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Prevalence of Non - Communicable Diseases and its Associated Factors among Adults in Selected Offices of Guwahati, Kamrup (M) Assam: A Descriptive Study

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Abstract: ***Background: Non - communicable diseases (NCDs) are one of the major health problem and increasing challenges of the 21st century. It has become the leading cause of both mortality and morbidity in a universal coverage, in terms of both human suffering and the harm they impose on the socioeconomic development of the countries, particularly in the low and middle - income countries. Moreover NCDs among working adult groups can lead to limited ability to work, high health care costs and financial insecurity. The development of risk factors and mortality rate due to NCDs not only increases with aging but also due to several factors like behavioral factors, tobacco use, physical inactivity, excess consumption of alcohol and unhealthy diet. It is therefore important to examine the prevalence of non - communicable diseases along with the various factors associated with it, in a developing country like India. Objective: 1) To assess the prevalence of non - communicable diseases (Hypertension, Obesity and Diabetes) among adults in selected offices of Guwahati, Kamrup (M) Assam. 2) To explore the associated factors of non - communicable diseases (Hypertension, Obesity and Diabetes) among adults in selected offices of Guwahati, Kamrup (M) Assam. 3) To find out the distribution of prevalence of non - communicable diseases (Hypertension, Obesity and Diabetes) among adults with selected demographic variables in selected offices of Guwahati, Kamrup (M) Assam. 4) To identify the distribution of non - communicable diseases (Hypertension, Obesity and Diabetes) with associated factors in selected offices of Guwahati, Kamrup (M) Assam. Methods: A descriptive survey research design was used in this study to accomplished the objectives. Convenience sampling technique was used for obtaining adequate sample for the study. Study was undertaken on 150 sample of adults in selected offices of Guwahati, Kamrup (M), Assam. Respondents were selected on the basis of inclusive and exclusive criteria. BP apparatus, glucometer, weighing scale, measuring tape and semi - structured questionnaires adapted from modified WHO STEP wise approach were used as tool for the study. Results: Study findings showed that the majority i. e.56.0% were Obese, with mean score of Body Mass Index 25.72±3.62.55.33% were Hypertensive with mean score of systolic BP 138.53±18.76, and diastolic BP 86.12±12.08 and only 18% were Diabetic with mean score of Random Blood Glucose 131.03±46.27. It was found that the adults were exposed to various associated factors for NCDs with smoking, alcohol intake, physical inactivity being the most prevalent associated factors in this study. Physical inactivity was the most common in hypertension, obesity and diabetes. Alcoholism was also the second most common associated factors in both hypertension and obesity. Conclusion: Study found that shows that, the prevalence of obesity was 84 (56%) followed by hypertension i. e.83 (55.33%) and lastly diabetes i. e.27 (18%). It was seen that the adults at the selected offices are exposed to various associated factors for NCDs with smoking, alcohol intake, physical inactivity being the most prevalent associated factors in this study. Nursing can make enormous contribution to this battle against developing the associated factors of NCDs by mainly focusing on urgent need to work out community based interventions at different levels including health promotion, prevention, early diagnosis, treatment and rehabilitation. Nursing organizations need to provide standardized intervention for NCDs problem at the local level and procedures and guidelines that will fit the population in their context. Thus, population specific health promotion interventions centered on public health interests is recommended to reduce in developing the risk factors of NCDs.***

Keywords: Non - Communicable diseases, World Health Organization, Body Mass Index, Random Blood Sugar, Disability Adjusted Life - Years

1. Introduction

Non - communicable diseases (NCDs) are one of the major health problem and increasing challenges of the 21st century. It has become the leading cause of both mortality and morbidity in an universal coverage, in terms of both human suffering and the harm they impose on the socioeconomic development of the countries, particularly in the low and middle - income countries. Moreover NCDs among working adult groups can lead to limited ability to work, high health care costs and financial insecurity. [1]

