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"Prevalence and Risk Factor of Hypertension among School Teacher in Devchuli Municipality, Nwalparasi"

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ABSTRACT

Hypertension is one of the major NCD leading to various deaths and disabilities in Nepal. Blood pressure is the force exerted by circulating blood against the walls of the body's arteries and major blood vessels. If blood pressure is too high, then it called Hypertension. Hypertension is diagnosed if, when it is measured on two different days, the systolic blood pressure reading on both days is ≥140 mmHg and or/the diastolic blood pressure readings on both days are ≥90mmHg. Riskfactors of Hypertensionare; Modifiable risk factors include unhealthy diets (excessive salt consumption, a diet high in saturated fat and trans fats, low intake of fruits and vegetables), physical inactivity, consumption of tobacco and alcohol, and being obese /overweight. Non-modifiable risk factors include a family history of hypertension, age over 65 years and co-existing diseases such as diabetes or kidney disease.

Objectives: To identify the prevalence of hypertension and its associated risk factor among school teachers in Devchuli Municipality Nawalparsi and also to find the association between hypertension and its risk factors with selected socio-demographic variables.

Methodology: A descriptive cross sectional design was used to assess the prevalence and risk factor of hypertension among 127 school teacher in Devchuli municipality, Nwalparasi by using semi structured questionnaires in the form of interview method as well as Blood pressure was also measured.

Result: The study results shows that more than two-fifth (48.2%) of the respondents were in age group 25- 39 years with mean age 33.59 and SD ± 9.7. more than half (51.6%) of the respondents were male. 13.13% and 18% were reported as current smokers and drinking alcohol respectively. Overall prevalence of hypertension was 16.4% (Male-20.96% and female -12.12%) and this was significantly associated with age and religions. Rest of other variables like gender, education, size of family, smoking habits, intake of alcohol, physical activities and BMI was not significantly associated with hypertension. The higher proportion of hypertensive cases were in age 50 and above 50 years (45.46%).

Keywords: *School teacher, Hypertension, Prevalence, Risk factor.*

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CHAPTER I

INTRODUCTION

A. Background:

According to the WHO Hypertension is also known as higher or raised blood pressure is a condition in which the raised blood vessels have persistently raised pressure. Blood is carried from the heart to all parts of the body in the vessels. Each time the heart beats, it pumps blood into the vessels. Blood pressure is created by the force of blood pushing against the walls of blood vessels (arteries) as it is pumped by the heart. The higher the pressure, the harder the heart has to pump.

The non-communicable diseases have been increasing day by day contributing to the double burden of diseases in the various developing countries. Hypertension is one of the major NCD leading to various deaths and disabilities in Nepal. (1)

High blood pressure (hypertension) is the force with which the blood pushes against the walls of arteries. If blood pressure is high, the heart is working harder than it should; over time, this will cause it to weaken. High blood pressure is one of the major risk factors for heart attacks. It is the biggest risk factor for stroke. It is a form of cardiovascular disorder that results from a wide range of interconnected aetiologies. The risk of heart disease, stroke, and renal failure are generally associated with raised blood pressure which in most cases shows no symptoms. If the hypertension is not treated on time and left unchecked it may cause functional and structural abnormalities which may ultimately lead to damage to some of the vital organs like heart, kidneys, and brain. This is the reason for hypertension is one of the major causes of mortality and morbidity worldwide. (1)

There is markedly vast difference in the prevalence of cases which has been shown from various studies that are conducted regarding blood pressure in Nepal. The cross-sectional studies among the people aged 21 years and above showed that the cases of hypertension have been increased almost three times within the 25 years i.e. from 1981 to 2006 (2)

Various factors are responsible to increase the risk of hypertension. Most of the cardiovascular diseases including hypertension are found to be increased with tobacco use. 5% to 30% of cases of hypertension are due to alcohol consumption. Excessive use of salt also contributed to about 30% of cases, followed by 20% of cases which are due to lack of physical activity. Obesity and diabetes are also related well with hypertension. Other determinants such as socio-demographic factors and nutritional factors are also linked with the increasing rate of hypertension. (3)

B. Statement of the problem:

a) Global:

Globally, hypertension is one of the major public health problems. Around 22% people of age 18 and above are found to be affected with hypertension being the cause for 9.4 million deaths annually worldwide. Minimum 45% of deaths are due to a heart problem and 51% of deaths as stroke are due to increased blood pressure which in most cases shows no symptoms. Healthcare directly spends around 10% for hypertension and its complications. (1)

According to WHO it showed Africa having the high hypertensive people (29.6%), followed by the eastern Mediterranean (26.9%), South East Asia (24.7%), Europe (23.3%), the western pacific (18.7%) and America (18.2%).(4)

The highest estimate of the prevalence of hypertension was reported from Latin America and region i.e. 39.1% at 95% CI (33.1-45.2).upper middle-income countries contributed high pooled

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prevalence estimate i.e. 37.8% at 95% CI (35.0-40.6) and low-income countries contribute the lowest i.e. 23.1% at 95% CI(20.1-26.2). Hypertension was found more in the elderly population (≥65 years) than that of younger adults(<65 years) across various geographical regions. Sex-difference wasn't much in the prevalence of hypertension cases i.e. 31.9%vs 30.8%, P=0.6. Hypertension was found more in uneducated people i.e. 49.0% VS 24.9%, P<0.00001), overweight/obese people (46.4% Vs. 26.3%, P<0.00001) and residents of urban area i.e. 32.7% VS 25.2%, P=0.005. In developing country 1 among 3 adults was found with hypertension in developing countries on average. (5)

b) Regional:
According to WHO show that two-thirds of people in developing countries are found to have a prevalence of hypertension. Southeast Asia consists of 24.7% of people with hypertension worldwide among which Afghanistan consists of 29% which is followed by Nepal i.e. 27.3%.Hypertension and its related problem is major assistor to morbidity and mortality in South East Asian countries like India, Nepal, Bangladesh, Bhutan, and Sri-Lanka. Around 25% of the total world's population and NCDs are responsible for nearly half of the disease burden in the South East Asia Region.

