



LIFESTYLE HAZARDS AND THEIR SOLUTION: A COMMUNITY STUDY IN CENTRAL RAJASTHAN

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ABSTRACT

Objective: To assess the lifestyle related hazards and their solution. **Material And Methods:** A cross-sectional study was conducted at field practice area of Urban Health Training Center, Dhola Bhata, Ajmer under Department of Community Medicine, of JLN Medical College Ajmer. Hypertensive patients aged 40 years and above were included in this study. The information was gathered by personal interview using semi-structured proforma. **Results:** Out of 300 patients 188 (62.7%) were males. 72% patients belonged to nuclear family and 80.3% patients were from III, IV, V socioeconomic class. 22.3% patients were unemployed and 27% were unskilled. 185 (61.7%) patients had the family history of Hypertension and 65 (21.7%) had addiction of smoking, followed by 53 (17.7%) alcohol. 104 (34.7%) patients had hypertension followed by 82 (27.3%) diabetes, 18 (6%) ischemic heart disease, 15 (5%) visual defects. 170 (57%) hypertensive patients had BMI equal to or more than 25 Kg/ m². Poor practices were in 32.67% patients. Mean systolic BP, Diastolic BP, Body mass index and weight was 145.58 mm of Hg, 92 mm of Hg, 25.09 Kg/ m² and 67.8 Kg respectively. **Conclusion:** Most of the patients were comorbid to hypertension and diabetes. Poor practices regarding hypertension is the main reason for higher Blood pressure, Body mass Index. Poor practices were because of lack of awareness about hypertension. There is need for encouraging health services including health education regarding risk factors.

KEYWORDS : Co-morbidities, Hypertension, Lifestyle Hazards.

INTRODUCTION

Lifestyle encompasses the behaviors, habits, and routines adopted by individuals, communities, and nations, shaped by geographical, economic, political, cultural, and religious contexts. It defines how people live, work, engage in activities, and make choices in areas like diet and leisure, varying according to time and place.

It has become a crucial health determinant, with the WHO estimating that 60% of factors affecting health and quality of life are linked to lifestyle choices. Prolonged unhealthy behaviors—such as smoking, poor diet, and physical inactivity, are major contributors to chronic diseases like hypertension, diabetes, obesity, and mental health disorders. These unhealthy lifestyles can result in serious outcomes, including illness, disability, and premature death, impacting both physical and mental health^{(1)]}

Among these, hypertension stands out as one of the most preventable health issues, with effective management through diet, lifestyle changes, and increased awareness, requiring collective efforts from individuals, communities, and organizations⁽²⁾. Hypertension, or elevated blood pressure, stands as a leading cause of death and disability worldwide and is increasingly associated with multiple co-morbidities⁽³⁾. Hypertension, often called an "iceberg disease"⁽⁴⁾, is the fourth most common health condition globally, posing a major public health challenge. Many cases remain undiagnosed, with detected cases representing only the visible "tip of the iceberg," leaving a significant undetected population at risk without proper treatment or awareness⁽⁵⁾.

Variables of lifestyle that influence health can be categorized as:

1. Physical Inactivity: "Sedentary lifestyle" is defined as a type of lifestyle where an individual does not receive regular amount of physical activity⁽⁶⁾.

2. Diet and Body Mass Index (BMI): Diet is the greatest factor in lifestyle and has a direct and positive relation with health. Poor diet and its consequences like obesity is the common healthy problem in urban societies. Unhealthy lifestyle can be measured by BMI.

3. Alcohol Consumption: Alcohol impact on SBP in comparison to DBP may point to an imbalance between central nervous system elements influencing cardiac output and alcohol's effects on peripheral blood vessels⁽⁷⁾.

4. Smoking: Smoking is one of the risk factors known to cause major cardiovascular risk factor for the heart and blood vessels because of the effects of some compounds primarily nicotine and carbon monoxide which able to decrease blood oxygen levels⁽⁸⁾.

