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Review Article

PRACTICE OF ADULTS ON PREVENTION OF HYPERTENSION AND ASSOCIATED FACTORS IN DESSIE ADMINISTRATIVE CITY, ETHIOPIA, 2016

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Abstract

Introduction: Hypertension is an important public-health challenge worldwide as well as in Ethiopia. Prevention and detection of this condition should receive high priority and it is a serious warning sign that major lifestyle changes are required. Globally cardiovascular diseases accounts for approximately 17 million deaths a year, nearly one third of the total deaths. Of these, complications of hypertension account for 9.4 million deaths worldwide every year. Hypertension is responsible for at least 45% of deaths due to heart disease and 51% of deaths due to stroke. Hypertension poses an important public health challenge worldwide; including Ethiopia. In order to understand the preventive measures, evidence based information about practice in the prevention aspects of hypertension at the community level is required.

Objectives: To assess adults' Practice on prevention of hypertension and associated factors in Dessie Administrative city, Amhara Region, Ethiopia.

Methods: Community based Cross-sectional study was conducted on above 18 years of age on 844 Participants. Multi stage sampling technique was used to select study subjects. Descriptive and analytical statistics including bivariate and multivariate analysis were applied.

Results: Out of 844 participants, 836 with the response rate of 99.1% where participate in the study. Half (50.1%) had good Practice in related to hypertension prevention. Knowledgeable Participants were practiced more as compared to individuals who were poor knowledge.

Conclusion: This study revealed a lower level of practice among the participants on the prevention of hypertension.Female practiced more preventive measures as compared to male. Health education to improve knowledge and practice on the prevention of Hypertension is needed

Keywords: Hypertension, Practice and prevention

Introduction

Normal adult blood pressure is defined as a systolic blood pressure of 120 mm Hg and a diastolic blood pressure of 80 mm Hg, this normality is particularly important for the efficient function of vital organs such as the

heart, brain and kidneys and for overall health and wellbeing (1).Hypertension can lead to a heart attack, an enlargement of the heart and eventually heart vessels have persistently raised pressure (1, 2).

The higher the pressure in blood vessels the harder the heart has to work in order to pump blood. The pressure in the blood vessels can also cause blood to leak out into the brain (cause a stroke). Hypertension can also lead to kidney failure, blindness, rupture of blood vessels and cognitive impairment. Hypertension is a serious warning sign that significant lifestyle changes are required. The situation can be a silent killer and it is an important for everyone to know their blood pressure reading (1). This is known as cardiovascular risk, and can also be high in people with mild hypertension in combination with other risk factors e.g., tobacco use, physical inactivity, unhealthy diet, obesity, diabetes, high cholesterol, low socioeconomic status and family history of hypertension .(1,2,3)

Globally cardiovascular disease accounts for approximately 17 million deaths a year, nearly one third of the total deaths (2). Of these, complications of hypertension account for 9.4 million deaths worldwide every year (3). Hypertension is responsible for at least 45% of deaths due to heart disease and 51% of deaths due to stroke (2, 3).

Premature death, disability, personal and family disturbance, loss of income, and healthcare expenditure due to hypertension, takes a charge on families, communities and National finances. Families face catastrophic health expenditure and spending on health care, which is often long term in the case of hypertension complications, pushing tens of millions of people into poverty (4, 5, and 6).

Rapid unplanned urbanization also tends to promote the development of hypertension as a result of unhealthy environments that encourage consumption of fast food, sedentary behavior, tobacco use and the harmful use of alcohol. The risk of hypertension increases with age due to stiffening of blood vessels, although ageing of blood vessels can be slowed through healthy living, including healthy eating and reducing the salt intake in the diet.(5,6,7)

Low fruit and vegetables consumption is among the top ten risk factors for global mortality, and up to 2.7 million lives could potentially be saved each year with sufficient global fruit and vegetables consumption. The WHO recommends a minimum of five servings of fruit and vegetables a day, or a daily intake of at least 400 grams of fruit and vegetables, to obtain optimal health benefits. (8)

Hypertension is a serious non communicable public health problem worldwide (9). It is one of the leading causes of death in the world and is the commonest cause for outpatient visits to physicians in the world (10).