Hypertension and pre-hypertension prevalence in the South East Asia region was found to be 27% and 29.6% respectively. More hypertensive people were found in urban areas than rural areas ranging from 13.6% to 47.9%. The recent studies showed that the prevalence of hypertension in various countries was: Bangladesh: 17.9%, Bhutan: 23.9%, India: 31.4%, Maldives: 31.55, Nepal 33.8%, Pakistan: 25%, Sri-Lanka: 20.9%. Most of the studies showed that hypertension was found higher among women than men.(6)

c) National:
In a STEP survey 2013, one-fourth of the population age 15-69 years had hypertension. The prevalence of hypertension was lowest among 15-29 years i.e. 13.3%, higher among 30-44 years old i.e. 26.6% whereas it was much higher among 45-69-year-olds (46.7%), with similarity among men and women. The risk of CVD's such as the use of tobacco products, physical inactivity, high BMI, increased blood glucose level, abnormal lipids levels were found to be more in older people (aged 45-69 years) in comparison to younger groups. People age 30-44 years was found to consume more alcohol. Increased total cholesterol with raised blood pressure was found more among the older age groups (30-44 years and 45-69 years)(7) Among ten, nine people with hypertension were not receiving any treatment at present, ≥30% of adult of age 40-69 has a risk for cardiovascular disease for 10 years. (8)

A study that was taken in the hospital found that 36.5% of patients among total admitted were bound to have NCDs in which 34% had hypertension, 33% had COPD and 10% had diabetes. The prevalence of hypertension among adults age ≥25 years was 26.6% in males and 28.6% in females.(9)

The prevalence of hypertension was found higher in the urban population i.e. 28.4% followed by suburban i.e. 25.5% and rural i.e. 24.4%. The prevalence rate of hypertension among middle-aged (≥ 40 years) was higher i.e. 36.8% as compared to younger adults (<40 years) i.e. 13.2%. Similarly, hypertension was found to be more in male i.e. 31.6% in comparison to female i.e. 20.0%.(10)

C. Rationale of study:

- There are very few researches done in hypertension focusing on school teachers in Nepal but there isn't any research done on school teacher in Nawalpur district.
- Stress among teacher may lead their body to adjust mentally, emotionally and physically disturbed that's can leads towards the hypertension.
- The risk of an increased non-communicable disease such as hypertension is also affected by the environmental condition. As there is high internal migration, there are increasing trend of inactive

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lifestyles, unmanaged development and planning, harmful level of polluted air and harmful dietary practice of the people.(11)

- Various studies that were conducted before showed that Nepal has an increasing trend of hypertension. However, those research and studies differ geographically and there was limited coverage of particular group of population of same occupation.
- This study occupies those gaps by reviewing the recent status of prevalence and associated risk factor of hypertension, using most recent data and studies.

D. Objective of the study:

a) General objective:

- To identify the prevalence of hypertension and its associated risk factor among school teachers in Devchuli Municipality, Nawalpur.

b) Specific objective:

- To find the relationships between hypertension and its risk factors with selected socio-demographic variables.

E. Research question:

- What is the existing prevalence of hypertension among school teachers in Devchuli Municipality, Nawalpur?
- How have socio- demographic, behavioral factors affected the patterns and prevalence of hypertension among school teachers of Devchuli Municipality, Nawalpur?