The development of risk factors and mortality rate due to NCDs not only increases with aging but also due to several factors like behavioral factors, tobacco use, physical inactivity, excess consumption of alcohol and unhealthy diet. Non - communicable diseases (NCDs), also known as chronic diseases, seems to be of long duration. It results from a combination of genetic, environmental, physiological and behavioural factors. Some of the common types of NCD are cardiovascular diseases (such as heart attacks and stroke), cancers, chronic respiratory diseases (such as asthma chronic obstructive pulmonary disease) and diabetes. [2] They are not contagious, unlike communicable or infectious diseases, which can be spread, directly or indirectly, from one person to another. [3]

In the year 2013 the World Health Assembly adopted The Global NCD Action Plan and the voluntary global targets. These nine voluntaries global NCDs target the importance of prioritizing country action to reduce harmful habits and actions which are:

- **Global target 1:** A 25% relative reduction in overall mortality from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases
- **Global target 2:** At least 10% relative reduction in the harmful use of alcohol as appropriate, within the national context
- **Global target 3:** A 10% relative reduction in the prevalence of insufficient physical activity
- **Global target 4:** A 30% relative reduction in the mean population intake of salt /sodium
- **Global target 5:** A 30% relative reduction in prevalence of current tobacco use in persons aged 15+ years
- **Global target 6:** A 25% relative reduction in the prevalence of raised blood pressure, or contain the prevalence of raised blood pressure, according to national circumstances
- **Global target 7:** Halt the rise in diabetes and obesity
- **Global target 8:** At least 50% of eligible people receive drug therapy and counseling (Including glycaemic control) to prevent heart attacks and strokes
- **Global target 9:** An 80% availability of the affordable basic technologies and essential medicines, including generics, required to treat major non - communicable diseases in both public and private facilities. [4]

According to who global status report (2014) -

- NCDs currently cause more deaths than all other causes combined and NCD deaths are projected to increase from 38 million in 2012 to 52 million by 2030.
- Four major NCDs (cardiovascular diseases, cancer, chronic respiratory diseases and diabetes) are responsible for 82% of NCD deaths.
- Approximately 42% of all NCD deaths globally occurred before the age of 70years; 48% of NCD deaths in low and middle - income countries and 28% in high - income countries were in individuals aged under 70 years. The globe has reached to a conclusive and decisive point in the history of non - communicable diseases (NCDs) and has an unprecedented opportunity to change its course and action. WHO Member States have agreed on a time - bound and target frame set of nine voluntaries global targets to be attained by 2025. [4]

The most important message on NCDs is that today, the global community has the chance to change and alter the course of the NCD epidemic. The world now has an enormous global plan for prevention and control of NCDs, with shared responsibilities for all countries based on concrete targets. It seems to be a historic opportunity to handle the NCD epidemic that no country can afford to miss. In India, although many studies have been conducted and are available so far regarding NCDs and their prevalence but studies among adult in offices are very limited. This study aims in finding out the prevalence of non - communicable diseases that is Hypertension, Diabetes and Obesity and its associated factors among adults in selected offices of Guwahati, Kamrup (M) Assam which indeed will serve as a useful resource in near future.

2. Objectives

- To assess the prevalence of non - communicable diseases (Hypertension, Obesity and Diabetes) among adults in selected offices of Guwahati, Kamrup (M) Assam.
- To explore the associated factors of non - communicable diseases (Hypertension, Obesity and Diabetes) among adults in selected offices of Guwahati, Kamrup (M) Assam.
- To find out the distribution of prevalence of non - communicable diseases (Hypertension, Obesity and Diabetes) among adults with selected demographic variables in selected offices of Guwahati, Kamrup (M) Assam.
- To identify the distribution of non - communicable diseases (Hypertension, Obesity and Diabetes) with associated factors in selected offices of Guwahati, Kamrup (M) Assam

3. Methods and Materials

A descriptive survey research design was used in this study to accomplished the objectives. Convenience sampling technique was used for obtaining adequate sample for the study. Study was undertaken on 150 sample of adults in selected offices of Guwahati, Kamrup (M), Assam. Respondents were selected on the basis of inclusive and exclusive criteria. BP apparatus, glucometer, weighing scale, measuring tape and

Tools: Semi - structured questionnaires adapted from modified WHO STEP wise approach were used.