5. Sleep: One of the bases of healthy life is the sleep. Sleep cannot be apart from life. Lifestyle may effect on sleep and sleep has a clear influence on social, psychological, economical, mental and physical health.

6. Sexual behavior: Normal sex relation is necessary in healthy life. Dysfunction of sex relation is the problem of most of societies and it has a significant effect on mental and physical health⁽⁹⁾.

7. Substance abuse: Addiction is considered as an unhealthy life style. Smoking and using cannabis, opioids etc. substance may result in various problems like cardiovascular disease, asthma, cancer, brain injury⁽⁸⁾.

8. Medication abuse: Unhealthy behaviors in using medication are as followed: self-treatment, sharing medication, using medications without prescription, prescribing too many drugs, prescribing the large number of each drug, unnecessary drugs, bad handwriting in prescription, disregard to the contradictory drugs, disregard to harmful effects of drugs, not explaining the effects of drugs⁽⁸⁾.

MATERIAL AND METHODS

Study Design: This is cross-sectional observational study was carried out from November 2022 to May 2023 among hypertensive patients aged 40 years and above, attending the Urban Health and Training Centre (UHTC), Dholabhata, Ajmer for the assessment of lifestyle related hazards and their solutions under Department of Community Medicine of JLN Medical College, Ajmer.

Sampling Technique: Convenient simple random sampling.

Sample Size: The sample size was estimated with the formula: $n = Z^2pq/d^2$, considering 25.8% prevalence of patients who practiced lifestyle modifications and 95% confidence interval and 5% margin of error, a sample size of 300 was calculated.

Inclusion Criteria: Patients in the age group of 40 and above with hypertension.

Exclusion Criteria: Patients who are critically ill and confined to bed. Informed consent and pre-designed interview was scheduled to collect the necessary information regarding demographic profile and anthropometric measurement was collected. Details of major cardiovascular risk factors such as tobacco chewing, smoking, alcohol intake, physical activity, and associated co-morbidities were inquired. Physical examination included measurement of height, weight and Blood pressure (BP). Common weighing machine and measuring tape were used to record weight in kilograms and height in centimeters of all the study patients. BP was measured using a standard mercury manometer in a seated position. Two readings at 5 minutes intervals as per World Health Organization (WHO) guidelines were recorded.

Statistical Analysis: Data from the interview schedule was transferred to a computer. The SPSS Data Editor Software version 26 was used for analysis of the data. Chi-square test was performed and p value ≤ 0.05

were considered statistically significant.

RESULTS

Table 1: Distribution Of Participants As Per Socio-demographic Profile

Parameters		Male N (%)	Female N (%)	Total N (%)
Age Group (Years)		188 (62.7)	112 (37.3)	300 (100.0)
	40-49	55 (29.3)	12 (10.7)	67 (22.3)
	50-59	60 (31.9)	40 (35.7)	100 (33.3)
	60-69	47 (25.0)	40 (35.7)	87 (29.0)
	70 & Above	26 (13.8)	20 (17.9)	46 (15.3)
Marital Status	Married	181 (96.3)	107 (95.5)	288 (96.0)
	Unmarried	0 (0.0)	0 (0.0)	0 (0.0)
	Separated / Divorced	7 (3.7)	0 (0.0)	7 (2.3)
	Widowed	0 (0.0)	5 (4.5)	5 (1.7)
Religion	Hindu	155 (82.4)	95 (84.2)	250 (83.3)
	Muslim	24 (12.8)	14 (12.5)	38 (12.7)
	Christian	5 (2.7)	1 (0.9)	6 (2.0)
	others	4 (2.1)	2 (1.8)	6 (2.0)
Type of Family	Nuclear	126 (67.0)	90 (80.4)	216 (72.0)
	Joint	65 (34.6)	19 (17.0)	84 (28.0)
Educational status	Illiterate	10 (5.3)	29 (25.9)	39 (13.0)
	Primary	21 (11.2)	33 (29.5)	54 (18.0)
	Secondary	72 (38.3)	11 (9.8)	83 (27.7)
	Higher secondary	62 (33.0)	20 (17.9)	82 (27.3)
	Graduate	23 (12.2)	19 (17.0)	42 (14.0)
Occupation	Unemployed	22 (11.7)	45 (40.2)	67 (22.3)
	Unskilled	36 (19.1)	45 (40.2)	81 (27.0)
	Semi-skilled	45 (23.9)	4 (3.6)	49 (16.3)
	Skilled	64 (34.0)	8 (7.1)	72 (24.0)
	Professional	21 (11.2)	10 (8.9)	31 (10.3)
Socio economic status	Class I (Upper	13 (6.9)	20 (17.9)	33 (11.0)
	Class II (Upper Middle)	14 (7.4)	12 (10.7)	26 (8.7)
	Class III (Middle)	67 (35.6)	50 (44.6)	117 (39.0)
	Class IV (Lower Middle)	25 (13.3)	12 (10.7)	37 (12.3)
	Class V (Lower)	69 (36.7)	18 (16.1)	87 (29.0)