F. Conceptual framework:

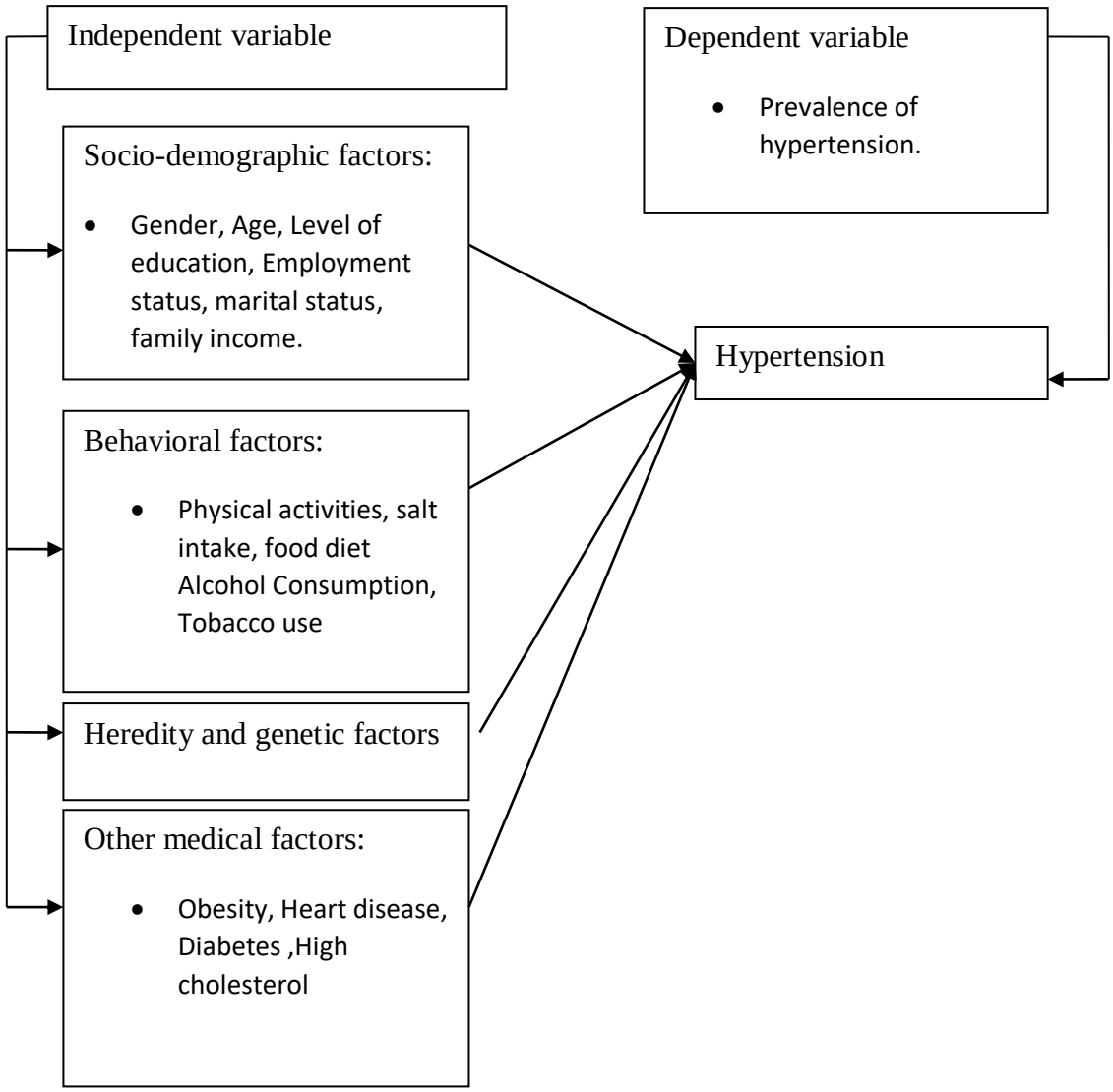

Table 1: Conceptual framework

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CHAPTER II

LITERATURE REVIEW

A literature review is a comprehensive summary of previous research on a topic. The literature review surveys scholarly articles, books, and other sources relevant to a particular area of research. It established the baseline information for conducting the study.

A. Socio-demographic factors

a) Gender:

Various studies carried out in Nepal to check the prevalence of hypertension and prehypertension shows gender as one of the factors responsible for its prevalence. These studies were carried out in different parts of Nepal. According to the study, males were more hypertensive than females. Basanta Maharjan carried out a study from 2015 December to 2016 April in Kirtipur Municipality to check the prevalence of hypertension and risk factors associated with hypertension. 580 people of the age group from 20 to 59 participated in the study. This study also found that majority of the male population having hypertension than females in Kirtipur municipality.(12).

Similarly, Nepal Demographic and Health Survey 2016 for their analysis study in 2018 to find the prevalence of hypertension and prehypertension with their determinants. This analysis study was carried out nationally to investigate the prevalence of hypertension in which 14857 aged 15 and above participated. Hypertension was 26% while prehypertension was 19.5 %, men were more hypertensive than women.(13)

Both hypertension and prehypertension were found higher among males than females, Prehypertension was 30.4% in males and 24.3% in females while hypertension was 20.4% among males and 14.8 % in females.(14)

b) Age :

Prehypertension and hypertension have a significant relationship with the age factor(15-19). In 2016, carried out a study to find the prevalence of hypertension in the sub-urban area of central Nepal in Changunarayan Municipality where 240 people aged more than eighteen years participated. The study illustrated the fact that aged people over 50 years have 4.33 times higher chances of getting hypertension than the age of fewer than 50 years i.e. over 50 years it is 42.9 % and under 50 years it is only 9.9%.(20)

Likewise, the study by BasantaMaharjan also found that hypertension was more among the age group from 50-59 than 20-39 which shows older people being more vulnerable to hypertension than young people(12)

Like previous studies, the study by Suresh Mehata also highlights that older people have higher chances of getting hypertensive than young people, as the study found 34% aged 45-69 were hypertensive.(21)

c) Educational status:

Educational status or level of education is also considered as one of the responsible factors for hypertension as suggested by various studies. According to the study carried out by Mehata et al in 2018,22% of people without any formal education were found hypertensive. As the study found 22% of people with no formal education hypertensive, the need for education must be considered to make people aware of hypertension and its potential risks. Among all hypertensive people, only 38% were aware of having hypertension and only 18% were under medication, which may be due to ignorance and illiteracy. As per multivariable logistic regression analysis, educated people were found more

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hypertensive. Similarly, according to the stratified sex sampling method, when all the factors associated with hypertension were classified by sex, notable differences were found in the case of educational status.(21)

d) Marital status:
Marital status i.e. formally/ever married status is one of the determinants of hypertension in Nepal. In 2016 NHDS, the data was collected from adults in Nepal whose age is 18 or above. Unmarried people(6.1% hypertensive) were significantly less hypertensive than married people (21.7%).(1)

e) Family Income:
There is an association of the wealth status to the prevalence of hypertension and prehypertension as shown by various studies. The prevalence, awareness, and treatment of hypertension in Nepal have a positive association with the economic status of the family. It shows that the richest people are 1.7 times more hypertensive than the poorest while they are 3.2 times aware than the poorest. However, the richest people seem to have more controlled hypertension(1.6 times) than the poorest.(22)

B. Behavioral factors

a) Involvement in physical activities:
Lack of involvement in Physical exercises can be one of the risk factors for hypertension .BasantaMaharjan carried out a study from 2015 December to 2016 April in Kirtipur Municipality to check the prevalence of hypertension and risk factors associated with hypertension. As the study found, out of all the hypertensive people, fewer people (27.2%) were active in doing physical activities.(12)

b) Salt Intake:
Various studies have shown the positive association of high salt intake with hypertension. Salt intake is one of the strong variables for hypertension; one gram increases the possibility of hypertension by approximately 14 %. In the Sindhuli district, 12.3 % of the people were hypertensive when the average daily salt intake per capita was 14.4 grams.(23)

c) Alcohol consumption:
Alcohol consumption has a significant relationship with the increase in hypertension as shown by many studies.From May 2019 to July 2019, carried out a descriptive cross-sectional study in the Deurali Village of Nepal where people living in the Tamang community participated. With more than 90% of participants having drinking habits, alcohol intake is a noticeable variable for hypertension in that area.(24)

d) Smoking cigarettes and tobacco:
Many studies carried out to find the prevalence of hypertension in Nepal shows a positive association with smoking cigarettes and tobacco.Like drinking alcohol, 45% of people who participated in a survey of hypertension were smokers in the Deurali village of Nepal. (24)

In Kritipur Municipality, as per BasantaMaharjan in 2015, 23.2 % of hypertensive people were current smokers.(12)

C. Other medical factors

a) Obesity:
Obesity is rapidly increasing in Nepal and it is one of the significant risk factors for hypertension. According to the study carried out by Sainju NK about the screening of hypertension and obesity in the rural population of Nepal, 27 % of male participants and 72 % of female participants were obese.(25)

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b) BMI:

Higher body mass index is also one of the factors that contribute to hypertension. As per cross-sectional analysis that used 2016 data of NDHS, Prevalence of hypertension according to body mass index also showed an ordinary pattern, with the highest, 42.7% (95% CI: 38.6-46.8), among the people with the highest BMI (≥30 kg/m^2)(13)

Similarly, As per the survey by Hasan M that used 2016 NDHS data, there is the high prevalence of hypertension in overweight people(35.6%) than people with normal(16.9%) or low (13%)body mass index.(1)

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CHAPTER III

METHODOLOGY

A. Study design:

Study design was Descriptive cross sectional study.

