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## FROM KNOWLEDGE TO ACTION: BARRIERS TO ADOPT HEALTH LIFESTYLE TO PREVENT HYPERTENSION.

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### ABSTRACT

**BACKGROUND:** Our study documented the specific barriers to adopting a healthy lifestyle in Pakistan, particularly regarding hypertension. Despite extensive research, counselling and health education programs, we aim to uncover why residents of our country struggle with self-care practices for preventing hypertension. **OBJECTIVE:** To investigate the barriers Pakistani citizens face in adopting a healthy lifestyle for the prevention of hypertension, this research employed a descriptive cross-sectional study design. **METHODS:** A cross-sectional descriptive statistical analysis was done among the general population. **RESULTS:** According to our study, infrastructure, social, employment and stress related factors significantly influence the adoption of regular walk or exercise. Economic barriers are most commonly faced by the participants that further lead to stress and anxiety related barriers. **CONCLUSION:** Barriers, such as lack of awareness (75.25%), prevent positive lifestyle choices. Stress, influenced by employment and financial issues, affects the way of living. Economic stability is linked to a healthier lifestyle. Raising awareness and providing guidance on mental health and stress management is crucial.

**KEYWORDS:** Hypertension, Prevention, Barriers, Cardiovascular health, Pakistan

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### INTRODUCTION

Hypertension is a key preventable risk factor for cardiovascular diseases and disability and a leading public health concern, having a significant socioeconomic impact in low- and middle-income countries, increasing the disease's

burden and expenses for national health systems.<sup>1,2</sup> Hypertension is diagnosed when a person's systolic blood pressure (SBP)  $\geq 140$  mm Hg and/or their diastolic blood pressure (DBP) is  $\geq 90$  mm Hg.<sup>3</sup> Around 1 billion adults worldwide

currently have hypertension, and by 2025, 1.56 billion people will have the condition, accounting for 29.2% of the world's population as adults have 1.13 billion more cases of hypertension than they did in 1975 (594 million).<sup>4,5</sup> The prevalence of hypertension was found to be 31.5% in low-and middle-income countries, compared to 28.5% in high-income countries and the age of onset of cardiovascular illness (including hypertension) is declining in developing nations, manifesting the prevalence of prominently involved barriers to its prevention.<sup>6</sup> So, it is important to investigate what are the weak points in our country that needs to be addressed to convince the people to adopt an appropriate lifestyle that prevents hypertension risks. The overall pooled prevalence of hypertension is 26.34% (25.93%, 26.75%)<sup>7</sup> and 46% of adults are estimated to be unaware of their status of hypertension.<sup>8</sup> 55.3% of the patients has low, 17.9% has moderate whereas 26.8% had a high level of knowledge about hypertension.<sup>9</sup> Few international studies have been conducted to identify the common obstacles to adopting a healthy lifestyle in order to prevent hypertension. Social and economic factors have a significant impact on control of blood pressure, with inequalities observed based on education, income, and employment status, pointing to the need for targeted approach to address these inequalities.<sup>10</sup> Individual, social, and healthcare factors are studied as knowledge and attitude towards hypertension, work constraints and lack of care and the insufficiency of resources in the community, respectively.<sup>11</sup> Prominent barriers influencing patients' healthy lifestyle modifications include diets during social settings and festivals, less awareness, resource lackness, misconceptions, traditional medicines, less physical activity, and unaffordable medication, causing inadequate control of blood pressure.<sup>12</sup> Due to obstacles including funds, resources, occupation,

eating habits, and others, not everyone can embrace a healthy lifestyle. As a result of the discomfort, agony, or physical limitations a person experiences, physical activity is made difficult. Feeding obstacles include physical limitations or a lack of resources, poor eating habits at work, the need to consume more than what is necessary, or unpleasant emotions toward some healthful foods.<sup>13</sup> Insufficient time to make healthy meals due to a busy routine, a lack of options for healthy food at work or restaurants, expensive hygienic food are some of the impediments. In the Malaysian community the biggest obstacles to consistent exercise were determined to be a lack of time (72.2%) followed by unavailability of secure areas for exercise (25%) and walking challenges or family duties.<sup>14</sup> According to a survey in Saudi Arabia, the greatest barriers to sustaining a regular physical activity are a lack of resources, willpower, social support, energy, access to sports clubs, jogging paths, swimming pools, or workplace fitness facilities for which females are disproportionately affected, necessitating the promotion of indoor walking trails and economical exercise. Interventions for changing one's lifestyle are more successful when his company is actively involved. Due to their hectic schedules and only a few restaurants serving healthy meal options, people tend to eat fast food.<sup>15</sup>

This study identifies and assesses the difficulties Pakistani citizens face while trying to embrace a healthy lifestyle to prevent hypertension. Traditional diets and cultural practices, social norms and peer pressure, may not align with a heart-healthy diet, making it challenging to change eating habits. Insufficient knowledge about hypertension and difficulty in accessing healthcare facilities or a shortage of healthcare professionals can impede regular health check-ups and guidance on lifestyle changes. Sedentary lifestyles due to long work hours or lack of safe public spaces such as parks, sidewalks

for physical activity, high levels of stress, whether due to work, family, or societal pressures, can negatively impact lifestyle choices.

