saudi Arabia, which reported the presence of stress among 57% of the medical students and presence of severe stress among 19.6% of the students.<sup>18</sup>

A majority (90%) of the students reported that they consumed junk food often or occasionally per week. Similar results were also shown by Amr-a-Sabra et al, reporting a high consumption of junk food in Kingdom of Saudi Arabia University students.<sup>19</sup> A similar study done on medical students in Karachi revealed that nearly 97% reported consumption of junk food.<sup>20</sup>

Furthermore, results of this study showed that more than 27% of the students (who are all healthy) reported a family history of IHD. In contrast, a hospital based study conducted on patients revealed that 42% of the subjects had a family history of Ischemic Heart Diseases.<sup>21</sup>

Similarly our results showed that 4.2% of the medical students were smokers which increased the risk for IHDs. A similar study performed on medical students concluded that out of a total of

264 students who took part in the study, smoking was more prevalent among males (26%) as compared to female students (1.7%).<sup>22</sup> Another study conducted on a total of 975 medical students showed that 24% subjects smoked at least once, of which 57.7% were males and 42.3% were females.<sup>23</sup>

Our study also showed that 6.3% of the students used steroids. Another descriptive study conducted on 271 male medical students in Iran in 2008 showed that the prevalence of consumption of anabolic steroids was 3.3% while the overall awareness rate was significantly poor.<sup>24</sup>

About 14% of the students reported to using saturated fats as a cooking medium while the remaining 86% reported to have been using unsaturated fats. According to a study it is said that saturated fats should be replaced with unsaturated fats to reduce the risk of cardiovascular diseases.<sup>25</sup>

## Conclusion

Despite the very high level of awareness of Ischemic Heart Diseases among the medical students, a sizeable percentage were exposed to the risk of developing this condition and would require lifestyle modification in terms of exercise, diet and stress to avoid it. Such measures are more important for the students with family histories of Ischemic Heart Diseases.

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