B. Study variables:

- **Dependent variables:**
  Prevalence of Hypertension

- **Independent variables:**
  Socio-demographic factor
  - Gender
  - Age
  - Level of education
  - Marital status
  - Family types/ income

  Behavioral factor
  - Physical activities
  - Salt intake
  - Alcohol consumption
  - Tobacco use

  Heredity and genetic factor
  Other medical factor
  - Obesity
  - Heart disease
  - High cholesterol

C. Study area:

Study area for the research was Devchuli municipality, Nawalpur.

D. Study Population:

The study populations were School teacher of Devchuli municipality, Nawalpur.

E. Study duration:

The study duration was nine months.

F. Sample Unit:

School teachers (who were teaching in government or private school).

G. Sampling frame:

Sampling Frame was the school teachers who were currently teaching profession of the devchuli municipality, Nawalpur. (There were total 837 teachers (Government=438, Private=399) in devchuli municipality and this data was taken from the municipality office.)

H. Sample size:

Sample size calculation (n) = $\frac{Z^2 \times p \times q}{d^2}$

Where,
Z = 1.96 for 5% level of significance

Probability of hypertension (P) = 20.4/100= 0.204 (In a similar study from the available literature, the prevalence of hypertension in adult age group was 20.4 %.)(20)

q= (1-p) =1-0.204=0.79

Allowable error (d) =7%=0.07

Now,

$n=\frac{Z^2 \times p \times q}{d^2}$

$n=\frac{(1.96)^2 \times (0.204) \times (0.79)}{(0.07)^2}$

$=\frac{3.8416 \times 0.16116}{0.0049}$

$= \frac{0.61911}{0.0049}$

=127.3~ 128

Therefore sample sizes for the research were 128.

I. Sampling technique:

Firstly, all school of devchuli municipality was listed. (There were total 41school in that municipality in which there were 28 governments and 13 privates among them 3 governments and 5 private schools were taken for the study. This data was taken from the municipality office). Simple random sampling was done to select school. Purposive sampling method was applied to select the school teacher.

J. Data collection tools and techniques:

Techniques	Tools	Respondent
Interview	• Semi -structured questionnaire	School Teacher
Measurement of Blood Pressure, Height and weight	Instrument • sphygmomanometer, • sadiometer • weighing machine	School Teacher

Table 3.10 1:Data collection tools and techniques

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K. Data collection, management, analysis and interpretation procedure and data protection:

a) Data collection:
Selected samples were approached and semi-structured questionnaire was asked to the School Teacher of the sample. After completion of the questionnaire Blood pressure, Height and weight was measured.

b) Data management, analysis and interpretation
Filled questionnaires were checked for completeness and consistency of responses. Data collected were compiled, edited, coded and re-checking was done to minimize errors. Collected data were first entered to Google docs and then the entered data were exported to Statistical package for social science (SPSS). Quantitative analysis was done by tables and necessary diagrams were also be used.

c) Data protection:
The entire respondents were clarified about the purpose of the study and verbal as well as written consent was taken before taking the interview. All the data which were taken from the respondent were kept confidentiality.

L. Validity and Reliability:

a) Validity:
Validity can be defined as the accuracy with which the scale measure what it claims to measure.
- The study was done on the basis of objective of study and all tools were pre-checked before using it.

b) Reliability:
Reliability refers to a way of assessing the quality of the measurement procedure used to collect data.
- The study was conducted on the supervision of the supervisor and the research was conducted on the basis of available literature review

M. Criteria of sample selection:

- **Inclusion of the study:** School teacher who were currently in teaching profession.
- **Exclusion of the study:** Pregnant female teacher because during pregnancy the level of blood pressure may not in balance (Normal) and those respondent who didn't want to participate and that respondent who were absent on that day.

N. Ethical consideration:

- Approval letter was taken from college
- Approval was taken from respondent organization.
- Informed consent was taken from respondent before beginning the data collection.
- Confidentiality was maintained.
- The study was done maintaining the privacy and there were not emotional violation during the study.
- Participants were not forced for the participation for the study .i.e. voluntarily participation and they were able to withdrawal at any time.
- The study was done by maintain the proper social distance and by using proper mask.

O. Limitation of the study:

Examination of the blood sugar, lipid and cholesterol were not examined although they are the risk factor of Hypertension.

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P. Operational definition:

a) Hypotension:
The condition when the systolic blood pressure is equal or below 109 mm Hg and the diastolic blood pressure equals or below 69 mm Hg.

b) Hypertension:
The condition when the systolic blood pressure is equal or above the 129mm Hg and the diastolic blood pressure equals or above 90mm Hg.

c) Ethnicity
The ethnic group classification will be based on the classification of system of department of health ethnic's group system. HMIS section of DOHS has divided the ethic group into following categories.
- Upper caste group: Brahmin. Chetri, Thakuri
- Advantaged Janjati: Gurunh, Newar, Thakali
- Disadvantaged janjati: Magar, Tamang, Rai, Limbu, Tharu, Bote, Rajbansi, Yadav, Kumar.
- Dalits: Kami, Sarkii. Chamar, Mushar.
- Religious Minorities: Muslim.

d) Knowledge of Hypertension:
It includes the respondent had knowledge on hypertension or not.