Hypertension is such an important topic in medicine that numerous studies, clinical trials and public health programs addressing its risk factors, complications, prevention, treatment, and the disparities in healthcare between racial and ethnic groups have been conducted. This study brings attention to an important aspect of hypertension, which is to figure out the prevalent barriers Pakistanis face in adopting a healthier lifestyle to prevent hypertension. There is a need to study these barriers, so, we documented them in our cross-sectional study. This study sheds light on why, despite extensive research on various aspects of hypertension, counselling and health education programs, hypertension still peaks in our country and people are not able to prevent developing hypertension in the first instance.

## METHODOLOGY

**Study Design:** To investigate the barriers Pakistani citizens face in adopting a healthy lifestyle for the prevention of hypertension, this research employed a descriptive cross-sectional study design.

**Setting:** The study was conducted from August 2023 to March 2024, in various cities across Pakistan in different educational institutions, hostels, transport terminals, IT industries, wards and outpatient departments of SZMC&H to ensure a representative sample of the population.

**Sample Size:** Sample size of 299 individuals was calculated using World Health Organization (WHO) sample size calculator 2.0. **Sampling Technique:** A non-probability convenient sampling technique was used to choose participants, ensuring that both educated and uneducated classes are represented.

**Inclusion Criteria:** Our study included

Pakistani residents of all age groups, both males and females, both educated and uneducated, hypertensive and non-hypertensive.

**Exclusion Criteria:** Excluded are non-Pakistanis, pregnant women, those having language barrier, individuals with severe cognitive impairments and individuals with severe medical conditions that may affect their ability to adopt a healthy lifestyle independently.

**Operational Definitions:** *Hypertension:* any person systolic blood pressure of  $\geq 140$  mmHg or diastolic blood pressure of  $\geq 90$  mmHg or both on two different days is hypertension.<sup>16</sup>

*Healthy Lifestyle:* Committing oneself to healthy practices regarding physical activity, diet, added salt intake, smoking and mental health, for lifetime to prevent developing hypertension.

*Barriers:* Factors impeding the achievement of a desired behaviour, attitude or outcome affecting the choice of diet and physical activity.

*Processed Food:* Food that has undergone some sort of modification like freezing, canning, cooking, drying is referred to as processed.

Food having high quantities of salt, sugar or fat than advised, for improving flavour, lengthen shelf life or contribute to the food's structure, for example, giving bread and cakes their shape, are bad.<sup>17</sup>

*Malaise:* It refers to a general feeling of discomfort or unease, often accompanied by symptoms including headache, sweating, nausea, vomiting, dizziness, vertigo, discomfort, weakness and tiredness.

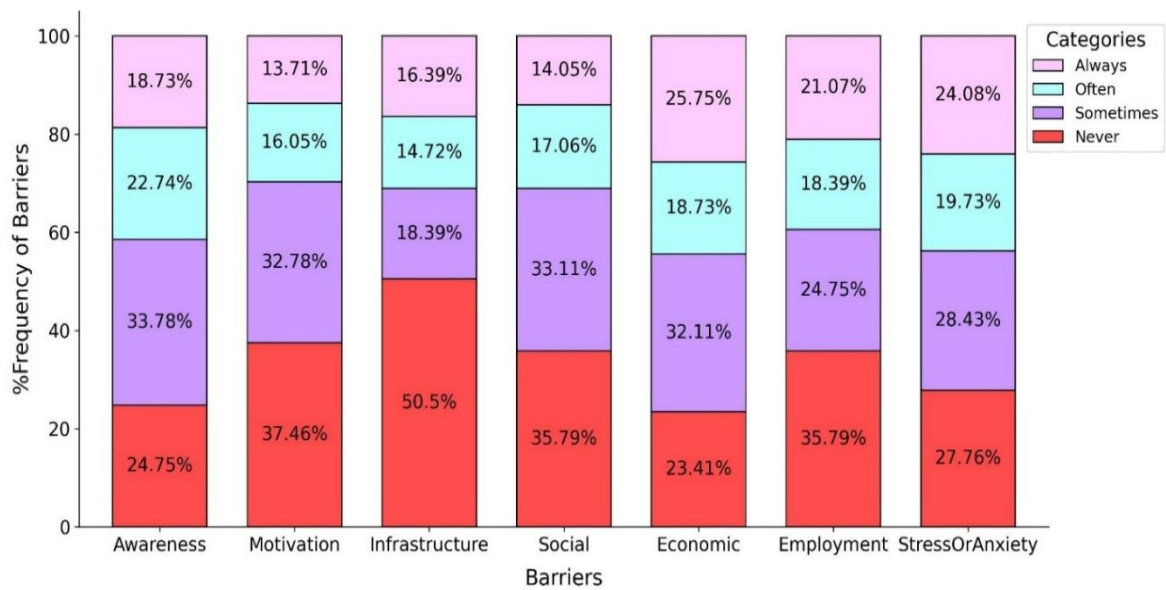
**Data Collection:** A structured interview-based questionnaire was used to collect data from individuals who represent a broad cross-section of the Pakistani community. This survey gathered data on demographics, health information sources, health education, healthy lifestyle practices, and barriers to changing one's lifestyle.

