

Association of Fast Food Intake as a Risk Factor of Coronary Heart Disease in Male Population of Karachi, Pakistan

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ABSTRACT

Objective: To determine the association of fast food intake and development of coronary heart disease with middle-aged men due to the nature of their job and eating habits.

Methods: A cross-sectional study conducted among middle-aged males working in a different professional environment. The duration of the study was from March–October 2019. The calculated sample size was 385 and a Non-probability convenient sampling technique was used to collect data. Only Men aged 35–60 years of age working in different professional setups were included. Data was collected through a pre-structured questionnaire. Data was entered and analyzed on IBM SPSS version 20.

Results: Total 385 males were approached for the study. The response rate to the survey was 85% while the completion rate of the survey was 94.5%. The mean age was 44.89 ±7.58 years having an average BMI of 25.94±3.89kg/m². Out of these 311 men, 97.1% were a fast-food consumer. Fast food was more likely to be consumed by people who were doing a desk job than people whose nature was other than desk work (p=0.049). Among fast-food consumers, 40.7% had hypertension, 35.4% were obese, 22.5% had heart disease, and 21.9% had dyslipidemia. No significant association of heart disease (p=0.0689), obesity (p=1.00), hypertension (p=0.323) and dyslipidemia (p=0.213) was found with fast food consumption.

Conclusion: Direct association between fast food and Coronary heart (CHD) disease is not significantly observed in the current study. However, dietary habits and the consumption of fast food have a profound effect on the development of predisposing factors of CHD. It is also concluded that long hours of desk job have a strong association with increased fast food intake due to its easy and quick availability within the short duration of time.

Keywords: Fast food, coronary heart disease, male, desk-bound job.

INTRODUCTION

Cardiovascular Diseases (CVD) encompasses multidimensional disorders related to heart and blood vessels, the most prominent being coronary heart disease (CHD) [1]. WHO recent survey reports highlight CHD as one of the leading causes of death and disability worldwide [1]. The predisposition factors might be slightly different in various geographical regions, however dietary and living habits have been reported as the most common factors among all [2]. Accompanying the rapid economic development and urbanization that Pakistan has experienced in the last two decades, dietary habits have also been changed among various age groups [2]. It has been reported that working hours and lack of time for food preparation at home contributed as major reasons for the change in dietary habits. Consequently, this has been observed as one of the major threats in metropolitan cities of Pakistan, responsible for the increased incidence of cardiovascular diseases which now becoming one of the most common chronic diseases [2]. Therefore, dietary habits, especially the consumption (quantity & frequency) of

various types of fast foods being focused by various investigators in some studies and reviews, with the conclusion that fast foods are genuinely one of the major unhealthy food responsible for CHD [3]. Its increased consumption has been linked with the development of hypertension and some major irregularities in lipid profile (such as hyperlipidemia) accounting as a major predisposing factor of CHD [3, 4].

According to WHO, CVD became the cause of 17.5 million deaths which 31% of all global deaths. Out of these deaths, 7.4 million were due to CHD. Three fourth of CVD deaths occur in third world countries [1]. 30–40% of all deaths in Pakistan are due to coronary heart disease. In Pakistan mortality rate due to CHD has reached about two hundred thousand per year, i.e., 410 out of every one hundred thousand individuals [3]. The prevalence of hypertension in the adult population of the United States and Europe has been estimated at 15–30%, while the prevalence in children is 3–5%. Consumption of fast food is been noted as a major contributing factor associated with increased blood pressure [5]. In America, around 34.3% of all children and adolescents aged 2–19 consumed fast food every day. Almost 12% (11.6%) of children and adolescents obtained fewer than 25% of their daily calories from fast food, 10.7% obtained 25–40% of their daily calories

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from fast food, and 12.1% obtained more than 40% of their daily calories from fast food. Pakistan National Health Survey (PNHS) showed that the prevalence of hypertension in the adult Pakistani population has significantly increased from less than 10% in 18-19 years old to greater than 60% in over 70 years' age in males (Aziz, 2015).

Office workers frequently consume fast food during short lunch breaks at nearby restaurants which might contribute to the rising trend of hypertension which is a major risk factor of CHD [6]. Consequently, a dietary pattern analysis has emerged as a multi-dimensional approach to examine the relationship between diet and the risk of chronic diseases and facilitates nutritional recommendations [7]. Given details of the various published studies and consequences highlighted by the authors, it evident that fast food has a definite correlation with the development of CHD. Therefore, the present survey-based study has also been taken into consideration to collect more selective data on the subject (fast food as a risk factor for CHD) in the metropolitan city Karachi, focusing on men of middle age to contribute some valuable data from this part of the world.