- Hypertension: When systolic pressure is shown equal to or above 129 mmHg and diastolic blood pressure equal to or above 90 mmHg.

e) Occupation:
Occupation was classified into different categories: where the respondent may be teacher of Government, Private and public.

f) Type of family:
Types of the family will be classified into three groups:
- Nuclear Family: Family having parents and children
- Joint Family: Family having grandparent, parents and children
- Extended Family: Family having grandparents, parents, children and uncle, aunts, and cousin and so on.

g) Tobacco use:
Use of tobacco includes all types of tobacco such as tamakhus, khaini, surthi.

h) Smoke use:
Use of smoke includes all types of smoke such as cigarettes, cigar, pipes, bidis, and hookah.

i) Alcohol consumption:
Alcohol use was assessing through 4 categories. They were current drunker (past 30 days) not current (past 12 month), not drunk from 12 month, life time not drunk.

j) Diet:
Information will be taken from respondent on the number of days and weeks that they consume fruits and vegetables (80 Grams per day)

k) Dietary Salts Intake:
In includes information on intake of salt, types of salts (refined or unrefined). Respondent was asked about the addition of salt to food just before eating or during food preparation.

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CHAPTER IV

FINDING

This chapter deals with analysis and interpretation of data from 128 respondents by using structured questionnaire through semi-structured questionnaire on prevalence and prevalence and risk factor of hypertension among the school teacher of devchuli municipality. The obtain data was analyzed according to the objective and research question of the study by using statistical method of frequency and percentage in different tables.

A. DESCRIPTIVE ANALYSIS

a) Socio-demographic characteristics of the respondent

The current study shows the descriptive analysis of socio-demographic characteristics of the respondent. Majority of the respondent were age group 25-39 years (48.2%) whereas the Mean age and standard deviation (SD±) of respondent are 33.69 and 9.7 respectively. More than half of the respondents were male (51.6%) as compared to female (48.4%). Maximum number respondent were Hindu (99.2%) where Christian was only (0.8%). More than half of the respondents were married (76.4%) were other are unmarried (23.4%). More number of the respondent were from nuclear family (65.5%) were other are from joint family (34.5%). Maximum number of the respondents was heard about hypertension (82%) but other (18%) did not heard about hypertension.

Characteristics	Frequency (F)	Percent (%)
Age group		
15-24	31	24.2
25-39	62	48.2
40-54	32	25.0
55-59	3	2.4
Mean	33.59	
SD ±	9.7	
Gender		
Male	66	51.6
Female	62	48.4
Religious		
Hindu	127	99.2
Christian	1	0.8
Marital status		
Married	98	76.4
Unmarried	30	23.4
Types of family		
Joint	44	34.4
Nuclear	84	65.5
Heard about Hypertension		
Yes	105	82
No	23	18
Does any Family Member suffering from Hypertension		
Yes	104	18.8
No	24	81.3

Table 4.1. 1: **Socio-demographic characteristics of the respondent**

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b) Occupational Information of respondent

This table shows the occupational related information of the respondent. The qualifications of the respondents were Master, Bachelor, Twelve, and SLC i.e. 32.2%, 32.8%, 30.5%, 4.7% respectively. Majority of the respondent has only 1-10 years' teaching experience (65.6%). Among the total respondent 43% of respondents were teach lower secondary level student whereas 35.1% respondent teach in primary level student and 21.9% respondent teach secondary level student. More than half of the respondent were teaching at private school (53.9%) whereas the respondent who teach at government (46.1%).

Characteristics	Frequency (F)	Percent (%)
Qualification		
Master	41	32.2
Bachelor	42	32.8
Twelve	39	30.5
SLC	6	4.7
Teaching experience		
1-10 years	84	65.6
11-20 years	26	20.3
21-30 years	16	12.5
31-40 years	2	1.6
level of respondent teach		
Secondary	45	21.9
Lower secondary	28	43
Primary	55	35.1
Type of school		
Government	59	46.1
Private	69	53.9

Table 4.1. 2: **Occupational Information of respondent**

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c) Lifestyle Related Information

- **Alcohol Consumption behavior of respondent**
  This table show about one third of the respondent had drunk alcohol (35.9%). Among the total respondent 18% had consumed alcohol within 30 days. Maximum respondent used to drink more than 180 ml alcohol (47.82%). More than two by fifth respondent (43.47%) drink alcohol once in a week who had drunk alcohol within 30 days, among them more than half usually drink alcohol with meal (56.52)

n =128

Characteristics	Frequency (f)	Percentage (%)
Ever consumed alcohol		
Yes	46	35.9
NO	82	64.1
Consumed alcohol within 30 days		
Yes	23	18
No	105	82
Standard of drink alcohol within 30 days		
60 ml	1	4.34
120 ml	5	21.73
180 ml	6	26.08
More than 180 ml	11	47.82
Times of drinking alcohol during this 30 days (N=23)		
1-4 days in a week	6	26.08
Less than 1 in a week	7	30.43
Once in a week	10	43.47
When you consumed alcohol in this 30 days (N=23)		
Any time	2	8.69
Sometimes with meal	8	34.78
Usually with meal	13	56.52

Table 4.1. 3: **Alcohol Consumption behavior of respondent**

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d) Tobacco Consumption behavior of respondent

This table shows among the total respondent only 14.8 % of the respondent had smoked, and now 13.3 % of the total respondent were currently smoke. Maximum respondent who had smoke they smoke 1st time at the age of 10-25 (94.7%). Among the total respondent 14.8% of the respondent had used the smokeless tobacco and now from the total respondent 10.2% respondent were currently using smokeless tobacco , among them the maximum respondent used to have 4-7 times in a day (76.9%).

n =128

Characteristics	Frequency (f)	Percent (%)
Ever smoke		
Yes	19	14.8
No	109	85.2
Currently Smoke		
Yes	17	13.3
No	111	86.7
Age of 1st smoke (N=19)		
10-25	18	94.7
26-40	1	5.3
No. of times of smoking in a day (N-17)		
1-3 times	8	47.1
4-6 times	9	52.9
Ever use any smokeless tobacco		
Yes	19	14.8
No	109	85.2
Currently use any smokeless tobacco		
Yes	13	10.2
No	115	89.8
No. of times having smokeless tobacco (N-13)		
1-3 times	3	23.1
4-7 times	10	76.9