Description of the tool:

In order to meet the objectives of the study, the following tools were constructed which consists of four sections:

1) **Section A:** Demographic Characteristics
2) **Section B:** Step 1 - Associated Factors
3) **Section C:** Step 2 - Physical Measurements
4) **Section D:** Step 3 - Biochemical Measurements

Semi - Structured Questionnaires Adapted from Modified who Steps Approach

Data Collection:

For conducting the main study, the data collection period was scheduled from scheduled from 02.12.22 to 22.12.22 from 10am to 5pm as per scheduled for a period of 3 weeks. After getting ethical clearance from the INS trust ethics committee (GNRC Complex), Dispur, Guwahati, Assam, a formal written permission was obtained from the following offices:

- Directorate of sports and youth welfare, Assam Rudrasingha sports complex, Govt. of Assam, Dispur, Guwahati - 781006
- Office of the Zonal Joint Registrar of Cooperative Societies, Guwahati Zone, Bhangagarh.

- Guwahati Metropolitan Development Authority Main Branch, Bhangagarh followed by Guwahati Municipal Coorporation, Dispur, Rukmini Gaon, Guwahati.
- Directorate of Agriculture, Assam Khanapara, Guwahati.
- Vivo Northeast (Rongsheng Mobile India Pvt. Ltd.), Corporate Office, Sri Kamakhya Tower, GS Road, Christian Basti, Guwahati, Assam.

4. Results

Section I: Frequency and Percentage Distribution of Adults according to Demographic Variables

Table 1: Frequency and Percentage Distribution of Demographic Variables of Adults, N = 150

Demographic Variables	Frequency (f)	Percentage (%)
Age (in years)		
21 – 30	26	17.3
31 – 40	41	27.4
41 – 50	35	23.3
51 – 60	48	32.0
Gender		
Male	120	80.0
Female	30	20.0
Educational status		
<10th	16	10.7
Undergraduate	49	32.6
Graduate	60	40.0
Post graduate	25	16.7
Occupational status		
Government employee	111	74.0
Private employee	39	26.0
Marital status		
Married	118	78.7
Unmarried	29	19.3
Divorced / Separated	1	0.7
Widow	2	1.3

Section II: Frequency and Percentage Distribution of Prevalence of NCDS (Hypertension, Obesity and Diabetes) Among Adults

Table 2: Frequency and Percentage distribution of Adults according to their Classification of Blood Pressure (according to who), N=150

Blood Pressure	Frequency (f)	Percentage (%)	Mean	S. D
Optimal	14	9.3	Systolic BP: 138.53 Diastolic BP: 86.13	Systolic BP: 18.76 Diastolic BP: 12.08
Normal	36	24.0		
High normal	17	11.4		
Grade 1	53	35.4		
Grade 2	20	13.3		
Grade 3	5	3.3		
Isolated systolic hypertension	5	3.3		

The data represented in table 2 depicts that out of 150 adults, majority i. e.53 (35.4%) had grade 1 hypertension, 36 (24.0%) had normal blood pressure, 20 (13.3%) had grade 2 hypertension, 17 (11.4%) had high normal blood pressure, 14 (9.3%) had optimal blood pressure, and only 5 (3.3%) had grade 3 and isolated systolic hypertension.

So, therefore the above data concludes that out of 83 (55.33%) adults who were hypertensive, majority i. e.53 (35.4%) belongs to Grade 1 hypertension whereas 67 (44.66%) were not hypertensive. The mean score of systolic BP was 138.53±18.76, the mean score of diastolic BP was 86.12±12.08.

Table 3: Frequency and Percentage distribution of Adults according to their Classification of BMI (According to Who), N=150

Body Mass Index (BMI)	Frequency (f)	Percentage (%)	Mean	S. D
Underweight (<18.5)	2	1.3	BMI: 25.72	BMI: 3.62
Normal (18.5 – 22.9)	30	20.0		
Overweight (23.0 – 24.9)	34	22.7		
Obese (≥25.0)	84	56.0		

The data represented in table 3 depicts that out of 150 adults, majority i. e.84 (56.0%) were obese, 34 (22.7%) were overweight, 30 (20.0%) were normal and only 2 (1.3%) were underweight. The mean score of Body Mass Index was 25.72±3.62

Table 4: Frequency and Percentage distribution of Adults according to their Random Blood Sugar (According to Who), N=150

Random Blood Sugar (RBS)	Frequency (f)	Percentage (%)	Mean	S. D
Normal (<200 mg/dL)	123	82	RBS: 131.03	RBS: 46.27
Diabetes Mellitus (≥200 mg/dL)	27	18		

The data represented in table 4 depicts that out of 150 adults, majority i. e.123 (82%) had normal Random Blood Sugar level, whereas 27 (18%) were diabetic. The mean score of Random Blood Glucose was 131.03±46.27.