Table 1 shows, out of 300 study participants, 188 (62.7%) were males and 112 (37.3%) were females. Most of the study participants were between 51-70 years. 67 (22.3%) were in the age group of 40-49 years, 100 (33.3%) in 50-59 years, 87 (29%) in 60-69 years, 46 (15.3%) were 70 years and above. 288 (96%) of participants in present study were married. Among 188 male participants, 7 (3.7%) were separated / divorced and 5 (4.5%) were widow. 250 (83.3%) belonged to Hindu religion followed by 38 (12.7%) were Muslims and only 6 (2%) were from Christian community. Majority of the participants, 216 (72%) were living in a nuclear family and only 84 (28%) were living in a joint family.

39 (13%) were illiterate followed by 54 (18%) were primary passed, 83 (27.7%) secondary passed, 82 (27.3%) completed higher secondary education and 42 (14%) were graduated. 67 (22.3%) of study participants were unemployed followed by 81 (27%) were unskilled laborers, 49 (16.3%) semi-skilled, 72 (24%) skilled and 31 (10.3%) were professionals.

According to updated Modified BG Prasad Classification, 241 (80.3%) participants belongs from socio-economic class III, IV, V, 33 (11%) class I and 26 (8.7%) class II. In male participants, 92 (48.9%) belongs from middle class followed by 69 (36.7%) lower class, while in female participants maximum 62 (55.35%) belongs from middle class followed by 32 (28.5%) upper class.

Table 2: Distribution of Participants According To Dietary Pattern, Physical Activity, BMI, Addiction, Co-morbidities and Family History of Hypertension

Parameters		Male N (%)	Female N (%)	Total N (%)
Diet	Veg.	92 (48.9)	46 (41.1)	138 (46.0)
	Mixed	96 (51.1)	66 (58.9)	162 (54.0)
Physical activity	Sedentary	124 (66.0)	58 (51.8)	182 (60.7)
	Moderate	52 (27.7)	44 (39.3)	96 (32.0)
	Heavy	12 (6.4)	10 (8.9)	22 (7.3)

BMI	< 18.5	22 (11.7)	21 (18.8)	43 (14.3)
	18.5 - 24.9	64 (34.0)	23 (20.5)	87 (29.0)
	25 - 29.9	85 (45.2)	56 (50.0)	141 (47.0)
	30 & Above	17 (9.0)	12 (10.7)	29 (9.7)
Addictions	Smoking	55 (29.3)	10 (8.9)	65 (21.7)
	Alcohol	52 (27.7)	1 (0.9)	53 (17.7)
	Tobacco	15 (8.0)	24 (21.4)	39 (13.0)
	Smoking with Alcohol	43 (22.9)	2 (1.8)	45 (15.0)
	Others	12 (6.4)	3 (2.7)	15 (5)
	None	11 (5.9)	72 (64.3)	83 (27.7)
Associated Co-Morbidities	Hypertension	57 (30.3)	47 (42.0)	104 (34.7)
	Diabetes	56 (29.7)	26 (23.2)	82 (27.3)
	Visual Defect	12 (6.4)	3 (2.7)	15 (5.0)
	Renal Pathology	8 (4.3)	3 (2.7)	11 (3.7)
	Ischaemic Heart Disease	10 (5.3)	8 (7.1)	18 (6.0)
	Hypercholesterolemia	5 (2.7)	6 (5.4)	11 (3.7)
	None	40 (13.3)	19 (15.5)	59 (19.6)
Family History of Hypertension	Yes	115 (61.2)	70 (62.5)	185 (61.7)
	No	73 (38.8)	42 (37.5)	115 (38.3)