**Ethical Consideration:** The study received ethical approval from the Institutional Review Board, Sheikh Zayed Medical College, Rahim Yar Khan (Ref. No. 807/IRB/SZMC) on 18-10-2023.

**Data Analysis:** SPSS 29.0.9.0 was used for detailed statistical analysis.

RESULTS:

Table 1: Population Characteristics.



Characteristics	Categories
Age	<20
	>60
	21-40
	41-60
Gender	Female
	Male
Hypertension Status	Don't know /Never
	No
	Yes
Educational Status	Above Matric
	Graduation or high
	Illiterate
	Under Matric

Table 2: Barriers among hypertensive and non-hypertensive.

Hypertension Status			Count	N %
Don't know /No checked	Awareness Related Barriers	No	14	18.9%
		Yes	60	81.1%
	Motivation Related Barriers	No	26	35.1%
		Yes	48	64.9%
	Infrastructure Related Barriers	No	37	50.0%
		Yes	37	50.0%
	Social Barriers	No	23	31.1%
		Yes	51	68.9%
	Economic Barriers	No	16	21.6%
		Yes	58	78.4%
	Employment Related Barriers	No	25	33.8%
		Yes	49	66.2%
	Stress Or Anxiety Related Barriers	No	22	29.7%
		Yes	52	70.3%
No	Awareness Related Barriers	No	38	25.9%
		Yes	109	74.1%
	Motivation Related Barriers	No	55	37.4%
		Yes	92	62.6%
	Infrastructure Related Barriers	No	75	51.0%
		Yes	72	49.0%
	Social Barriers	No	55	37.4%
		Yes	92	62.6%
	Economic Barriers	No	37	25.2%
		Yes	110	74.8%
	Employment Related Barriers	No	60	40.8%
		Yes	87	59.2%
	Stress Or Anxiety Related Barriers	No	51	34.7%
		Yes	96	65.3%
Yes	Awareness Related Barriers	No	22	28.2%
		Yes	56	71.8%
	Motivation Related Barriers	No	31	39.7%
		Yes	47	60.3%
	Infrastructure Related Barriers	No	39	50.0%
		Yes	39	50.0%
	Social Barriers	No	29	37.2%
		Yes	49	62.8%
	Economic Barriers	No	17	21.8%
		Yes	61	78.2%
	Employment Related Barriers	No	22	28.2%
		Yes	56	71.8%
	Stress Or Anxiety Related Barriers	No	10	12.8%
		Yes	68	87.2%
Not Aware	PhysicalActivity	Yes	122	56.5%
		No walk/exercise	168	77.8%
		Regular walk/exercise	48	22.2%
	AvoidSmoking	No	38	17.6%
		Yes	178	82.4%
	AvoidStress	No	129	59.7%
		Yes	87	40.3%
	HealthyDietIntake	No	33	39.8%
		Yes	50	60.2%
	LimitProcessedFood	No	35	42.2%
		Yes	48	57.8%
	LimitAddedSalt	No	37	44.6%
		Yes	46	55.4%
	PhysicalActivity	No walk/exercise	64	77.1%
		Regular walk/exercise	19	22.9%
	AvoidSmoking	No	18	21.7%
		Yes	65	78.3%
	AvoidStress	No	38	45.8%
		Yes	45	54.2%

## DISCUSSION

Hypertension, or high BP, is a prevalent health issue with significant clinical, public health, and economic impacts. This study does not shed light on fatalism, the belief that health is predetermined and therefore inevitable by any means including positive lifestyle changes. In a study conducted in

