Global Medical Insights Journal

Ali et al,2025

E-ISSN:XXXX-XXXX

OPEN ACCESS

ORIGINAL ARTICLE

Volume 01 (Issue 1) , 2025 |Page 01-11

Demographic Study of Different Disorders in Punjab, Pakistan

Pervaiz Ali[1], Muhammad Zohaib[2], Shumaila Ramzan[3], Hamna Shehzad[4], Muhammad Haroon[4], Eman Mahmood[4], Abdullah Hassan[4]

[1] Department of Gomal Center of Biochemistry and Biotechnology, Gomal University, Dera Ismail Khan, KPK, [2] Department of Medical Sciences, Services Institute of Medical Sciences, Lahore,[3]Department of Food Science and Nutrition, Institute of Food Science and Nutrition, Gomal University, Dera Ismail Khan, KPK, [4]Department of Medical Education, Rawalpindi Medical University, Rawalpindi, Punjab, Pakistan.

ABSTRACT

Background

Pakistan is experiencing an increasing burden of non-communicable diseases that challenge its healthcare system. Punjab, being the largest province by population, shows considerable variability in disease prevalence among its districts. Rapid urbanization, dietary changes, and limited healthcare access contribute to the rise of chronic conditions. Identifying district-level patterns is essential to develop evidence-based and targeted health strategies.

Methods

A cross-sectional study was conducted between July and December 2024 in five districts of Punjab: Lahore, Rawalpindi, Bahawalpur, Hafizabad, and Bhakkar. Data were collected from hospitals, health centers, and rural health units through patient observations, structured interviews, and questionnaires. Demographic variables, including age, gender, and body mass index (BMI), were documented. Statistical analyses were performed to determine associations between demographic factors and disease prevalence.

Results

The analysis revealed significant variation in disease distribution across districts. Diabetes mellitus and cardiovascular disorders were the most prevalent conditions overall. Lahore and Bhakkar demonstrated higher rates of these disorders, particularly among young adults, which correlated with poor dietary intake and unhealthy lifestyle practices. Age, gender, and BMI were significantly associated with the prevalence of both diabetes and cardiovascular diseases.

Conclusion

The findings highlight the growing burden of non-communicable disorders in Punjab and the importance of district-specific strategies. Health promotion programs focusing on lifestyle modification, dietary awareness, and preventive care are urgently needed. Improving accessibility to healthcare services and implementing tailored interventions for high-burden districts may reduce disparities and strengthen the provincial healthcare system.

Keywords: Non-communicable diseases; Diabetes mellitus; Cardiovascular disorders; Prevalence; Punjab, Pakistan.

*Corresponding Author: Pervez Ali
Email: pervaizali7205@gmail.com

Citation: Ali P, Zohaib M, Ramzan S,Shehzad H,Haroon M,Mahmood E, Hassan A Demographic Study of Different Disorders in Punjab, Pakistan. Global Med Insights Journal. 2025 Jan ;01(1): A-B

INTRODUCTION

Punjab province of Pakistan has the largest population in the country and has over 127,696,305 residents which constitute 52.87% of the total population of Pakistan[1]. Every year, non-communicable diseases claim the lives of almost 38 million individuals[2]. Seventy to eighty percent of these deaths take place in low- and middle-income nations[2–4]. High blood pressure is thought to be the cause of about 18% of fatalities worldwide[5]. The burden of NCDs has grown over the past ten years, impeding the achievement of development objectives such as health fairness, economic stability, human security, and poverty reduction[6]. In addition to socioeconomic and cultural shifts including rising rates of tobacco and illegal drug use, the rise in NCDs may be caused by longer lifespans[7].

WHO NCD Country Profiles 2014 states that Pakistan has a double burden of non-communicable diseases (50%) and communicable diseases (38%). 25.3% of people in Pakistan had high blood pressure, 19% had cardiovascular disease, 3% had diabetes, 6% had chronic respiratory conditions, 8% had cancer, 23% smoked tobacco, and 0.1% drank alcohol, according to the WHO country profile[8]. In Pakistan, cardiovascular diseases (CVDs) are a serious health issue, and the number of individuals is rising daily. In 2000 and 2008, CVD killed over 16.7 million people, with a higher number of fatalities among women[9–10]. In rich nations, this disease accounts for 25% of all deaths; in middle- and low-income nations, it accounts for 80%[11]. Additionally, 85% of conditions worldwide are caused by CVD[12]. Every year, 250,000 women in the USA pass away from CVDs[13]. Many deaths are caused by CADs (coronary artery disease), which are very common in the Asian subcontinent[14]. In underdeveloped nations, women are more susceptible to CVDs than men[15].