Table 2 shows, 138 (46%) were vegetarian and 162 (54%) were consuming mixed diet (vegetarian and non-vegetarian). 182 (60.7%) had sedentary physical activity followed by 96 (32%) moderate and only 22 (7.3%) participants had heavy physical activity. Majority of participants, 141 (47%) had BMI 25-29.9. Out of 217 (72.3%) addicted participants, 65 (21.7%) were addicted to smoking followed by 53 (17.7%) alcohol, 45 (15%) smoking with alcohol and 39 (13%) tobacco chewing.

104 (34.7%) of study participants were co-morbid to hypertension, followed by 82 (27.3%) diabetes, 18 (6%) ischemic heart disease, 15 (5%) visual defects, 11 (3.67%) renal pathology and 11 (3.67%) hypercholesterolemia.

185 (61.67%) had positive family history of hypertension. 115 (61.17%) of male participants and 70 (62.50%) female participants had positive family history of hypertension.

Table 3: Lifestyle Parameters And Self-care Practices

Life Style Parameters and Self-Care Practices	Pre-Intervention		Post-Intervention	
	N	%	N	%
Maintaining Healthy Diet	45	15.0	72	24.0
Doing regular physical exercise	62	20.6	91	30.3
Restriction of extra added salt in diet	71	23.6	123	41.0
Restriction of extra cooking oil	122	40.6	158	52.6
Carrying prescriptions and anti-hypertensive medications when going out	150	50.0	196	65.3
Regularly going for blood pressure examination	102	34.0	148	49.3
Regularly going for eye examination	48	16.0	82	27.3

Table 3 shows, 45 (15%) study participants maintaining healthy diet, 62 (20.67%) doing regular physical exercise, 71 (23.67%) restricted extra added salt and 122 (40.67%) participants were using restricted cooking oil in their diet. 150 (50%) were carrying prescriptions and medications when going out, 102 (34%) going for regular blood pressure measurement and 48 (16%) eye examination.

After the health education, 72 (24%) maintaining healthy diet, 91 (30.33%) doing regular physical exercise, 123 (41%) restricted extra added salt, 158 (52.67%) participants were started using restricted cooking oil in their diet. 196 (65.33%) started carrying prescriptions and medications when going out, 148 (49.33%) going for regular blood pressure measurement and 82 (27.33%) eye examination.

DISCUSSION

Table 1: Out of 300 study participants, 188 (62.67%) were males and 112 (37.33%) were females. 100 (33.33%) of the study participants were in the age group of 50-59 years followed by 87 (29.0%) in 60-69 years. Out of 188 male participants, 60 (31.9%) were in the age group 50-59 years and among 112 female participants, 40 (35.7%) were in

60-69 years. Mean age of study participants was 56.33±10 years, while mean age of female study participants at diagnosis was 51.74±6.9 years which is more as compared to male participants 49.92±7.57 years. Association between gender and mean age at diagnosis was significant statistically (t value 2.080, p value 0.03). Our findings was similar to a cross-sectional study conducted by **Geremew G et al. (2023)**⁹ in North West Ethiopia, who also reported low number of female participants (39.9%), while maximum number of participants were from the age group above 45 years and mean age of participants was 48.1 years. Similar result was observed in the institutional based cross-sectional study conducted by **Andualem A et al. (2020)**¹⁰ at North East Ethiopia, who reported 61.2% males and 39.8% were females. The mean age of participants was 51±17.16 years while 38.9% patients age were more than 55 years.