Table 4.1. 4: **Tobacco Consumption behavior of respondent**

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e) Dietary behavior of respondent

This table shows more than half of the respondent used to eat fruits 4-7 days in a week (58.6%) and among them maximum number of respondent used to eat 1-4 serving fruits one of those days (93.7%). Majority of the respondent used to eat vegetable 5-7 days in a week (96.9%) among them about three by fourth respondent used to eat 1-2 serving vegetables on those days. More number of the respondent rarely used to add salt on food before eating food (41.4%). Among the total respondent 89.8% used to add salt while cooking or preparing food. More number of respondents sometimes used to eat processed food (45.3%). More than half of the respondent used to consume salt just in right amount (69.5%).

n =128

Characteristics	Frequency (f)	Percentage(%)
No. of days eating fruits in a week		
1-3 days	53	41.4
4-7 days	75	58.6
Serving fruits eat one of those days		
1-4	120	93.7
5-8	8	6.3
No. of days eating vegetable in a week		
1-4 days	4	3.1
5-7 days	124	96.9
Serving vegetables eat on those days		
1-2	103	80.5
3-4	25	19.5
Add salt on food before eat or eating food		
Always	9	7
Never	35	27.3
Often	3	2.3
Rarely	53	41.4
Sometimes	28	21.9
Add salt while cooking or preparing food		
Always	115	89.8
Often	6	4.7
Rarely	1	0.8
Sometimes	6	4.7
Eating processed food		
Always	11	8.6
Never	11	8.6
Often	9	7
Rarely	39	30.5
Sometimes	58	45.3
How much salt you think you consumed		
Far too little	7	5.5
Just in right amount	89	69.5
Too little	20	15.6
Too much	12	9.4

Table 4.1. 5: Dietary behavior of respondent

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f) Physical activity behavior of the respondent

This table shows that among total no. of respondent only 21.9% of the respondents did heavy activity, among them majority of the respondent did the heavy activity 1-3 days in a week (77.3%) and among the respondent who did the heavy activities maximum respondent do the activities for 10-60 minutes in a day (96.6%). Among the total respondent about 65.6% of them were used to do the moderate activities, among the respondent maximum respondent used to do 4-7 days in a week (79.8%) and about 95.2% of them used to do 10-60 minutes in a day.

More than half of the respondents were used to walking or riding bicycle (53.1%), among them majority of respondent were walking or riding bicycle 4-7 days in a week (83.3%). Form the total respondent most of the people spend their time for sitting or reclining was 61-120minutes in a day (47.7%)

n=128

Characteristics	Frequency (f)	Percentage (%)
Heavy activity for at least 10 minutes		
Yes	29	21.9
No	99	78.1
No. of days doing heavy activity in a week(N=29)		
1-3 days	20	77.3
4-7 days	9	22.7
Time of doing heavy activity in a day (N= 29)		
10-60 minutes	28	96.6
61-120 minutes	1	3.4
moderate activity for at least 10 minutes		
Yes	84	65.6
No	44	34.4
No. of days doing moderate activity in a week (N=84)		
1-3 days	17	20.2
4-7 days	67	79.8
Time of doing moderate activity in a day (N=84)		
10-60 minutes	80	95.2
61-120 minutes	4	4.8
Walking or riding bicycle		
Yes	60	46.9
No	68	53.1
No. of day of walking/bicycling in a week (N=60)		
1-3 days	10	16.7
4-7 days	50	83.3
Time spend on sitting or reclining in a days (N=60)		
10-60 minutes	57	44.5
61-120 minutes	61	47.7
121-180 minutes	8	6.3
181-240 minutes	2	1.6

Table 4.1. 6: Physical activity behavior of the respondent

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g) Anthropometric measurement of the respondent

This table shows the anthropometric measurement of the respondent. Among the total respondent the majority of the respondent`s blood pressure is normal (83.6%) whereas other respondent had hypertension (16.4%). More than half of the respondent`s Body Mass Index is normal 57.8%.

n=128

Characteristics	Frequency (f)	Percentage (%)
Blood pressure (BP)		
Normal	107	83.6
Hypertension	21	16.4
Body Mass Index (BMI)		
Under weight	10	7.8
Normal	74	57.8
Overweight	39	30.5
Obese	5	3.9

Table 4.1. 7: Anthropometric measurement of the respondent

B. ANALYTICAL ANALYSIS

a) Relation of Socio-Demographic factor with Hypertension:

The table 4.4.1 shows the association between socio-demographic factors of the respondent with hypertension. Out of total respondent higher number of respondents were suffering at the age group 40 and above (31.4%) and about one-tenth(10.8%) of the respondents were suffering from hypertension at the age group 10-39. Regarding gender about one fifth (20.96%) of male and less than one fifth (12.12%) of female were found hypertension. It was found that less than one fifth (17.34%) of married and more than one tenth (13.33%) of unmarried were hypertension. It was found that there is significant association with age group (P-value=<0.05).

n=128

Characteristics	Normal	Hypertension	p-value
Age Group			
10-39	83 (89.2%)	10 (10.8%)	
40 and above	24(68.6%)	11(31.4%)	0.05*
Gender			
Female	58(87.87%)	8 (12.12%)	0.177
Male	49 (79.032%)	13 (20.96%)	
Marital Status	81 (82.65%)	17 (17.34%)	0.603
Married	26(86.66%)	4 (13.33%)	
Unmarried			

Table 4.2 1: Relation of Socio-Demographic factor with Hypertension:

b) Relation of Occupational information with Hypertension:

The table 4.2.2 represents the association between occupational information with hypertension. The prevalence of hypertension was higher in respondents whose qualification is bachelor and above (18.1%).Out of total respondent the prevalence of hypertension is higher in respondent whose teaching experience is 20- 38years (31.8%). Among them about more than one-tenth (13.2%) of respondent whose experience is 1-19 year had hypertension. Among total respondent one-fifth (20%) of teacher had hypertension who teach in secondary level and less than one-fifth (14.55%) of teacher had hypertension who teach in below secondary level. Under the school types the respondents more than

one tenth (16.95%) of government school and also more than one tenth (15.95%) of private school had found hypertension.