METHODOLOGY

It was a cross-sectional study conducted among males aged 35-60 years working in different types of professional setups. The duration of the study was from March- October 2019. Ethical approval was taken from the ERC committee of Bahria University Medical and Dental College and there is no conflict of interest. The sample size was 385 calculated from openepi.com; the population size was kept 1 million, design effect being 1 with a confidence limit of 5 and prevalence of 50% was assumed as desired prevalence was not available in the documented literature at 95% confidence level using Non-probability convenient sampling technique. Those who were not willing to participate were excluded from the study. Data was collected through a pre-structured questionnaire comprises of demographic variables as age, occupation, and specific variables like fast-food intake, nature of the job, and any other comorbid like diabetes, hypertension and obesity.

Data was entered on SPSS IBM version 20. Continuous variables with normal distribution expressed with mean and standard deviation while continuous data without normal distribution expressed with median and range. Categorical data expressed as percentages and proportions, Chi-square test was applied to determine the association of diseases with fast food consumption. A p-value of less than 0.05 was considered statistically significant.

RESULTS

The total sample size was 385, questionnaires were distributed among three eighty-five males to collect the response. The response rate to the survey was 85% while the completion rate of the survey was 94.5%. Hence a total of 311 complete responses were received and analyzed. The mean age was 44.89 ± 7.58 years having an average BMI of $25.94 \pm 3.89 \text{ kg/m}^2$. When they were asked about fast food, Out of 311 respondents, 98.7% were aware of the terminology of fast food. 97.1% were the fast-food consumer and 82.6% considered fast food is not good for health. Out of 302 (97.1%) fast-food consumers, most of them reported that they consume it weekly (41.1%), nearly quarter of them consume it monthly (24.8%) and few reported that they consume it daily (3.6%) or not very often (10.9%) (Table 1).

The most common identified diseases among fast-food consumers were hypertension (40.7%) followed by obesity (35.4%), heart disease (22.5) and dyslipidemia (21.9%). Age ($p=0.857$), BMI ($p=0.461$), working hours ($p=0.084$), heart disease ($p=0.689$), obesity ($p=1.00$), hypertension ($p=0.323$), and dyslipidemia ($p=0.213$) were not significantly different among individuals who were and were not consuming fast food. Fast food was more likely to be consumed by people who were doing a desk job than people whose job nature was other than desk work ($p=0.049$).

Table 1: Comparison of participants' characteristics and underlying disease with fast food consumption.

Participants' Features	Fast Food Consumption		p-value
	Yes n(%)	No n(%)	
Age#	44.91 ± 7.56	44.44 ± 8.73	0.857
BMI#	25.97 ± 3.90	25 ± 3.04	0.461
Nature of Job			
Desk job	242 (80.1)	4 (44.4)	†0.049
Standing	51 (16.9)	5 (55.6)	
Labors	7 (2.3)	0 (0)	
Jobless	2 (0.7)	0 (0)	
Working Hours			
<6 hours	39 (12.9)	3 (33.3)	0.084
6-8 hours	147 (48.7)	5 (55.6)	
>8 hours	116 (38.4)	1 (11.1)	
Heart Disease			
Yes	68 (22.5)	1(11.1)	†0.689
No	234 (77.4)	8 (88.8)	
Obesity			
Yes	107 (35.4)	3 (33.3)	†1.00
No	195 (64.5)	6 (66.6)	
Hypertension			
Yes	123 (40.7)	2 (22.2)	†0.323
No	179 (59.2)	7 (77.7)	
Dyslipidemia			
Yes	66 (21.9)	0 (0)	†0.213
No	236 (78.1)	9 (100)	

#. variable is presented as mean ± standard deviation and independent t-test was applied
†Fisher-exact test was applied

