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Assessing the Burgeoning Challenge of Heart Disease among Young Adults in Punjab, Pakistan

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Abstract
Background: Heart disease has emerged as a major global public health challenge, particularly in developing nations like Pakistan. The World Health Organization (WHO) must prioritize attention to heart disease, which is escalating rapidly among young adults. This research aims to evaluate the national prevalence, risk factors, and profiles of young adult patients with Coronary Heart Disease (CHD) and to analyze their tendencies, attitudes, behaviors, and knowledge using the Health Belief Model (HBM) at the Punjab Institute of Cardiology (PIC) in Lahore, Pakistan. Methods: The study included consecutive patients aged 15-45 years with documented medical records and heart-related issues. A direct empirical study was conducted from December 1st, 2021, to March 31st 2022, involving a sample of 900 patients selected from the Pakistan Institute of Cardiology (PIC) in Punjab, Lahore. Statistical analyses, including descriptive statistics, chi-square tests, logistic regression, analysis of variance, and application of the Health Belief Model, were employed. Results: Analysis revealed that 66.3% of males and 33.7% of females suffered from heart disease. Blood pressure (BP) was identified by 60.7% of participants as a significant risk factor. Individuals aged 35-44 were more susceptible to heart attacks. Family history, blood pressure, chest pain, shortness of breath, lack of exercise, fast food, salt, obesity, and stress significantly correlated with heart attacks (p-value < 0.05). Conclusion: The study highlighted smoking, high blood pressure, stress, lack of exercise, obesity, fast food, salt, and family history as key risk factors for CHD. Significant knowledge gaps, attitudes, and prevention practices related to heart attacks were identified in adults. The government

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and public medical organizations in Pakistan should intensify efforts to enhance national health education and public awareness to prevent coronary artery disease (CAD).

Keywords: Coronary heart disease, risk factors, Attitude, Health Belief Model, Punjab, Pakistan

1. INTRODUCTION

Coronary heart disease (CAD) leftovers are the prevailing root of mortality worldwide [15]. South Asians are exposed to originate advanced atherosclerosis and highest death rate due to its side effects compared to other inherited groups studied [12]. It has been documented that younger age groups people are expanding the diseases more frequently than before inprevious couple of years [4]. As indicated by the exploration, it uncovers that the proportion of coronary failure is expanding habitually at 45 years old or more youthful as contrast with the more seasoned for a couple of years. Also, this expanding 2% every year throughout the previous 10 years [5]. The main cause of (CAD) is an interruption in blood flow to the brain's nerves owing to clotting in the blood. There are different sorts of heart attacks: major and minor. The blood flow to some brain areas is hampered in a moderate attack, while a severe attack can result in death. CAD is a life-threatening medical illness that must be treated quickly. Movement problems, confusions, poor verbal communication, and difficulties understanding are all prevalent symptoms. CAD results in long-term brain impairment as well as mortality [10]. Numerous studies show that in contrast with adult patients these patients have single-vessel disease [5], the presence of excess cholesterol in the blood [5], significant positive family history [5], and history of smoking. There are several such studies from more evolved countries but only a few from Pakistan. There is partial data obtainable in the form of proper studies from Pakistan. Moreover, small-scale investigations carried out at several centers examined the relationship between standard risk factors and coronary artery disease. According to a study conducted in Karachi, Pakistan, hypertension, diabetes, smoking, and family history are all the risk factors that are most frequently reported, followed by dyslipidemia. [13]. Similar results from a different study carried out at Pakistan Ordinance Hospital Wah, Pakistan, were reported[1].

Many people still perceive that heart attacks only affect older men, even though heart ailment is the main reason of expiry amongst both women and men in the United States of America (USA). The contrast is that beyond 45 years of age, the risk of heart attack grows progressively in males. After 50 years of age, the risk rises in women. Adolescent women and men can also suffer heart attacks, and the prevailing obesity and lack of activity epidemic among our country's youngsters will certainly shift the danger to younger ages for another one to a couple of decades. Nearly 700,000 Americans get their first or second stroke every year, with even more than 20% of these being deadly. Strokes afflict more women than males, and consequently, they are more prone to pass away. The problem is particularly acute among African-Americans [3].

