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DIET AND HYPERTENSION: FOOD TO EAT AND TO AVOID

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ABSTRACT

The current study, which was conducted in the district Dir (Upper) in Khyber Pukhtunkhwa Pakistan, investigated the relationship between dietary patterns and the prevalence of hypertension. A total of three hundred and thirty one sample size was determined from 2500 respondents as per the Sekarn criteria. The sampled respondents were recruited from Rural Health Centers (RHC) and other clinics and dispensaries in Tehsil (Sub-division) Sheringal of district Dir Upper, Khyber Pukhtunkhwah Pakistan using a convenient sampling method. Further, the data were collected through a structured questionnaire covering the study variables, which were dietary habits (independent variable) and hypertension (dependent variable). Moreover, the selected data were analyzed by the application of SPSS (25 version) by applying descriptive statistics and chi-square test statistics analysis. Furthermore, all the attributes of hypertension were indexed and cross-tabulated to expose the association with dietary habits at bivariate level analysis. With descriptive statistics, the results indicated that majority of the respondents, with regards to gender identity, who suffered from hypertension were male, between the age group of 40-59 years, with a high illiteracy level. At bivariate level a significant association was found between hypertension and lack of proper food; less vegetable consumption; and excessive usage of salty food was the major cause of hypertension. Based on the aforementioned findings, it is possible to conclude that the respondents' poor daily food habits were the root cause of their hypertension. Furthermore, the consumption of fatty and salty foods rather than vegetables was discovered to be additional contributing factors to hypertension in the research location. As a result, the study recommends that changes in dietary habits, living alteration, regular blood pressure checks and consultations with doctors, a diet plan, exercise, avoiding stress and anxiety, and raising awareness about the prevalence of hypertension are all essential for hypertension issue to be controlled.

Key words: Sociology of Food, Dietary habits, Hypertension, Chi-square, Dir Lower

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INTRODUCTION

Hypertension or high blood pressure is the force of blood against the artery walls during circulation in the body. Around the world, approximately one billion people have high blood pressure that causes premature deaths and the number is expected to rise to 1.56 billion by 2025. Worldwide, eight million people die every year due to hypertension. It is also known as silent killer and it mostly results from increasing age and poor life style. Moreover, there is a close linkage between hypertension and diabetes; sixty percent of people with hypertension also have diabetes [1]. Hypertension had been a disease of people living in urban and developed countries; however, recent studies show its increase in other developing countries especially in rural areas. Several social factors affect hypertension including income, education, employment, and insecurity of life [2].

Likewise, research validated that anxiety, depression, self-esteem, and hostility are associated with hypertension [3,4]. Destructive social environment is also responsible for hypertension due to the prevalence of social interaction among society. This interaction of social factors with the diseases have compelled sociologists to study the social factors in line with medical investigation to overcome the chronic condition of the diseases affecting social life adversely. The fourth version of healthy people, a countrywide health program held by United States Department of Health and Human Services has described population health, especially using social determinants approach. Moreover, a work full panacea was designed by the concerned department to eradicate poverty and provide education to all and other social aspects, which deteriorate the health of inhabitants. This plan makes a new topic area of social determinants of health approach to reframe a new approach towards the achieving of sustainable health [4].

Biological, psychological, and social factors are associated risk factors of hypertension. Psychological condition of a person significantly influences the physical appearance of human body. Experimental evidence showed high prevalence of stress, anxiety, and depression among hypertensive patients. Depression is dominant in hypertensive people and association of hypertension with depression has been recognized before, as investigators showed patients reporting high stages of fertility were indicated three times likely to become hypertensive in the near future [5]. The study further recommends that anxiety is also one of other major reasons of increasing blood pressure, considered as a significant factor in the etiology of hypertension. Stress is also identified to be an associated factor with hypertension, which causes numerous cardiac

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complications. Stress level also perpetuates the rise of heart rate in young age. Hypertension is the greatest significant determinant of kidney and cardiovascular diseases, and an important risk factor for mortality. Every year at least 7.1 million people die worldwide because of hypertension. In 2008, nearly a billion older people and adults aged 25 years had hypertension, in which three quarters of the figure were living in developing countries [6]. Despite such high frequency, awareness and blood pressure control are unfortunately poor in developing countries as disclosed by World Health Organization [6]. As an ignored global health issue, farmers and agricultural workers are thought to be healthier and have lower mortality and morbidity rates than non-farming people of urban and rural residents. This argument had been conveyed as probably attributable to a healthier lifestyle, particularly with reference to smoking habits and drinking. In addition, consumption of healthier foods and physical activities followed by farmers versus non-farmers in rural and urban territory. Keeping in view the above stock of literature, the present study is designed to explore the socio-economic factors leading to hypertension and the association between unhealthy food and hypertension through x^2 test statistics.