The lifestyle change following western life style with urbanization causing many troubles, such as change of food intake pattern, decreasing physical activity, increasing salt and fat consumption that, these factors result in increased prevalence of nutrition-related non-communicable diseases like hypertension (11, 12).

Hypertension is a major contributor to the global disease burden. It poses an important public health challenge to both economically developing and developed countries, including Ethiopia. A research done in India indicates, Hypertension is responsible for 57% of stroke deaths and 24% of coronary heart disease deaths (13). In India by 2020 Hypertension is emerging as a major health problem and its occurrence is gradually increasing in urban communities (14).

Hypertension being a silent killer remains asymptomatic until complications like coronary artery disease, stroke, and renal failure develop. Hypertension has become a considerable problem, being already established in high-income countries, and

also emerging in many low- and middle-income countries (15, 16, and 17).

Research done in Nigeria indicates that 87.1% were unconscious that regular exercise is part of lifestyle modification while 60% are unaware of the need for moderation of alcohol intake. More than 80% are unaware of the roles of vegetables, fruits, unsaturated oil and reduction in diary food intake in the control of BP (18).

Many studies demonstrated that individuals with blood pressure > 120/80 mmHg, but >140/90 mmHg, had an increased risk of hypertension, cardiovascular disease and early death from cardiovascular causes (19).

Many people have heard about hypertension but only a few know its risk factors.

In most cases, chronic non-communicable diseases are largely due to preventable and amendable risk factors such as, high blood cholesterol, high blood pressure, obesity, physical inactivity, unhealthy diet, tobacco use and improper use of alcohol. These factors result in various long-term disease processes, culminating in high mortality rates attributable to stroke, heart attack, tobacco- and nutrition-induced cancers, obstructive lung diseases and many others (20).

Increasing survivorship rates, especially in urban Ethiopia, are leading to a rise in the number of elderly Ethiopians, and to old-age diseases. Some of these are the so called lifestyle illnesses, normally associated with Western societies where a sedentary life and unhealthy diet has replace with old infections as the major source of morbidity and mortality.

"Some of the major factors in the increasing incidence of chronic noninfectious diseases in Ethiopia appear to be the adoption of Western lifestyle in urban areas (mainly a more sedentary way of life, increasing cigarette smoking, employment in developed industries, greater stress, and consumption of more polished foods) and increasing life expectancy in cities…"(21).

We live in a rapidly changing environment. Throughout the world, human health is being shaped by the same powerful forces: demographic ageing, rapid urbanization, and the globalization of unhealthy lifestyles. Increasingly, wealthy and resource-constrained countries are facing the same health issues.

Hypertension already affects billions of people worldwide, leading to heart attacks and strokes. It contributes to the burden of heart disease, stroke and kidney failure and premature mortality and disability. There are many studies tried to address in HTN prevalence, Control measures and its treatment option, but there is a gap to focus practice in the prevention aspects of hypertension in the community level.

General objective

To assess adults' Practice on prevention of hypertension and associated factors in Dessie Administrative city, Amhara Region; Ethiopia.

Specific objectives

1. To describe practice of adults on the prevention of Hypertension
2. To identify factors associated with Practice on the prevention of Hypertension.

Methods and Materials

Study design

Community based Cross-sectional study.

Study area and period

The study was carried out in Dessie Town from February - March / 2016. Dessie Town is one of the oldest town which is found in south East of Amhara region, 480 km from Bahir Dar(Regional State Capital) and 401Km from the National capital Addis Ababa and by itself the capital city of South Wollo zone.