Statistics show that 47,120 persons contracted dengue fever in 2020. In addition, there are 2.5 million instances of Hepatitis B, 300,000 cases of malaria, and 27,000 cases of tuberculosis reported per year. Between 2016 and 2020, 22,571 people received a typhoid diagnosis, compared to 192 influenza patients in 2018 and 8,345 measles cases in 2019. In 2019, the HIV incidence rate was 0.12, continuing its trend of annual increases[16]. Punjab accounted for 49% of all dengue cases reported[17].

According to Hussain et al.[18], the prevalence of common mental disorders in Pakistan is significant, ranging from 10% in urban regions to 44% in rural areas for males and from a low of 25% in urban areas to a high of 72% in rural areas for females. PHS has numerous obstacles that make it difficult for it to offer its residents quality, effective healthcare. Inadequate finance is one of the major obstacles. Another issue brought on by the PHS's inadequate funding is the absence of medical devices, medications, healthcare facilities, and trained healthcare workers[19]. One major challenge to the PHS is the unequal distribution of healthcare resources. There is insufficient healthcare

facilities in rural areas due to the concentration of healthcare resources, such as clinics, hospitals, and medical personnel, in urban areas. According to Khan and Hussain[20], this causes a notable difference in healthcare outcomes and access between urban and rural populations.

The Community Health Index (CHI) represents the unequal distribution of healthcare resources. CHI calculates the differences in health and well-being between various locations. Pakistan scored an inequality ratio of 16.59 CHI, which means that the upper-tier districts are 16.59 times healthier than the lower-tier districts. There is a significant difference in resources between the urban and rural areas, as seen by the disparity ratio, which is about 10 points different (7.78 and 17.54, respectively). This information shows that resources in Pakistan's healthcare system are not distributed fairly[20]. Due to a lack of essential medical supplies, diagnostic tools, and pharmaceuticals, the rural healthcare system is unable to properly diagnose and treat patients. All of these deficiencies put further strain on urban infrastructure, which in turn causes a lack of medical facilities, a physician scarcity, and patient discontent.

The objective of this work is to offer a demographic profile of the occurrence and geographical distribution of these disorders in the whole province of Punjab. It wants to look at the factors that relate to health in society and advocate for equality in disease incidence. With the help of identifying these trends, this research aims to help policymakers, healthcare workers, and researchers to develop evidence-based strategies to reduce Punjab's existing healthcare issues and enhance people's health standards.

METHODS

The study was conducted in selective districts of the Punjab province of Pakistan. Data regarding different disorders were collected from five districts (Lahore, Rawalpindi, Bahawalpur, Hafizabad, Bhakkar) of the Punjab from July – December 2024 from the hospitals of these districts. Open-ended interviews and questionnaires were conducted for data collection. The people of the local area speak different languages like Punjabi, Saraiki, Pashto, and Urdu. Therefore, the interviews were in the native languages. The target population was patients who were admitted to hospitals, health centers, and patients visiting rural health units. The target range was concerned with the age, gender, and BMI of the patients. The impact of dietary habits and BMI on the health of patients was deeply assessed as well. Secondary data was collected from tertiary hospitals, district health care centers, and rural health units in Punjab. The collected data were stored in Microsoft Excel 2019 and presented by using percentages, frequency, tables, and pie charts.

RESULTS

This research provides insight into the prevalence of different disorders in five districts of Punjab, Pakistan. The collected information includes the patient's gender, age, dietary habits, Body Mass

Index, and the type of disorders. According to statistics, 55% of cases were male and 45% were female. It was observed that the gender distribution was almost the same in districts including Lahore, Bahawalpur, Bhakkar, and Rawalpindi. The studied population was divided into three major age groups including 5% children, 35% young, and 60% old. Approximately 50% and 30% of old age cases were affected by chronic disorders like diabetes and CVD respectively. 49% of the participants consumed a balanced diet and 51% of the cases were eating unbalanced diet. It was also observed that most of the disorders were related to imbalanced diets in Lahore and Bhakkar. 29% of the cases were observed with normal BMI and 31% experiencing weight gain. In addition, 40% of the respondents were affected by weight loss. There was a high ratio of diabetes mellitus and other hormonal disorders in overweight people, especially in Lahore and Bhakkar.