In the present study, 288 (96%) of study participants were married, 7 (3.7%) male were separated / divorced and 5 (4.5%) females were widow. 250 (83.3%) belonged to Hindu religion followed by 38 (12.67%) and 6 (2%) belonged to Muslim and Christian religion respectively. 216 (72%) of the participants lived in nuclear family followed by 84 (28%) who lived in joint family, of which 67% males and 80.4% females lives in nuclear family. Similar results were observed in a cross-sectional study conducted by **Priya M et al. (2016)**¹³ in BHU Varanasi, 92% participants were married. Single males were associated with 55% increased risk of hypertension compared with married males. Widowed status was significantly associated with 31% lower risk of hypertension. 80.3% belongs to Hindu religion and 50.8% were normotensive, 28.5% were hypertensive and 31.04% who lived in joint family. The finding is similar to the cross-sectional study of **Mitra et al. (2017)**¹² at PIMS, Jalandhar, 89% were married, 84.9% were Hindu and 15.1% were Muslims and found that there is no significant difference (p value >0.05) in religion wise prevalence of hypertension and 52% lives in nuclear family followed by 41.2% joint family and 6.6% lives in III generation family.

Among the study participants, 83 (27.7%) were completed secondary education followed by 82 (27.6%) higher secondary and 54 (18%) were primary passed. Only 39 (13%) were illiterate. 83 (74.11%) of female participants were literate which was lower as compared to 178 (94.68%) of male participants. Urban literacy rate of Rajasthan as per census 2024 was 79.68. The literacy rate of urban male was 87.91% and that of urban female was 70.70%. Low female literacy rate in the study due to the mean age of female participants (58.30±10 years). This study was similar to the cross-sectional study done by **Ariff F et al. (2011)**¹³ at Kalang Valley, Malaysia and found 61.4% had secondary school education followed by 15.5% university education, 12.1% primary school education and 11% college education.

Regarding occupation, 81 (27%) were unskilled labour followed by 72 (24%) were skilled labour and 67 (22.3%) were unemployed. **Rahimi A et al. (2022)**¹⁴ conducted a cross-sectional study in Malaysia and observed that 54.40% were unemployed, 18.80% were temporarily employed, 15.60% were semi-skilled workers and 11.2% were professional workers.

According to Modified BG Prasad Classification, 154 (51.33%) of hypertensive participants in this study belongs from Class III and IV followed by 87 (29%) from Class V, 59 (19.67%) from Class I and II. It indicates that participants from lower socio economic class had poor utilization of health facilities. Similar finding was observed in a cross-sectional study conducted by **Raja TK et al. (2018)**¹⁵ in Kanchipuram Tamil Nadu, 35.5% of the hypertensive subjects belonged to socio economic class III, followed by (32.2%) class IV, (20.3%) class II, (6.7%) class V and (5%) Class I. The prevalence was high among lower middle and upper lower class 67.8%.

Table 2: Majority, 162 (54%) study participants were consuming mixed diet and 138 (46%) were vegetarians. Among mixed diet participants, 66 (58.93%) were female participants as compared to 96 (51.1%) of male participants. In the similar study by **Raja TK et al. (2018)**¹⁵ in Tamil Nadu regarding dietary pattern, observed that mixed diet consumption among the study participants is 94.2%, of which 24.5% of them were found to be hypertensive. There is association and statistical significance between mixed diet and hypertension (p<0.02). **Bartwal J et al. (2014)**¹⁶ conducted a cross-sectional study at RHTC, Haldwani, observed association between the disease and non-vegetarian consumption.