According to 2013-2014 budget year the total enumerated number of the population in the town is 195,661(male =94,285(48.2%), female =101,376(51.8%). Among this adults 128,937and adolescents and young people constitute 66,724 (18 %) of the population). Based on health profile

of Dessie City Administrative health office, the town has eight health center with 6 health posts, one district and one zonal referral Government hospitals and 4 private Junior General hospitals and 3 Specialized junior clinics, 5 private medium clinics, 2 NGO medium clinics, 15 private junior clinics,(For profit and Nonprofit), pharmacies and drug stores which deliver routine preventive and curative health services to the community.

Source population

All adults age 18 years and above living in Dessie Town for more than6 months.

1) Study population

All adults age 18 and above in the selected sub cities.

Inclusion and Exclusion Criteria

All adults' age 18years and above whom were residents of Dessie town for more than 6 months were included. Individuals with severe illness, mental illness, diagnosed with hypertension were excluded.

Sample size determination and sampling technique

Sample size was determined by using single population proportion formula and assuming (p) was taken 50% because there was no previous study done on Practice on the prevention of Hypertension in Dessie town as well as in Ethiopia. We have been taking into consideration, 95% confidence level and 5% degree of precision, and then the sample size was calculated as follows:

$$n = \frac{\left(Z\frac{\alpha}{2}\right)^2 p(1-p)}{(d)^2}$$

$n = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2}$ = 384 by adding 10% non-response rate, this equals to 422 but, as multi stage sampling technique was used, design effect has been considered 2*422 ; the final sample size was 844.

2) Sampling technique

Multi stage sampling technique was employed in selection of the study subjects from the ten sub cities. In the first stage three sub cities was selected randomly by lottery method. Then the sample size was allocated proportionally for the three sub cities; in the second stage households were selected by systematic random sampling method. Finally, individuals were selected by lottery method from the selected household members as indicated in the diagram below.

Study variables

Dependent variable: Practice on prevention of Hypertension.

Independent variable: Age, sex, ethnicity, religion, educational status, marital status, Occupational status, average monthly income, knowledge

Operational Definitions

1).Hypertension: - HTN is a silent/ iceberg disease & it is defined as systolic blood pressure (SBP) persistently ≥140 &/ or diastolic blood pressure (DBP) ≥ 90 mmHg or taking anti-hypertensive drug (1)

2).Knowledge on prevention of HTN: One point was given for the correct answers and zero for the incorrect answers. 3).Good knowledge------ those who correctly answered 50% or more of the knowledge questions were considered as having good knowledge4).Poor knowledge----- those who answered below 50% of the knowledge questions were considered as having poor knowledge.

5).Practice on prevention of HTN**:** it is the skilled way doing something regularly as a part of one normal behavior.

6).Good Practice ------ those who correctly answered 50% or more of the practice questions were considered as having good practice.

7).Poor Practice ----- those who answered below 50% of the practice questions were considered as having poor practice.

Data collection tools and Method

A structured, closed ended interview questionnaire was used. The Questionnaire was prepared in English version and translated in to Amharic version. Data

collectors who can speak Amharic language were hired for this particular study to attain quality of data. Twelve data collectors and two supervisors were participated in the survey. Interviews were done privately to maintain confidentiality and to avoid peer pressure.

Data quality assurance

The questionnaire was pre-tested on 42(5%) individuals in non-study areas in Dessie Town. Furthermore, the supervisor and the principal investigator gave feedback and corrections on daily basis to the data collectors. Completion, accuracy, and clarity of the collected data were checked carefully on a regularly basis.

Data processing and analysis

The collected data was checked for its completeness and Entered to SPSS for analysis. Descriptive and analytical statistics including bivariate and multivariate analyses were done. Percentage, frequency distribution, measure of central tendency and measure of dispersion were used to describe data on knowledge and practice. Statistical association was checked by 95%CI and crude odd ratio, after running bivariate logistic regression, all variables with p< 0.3 were entered in to the final model. To identify the independent factor that influences knowledge and practice towards Prevention of Hypertension, multivariate logistic regression analysis was carried out by using backward stepwise method.

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Furthermore, goodness of model fitness was checked by Hosmer & Lemeshows test and Omnibus test. Variables those *P*-values of, <0.05 were considered statistically significant.