The most prevalent disorders and their approximate percentage are as follows:

Table 01: Prevalence of most common disorders.

Common Disorders	Prevalence%
Diabetes Mellitus	26%
CVD(cardiovascular disorders)	18%
Liver and Gastrointestinal disorders	15%
Lung disorders	15%
Viral infection and Skin disorders	10%
Kidney disorders	10%
Neurological disorders	6%

Diabetes mellitus (26%) was the most prevalent disorder, representing a major metabolic disease associated with insulin resistance and multiple systemic complications. Cardiovascular disorders (18%) followed, including hypertension and ischemic heart disease, which remain leading causes of morbidity and mortality. Liver and gastrointestinal disorders (15%) and lung disorders (15%) also contributed significantly to the overall disease burden, largely due to infections, poor lifestyle factors, and environmental pollution. Viral infections and skin disorders accounted for 10%, reflecting inadequate preventive measures and environmental challenges. Kidney disorders (10%) were mainly attributed to chronic kidney disease secondary to diabetes and hypertension. Neurological disorders (6%) were the least prevalent, encompassing epilepsy and neuropathies, often underdiagnosed due to limited neurological care and diagnostic facilities.

Here is the prevalence of the most common disorders in studied districts of the Punjab.

Males constituted approximately 61% of the total population studied from Lahore, while females accounted for 39%. The population from Lahore was categorized into three age groups, children 7%, young 40%, and old 53%. Lahore has high rates of obesity with 45% of the studied population experiencing weight gain, 35% weight loss, and only 20% having normal weight. The increase in the abnormal BMI is due to 65% of the population taking an unbalanced diet. 31% of the population was affected by diabetes mellitus,19% had heart disorders and 11% had both diabetes and heart disorders. Figure 01 illustrates the prevalence % of the top 10 disorders in Lahore.

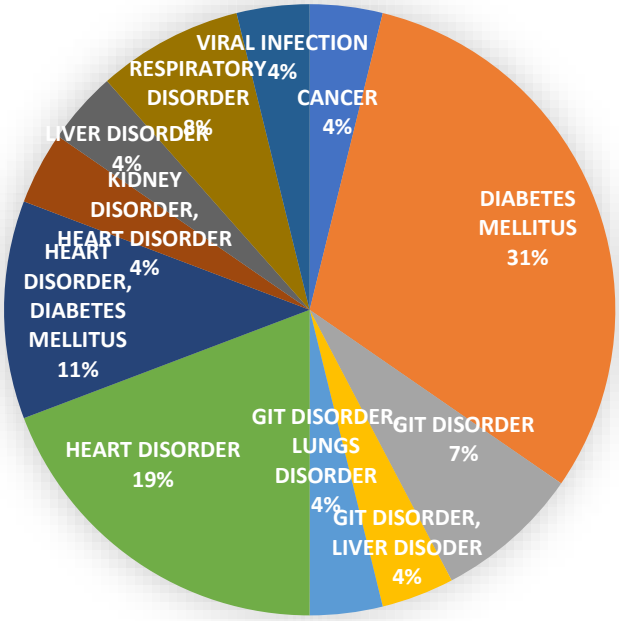

Figure 01: **Prevalence Frequency of Most Common Disorders in District Lahore**.

From Rawalpindi, males constituted approximately 55% of the population studied, while females accounted for 45%. They were categorized into three age groups, children 9%, young 25%, and old 66%. It was estimated that 49% population eating unbalanced diet with 52% experiencing weight loss, 17% weight gain and others having normal BMI. More than one disorders in a patient was also observed, there percentage can be seen in figure 02. The most prevalent disorders in Rawalpindi are as follows;

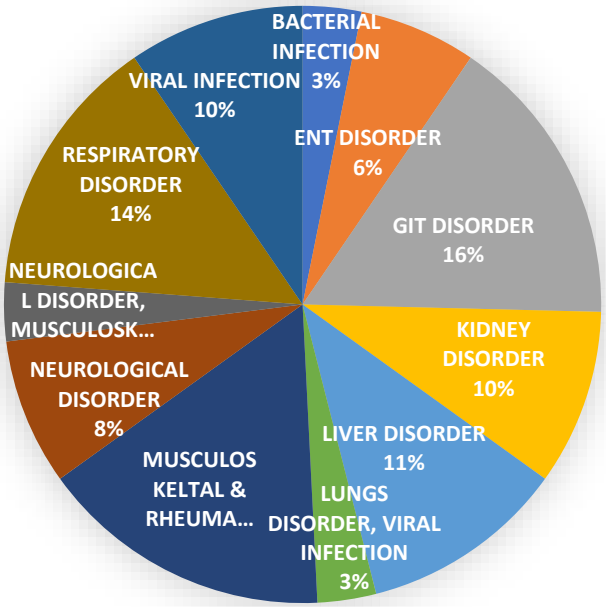

Figure 02: Prevalence % of most common disorders in Rawalpindi.