Adult participation and an elevation in the local demographic trend have also been seen. Explaining why people commit to preventive measures is important for public health

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professionals in order to prevent this disease. [2, 21]. Patients' desire to cooperate in secondary avoidance approaches later a heart attack is likely to be effected by their acquaintance of their situation[16].

A researcher perceived the hazard factors in intense coronary illness. Information from 300 patients was gathered in the coronary consideration unit of Jinnah Hospital, Lahore. For patients assortment examining method was utilized. 33.33% of coronary illness patients were ladies and 66.67% were men. 60% of patients lie in the age gathering of 25-40 years. 31.33% of patients had diabetes, though 46.3% were distressed from hypertension. 95 (32.7%) patients had a family background of heart disease. 41.9% of patients were smokers. In age 18-40 years indicated a male predominance intense coronary condition. Significant hazard factors were hypertension trailed by Diabetes and smoking are found common [8].

Another researcher became aware of the unexpected cardiac deaths among young adults and children. His study makes out the information about the deaths among young adults and children (between age 1 to 35 years). A total of 490 cases of unexpected cardiac deaths were recognized in his study. In Australia and New Zealand, the yearly death count among sudden cardiac patients was 1.3 deaths per 100,000 persons aged 1 to 35 years old. Person A person aged 31 to 35 had the highest death count with unexpected cardiac expiry which was 3.2 cases per 100,000 persons. The most ordinary cause of instantaneous cardiac death was coronary artery disease (24% of patients) followed by inherited cardiomyopathies (16% of patients). 27% of patients were recognized with the cardiac gene mutation in which genetic testing was executed. Death at younger age and death at night were two main factors that were independently related to unexplained sudden cardiac death [20]. High awareness of the fact that cardiovascular disease is the leading cause of death among women is essential for protection. This study examined females' consciousness of this issue over the course of time. Heart disease awareness as the leading cause of death decreased from 65 % in 2009 to 44 % in 2019. In 2019, awareness was higher among people who were older and had more education, while it was lower among non-White women and women who had hypertension (Chushman *et al.,* 2020) [6].

Due to lifestyle and genetics, health conditions are on the rise today. The risk to people's lives has increased recently, especially with heart attacks. The vital signs, cholesterol, and pulse vary from person to person. This study examined several risk level classification schemes based on age, gender, blood pressure, cholesterol, and pulse rate. Using the participant's symptoms as input, a predictive modeling-based "Ailment Prediction" system forecasted their condition. The system collected participant input, analyzed the patient's symptoms, and outputs a probability of the disease. Using different statistical techniques, result is that the average prediction accuracy probability was thus 83% on average[11].

In order to build up useful information in practice, the current study examined the connections of preventative behaviors associated to coronary heart disease using the Health Belief Model (HBM) [19]. One of the concepts that is frequently used to communicate ideas that can be useful in influencing behaviors for promoting and protecting one's health, especially those related to coronary heart disease, is the health

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behavior model (HBM) [7, 22]. Rendering to HBM, behavioural beliefs and adapting aspects can be useful in influencing behaviour, particularly when a person perceives themselves as being more susceptible to the disease (perceived susceptibility), aware of the ultimatum disease poses to their health (perceived severity), and aware of the benefits of taking preservative measures (perceived benefits) as opposed to their barriers (perceived benefits) (perceived barriers)[12]. By utilizing this model, we pointed to evaluate which domains of the Health Belief Model are correlated with coronary heart disease prevention behaviors and identify coronary risk factors in adult patients under age 45 admitted at PIC Lahore in Pakistan.