Ethical consideration

Ethical approval and clearance was obtained from Institutional Review Board of Wollo University prior to enrolment. Permission to conduct the study was obtained from selected sub cities prior to data collection. Objective of the study was clearly explained to participants before conducting the interview and informed consent was obtained from each participant. Data was kept confidential throughout the conduct of the study

Results

Socio-Demographic characteristics of the study subjects

Out of 844 participants, the response rate was 99.1% with 836 respondents. 617 (73.8%) were aged between 18-40 years with mean age of 34.6 years (SD $\pm$13.42) and Range of 18 -86 years.

Four hundred seventy seven (57.1%) of the study participants were females. About 327(39.1%) of the participants were grade 7-12 and 320 (38.3%) were diploma and above. Half of the respondents, 418 (50%) were followers of the orthodox Christianity. Married were 465 (55.6%) and single 260(31.1%).Amhara ethnic group constitute 758(90.7%). (Table1).

Table 1: Socio-demographic Characteristics of Participants in Dessie Town, Feb- 2016. (n=836)

Variables	Frequency	Percent (%)
Sex		
Male	359	42.9
Female	477	57.1
Age		
18-40	617	73.8
41-60	178	21.3
>= 61	41	4.9

Ethnicity		
Amhara	758	90.7
Tigre	46	5.5
Oromo	21	2.5
Others	11	1.4
Religion		
Orthodox	418	50.0
Muslim	378	45.2
Protestant	32	3.8
Catholic	8	1.0
Educational Status		
Cannot read & write	67	8
Grade 1-6	122	14.6
Grade 7-12	327	39.1
Diploma &above	320	38.3
Marital Status		
Married	465	55.6
Single	260	31.1
Widowed	63	7.5
Divorced	48	5.7
Occupational Status		
Gov ;t employee	194	23.2
Private employee	79	9.4
NGO worker	33	3.9
Merchant	154	18.4
Student	116	13.9
House wife	177	21.2
Retired	29	3.5
Farmer	13	1.6
Daily laborers	24	2.9
Others	17	2.0
Monthly Income		
Below 500	216	25.8
500-1000	181	21.7
1000-2000	145	17.3
Above 2000	294	35.2

Practice on the prevention of Hypertension

555 (66.4 %) of the participants had checked their blood pressure in life time and among them, 96.6 % were checked by either physician or other health care providers.239 (28.6%) of respondents reported that they did not walk at least ten minutes continuously per day and only 25.1%participants are performing vigorous intensive sports. Even if the majority (70%) of participants has been reported not like using high amount of salts in their diet, 30% have been used high amount of salts in their diet. Nearly half (49.4%) of the respondents reported alcohol consumption either

occasionally, most of the time or daily ,among them consumed alcohol in the past 12 months and 30 days,85.7% and 64.6% respectively.

In contrast, 100 (12.0%) had smoked cigarette and 41% of them have been smoking daily in the current time. Three hundred ninety eight (47.6%) of respondents reported consumption of khat and 56.8% of the chewers have been used currently. Almost the majority 617 (73.8%) of the participants have used saturated fats and oils for meal preparation in their home, in the other hand 398(47.6%) of the respondents reported they did not use fruits and vegetables frequently as well as occasionally in their diet. In general, almost Half (50.1%) of the participants have good practice in respect to answering the given practice questions (Table 2).