From Bahawalpur, 32% of males, and 68% of females were affected. 16% children, 38% young, and 46% old in the studied population. 70% of the studied population were taking a balanced diet that's why more than 50% of the cases had normal body mass index. Frequency of most prevalent disorders in Bahawalpur were as follows.

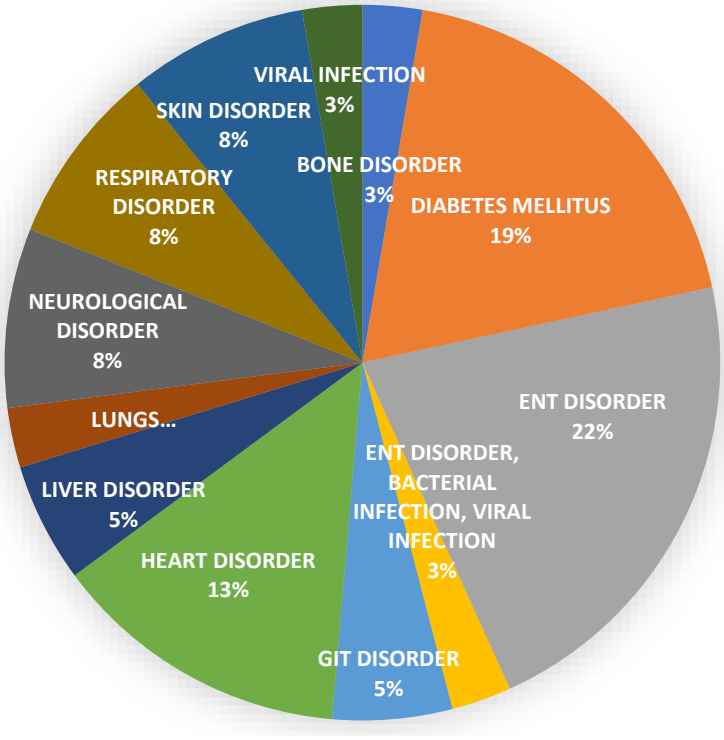

Figure 03: Prevalence Frequency Common Disorders in Bahawalpur.

Males constituted 54%, while females accounted for 46% of the studied population from Hafizabad. Population constituted of three age groups including 7% child, 32% young, and 61% old. More than 80% of cases were eating an unbalanced diet, so 75% of the studied population was observed with abnormal BMI. Figure 04 illustrate the prevalence of most common disorders in Hafizabad.

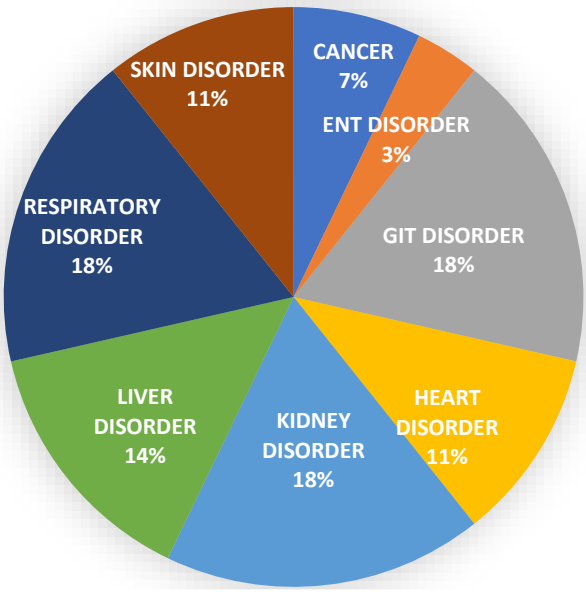

Figure 04: Prevalence of different disorders in Hafizabad.