Section III: Frequency and Percentage Distribution of Associated Factors among Adults

Table 5: Frequency and Percentage Distribution of Adults according to their Current Smoking Habit N= 150

Current smoking habit	Frequency (f)	Percentage (%)
Yes	34	22.7
No	116	77.3

The data represented in table 5 depicts that out of 150 adults, majority i. e. (77.3%) were non smokers whereas (22.7%) were current smokers.

Table 6: Frequency and Percentage Distribution of Adults according to Number of Cigarettes Smoked Per Day, n= 34

Number of cigarettes smoked per day?	Frequency (f)	Percentage (%)
1	9	26.5
2	5	14.7
3	8	23.5
More than 3	12	35.3

The data represented in table 6 depicts that out of 34 adults, majority i. e. (35.3%) smoked more than 3 cigarettes per day, (26.5%) smoked 1 cigarettes per day, (23.5%) smoked 3cigarettes per day and only (14.7%) smoked 2 cigarettes per day.

Table 7: Frequency and Percentage distribution of Adults according to age of First Smoking Episode, n= 34

Age of first smoking episode?	Frequency (f)	Percentage (%)
11 – 20 years	14	41.2
21 – 30 years	15	44.1
31 – 40 years	4	11.8
>40 years	1	2.9`

The data represented in table 7 depicts that out of 34 adults, majority i. e. (44.1%) had started smoking at the age group between 21 - 30years, (41.2%) had started smoking at the age group between 11 - 20years, (11.8%) had started smoking at the age group between 31 - 40years, and only (2.9%) had started smoking at the age group >40 years.

Table 8: Frequency and Percentage Distribution of Adults according to their History of Intake of Alcohol, N= 150

History of intake of alcohol	Frequency (f)	Percentage (%)
Yes	50	33.3
No	100	66.7

The data represented in table 8 depicts that out of 150 adults, majority i. e. (66.7%) had no history intake of alcohol whereas (33.3%) had history of intake of alcohol.

Table: 9: Frequency and Percentage Distribution of Adults according to their Age of First Alcohol Consumption n= 50

Age of first alcohol consumption	Frequency (f)	Percentage (%)
11 – 20 years	11	22.0
21 – 30 years	33	66.0
31 – 40 years	6	12.0
>40 years	-	-

The data represented in table 9 depicts that out of 50 adults, majority i. e. (66.0%) had first consumed alcohol at the age group 21 - 30years, (22.0%) had first consumed alcohol at the age group 11 - 20years, and only (12.0%) had first consumed alcohol at the age group 31 - 40years,

Table 10: Frequency and Percentage Distribution of Adults according to consumption of at least one standard alcoholic drink during the past 12 months, n= 50

Frequency of consumption of at least one standard alcoholic drink during the past 12 months	Frequency (f)	Percentage (%)
Daily	5	10.0
5 – 6 days per week	1	2.0
3 – 4 days per week	3	6.0
1 – 2 days per week	14	28.0
1 – 3 days per week	17	34.0
Less than once a month	10	20.0
Never	-	-

The data represented in table 10 depicts that out of 50 adults, majority i. e. (34.0%) had consumed at least one standard alcoholic drink for 1 - 3days per week, (28.0%) had consumed for 1 - 2days per week, (20.0%) had consumed less than once a month, (10.0%) had consumed daily, (6.0%) had consumed for 3 - 4days per week, and only (2.0%) had consumed for 5 - 6 days per week.