In order to learn more about the perceived severity, perceived susceptibility, self-efficacy, perceived benefits and barriers, cues to action, and preventative behaviors related to the COVID-19 immunization and the choice to turn out to be vaccinated, a questionnaire was constructed utilizing the HBM structure. To evaluate the data, multiple linear regression was performed. The participants who were not vaccinated ranged in age from 44.45 to 16.63 on average, and 54.5% of them were female. After altering for age, causal disease, and body mass index (r^2 = 42.5%), the COVID-19 preventive behavior score employed perceived severity (b = 0. 26), self-efficacy (b = 0. 51), perceived advantages and barriers (b = 0. 11), and signals to action (b = 0. 18). After correcting for underlying disease (r^2 = 38.7%), the COVID-19 vaccination result score showed positive correlations with perceived severity (b = 0.13), perceived susceptibility (b = 0.25), perceived benefits and obstacles (b = 0.21), and cues to action (b = 0.27). [17]

2. MATERIALS AND METHODS

2.1. Study Strategy

In this study, a sample of 900 patients was chosen from PIC, Lahore. The information regarding demographic details of the patients was observed, in addition, their health activities related information was collected. This research includes an observational, quantitative research design based on primary data collected through face-to-face interviews of coronary heart patients in the PIC Lahore. All computations were carried out in IBM SPSS version 25.0 [9].

2.2.Study Instruments and Data Collection

A controlled questionnaire (“Supplementary file 1”) was designed by the authors based on the different sections (demographic and clinical profile, physical activities, diet and use of tobacco, sign, and symptoms of heart attack). The WHO and other public health organisations'recommendations for CHD attitudes, perceptions, and preventive actions served as the foundation for the authors' construction of this structured questionnaire. [22]. For the purpose of collecting, the questionnaire was also translated into Urdu language of Pakistan. A face-to-face environment was used for the participants to complete the questionnaire. The participants were questioned about their awareness of the questions after completing each questionnaire to determine the face validity. Additionally, participants were asked which queries they thought were unclear and why. The questionnaire was revised in light of results from the pretesting. The interviews

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were carried out by two interviewers who were skilled in face-to-face survey methods. Above mention, information was collected through questionnaires from 900 CHD patients under the age of 45, who showed their willingness to participate in the survey with a response rate of 100%.

2.3.Measures

The survey questions were intended to develop the health belief model, through discussion among the research team and agreement on designing the questions that might be allocated to more than one of the HBM categories. All survey inquiries including awareness, knowledge, attitudes, motives, and behaviours relevant to coronary heart disease were thereby categorised into HBM contracts. [18] (shown in Table 4).

2.4. Statistical Methods

Descriptive statistics were used to describe the sample characteristics. To check the association of the demographic variables and risk factors with heart attack, logistic regression, and Chi-square performed. To know the knowledge, attitude and prevention practices we compute analysis of variance (ANOVA) also evaluate which paradigms of the health belief model (HBM) were correlated with coronary heart disease preventive behaviors.

3. RESULTS

3.1.Descriptive Statistics of Demographic Characteristics

Out of 900 individuals, 597 (66.3%) were males and 303 (33.7%) were females. The highest number of respondents from the age group (35-44), comprised 567 (63.0%) participants. Of these individuals, 816 (90.7%) were married. 462 (61.3%) of them had low education. Detailed information is presented in **Table 1**.

Table 1. Descriptive Statistics for Socio-Demographic Characteristics of Study Participants, PIC Hospital, Lahore, Pakistan. 2022 (N = 900).

Variables Names	Categories	Frequencies/Percentages
What is your age?	15-17	12 (1.3%)
	18-24	42 (4.7%)
	25-34	279 (31.0%)
	35-44	567 (63.0%)
What is your gender?	Male	597 (66.3%)
	Female	303 (33.7%)
Are you a student?	Yes	81 (9.0%)
	No	819 (91%)
What is your location?	West Punjab	640 (71.1%)
	East Punjab	8 (0.9%)
	North Punjab	202 (22.4%)
	South Punjab	34 (3.8%)
	North-East Punjab	16 (1.8%)
What is your educational level?	Less than a high school	462 (61.3%)

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	High school degree	254 (28.2%)
	Bachelor's degree	129 (14.3%)
	Master's degree	51 (5.7%)
	Doctorate	4 (0.4%)
What is your marital status?	Single	54 (6%)
	Married	816 (90.7%)
	Divorced	18 (2.0%)
	Widowed	12 (1.3%)
In your family history, has anyone suffered from heart disease?	Yes	416 (46.2%)
	No	484 (53.8%)

The binary logistic regression model explores the interaction between one or more existing exogenous variables to predict a dependent data variable. Using this technique, the coefficient of stress is positive at 0.772 which is highly significant (p-value<0.05) at 5 percent with an odds ratio of 2.165. In another word, it also means that the probability of stress to be family history is 2.165 approximately 2 times. Detailed information is shown in **Table 2**.