Another district including Bhakkar constituted 51% males of the studied population, while 49% females. Most of the young population was affected from Bhakkar with 52% young, 49% old, and only 2% children. 67% of the studied population had an unbalanced diet, so 87% had abnormal BMI. Most of the cases were affected from diabetes and heart disorders. Most prevalent disorders in Bhakkar were as follows.

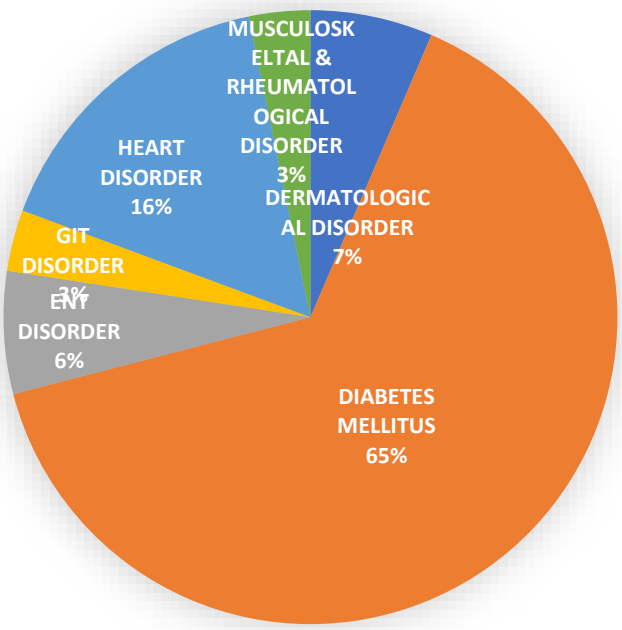

Figure 05: Prevalence of most common disorders in Bhakkar.

DISCUSSION

This research provides demographic characteristics and ratios of different disorders in some districts of Punjab. The study shows a strong relationship between these disorders and other aspects of lifestyle habits including diet and obesity index. The work shows that most districts have equal representation of the two sexes, but males slightly dominate over females. But Bahawalpur appears to be distinct from others with a higher ratio of affected females. It is important to investigate the reason for this difference. The frequency distribution of age across districts shows that more cases are old, similar to the trends of age distribution worldwide. This age variable is related to the increased rate of chronic disorders observed in the studied population, particularly diabetes and CVD. More than 50% of the elderly cases experienced these disorders and 30% had both, there is a serious need to provide preventable healthcare facilities to this population on an emergency basis. This study also shows that an unbalanced diet is more prevalent and associated with conditions, particularly in Bhakkar and Lahore. This shows the importance of nutrition in health and healthy life. It was also observed that abnormal BMI becomes a challenge, a large portion of the community experiencing either weight gain or weight loss in some areas, especially in Lahore and Bhakkar, and this factor is directly linked to their diet. On the other hand, 30% of the respondents from Bahawalpur had reported a balanced diet and normal BMI. This stresses the need to educate people to maintain proper diets to prevent disorders linked with unbalanced diets. Approximately 40% of the respondents who reported weight loss require further investigation since it may be due to a particular disorder. Among the different disorders, diabetes was observed to be the most prevalent condition in all districts under study followed by heart disorders. The data presented for every district shows that rates of these disorders differ. For example, Lahore has a high ratio of obesity and thus has an increased percentage of diabetes mellitus and heart disorders. As observed from Rawalpindi there were multiple disorders prevailing at the same time. As shown in the table and figures above, this research provides the trend of the most frequent disorders which helps in future studies and treatment strategies. The study provides district-specific demographic information. However, in a very populus city such as Lahore with most of the population living urban life, problems of obesity and unbalanced diet and related issues exist. Unlike other districts, in Rawalpindi, a large number of patients reported weight loss and multiple disorders. The people of Bahawalpur showed a healthcare facility as their average BMI shows better diet intake. The survey of Hafizabad showed rates of unbalanced diet and abnormal BMI which needs serious attention. This research helps give a broad picture of the demographic characteristics of different disorders in studied areas but further investigation is required.

CONCLUSION

This research highlights the major public health challenges of the large proportion of disorders in Punjab, Pakistan. The significant and consistent relationship between lifestyle habits and the risk of developing these disorders shows the importance of the population-level approach to the primary prevention of obesity and other related issues, including the promotion of healthy nutrition and physical activity, making access easy to healthcare facilities, and developing specific intervention and management strategies. Specific strategies should be made to help each district to improve the healthcare system which is important for managing the challenges experienced by each area.