None of the occupational information was significant with hypertension (P-value=>0.05).

		n=128	
Characteristics	**Normal**	**Hypertension**	**p-value**
Qualification			
Bachelor and above	68 (81.9%)	16(18.1%)	0.489
Below Bachelor	39(86.7%)	6(13.3%_	
Teaching Experience			
1-19 year	92(86.81%)	14 (13.2%)	
20-38 year	15 (68.2%)	7(31.8%)	0.32
Level of teacher			
Secondary	36 (80%)	9 (20%)	0.419
Below Secondary	71 (85.5%)	12 (14.55%)	
Type of school			
Government	49 (83.05%)	10 (16.95%)	0.878
Private	58 (84.05%)	11 (15.95%)	

Table 4.2.2: Relation of Occupational information with Hypertension:

c) Relation of life-style related information with Hypertension:
The table 4.2.3 shows the association between life-style information of the respondent with hypertension. Out of total respondent slightly more than one fifth (21.74%) of respondent who had ever consumed alcohol and less than one fifth (13.42%) of respondent who had never consumed alcohol were found hypertension. Regarding consumed alcohol within 30 days (current alcohol drinker) slightly more than one fifth (21.74%) of the respondent who were consumed alcohol within 30 days had found hypertension and more than one tenth (15.54%) of the respondent who were not consumed alcohol within 30 days had found hypertension.

Less than one-fifth (16.98%) of respondent had found hypertension who used to have fruits 1-3 days in a week and also less than one-fifth (16%) of respondent had found hypertension who used to have fruits 4-7 days in a week.

Among the total respondent, less than one-fifth (16.98%) who used to have fruits1-3 days in a week had hypertension and als0 less than one-fifth (16%) that used to have vegetable 4-7 days in a week had hypertension.

Among the total respondent, the hypertension was found higher in respondent who used to take salt not in right amount (17.9%) and found lower in respondent who used to take salt just in right amount(15.73%)

Out of the total respondent, more than one-fifth (24.13%) of respondent had hypertension who used to do heavy activity/sport. And more than one-tenth (13.59%) of respondent had hypertension who did not do the heavy activity/sport. Regarding the moderate activities/sport less than one-tenth (16.66%) of respondent who do the moderate activities/sport was found hypertension and more than one-tenth (15.90%) of respondent who did not do moderate activities/sport was found hypertension.

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One-fifth (20%) of respondent who used to do walking or riding bicycle for at least 10 minutes continuously was found hypertension and more than one-tenth (15.90%) of responder was found hypertension who did not used to do walking or riding bicycle for at least 10 minutes continuously.

Regarding the time spend usually by sitting or reclining on a typically day, less than one-fifth (17.54%) of respondent usually used to spend their time for 1 or less than 1 hour in a day had found hypertension, less than one-fifth (15.5%) of respondent usually used to spend their time for more than 1 hour in a day was found hypertension. None of the life style related information was statistically associated with hypertension (P-value=>0.05).

Table 4.2 3: **Relation of life-style related information with Hypertension:**

n=128

Characteristics	Normal	Hypertension	p-value
Alcohol Consumption			
Ever consumed alcohol			
Yes	36 (78.26%)	10 (21.74%)	0.222
No	71 (86.58%)	11 (13.42%)	
Consumed alcohol within the past 30 days			
Yes	18 (78.26%)	5 (21.74%)	
No	89 (84.76%)	16 (15.24%)	0.446
No. of days having fruits in a week			
1-3 days	44 (83.01%)	9 (16.98%)	0.883
4-7 days	63 (84%)	12 (16%)	
Amount of salt intake			
Just in right amount	75(84.3%)	14(15.7%)	0.755
Not in right amount	32(82.1%)	7(17.9%)	
Physical Activities			
Do heavy activity/sport			
Yes	22 (75.86%)	7 (24.13%)	0.201
No	85(82.52%)	14(13.59%)	
Do moderate activity/sport			
Yes	70 (83.33%)	14(16.66%)	0.912
No	37(84.09%)	7 (15.90%)	
Walking or riding			

bicycle for at least 10 min continuously	48(80%)	12(20%)	0.302
Yes	59(86.76%)	9(13.23%)	
No			
Time spend usually spend sitting or reclining on a typical day	47(82.45%)	10 (17.54%)	
1 or less than 1 hour	60(84.5%)	11 (15.5%)	0.755
More than 1 hours			

d) Anthropometric Measurement

The table represents the association between body mass indexes (BMI) of the respondent with hypertension. Out of total 128 teacher, its shows that less than one-fifth (14.86%) of respondent whose BMI is normal and less than 0ne-fifth (18.5%) of respondent whose BMI is abnormal had hypertension. There are no association between Body mass index and hypertension (P-Value =>0.05).

n=128

Characteristics	**Normal**	**Hypertension**	**p-value**
Body Mass Index (BMI)			
Abnormal	**44(81.5%)**	**10(18.5%)**	
Normal	**63 (85.13%)**	**11(14.86%)**	**0.581**

Table 4.2 4: Relationship of body mass index with hypertension

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CHAPTER V

DISCUSSION

The current study is an attempt to find out the prevalence and risk factor of hypertension among the school teacher in devchuli municipality, Nawalpur. A descriptive cross-sectional study was done in 9 month period which provide result similar and different to other relevant studies in Nepal and in different parts of the world. This study offers personal account of 128 total respondents who were taken as the subjects from diverse background i.e. age group, education, occupation, religion etc. The semi structured questionnaire was developed. Well established Sphygmomanometer, weighing machine, and height measuring tape were used for measuring blood pressure and body mass index (BMI) of the respondents. All the procedures and method were implemented carefully and ethical consideration was followed strictly.