Table 2. Risk factors of Coronary Heart Disease, PIC Hospital, Lahore, Pakistan. 2022 (N = 900).

Variables	Coefficients	Standard Error	Wald	df	Significance	Odds ratios
Are you suffering from blood pressure?	-1.829	0.635	8.2881		0.004	0.161
Are you suffering from blood sugar?	1.911	0.854	5.0071		0.025	6.760
Do you have chest pain?	1.506	0.665	5.1331		0.023	4.509
Do you have Shortness of breath?	1.192	0.417	8.1661		0.004	3.293
Are you taking exercise?	1.282	0.517	6.1431		0.013	3.603
Do you eat fast food?	-1.457	0.595	5.9981		0.014	0.233
Do you have an obesity problem?	-1.231	0.540	5.2011		0.023	0.292
Are you stressed?	0.772	0.244	9.9921		0.002	2.165
Constant	-1.563	2.793	0.3131		0.576	0.210

Figure-1: Ages of patrticipants

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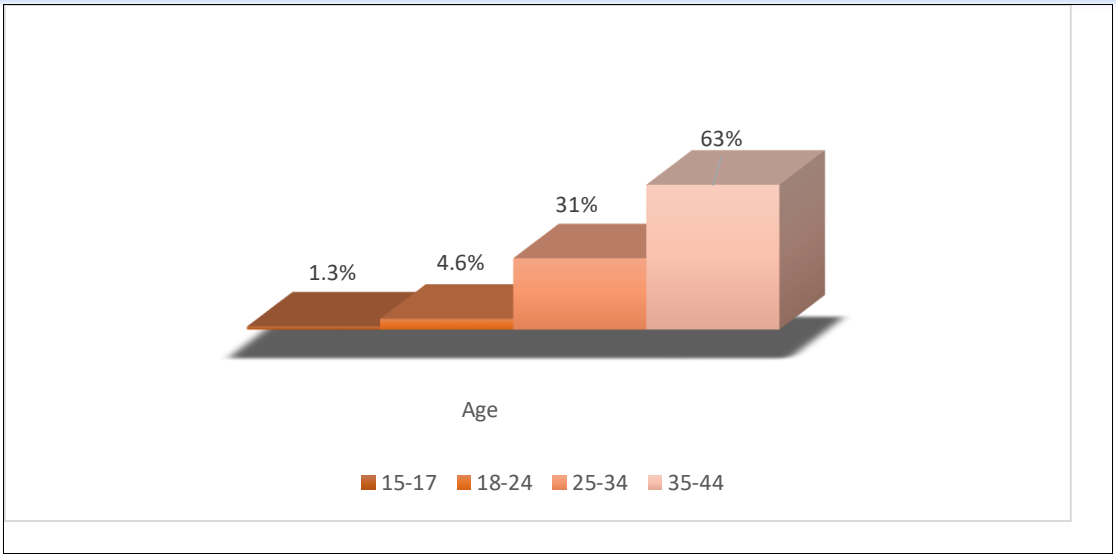

The association of CAD with age, blood sugar, shortness of breath, pain in arms and shoulders, obesity, and salt as p-value < 0.05 for each. Among these factors, the most associated with age are obesity and shortness of breath. The remaining information is available in **Table 3**. Figure-1 indicat that most of the patrticipants ages were in between the interval of (35-44) years old when they had their first heart attack.

Table 3: Associated risk factors with Study Participants' age, Lahore City, Pakistan. 2022 (N = 900).