Regarding physical activity 182 (60.67%) hypertensive participants had sedentary followed by 96 (32%) moderate, 22 (7.3%) had heavy physical activity. Similar results were observed in the cross-sectional study conducted by **Patnaik L et al. (2017)**¹⁷ at tertiary care hospital, Orissa, 50% of hypertensive patients were leading sedentary life and only 13.7% were practicing fitness activities daily. 86.3% were not practicing regular walking or any fitness activities.

In the present study, 141 (47%) participants had BMI 25-29.9 followed by 87 (29%) BMI 18.5-24.9, 43 (14.3%) had BMI <18.5 and 29 (9.7%) had BMI 30 and above. Similarly in the cross-sectional study related to BMI conducted by **Raja TK et al. (2018)**¹⁵ in Tamil Nadu, statistically significant difference (p<0.05) were found in the prevalence of hypertension between individuals with a high BMI (33%) as compared to those with a normal or low BMI. 51.1% of individuals had normal/expected weight, 7.6% were under weight, 28.4% were pre-obese, 9.3% were class I obese and 2.7% were class II obese. Only 0.8% individuals were in class III obesity.

65 (21.7%) were addicted to smoking followed by 53 (17.7%) alcohol, 45 (15%) smoking with alcohol and 39 (13%) tobacco chewing out of 217 (72.3%) addicted participants. In the study of **Raja TK et al. (2018)**¹⁵ in Tamil Nadu, the prevalence of hypertension was higher in 32.4% among those who were in the habit of smoking tobacco. 31.1% were found to be consuming alcohol. Among those who consume alcohol, 30.5% had hypertension. Prevalence of smoking among study participants was found to be 16.4%. Among smokers 32.4% of them had hypertension.

104 (34.67%) of study participants were comorbid to hypertension, followed by 82 (27.3%) diabetes, ischemic heart disease 18 (3.67%), visual defects 18 (6%), renal pathology 15 (5%), hypercholesterolemia, 11 (3.67%). This study finding is similar to the cross-sectional study conducted by **Rahimi A et al. (2022)**¹⁴ in Tamil Nadu, 25.3% reported a history of hypertension and 22.3% diabetes mellitus, 5% reported hyper-cholesterolemia and 2.4% cardiovascular disease.

In this study, 185 (61.67%) study participants had positive family history of hypertension. 115 (61.17%) of male participants and 70 (62.50%) female participants had positive family history of hypertension. Mean age at diagnosis, 41.75 years was lower for participants who had positive family history of hypertension, as compared to those who had no history of disease 53.69 years which was statistically significant (p<0.0001). Our observation was similar to a case-control study conducted by **An-Leliet al (2019)**¹⁸ in China among hypertensive patients, 76.17% participants have positive family history of hypertension.

Table 3: In this study, only 15% of participants maintained a healthy diet, 20.67% engaged in regular physical exercise, 23.67% restricted added salt, and 40.67% reduced cooking oil intake since their hypertension diagnosis. 150 (50%) were carrying prescriptions and medications when going out, 102 (34%) going for regular blood pressure measurement and 48 (16%) eye examination. Similar findings was found in the cross-sectional study by **Hadiza S et al (2017)**¹⁹ from North-West (42.5%) and by **Okwuonu CG et al. (2014)**²⁰ in a South-East (56.7%) Nigeria, where overall practice level of the participants, nearly half (49.6%) had good practice of LSM recommended for hypertension management.

CONCLUSION

Hypertensive patients in the Urban field practice area of Dhola Bhata, Ajmer show limited awareness and poor practices in managing hypertension, which correlate with higher blood pressure and Body Mass Index. This highlights an urgent need for health services to focus on preventive education, addressing key risk factors like sedentary lifestyle, appropriate food habits, substance abuse and promoting physical activity. Public health campaigns through mass media can raise awareness of hypertension and its risks, while health workers can lead by example, educating the community and adopting healthier practices themselves- avoiding high-fat foods, alcohol, and smoking. Community education on the importance of regular exercise should also be prioritized to foster long-term health improvements.

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