MATERIALS AND METHODS

A cross-sectional research design through quantitative measure was conducted in Tehsil Sheringal (district Dir upper Khyber Pukhtunkhwa Pakistan). As per pilot survey (Dec, 2019), the study faced difficulties regarding access to health services due to the persistent nature of institutional impediments in the developmental sectors. Patients visited just one Rural Health Center [RHC] and four clinics/dispensaries, namely Hashmi Medical Center, Riaz Pharmacy, Rehman Hospital and University Health Center. As per the record of the RHC and the fore-mentioned clinics, a total of 2500 patients visit these health centers each month. Based on 2500 patient record, a sample size of 331was obtained as per Sekarn [7] criteria of sample size selection. Further, convenient sampling technique was used for data collection through structured questionnaire [Likert scale]. Pre-tested and necessary changes were made in the questionnaire in light of feedback in the pilot survey. The sample size was further proportionally allocated to each clinic as per the formula given by Bowley as mentioned below (see table 1).

$$n_i = \frac{n}{N} * N_i$$

Where n = Required sample size
N = Population size
N_i = Size of i^{th} strata
$n_i = sample$ Size to be taken from i^{th} strata

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After the collection of primary data, Statistical Package for the Social Sciences (25 versions) was used to edit the data and draw the results. Descriptive statistics, frequency and percentage distribution at univariate level was analyzed. Whereas, at bivariate level, inferential statistics (chi square test) was used through cross tabulation method (indexation of dependent variable) to ascertain the association between dependent (hypertension) and independent variables (dietary habits). The procedure to calculate the Chi Square test results then followed.

RESULTS AND DISCUSSION

Demographic profile determines the potentials and abilities of an individual's performance at either level. The sub-section explains the gender, age, educational qualification, occupation, family size, monthly income, working hours, blood pressure (diastolic & systolic), disease duration and use of medicine to control hypertension as well as whether the respondents take readings of their blood pressure on a regular basis or not. Based on descriptive statistics table (2), the majority 53.5% of the respondents belonged to the same age group, 40-59 years. It could be deduced from these findings that, respondents between the age group 40 to 59 years suffered more, and were more affected by hypertension as compared to the older or those below the categorization. Furthermore, with regards to gender identity, majority of the respondents were male, 66.8%. Based on these results, it could be concluded that male members of the study area suffered more due to psychological and physical burdens of familial dynamics in terms of being a household head, and their children responsibilities. However, women who suffered from hypertension, suffered as a result of domestic violence. In addition, 49% of the sampled respondents were illiterate. Based on these findings it could be concluded that, non-availability of schooling and other sources of awareness are factors that led to the deterioration of the health of the local inhabitants. In addition, occupational distribution of the sampled respondents showed that many, 35.6%, were unemployed. Similarly, many, 48% of the respondents had high blood pressure levels. In addition, with regards to the use of medicines for blood pressure, a majority, 69.5%, of the sampled respondents used medicines for controlling blood pressure level while the remaining 30.5% managed their condition by being involved in other activities like walking and other exercises.

Table 4 shows the perceptions of sampled respondents regarding hypertension; 61.3% of them disclosed that hypertension is a serious problem. Further, 58.3% opined that hypertension has increased in rural areas, and 58% of the sampled respondents stated that hypertension is a serious killer. Moreover, 48.9% of

respondents are more conscious regarding hypertension. In addition, 55.9% of the respondents stated that hypertension is a major threat to the life of rural population, 60.1% responded that death ratio increased due to hypertension day by day, and 56.5% of the respondents agreed that in rural areas, people were not conscious of hypertension.

Table 5 highlights the association between hypertension and dietary habits through application of chi square test statistics. A significant association (P=0.035) was found between hypertension and lack of food concern. Likewise, a significant association (P=0.026) was detected between hypertension and lack of proper food access and utilization. Moreover, a significant association (P=0.004) was found between hypertension and lack of diet plan on daily basis. However, a non-significant association (P=0.065) was detected between hypertension and eating of beef and fatty food. Lastly, a significant association (P=0.035; P=0.000) was found between hypertension and less usage of vegetables and salty food utilization, respectively.

It could be deduced from the above inferences that, hypertension is a disease referred to sometimes as a silent killer that disrupts the overall societal patterns. Rural inhabitants are more unconscious of hypertension. The pushing factors towards hypertension cases included lack of resources and awareness regarding dietary intake, less vegetable usage, salty and fatty food access. Risk factors, like socio economic status, gender, family type, education, dietary habits, race, salt intake, alcohol consumption, tobacco smoking, physical inactivity and sedentary lifestyle, as social determinants cause non-communicable diseases like hypertension as witnessed by Mushtaq and Najum [8], Peter and Khan [9] and Khan [10].

CONCLUSION

A cross-sectional based study was conducted in district upper Dir to explore the dietary habits as an association with hypertension. The study revealed at descriptive statistics that out of 331 sample respondents, a majority who suffered from hypertension were male, in the age group of 40-59 years. Fatty and excessive salty food consumption on a regular basis were the major pushing factors of surging hypertension in the study area. This study recommends that hypertension can only be controlled if changes are made in dietary habits, life modification, regular checkup of blood pressure and consulting doctors, diet plan, exercise, avoidance of stress and anxiety and awareness about prevalence of hypertension. Moreover, salty and sugary foods, and foods high in saturated fats can increase

blood pressure. At the same time, avoiding red meat and drinks that contain added sugars, and consumption of indigenous food is strongly recommended to overcome hypertension.