Table 11: Frequency and Percentage Distribution of Adults according to attempt to quit drinking due to any health reasons, N= 150

Attempt to quit drinking due to any health reasons	Frequency (f)	Percentage (%)
Yes	-	-
No	150	100.0

The data represented in table 11 depicts that out of 150 adults, majority i. e. (100%) had not stopped drinking due to any health reasons.

Table 12: Frequency and Percentage Distribution of Adults according to consumption of additional salt with food, N= 150

Consumption of additional salt with food	Frequency (f)	Percentage (%)
Always	13	8.6
Often	-	-
Sometimes	21	14.0
Rarely	4	2.7
Never	111	74.0
Don't know	1	0.7

The data represented in table 12 depicts that out of 150 adults, majority i. e. (74.0%) had never consumed additional salt with food, (14.0%) had sometimes consumed additional salt with food, (8.6%) had always consumed additional salt with food, (2.7%) had rarely consumed additional salt with food, and only (0.7%) don't know whether they consumed additional salt with food.

Table 13: Frequency and Percentage Distribution of Adults according to consumption of processed food high in salt, N= 150

Consumption of processed food high in salt	Frequency (f)	Percentage (%)
Always	5	3.3
Often	11	7.3
Sometimes	110	73.3
Rarely	19	12.8
Never	5	3.3
Don't know	-	-

The data represented in table 13 depicts that out of 150 adults, majority i. e. (73.3%) had sometimes consumed processed food high in salt, (12.8%) had rarely consumed processed food high in salt, (7.3%) had often consumed processed food high in salt, (3.3%) had always consumed processed food high in salt, and only (3.3%) had never consumed processed food high in salt.

Table 14: Frequency and Percentage Distribution of Adults according to work involved with vigorous intensity activity N= 150

Work involved with vigorous - intensity activity	Frequency (f)	Percentage (%)
Yes	20	13.3
No	130	86.7

The data represented in table 14 depicts that out of 150 adults, majority i. e. (86.7%) had not involved their work with vigorous - intensity activity whereas (13.3%) had their work involved with vigorous - intensity activity.

Table 15: Frequency and Percentage Distribution of Adults according to number of days in a week doing vigorous intensity activities, n= 20

Number of days in a week doing vigorous intensity activities	Frequency (f)	Percentage (%)
1 day	8	40.0
2 days	4	20.0
3 days	2	10.0
4 days	2	10.0
5 days	-	-
6 days	1	5.0
7 days	3	15.0

The data represented in table 15 depicts that out of 20 adults, majority i. e. (40.0%) had done vigorous intensity activities for 1days in a week, (20.0%) had done for 2days in a week, (15.0%) had done for 7days in a week, (10.0%) had done for 3days in a week, (10.0%) had done for 4days in a week, and only (5.0%) had done for 6days in a week.

Table 16: Frequency and Percentage Distribution of Adults according to time spent doing vigorous - intensity activities in a day, n= 20

Time spent doing vigorous - intensity activities in a day	Frequency (f)	Percentage (%)
1 hour	7	35.0
2 hours	7	35.0
3 hours	4	20.0
> 4 hours	2	10.0

The data represented in table 16 depicts that out of 20 adults, majority i. e. (35.0%) had spent 1hours for doing vigorous - intensity activities in a day, (35.0%) had spent 2hours, (20.0%) had spent 3hours, and only (10.0%) had spent > 4 hours.

Table 17: Frequency and Percentage Distribution of Adults according to work involved with moderate intensity activity, N= 150

Work involved with moderate - intensity activity	Frequency (f)	Percentage (%)
Yes	150	100.0
No	-	-

The data represented in table 17 depicts that out of 150 adults, majority i. e. (100%) had their work involved with moderate - intensity activity.

Table 18: Frequency and Percentage Distribution of Adults according to number of days in a week doing moderate intensity activities, N= 150

Number of days in a week doing moderate intensity activities	Frequency (f)	Percentage (%)
1 day	24	16.0
2 days	47	31.3
3 days	33	22.0
4 days	26	17.3
5 days	12	8.0
6 days	7	4.7
7 days	1	0.7

The data represented in table 18 depicts that out of 150 adults, majority i. e. (31.3%) had done moderate intensity activities for 2days in a week, (22.0%) had done for 3days in a week, (17.3%) had done for 4days in a week, (16.0%) had done for 1days in a week, (8.0%) had done for 5days in a week, (4.7%) had done for 6days in a week, and only (0.7%) had done for 7days in a week.