Table 2 .Distribution of study population by their practices in applying hypertension prevention activities in Dessie administrative city, February, 2016. (n=836)

Variables	Response	Frequency	percent
Have you ever checked your blood pressure?	Yes	555	66.4
	No	281	33.6
Have you checked your blood pressure last month?	Yes	251	30.0
	No	585	70.0
Have you ever had your blood pressure measured by a doctor or other health worker?	Yes	536	64.1
	No	300	35.9
Do you walk or use a bicycle *(pedal cycle)* for at least 10 minutes continuously to get to and from places?	Yes	597	71.4
	No	239	28.6
Do you do any vigorous-intensity sports, fitness or recreational *(leisure)* activities?	Yes	210	25.1
	No	628	74.9
Have you use high amount of salt in your diet?	Yes	251	30.0
	No	585	70.0
Have you ever consumed an alcoholic drink such as beer, wine, local beer, and fermented cider?	Yes	413	49.4
	No	423	50.6
Have you consumed an alcoholic drink within the past 12 months? (n=413)	Yes	354	85.7
	No	59	14.3
Have you consumed an alcoholic drink within the past 30 days? (n=413)	Yes	267	64.6
	No	146	35.4
In the past, did you ever smoke daily?	Yes	100	12
	No	736	88
Do you currently smoke tobacco products daily? (n=100)	Yes	41	41
	No	59	59
Have you used saturated fats or oils *for meal* preparation in your household?	Yes	617	73.8
	No	219	26.2
Have you frequently used fruits and vegetables in your diet?	Yes	438	52.4
	No	398	47.6
Have you ever chewing khat in your life	Yes	398	47.6
	No	438	52.4
Do you currently chewing khat(n=398)	Yes	226	56.8
	No	172	43.2

Practice	Good	419	50.1
	poor	417	49.9

Factors Associated with Practice on the prevention of Hypertension.

Sex, Age, Ethnicity, Religion, Educational status, marital status, occupational status and knowledge were significant at 0.3 on bivariate logistic regression analysis and were entered in to multivariate analysis. Sex, occupational status and knowledge maintained their significance in the multivariate analysis at a 5% level of significance.

Female participants were 1.8 times (AOR=1.797, 95% CI: 1.289, 2.505) more likely to have good practice as compared to male participants. The student Participants were 51.9% (AOR= 0.519,95 % CI: 0.314-0.857) more likely to have good practice than those who were government employees. The likelihood of good practice, among good Knowledge participants were 3.3 times (AOR=3.257, 95% CI: 2.422, 4.429) more practiced as compared to individuals who were poor knowledge (Table 3).

Table-3: Association of socio-demographic factors with Practice on the prevention of Hypertension, Dessie town, 2016. (n=836)

Variables	Practice of HTN			
	Good n (%)	Poor n (%)	Crude OR(95% CI)	Adjusted OR(95% CI)
Sex				
Male	158(44%)	201(56%)	1	1
Female	261(54.7%)	216(45.3%)	1.537(1.167,2.025)*	1.797(1.289,2.505)***
Age				
18-40	301(48.8%)	316(51.2%)	1	
41-60	92(51.7%)	86(49.3%)	1.123(0.804,1.568)	
>= 61	26(63.4%)	15(36.6%)	1.82(0.945,3.503)*	
Ethnicity				
Amhara	389(51.3%)	369(48.7%)	1	
Tigre	16(34.8%)	30(65.2%)	0.506(0.271,0.944)*	
Oromo	10(47.6%)	11(52.4%)	0.862(0.362,2.055)	
Others	4(36.4%)	7(63.6%)	0.542(0.157,1.867)	
Religion				
Orthodox	193(46.2%)	225(53.8%)	1	
Muslim	204(54%)	174(46%)	1.367(1.034,1.807)*	
Protestant	20(62.5%)	12(37.5%)	1.943(0.926,4.077)*	
Catholic	2(25%)	6(75%)	0.389(0.078,1.948)*	
Educational Status				
Cannot read & write	26(38.8%)	41(61.2%)	0.469(0.273,0.804)*	
Grade 1-6	54(44.3%)	68(55.7%)	0.587(0.385,0.894)*	
Grade 7-12	155(47.4%)	172(52.6%)	0.666(0.488,0.908)*	
Diploma &above	184(57.5%)	136(42.5%)	1	
Marital Status				