US Hispanics/Latinos higher fatalism is linked to a greater prevalence of hypertension, even when socioeconomic status is taken into consideration (p value- $<0.05$ , odds ratio 1.17).<sup>18</sup> Some researchers consider fatalism a proxy for social disempowerment, low income and education levels<sup>19</sup> indirectly validating the

awareness (75.3%) and economic (76.6%) related barriers that our population faced to adopt positive lifestyle choices. In this study, 22.4% of the population has regular walk/exercise which is higher than a meta-analysis conducted in Afghanistan reporting 14%.<sup>20</sup> Still a major portion of our population is living a sedentary lifestyle (21.1%). Compared to sedentary people, individuals who consistently participate in physical activity have a 35% lower risk of acquiring hypertension. According to our study, infrastructure, social, employment and stress related factors significantly influence the adoption of regular walk or exercise ultimately leading to overweight and obesity which have positive association with hypertension as reported in a study conducted in Faisalabad where 68.7% of the obese population were hypertensive.<sup>21</sup> This study provides no information regarding those factors that cannot be changed by any lifestyle modifications but have strong positive association with hypertension such as old age, gender and family history as documented in a study conducted in Vietnam (For women, older age-odds ratio, OR, 6.80–12.41;  $p < 0.001$ , for men, older age or, 2.67–5.92;  $p < 0.001$ ).<sup>22</sup> In a study conducted in Islamabad and Rawalpindi, 62.5% population has no interest in exercise, eating better, reducing stress and reducing weight.<sup>23</sup> This is exactly the same percentage of population that were facing motivation related barriers in our study. In the same study, only 3.1% people were not aware of their hypertensive status, but in our study 24.7% of the population don't know whether they are hypertensive or not. This discrepancy may be due to easy access to the health care facilities, small sample size ( $n=64$ ) and trend of regular visits to the physician in that study population. Motivation is no longer viewed as a static trait but rather as a dynamic state. It can fluctuate in response to various factors both internal (intrapersonal) and external (interpersonal). Intrapersonal factors are

within an individual such as their beliefs, values, goals, self-efficacy and self-regulation. Interpersonal factors like social support and the influence of family, friends or healthcare professionals can play a crucial role in motivating individuals to make positive lifestyle changes. Encouragement, accountability and positive reinforcement from others can boost motivation.<sup>24</sup> Irrespective of the awareness of complications of hypertension, 55.95% of our population limit added salt intake which is in correspondence to a study conducted in Multan (59.8%),<sup>25</sup> while 45.05% of our population cannot restrict themselves for extra intake of salt. In a study conducted in Nawabshah city of Pakistan in 2013, almost every second adolescent female reported stress symptoms<sup>26</sup>, but in our study almost 3 out of 4 (72.2%) were challenged with stress & anxiety. This finding highlights that the prevalence of emotional or psychological stress is increasing day by day and it is a major barrier to adopting a positive lifestyle to prevent hypertension. The above difference may be because the reference study only included females of 10-16 years of age, having few stress factors like job related, financial and marital issues. As depicted in table 3, awareness of the complications of hypertension have no influence on their preventive behavior and people were aware but ignorant of their health possibly because they do not perceive immediate threat to their health and asymptomatic nature of the disease. This shows that instead of a lack of knowledge and awareness, a lack of prevention of risk factors is responsible for hypertension. This finding is in correspondence to a study conducted in Karachi, where no significant association was found between the knowledge of hypertension and blood pressure status ( $p=0.863$ ) and only 64.8% of population having adequate knowledge had controlled blood pressure status.<sup>27</sup>

Our study has some limitations. First of all, we label participants hypertensive on the basis of self-reporting and standard criteria were not followed. Secondly, it gives no information regarding early or late diagnosis of chronic illness, treatment and compliance. It also does not tell anything about whether those hypertensive persons who have adopted a healthy lifestyle have any positive impact on their blood pressure status or not.

### CONCLUSION

Hypertension can be prevented by adopting positive lifestyle. Better prevention can be achieved if healthcare workers as well as the general population better understand these awareness, motivation, infrastructure, social, economic, employment, and stress/anxiety related barriers. 75.25% of the population is not fully equipped with the knowledge about hypertension. So steps should be taken to increase awareness. Workplace factors i.e.; stress, job demands and income, influence both individual physical and mental health, behaviors and the development of chronic diseases, highlighting the importance of considering interventions, which involves optimizing work conditions for human well-being, in addressing these health issues. Economic stability positively influences the lifestyle of the peoples. General population should be guided regarding mental health and how to cope with stress and difficult situations such as economic problems. Psychological and motivational strategies need to be implemented and further studies are required to develop approaches to overcome these barriers and evaluate the quantitative impact of positive lifestyle on BP control and cardiovascular health.

**Conflicts of interest:** The authors declare that there are no conflicts of interest related to the publication of this article.

**ETHICS APPROVAL:** The ERC gave ethical review approval.

**CONSENT TO PARTICIPATE:** written and verbal consent was taken from subjects and next of kin.

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### AUTHORS' CONTRIBUTIONS:

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated in the work to take public responsibility of this manuscript. All authors read and approved the final manuscript.

**CONFLICT OF INTEREST:** No competing interest declared

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