Variables	Chi-square	Df	P-value
In your family history, has anyone suffered from heart disease?	1.251	3	0.741
Are you suffering from blood pressure?	2.573	3	0.012*
Are you suffering from blood cholesterol?	4.275	3	0.233
Are you suffering from blood sugar?	8.584	3	0.135
Do you have jaw pain?	2.273	3	0.518
Do you have neck pain?	2.931	3	0.402
Do you have back pain?	3.615	3	0.306
Are you feeling weak?	4.974	3	0.174
Do you have chest pain?	5.679	3	0.028*
Do you have eye pain?	0.516	3	0.815
Do you have arm and shoulder pain?	9.372	3	0.055
Do you have shortness of breath?	13.413	3	0.004*

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Are you taking exercise regularly?	2.449	3	0.011*
Do you eat fast food?	7.443	3	0.019*
Do you have an obesity problem?	19.468	3	0.000
Do you smoke cigarettes?	1.969	3	0.011*
Do you eat meat?	5.639	3	0.131
Do you use salt regularly?	10.247	3	0.017*
Do you use vegetable oil?	10.496	3	0.215
Do you eat food from restaurants?	5.682	3	0.128
Are you stressed?	14.350	9	0.010*

p* show thes most significant risk factors which are associated to coronary heart disease

3.2.Prevention Behaviors and Practices of Participants

Descriptive statistics for items in the Health Belief Model, presented in **Table 4**, displayed that the maximum avoidance behavior revealed by 83.8% of all of the study contributors was Do you have chest pain and discomfort?, followed by do you think the shortness of breath? (64.2%), and Have you ever been told by a doctor that you have high blood pressure (63.2%)? I do moderate physical activities every weekend (61.9%), and are you taking exercise regularly? (21.4%). Do you use cigarettes regularly and Have you smoked tobacco daily in the past (69.4%) and (44.7%) are the most common individual behaviors of study participants respectively, Do you follow the basic protective measures (e.g. taking healthy food, exercise, avoid tobacco & proper sleep, etc.) to protect yourself against the CHD? (31.8%) Whereas the participants have less knowledge and practice and show a non-serious attitude related to CHD.

Table-4. Descriptive Statistics for Items, by the HBM Concepts, PIC Lahore City, Pakistan, [N = 900].

Variables Name	Percent "Yes"
Perceived Susceptibility to Disease	
Are you suffering from blood pressure?	77.6
Have you ever been told by a doctor that you have high blood pressure?	53.2
Have you ever been told by a doctor that you have blood sugar?	41.5
Do you have chest pain and discomfort?	83.8
Do you have sudden trouble seeing in one or both eyes?	23.2
Do you have an obesity problem?	53.4
Do you think pain or discomfort in the arms and shoulders?	45.8
Do you think the shortness of breath?	64.2
Perceived Benefits of Preventative Action	
I do some light or moderate physical activities daily.	51.3
I do moderate physical activities every weekend?	61.9

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I do moderate physical activities for less than 30 minutes a day.	47.8
Are you taking exercise regularly?	21.4
Perceived Barriers to Preventative Action	
Do you like to eat fast food?	54.7
Do you take junk food as an alternative to breakfast?	59.6
What do you think that your weight is increasing due to junk food?	49.6
Do you use salt regularly?	61.1
Individual Behaviors	
Do you currently use tobacco?	52.6
Have you smoked tobacco daily in the past?	44.7
Do you smoke cigarettes regularly?	69.4
Do you often have a drink containing alcohol?	78.9
Do you follow the basic protective measures (e.g. taking healthy food, exercising, avoiding tobacco & proper sleep, etc.) to protect yourself against the CHD?	31.8
Are you satisfied with this treatment?	38.1

NOTE: No answers in the study to reveal "Perceived Efficacy".

Table-5: ANOVA comparison of average for non-actions Items by respondent' beliefs & attitude about CHD, Punjab, City Lahore Pakistan, 2022.