Married	257(55.3%)	208(44.7%)	1	
Single	113(43.5%)	147(56.5%)	0.622(0.458,0.845)*	
Widowed	30(47.6%)	33(52.4%)	0.736(0.434,1.246)*	
Divorced	19(39.6%)	29(60.4%)	0.530(0.289,0.973)*	
Occupational Status				
Gov 't employee	110(56.7%)	84(43.3%)	1	
Private employee	37(46.8%0	42(53.2%)	0.673(0.398,1.138)*	0.853(0.488,1.491)
NGO worker	20(60.6%)	13(39.4%)	1.175(0.553,2.497)	1.609(0.697,3.711)
Merchant	76(49.4%)	78(50.6%)	0.744(0.487,1.138)*	0.878(0.547,1.409)
Student	45(38.8%)	71(61.2%)	0.484(0.303,0.774)*	0.519(0.314,0.857)**
House wife	97(54.8%)	80(45.2%)	0.926(0.614,1.395)	0.902(0.556,1.463)
Retired	19(65.5%)	10(34.5%)	1.451(0.641,3.283)	2.204(0.939,5.172)
Farmer	6(46.2%)	7(53.8%)	0.655(0.212,2.020)	0.857(0.253,2.909)
Daily laborer	4(16.7%)	20(83.3%)	0.153(0.050,0.464)*	0.215(0.067,0.686)
Others	5(29.4%)	12(70.6%)	0.318(0.108,0.938)*	0.363(0.118,1.118)
Knowledge				
Good	268(63.7%)	153(36.3%)	1	1
Poor	151(36.4%)	264(63.6%)	3.062(2.31,4.059)*	3.275(2.422,4.429)***

*p<0.3 **p<0.05 ***p<0.001

Discussion

This study revealed that nearly half (50.1%) of participants had good practice towards prevention of hypertension. This is nearly similar to the research conducted in Dares Salaam, doing physical exercises were 52.35% [26], Ghana that showed 48% of participants had checked their blood pressure towards prevention of HTN [25].

Female participants were 1.8 times (AOR=1.797, 95% CI: 1.289, 2.505) more likely to have good practice as compared to male participants.This might be due to, most female in Ethiopian context, works different activities mostly unknowingly like; washing family clothes, preparing foods, cleansing floor of homes and compounds, give servant services in the home and works in restaurants and hotels rather than males individuals.

Students participants were 51.9% (AOR= 0.519,95 % CI: 0.314-0.857) have good practice than those who were government employees. This might be due to the fact that, socio economic difference, many government workers stay long period of time in office and use transportation vehicles to travel from place to place.

Participants who had good knowledge were 3.3 times (AOR=3.257, 95% CI: 2.422, 4.429) more practiced as compared to individuals who were poor knowledge. This is obviously the fact that most peoples who have good knowledge about the particular thing, initiate to do so. Therefore hypertension risk factor prevention awareness education should be very essential for preventing this rapidly growing burden of serious public health problems.

This study also showed that 73.8% of the participants had used saturated fats or oils *for meal* preparation in their household. This might be due to economic constraints of the participants even if they have awareness which is common risk factor for the development of hypertension.

This finding highlights the need for emphasizing lifestyle adjustment prior to the occurrence of the condition.

Conclusion

This study revealed a lower level of practice among the participants on the prevention of hypertension. Sex, Occupational status and Knowledge level were the factors associated with good practice of participants. Participants who had good knowledge were more practiced as compared to individuals who were poor knowledge. Female participants were more practiced as compared to males on the prevention of hypertension.

Recommendation

To Zonal and Region Health Bureau *(Government)*

1).Public health education to improve practice on the prevention of Hypertension is needed.

2).Strategy for hypertension screening at least for adults visiting health institutions for various reasons.

To private and NGOS

They have to support and Collaborate on awareness creation with Government to address prevention of HTN and prepackaged foods and salt reduction.

To the community

1).All adults had better check their blood pressure and maintain their normal weight.

2).All adults have to give attention on healthy diet, alcohol moderation, salt reduction, regular physical activities, stop tobacco use and proper stress management.

To researchers

Further research to be conducted on prevention of hypertension to formulate preventive guidelines.

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