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Table 1: Distribution of sample size in various Hospitals of UC Sheringal

S.No	Hospitals	Average no. of Monthly Patients	Sample Size
1	Rural Health Centers	2000	265
2	Clinics/ Dispensaries	500	66
	Total	2500	331

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Table 2: Descriptive Statistics

Characteristics	No. of Respondents(%)
Age Group	
20-39	32 (9.7)
40-59	177(53.5)
60-79	119(36.0)
80 & Above	3(0.9)
Gender	
Male	221(66.8)
Female	110(33.2)
Educational qualification	
Illiterate	162(48.9)
Primary	65(19.6)
Middle	46(13.9)
Matriculate	35(10.6)
Intermediate	10(3.0)
Bachelor	9(2.7)
Master & above	4(1.2)
Occupational Status	
Unemployed	118(35.6)
Labor	24(7.3)
Self-Employ	58(17.5)
Govt. employ	63(19.0)
Housewife	68(20.5)
Total	331(100.0)

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Table 3: Blood Pressure and Medicines used by the sampled Respondents

Characteristics	No. of respondents (%)
Blood Pressure	
Systolic 140-150 and Diastolic 90-95	159(48.0)
Systolic 151-160 and Diastolic 95-100	85(25.7)
Systolic 161-170 and Diastolic 101-100	2(0.6)
Systolic 171-180 and Diastolic 106-110	85(25.7)
Use of medicine	
Yes	230(69.5)
No	101(30.5)
Total	331(100.0)

Source: Survey 2019

Table 4: Frequency and Percentage distribution Regarding Hypertension

Statements/ Attributes	Yes(%)	No(%)	Uncertain(%)
Hypertension is a serious problem	203(61.3)	50(15.1)	78(23.6)
Hypertension has increased in rural areas	193(58.3)	59(17.8)	79(23.9)
You consider hypertension as a silent killer	192 (58.0)	63(19.0)	76(23.0)
You are more concerned about hypertension now	162(48.9)	115(34.7)	54(16.3)
You considered hypertension as a major threat to the life of rural population	185(55.9)	55(16.6)	91(27.5)
There is an increase in death rate due to hypertension now a day's	199(60.1)	48(14.5)	84(25.4)
People in rural areas don't care about hypertension	187(56.5)	62(18.7)	82(24.8)

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Table 5: Association of Hypertension with Dietary habits

Statement	Attribute	Yes(%)	No(%)	Uncertain (%)	Total	Statistics
You are not concerned about the food you eat	Yes	84(25.4)	23(6.9)	23(6.9)	130(39.3)	x^{2}=10.376
	No	96(29.0)	53(16.0)	40(12.1)	189(57.1)	P=0.035
	Uncertain	04(1.2)	03(0.9)	05(1.5)	12(3.6)	
Lack of proper food is a major cause of your hypertension	Yes	121(36.6)	38(11.5)	33(10.0)	192(58.0)	x^{2}=11.053
	No	25(7.6)	15(4.5)	16(4.8)	56(16.9)	P=0.026
	Uncertain	38(11.5)	26(7.9)	19(5.7)	83(25.1)	
You do not have a diet plan for eating on daily basis	Yes	61(18.4)	12(3.6)	10(3.0)	83(25.1)	x^{2}=15.637
	No	96(29.0)	51(15.4)	41(12.4)	188(56.8)	P=0.004
	Uncertain	27(8.2)	16(4.8)	17(5.1)	60(18.1)	
Beef is an integral part of your diet	Yes	42(12.7)	28(8.5)	23(6.9)	93(28.1)	x^{2}=8.831
	No	119(36.0)	37(11.2)	35(10.6)	191(57.7)	P=0.065
	Uncertain	23(6.9)	14(4.2)	10(3.0)	47(14.2)	
You eat fatty food on daily basis	Yes	42(12.7)	28(8.5)	23(6.9)	93(28.1)	x^{2}=8.831
	No	119(36.0)	37(11.2)	35(10.6)	191(57.7)	P=0.065
	Uncertain	23(6.9)	14(4.2)	10(3.0)	47(14.2)	
You eat fat free food regularly	Yes	61(18.4)	12(3.6)	10(3.0)	83(25.1)	x^{2}=15.637
	No	96(29.0)	51(15.4)	41(12.4)	188(56.8)	P=0.004
	Uncertain	27(8.2)	16(4.8)	17(5.1)	60(18.1)	
Less use of vegetable leads to hypertension	Yes	84(64.6)	23(6.9)	23(6.9)	130(39.3)	x^{2}=10. 376
	No	96(29.0)	53(16.0)	40(12.1)	189(57.1)	P=0.035
	Uncertain	4(1.2)	3(0.9)	5(1.5)	12(3.6)	
Salt free food is useful in hypertension	Yes	96(29.0)	53(16.0)	29(8.8)	178(53.8)	x^{2}=31. 254
	No	51(15.4)	4(1.2)	9(2.7)	64(19.3)	P=0.000
	Uncertain	37(11.2)	22(6.6)	30(9.1)	89(26.9)	

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