ACKNOWLEDGMENT

None

FUNDING

None

CONFLICT OF INTEREST

None

ETHICAL APPROVAL

Yes

REFERENCES

1. Abegunde DO, Mathers CD, Adam T, Ortegon M. The burden 10. Meng L, Chen D, Yang Z, Zheng Y, Hui R. Depression increases and costs of chronic diseases in low-income and middle-income countries. Lancet. 2007 Dec 8; 370(9603): 1929 38.
2. Alwan AD, Galea G, Stuckler D (2011) Development at risk: addressing noncommunicable diseases at the United Nations high-level meet ing. Bull World Health Organ 89:546–546
3. Beaglehole R, Bonita R, Horton R, Adams C, Alleyne G et al. Priority actions for the non-communicable disease crisis. Lancet. 2011 Apr 23; 377(9775): 1438-47.
4. Bilal, W., Qamar, K., Abbas, S., Siddiqui, A., & Essar, M. Y. (2022). Infectious diseases surveillance in Pakistan: challenges, efforts, and recommendations. *Annals of Medicine and Surgery*, *78*.
5. Hosseini SK, Soleimani A, Salarifar M, Pourhoseini H, Nematipoor E, Abbasi SH, Abbasi A (2011) Demographics and angiographic find ings in patients under 35 years of age with acute STelevation myo cardial infarction. J Tehran Heart Center 6:62
6. Hussain, S. S., Gul, R. B., & Asad, N. (2018). Integration of mental health into primary healthcare: perceptions of stakeholders in Pakistan. *Eastern Mediterranean Health Journal*, *24*(2), 146.
7. Joshi P, Islam S, Pais P, Reddy S, Dorairaj P, Kazmi K, Pandey MR, Haque S, Mendis S, Rangarajan S (2007) Risk factors for early myocardial infarction in south Asians compared with individuals in other countries. JAMA 297:286–294

8. Khan SU, Hussain I: Inequalities in health and health-related indicators: a spatial geographic analysis of Pakistan. BMC Public Health. 2020, 20:1800. 10.1186/s12889-020-09870-4
9. Khan, S. J., Asif, M., Aslam, S., Khan, W. J., & Hamza, S. A. (2023). Pakistan's healthcare system: a review of major challenges and the first comprehensive universal health coverage initiative. *Cureus*, *15*(9).
10. Khan, U., & Azeem, S. (2022). The rising toll of dengue cases in Pakistan every year: An incipient crisis. *Annals of Medicine and Surgery*, *76*.
11. Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012; 380(9859): 2224-2260.
12. Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJ. Global and regional burden of disease and risk factors, 2001: systematic analysis of population health data. Lancet. 2006 May 27; 367(9524): 1747-57
13. Mosca L, Benjamin EJ, Berra K, Bezanson JL, Dolor RJ, Lloyd-Jones DM, Newby LK, Piña IL, Roger VL, Shaw LJ (2011) Effectiveness based guidelines for the prevention of cardiovascular disease in women—2011 update. Circulation: CIR. 0b013e31820faaf31828
14. Naseem, S., Khattak, U. K., Ghazanfar, H., & Irfan, A. (2016). Prevalence of non-communicable diseases and their risk factors at a semi-urban community, Pakistan. *Pan African Medical Journal*, *23*(1).
15. Pakistan Bureau of Statistics. (2023). *Population Census Report 2023.* Government of Pakistan.
16. Rosamond W, Flegal K, Furie K, GoA, Greenlund K, Haase N, Hailpern SM, Ho M, Howard V, Kissela B (2008) Heart disease and stroke statistics—2008 update. Circulation 117:e25–e146
17. WHO (2011) Global Status Report on Non communicable Diseases 2010. In: Global Status Report on Non communicable Diseases 2010, Geneva
18. World Health Organization. Non-communicable diseases country profiles 2014. Pakistan. Geneva, Switzerland: World Health Organization; 2014 [Accessed on 1st February 2015) Available
19. World Health Organization. Non-communicable diseases Fact sheet Updated January 2015 Geneva, Switzerland: World Health Organization; 2015. [Accessed on 1 February 2015} Available at: http://www.who.int/mediacentre/factsheets/fs355/en/. Googl e Scholar
20. Yarmohammadian M, Esfahani MA-E, Yoosefi A, Shooshtarizadeh S (2012) A study about the effects of health behavior on life style changes of the people affected by cardiovascular diseases. Pak Heart J 38