Non Action Items	Sub Items	Average	95% C.I		P-value
			Upper	Lower	
Are you taking exercise regularly?	No	4.19	4.94	6.43	0.001
	Yes	5.23	4.13	6.19	
Do you believe that fast food & soft drinks, smoking, less exercise, and salt affect the human body & mind or CHD?	No	4.29	4.12	4.85	0.015
	Yes	5.13	6.14	8.24	
Do you follow the basic protective measures (e.g. taking healthy food, exercising, avoiding tobacco & proper sleep, etc.) to protect yourself against CHD?	No	5.22	4.84	5.61	0.002
	Yes	6.59	5.31	6.88	
Do you think CHD is treatable in Pakistan?	No	4.72	4.12	4.88	0.001
	Yes	5.81	5.54	6.73	
Are you satisfied with this treatment?	No	5.67	5.86	6.88	0.003
	Yes	5.74	5.83	6.95	
Do you know the common sign and symptoms of a heart attack?	No	6.28	6.01	7.16	0.001
	Yes	5.27	4.92	5.89	

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Do you smoke cigarettes regularly?	No	5.41	5.82	6.39	0.002
	Yes	6.19	5.88	7.91	

Abbreviations: CI, Confidence Interval; Note: p shows the significance of variances in avereges at a $p < 0.05$.

Table 5 displays the consequences of the analysis of variance, comparing the averages of preventive action by related CHD declarations on behalf of hypotheses of the health belief model.The average prevention activities scores for those replying "Yes" stood significantly dissimilar (trend p less than 0.05) than those responding "No" for the individual statements demonstrating HBM paradigms. The variances in prevention performance of the respondent scores were noteworthy by the education level and stress having significantly higher scores. The average score for persons with less than a high school diploma was 6.59, while for those with home stress the average prevention score was 4.19. These scores indicate that the knowledge and prevention practices of the participants related to coronary heart disease are very low.

4. DISCISSION

The present study took out the final results that smoking, high blood pressure, stress, lack of exercise, obesity, and using fast food and salt in daily life are the main risk factors and family history also affects coronary heart disease. This study also shows that here is no distinguished sex variance in the recurrence of different risk factors besides smoking which is generally renowned in male adults between 35-44 years old. Pakistan, like numerous low & moderate-income countries (LMICs) countries circling the world, continues to face severe life intimidating possessions due to CHD. Through the preventive activities existence the key reasons that assist with restriction the spread of CHD, this research inspected the issues related with CHD stoppage behavior by make use of Health Belief Model. The result of this study have disclosed that, in spite of the study's management occurring in the mid month of 2022, the overall ratings related CHD, including the perceived susceptibility and harshness as well as the considered advantages and disadvantages of preventative measures, stayed high. Nevertheless, despite what appears to be sufficient levels of knowledge about CHD and the required preventative measures, the implementation of all required specific protective behavior remained comparatively low. For example, Descriptive statistics for items in the Health Belief Model, presented in **Table 4**, reveals that the top preventive behavior shown by 83.8% of all survey respondents was Do you have chest pain and discomfort, followed do you think the shortness of breath? (64.2%), and Have you ever been told by a doctor that you have high blood pressure (53.2%)? Do you follow the basic protective measures (e.g. taking healthy food, exercising, avoiding tobacco & proper sleep, etc.) to protect yourself against CHD? (31.8%) and Do you smoke cigarettes regularly? (69.4%) Whereas the participants have less knowledge and practice and show a non-serious attitude related to CHD prevention practices.

The most significant finding is that, among all the components of the health belief model, Pakistanis in Lahore are motivated by their beliefs of the benefits of CHD

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prevention to act on the Department of Health in Pakistan's and WHO's preventative recommendations. The supplementary set ups of the HBM, such as perceived susceptibility to getting infected, perceived severity of CHD disease, and perceived barriers of preventative action did not look to alter people's prevention activities.

Health Belief Model forecasts that persons whose trust they are at less jeopardy of emerging a disease are additional likely to include in destructive, or dangerous actions and those that observe a greater hazard have a greater probability of rendezvous in health endorsing activities. Do the researchers originate in this study that a majority of the study participants believed unsatisfied with this treatment? (38.1%) and suspected that the Pakistani government's unable to deliver appropriate upkeep in the future related to CHD. These theories would suggest a high perceived harshness of the illness and, when merged with great perceived susceptibility, would outcome in a complete high professed risk of the CHD in the company of the respondent.