DISCUSSION

Food like sandwiches, burgers, pizza fries and shawarma are considered in the category of fast food, suitable and delicious though synthesized with low calories or harmful constituents. Fast food businesses are attracting adolescents and middle age group through unlimited promotion policies, tasty recipes and striking advertisement. There are other dangerous impacts of such kind of food and the public are unacquainted with its harsh sequelae consequences because of routine usage which may tend to develop many harmful disorders like obesity with a sedentary lifestyle. Working people choose fast food during official hours compromising with food quality due to deficiency of time and easy accessibility [8]. The consumption of different varieties of fast foods among males and females of different age groups is common in the Pakistani population. Frequent fast-food intake may lead to obesity and can expose people to different organ systemic disorders [8]. In the current study, we aimed to investigate the relationship between reported fast-food habits and cardiovascular problems in middle-aged employees with prolong sitting office hours. This study was carried out on 329 males of mean age 45 ± 7.6 years having an average BMI of 25.8 ± 3.8 . Out of these 329 men, 91% are fast-food consumers, 21% have heart disease and 9.7% are being treated for coronary heart disease (CHD). In the current study direct association between fast food and CHD is not significant. However dietary habits and the consumption of fast food have a profound influence on the development of predisposing factors of CHD. It is also concluded that long hours of the desk-bound job has a strong association with increased fast food intake [8].

Cardiovascular disease (CVD) is now globally known as the principal reason for mortality [9]. The high-risk factors for CHD can be divided into two classes metabolic risk (obesity, hypertension, diabetes, and dyslipidemia) and behavioral risk factors (diet, smoking, and physical activity). Prevalence of obesity has been documented in many studies: in Saudi Arabia [10]. The INTERHEART and INTERSTROKE researches declared that hypertension, diabetes mellitus, dyslipidemia, obesity, cigarette smoking, poor physical activity, unhealthy food, and alcohol are the commonest risk factors for myocardial infarction and strokes all over the world [10, 11]. A study was conducted in the USA, revealed that Fast-food consumption has strong positive associations with obesity, insulin resistance resulting in Type II Diabetes Mellitus [12]. In line with this study, the scientists enrolled several young individuals between 18–30 years and followed them for more than fifteen years. Subsequently, the adjustment of various factors for lifestyle the authors determined that fast food intake was directly related to fluctuations in body weight [13]. It has been shown that obese people are at high risk of bad health outcomes, mainly hypertension, diabetes

mellitus, cardiovascular disorders (CVD), bone or joints pain, mobility restriction, and mortality [14].

A study documented that particularly in routine males' intake of fast food is higher more commonly in between 18–40 years as compared to females of similar age groups. The male respondents of all ages consumed mainly salty potatoes, soft drinks, pizza and burgers. The female respondents of various ages particularly liked the fries [15]. Various studies revealed that fast food was high in calories and yielded 159–164 kilocalories/100 grams of diet used. The fast-food lovers were deficient in vitamins and carotenes levels which are essential for the maintenance of healthy body functions and the prevention of cancer [8]. In America, 30% of people have increased body weight and this exposes people to many disorders like a cerebrovascular accident, hypertension with heart problems [8, 16]. Furthermore, a study was conducted in Pakistan documented that an increase in body weight was observed both in females below 18 years of age and males between 18–40 years due to fast food frequent intake and sedentary lifestyle, both males and females in a study were suffering from various diseases due to high consumption of fast food but the rate of consumption of cold drinks with fast food was high in males [8].

A study documented that Chinese and Singaporean people showed moderate intake of Western-type fast food twice in a week, but have more risk of type II diabetes mellitus (TIIDM) and high mortality due to coronary heart disease (CHD) due to poor ingredients [17]. Data specifies that daily Western-style fast food usage leads to insulin resistance and weight gain, pathways central to both TIIDM and cardiovascular disorders, the study has connected the processed meats, high dairy fats, processed and salty fried potatoes used in fast food with a raised risk of TIIDM and CHD [17].

The Coronary Artery Risk Development in Young Adults research reported an inverse relationship of Blood pressure with the usage of a plant oriented diet like fruits, vegetables, grains, nuts and a positive association with red and processed meat [7]. INTERHEART study has been revealed that fried food frequent intake was linked with a greater chance of acute myocardial infarction [18]. This analysis suggests that deep frying with mainly olive or sunflower oil is not associated with an increased risk of coronary heart disease. The Deep Frying of things with other types of oils may still be injurious to health [19].

CONCLUSION

People who are committed to prolonging desk-bound jobs are advised also to avoid the usage of fast food on daily basis to reduce the risk of obesity and coronary

artery disease. However, the health government should control the massive opening of fast-food restaurants and media should also spread awareness about the side effects of fast food.

FUTURE PERSPECTIVE

Proper understanding regarding a healthy diet can contribute towards a society of people's better awareness about healthy body systems and functions. A balanced healthy diet is advised for adolescents and parents should monitor and control the diet of their children.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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