In the current study among total 155 respondents, the mean age and standard deviation of the respondent was 33.59 and 9.7 respectively. Majority of the respondents were male (51.6%). Maximum no. of the respondents was Hindu (99.2). Regarding marital status (76.4%) was married.

In the current study prevalence of hypertension was higher in 40 and above 40 years old age group respondents (31.4%) as compare to other age group respondent. Similar result were found in cross-sectional study conducted in a sub-urban area of changunarayan municipality in which the prevalence of hypertension is also high in respondent who are above 50 years (42.9%). (20)Likewise, the study done by Basanta Maharjan also revealed that hypertension was more among the age group from 50-59 (59.1%) than other age group which shows older people being more vulnerable to hypertension than young people (12). The study done by Suresh Mehata also revaled that older people have higher chances of getting hypertensive than young people, as the study found 34% aged 45-69 were hypertensive(21).

This study is found that the prevalence of hypertension was higher in male (20.96%) as compare to female (12.12%). Similar studies was conducted in sub urban area of Changunarayan municipality of Nepalthe number of hypertensive cases was also higher among male counterparts (27.3%) than in female (16.4%)(20). Similarly, used the Nepal Demographic and Health Survey 2016 for their analysis study in 2018 to find the prevalence of hypertension and prehypertension with their determinants Females had a lower prevalence of hypertension than their male counterparts,(16.7%) and (23.4%), respectively.(13)

Hypertension was seen higher in married (17.34%) than unmarried respondent (13.33%) and the marital status was no significant association with hypertension (P-value= 0.603) Similar Analytical cross-sectional study was conducted to determine the prevalence and associated factors of hypertension among civil servants in a Nepalese federal state it was also found the hypertension was higher in married (30.47%) than unmarried (14.28) and there is also no significant association between marital status and hypertension (P-value=0.09). (26)

In our current study it was seen that the prevalence of hypertension was higher in the respondent who used to do the physical activities i.e. prevalence of hypertension was seen higher in who did the heavy physical activities/sport (24.13%) and in who did not do the heavy physical activities/sport (13.59%). And also the prevalence of hypertension is slightly higher in respondent who used to do the moderate physical activities (16.66%) than the respondent who did not do the moderate physical activities (15.90). One of the study conducted in a community based cross-sectional survey among adults 35 years and older living in Kibera slum Nairobi, Kenya it was found that the prevalence of hypertension was high in the respondent who involved in moderate physical activities (76.4%).(27)

In this study Prevalence of hypertension was higher in the respondent who is current alcohol drinker (21.74%) and also hypertension was high in respondent who drink alcohol more than 180 ml. A community-based cross-sectional survey was carried out in November 2017 in a four days health camp where peoples

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from ward number eight of Suklagandaki municipality of Tanahu district it was also found that the prevalence of hypertension was higher in respondent who is current alcohol drinker (44.6%)(28). In another a cross- sectional, population based study which was carried out in Banepa Municipality from May 15 to June 15, 2009 it was found that the prevalence of higher in current alcohol drinker (53.7%).(29)

In our study out of 128 respondent 53 respondents consumed fruits 1-3 days per week and 75 respondents consumed fruits 4-7 days per week. Similar a community-based cross-sectional survey was carried out in November 2017 in a four days health camp where peoples from ward number eight of Suklagandaki municipality of Tanahu district it was found that out of 568 respondents 394 respondents consumed fruits 1-3 days per week and 174 respondents consumed fruits 4-7 days per week. (28)

In our current study prevalence of hypertension is higher in the respondent whose Body Mass Index (BMI) is abnormal(18.5%) and lowers in normal (14.9%). A cross sectional descriptive study was conducted among 580 adults of age 20-59 from December 2015 to April 2016 the prevalence of hypertension is also higher in obese (68.9%).(12).

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CHAPTER VI

CONCLUSION AND RECOMMENDATION

A. Conclusion

The descriptive cross-sectional study was conducted among the school teachers in Devchuli municipality, Nawalpur district. The study shows total 128 teachers were participated. Among 128 respondents 66 (51.6%) were male and 62 (48.4%) were female were respondent. The prevalence was 16.4%.

Out of total respondent, less than half (45.46%) of respondents at the age group (50 and above 50 years) had hypertension. And none of the respondents had hypertension at the age group (10-19 years). Regarding gender about one fifth (20.96%) of male and less than one fifth (12.12%) of female were found hypertension. In religion it was found that 100% of respondent had hypertension who was Christian and more than one- tenth respondents (15.74%) of Hindu had hypertension. Less than one-fifth (17.34%) of married and more than one-tenth (13.33%) of unmarried respondent had hypertension. It was found that there was significant association with age group and religion (P-value=<0.05).

In dietary habit of respondent, more than half of the respondent used to eat fruits 4-7 days in a week (58.6%). Majority of the respondent used to eat vegetable 5-7 days in a week (96.9%) More number of the respondent rarely used to add salt on food before eating food (41.4%). Among the total respondent 89.8% used to add salt while cooking or preparing food.

Among total no. of respondent only 21.9% of the respondents did heavy activity, among them Out of the total respondent, about 65.6% of them were used to do the moderate activities More than half of the respondents were used to walking or riding bicycle (53.1%), Form the total respondent most of the people spend their time for sitting or reclining was 61-120minutes in a day (47.7%)

Among the total respondent more than one-fifth (14.8 %) of the respondent had smoked, and now 13.3 % of the total respondent were current tobacco smoker. Among the total respondent 14.8% of the respondent had used the smokeless tobacco and from the total respondent 10.2% respondents were currently using smokeless tobacco.

Slightly more than One third (35.9%) of the respondent had drunk alcohol. Among the total respondent less than one-fifth (18%) had consumed alcohol within 30 days.

B. Recommendation.

- The study shows that age group and religion are significantly associated with hypertension of school teacher, so older age teacher should screen blood pressure.
- However, the results cannot be generalized at large and also cannot represent all population.
- Further research studies are required to understand the health condition (hypertension) of school teacher and its various factors and to explore effective preventative or interventional strategies.
- Government of Nepal should also focus on the Non communicable disease of school teacher by placing the different health programs in the priority health programs in Nepal.

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