5. CONCLUSION

Present study revealed that smoking, high blood pressure, stress, lack of exercise, obesity, and using fast food and salt in daily life are the main risk factors and family history also affects the CHD in studied population in Pakistan. This study also showed that here is no distinguished sex variance in the frequency of different risk cause sex including in smoking which is commonly noted in males.

This study also highlights the acquaintance and performance of the people of the Lahore district, Punjab, Pakistan for CHD. The study exposed that while the perceived risk of CHD was extra ordinary amongst the people of Punjab, Pakistan, generally the insolences and deterrence implementations of the respondents were lower than expected including lack of exercise, using maximum restaurant food and smoking is high. The knowledge of the respondent is very low they are not aware of related heart disease risk factors. This study suggests that government-sponsored public health bureaus in Pakistan should not exclusively continue to raise public awareness of prevention measures and provide health education, but they should also work to encourage conformity by outlining the benefits of adhering to the prevention recommendations made by the WHO, the Pakistani government, and public health organizations. The prevalence of CHD in our culture is increasing, thus it's critical to analyze and evaluate the risk factors that are prevalent nationwide. It will allow us in formulating schemes for endorsing healthy lifestyles, frequent and early risk valuation, and age-specific preventive schemes.

References

1. Adam AM, Rehan A, Waseem N, Iqbal U, Saleem H, Ali MA, Sheikh AT and Gobil A. Prevalence of conventional risk factors and evaluation of baseline indices among young and elderly patients with coronary artery disease. J. Clin. Diagn. Res. 2017;11:OC34-OC39.doi: 10.7860/JCDR/2017/27504.10281.

2. Ajilore K, Atakiti I and Onyenankeya K. College students' knowledge, attitudes and adherence to public service announcements on Ebola in Nigeria: Suggestions

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

for improving future Ebola prevention education programmes. Health. Education. Journal. 2017;76: 648-660.doi.org/10.1177/001789691771

3. Becker RC. Heart Attack and Stroke Prevention in Women. Circulation. 2005;112: e273–e275.doi.org/10.1161/CIRCULATIONAHA.105.551341

4. Cheema FM, Cheema HM and Akram Z. Identification of risk factors of acute coronary syndrome in young patients between 18-40 years of age at a teaching hospital. Medical. Sciences. 2020;36:821-824.doi.org/10.12669/pjms.36.4.2302

5. Chouhan L, Hajar HA, Pomposiello JC Comparison of thrombolytic therapy for acute myocardial infarction in patients aged <35 and >55 years. Am. J. Cardiol. 1993;71:157-159. doi: 10.1016/0002-9149(93)90731-q.
6. Cushman M, Shay CM, Howard VJ, Jimenez MC, Lewey J, McSweeney JC, Newby LK, Poudel R, Reynolds HR, Rexrode KM, Sims M and Mosca LJ. Ten-Year Differences in Women's Awareness Related to Coronary Heart Disease: Results of the 2019 American Heart Association National Survey. Circulation. 2020;143: e239–e248. doi.org/10.1161/CIR.0000000000000907

7. Darvishpour A, Vajari SM and Noroozi S. Can health belief model predict breast cancer screening behaviors?. J. Med. Sci. 2018;6: 949–953.doi:10.3889/oamjms. 2018.183

8. Huxley RR and Woodward M.Cigarette smoking as a risk factor for coronary heart disease in women compared with men: a systematic review and meta-analysis of prospective cohort studies. Lancet. 2011;378: 1297-1305.doi: 10.1016/S0140-6736(11)60781-2.

9. IBM SPSS Statistics for Windows, Version 25.0; IBM Corp: Armonk, NY, USA, 2017.

10. Jose R, Narendran M, Bindu A, Beevi N, L M and Benny PV. Public perception and preparedness for the pandemic COVID 19: A Health Belief Model approach. Clin. Epidemiol. Glob. Health. 2021; 9: 41–46.doi: 10.1016/j.cegh.2020.06.009.

11. Kalse P, Kumbhar S, Desai M and Patil PPR. Heart Attack Prediction System Using IoT and Machine Learning.IJRASET. 2022;10: 2043–2049. doi.org/ 10.22214/ijraset.2022.42749

12. Kaur M, Sakhare S, Wanjale K and Akter F. Early Stroke Prediction Methods for Prevention of Strokes. Behavioural. Neurology.2022:1-9. doi: 10.1155/2022/ 7725597

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

13. Kuppuswamy V and Gupta S. Coronary heart disease in South Asians. Practitioner. 2003;247:181-182.

14. Nadeem M, Ahmed SS, Mansoor S and Farooq S. Risk factors for coronary heart disease in patients below 45 years of age. Pak. J. Med. Sci. 2013;29: 91-96.doi: 10.12669/pjms.291.2828

15. Perski A, Olsson G, Landou C, Faire Ud, Theoreli T and Hamsten A. Minimum heart rate and coronary atherosclerosis: independent relations to global severity and rate of progression of angiographic lesions in men with myocardial infarction at a young age. Am. Heart. J. 1992;123: 609-616. doi:10.1016/00028703(92)9049 7-j

16. Ridker MP, Genest J and Lippy P. Risk factors for atherosclerotic heart disease. In: Braunwald E, Zipes DP, Libby P editors. Heart Disease: A Textbook of Cardiovascular Medicine, 6th ed., Philadelphia: W.B: Saunders Company, 2001:pp.1010–1039.

17. Seangpraw K, Pothisa T, Boonyathee S, Artborirak PO, Tonchoy P, Kantow S, Auttama N and Choowanthanapakorn M. Using the Health Belief Model to Predict Vaccination Intention Among COVID-19 Unvaccinated People in Thai Communities. Front. Med. 2022;9. doi: 10.3389/fmed.2022.890503.

18. Shah GH, Faraz AA, Khan H, Waterfield KC. Perceived Benefits Matter the Most in COVID-19 Preventive Behaviors: Empirical Evidence from Okara District, Pakistan. Int. J. Environ. Res. Pubic. Health. 2021;18:6772. doi: 10.3390/ijerph18136772.

19. Tachfouti N, Slama K, Berraho M and Nejjari C. The impact of knowledge and attitudes on adherence to tuberculosis treatment: A case-control study in a Moroccan region. Pan. Afr. Med. J., 2012;12: 52.doi: 10.11604/pamj.2012.12.52.1374

20. WHO. Risk Communication and Community Engagement (RCCE) Action Plan Guidance Heart risk Preparedness and Response; World Health Organization: Geneva, Switzerland, 2022.

21. Wiles R and Kinmonth A. Patients understandings of heart attack: implications for prevention of recurrence. Patient. Educ. Couns. 2001;44: 161–169. doi: 10.1016/s0738-3991(00)00187-7.

22. Wong MCS, Wong EI, Huang J., Cheung AWL, Law K, Chong MKC, Ng RWY, Lai CKC, Boon SS, Lau JTF, Chen Z and Chan PKS. Acceptance of the COVID-19 vaccine based on the health belief model: A population-based survey in Hong Kong. Vaccine. 2021;39: 1148–1156. doi: 10.1016/j.vaccine.2020.12.083.

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Online ISSN: 3006-2047
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23. Zewdie, A., Mose, A., Sahle, T., Bedewi, J., Gashu, M., Kebede, N., &Yimer, A. (2022). The health belief model's ability to predict COVID-19 preventive behavior: A systematic review. SAGE Open Medicine. 2022;10. doi: 10.1177/20503121221113668.

24. Zhang, H., Chen, L., & Zhang, F. Revisit the Effects of Health Literacy on Health Behaviors in the Context of COVID-19: The Mediation Pathways Based on the Health Belief Model. Frontiers in Public Health. 2022:10. doi.org/10.3389/fpubh. 2022.917022.