Table 19: Frequency and Percentage Distribution of Adults according to Time Spent Doing Moderate - Intensity Activities in a Day, N= 150

Time spent doing moderate - intensity activities in a day	Frequency (f)	Percentage (%)
1 hour	19	12.7
2 hours	41	27.3
3 hours	38	25.3
4 hours	30	20.0
5 hours	15	10.0
6 hours	7	4.7

The data represented in table 19 depicts that out of 150 adults, majority i. e. (27.3%) had spent 2hours for doing moderate - intensity activities in a day, (25.3%) had spent 3hours, (20.0%) had spent 4hours, (12.7%) had spent 1hours, (10.0%) had spent 5hours, and only (4.7%) had spent 6hours.

Table 20: Frequency and Percentage Distribution of Adults according to Walk for at Least 10 Minutes in a Day Apart from Daily Activities, N= 150

Walk for at least 10 minutes in a day apart from daily activities	Frequency (f)	Percentage (%)
Yes	150	100.0
No	-	-

The data represented in table 20 depicts that out of 150 adults, majority i. e. (100%) had walked for at least 10 minutes in a day apart from daily activities.

Table 21: Frequency and Percentage Distribution of Adults according to Minutes Spent Walking in a Week, N= 150

Minutes spent walking in a week	Frequency (f)	Percentage (%)
≤60 minutes	112	74.7
61 – 120 minutes	12	8.0
121 – 180 minutes	7	4.7
181 – 240 minutes	5	3.3
>240 minutes	14	9.3

The data represented in table 21 depicts that out of 150 adults, majority i. e. (74.7%) had walked ≤60 minutes in a week, (9.3%) had walked >240 minutes, (8.0%) had walked 61 - 120 minutes, (4.7%) had walked 121 - 180 minutes, and only (3.3%) had walked 181 - 240 minutes.

Table 22: Frequency and Percentage Distribution of Adults according to Time Spent Sitting or Reclining in a Day, N= 150

Time spent sitting or reclining in a day?	Frequency (f)	Percentage (%)
≤ 3 hours	24	16.0
4 – 6 hours	57	38.0
>6 hours	69	46.0

The data represented in table 22 depicts that out of 150 adults, majority i. e. (46.0%) had spent sitting or reclining in a day for >6 hours, (38.0%) had spent for 4 - 6hours and only (16.0%) had spent for ≤ 3 hours.

Table 23: Frequency and Percentage Distribution of Adults according to Ever Measured Blood Pressure by Doctor or Other Health Worker, N= 150

Ever measured blood pressure by doctor or other health worker	Frequency (f)	Percentage (%)
Yes	139	92.7
No	11	7.3

The data represented in table 23 depicts that out of 150 adults, majority i. e. (92.7%) had their blood pressure measured by doctor or other health worker whereas (7.3%) had not measured their blood pressure by doctor or other health worker.

Table 24: Frequency and Percentage Distribution of Adults according to Consumption of Drugs for High Blood Pressure, N= 150

Consumption of drugs for high blood pressure	Frequency (f)	Percentage (%)
Yes	29	19.3
No	121	80.7

The data represented in table 24 depicts that out of 150 adults, majority i. e. (80.7%) had not taken medications for high blood pressure whereas (19.3%) had taken medications for high blood pressure.

Table 25: Frequency and Percentage Distribution of Adults according to refer traditional Healer for Treatment of High Blood Pressure, N= 150

Refer traditional healer for treatment of high blood pressure	Frequency (f)	Percentage (%)
Yes	-	-
No	150	100.0

The data represented in table 25 depicts that out of 150 adults, majority i. e. (100%) had not referred traditional healer for treatment of high blood pressure.

Table 26: Frequency and Percentage Distribution of Adults according to Currently Taking any Herbal or Traditional Remedy for High Blood Pressure, N= 150

Currently taking any herbal or traditional remedy for high blood pressure	Frequency (f)	Percentage (%)
Yes	-	-
No	150	100.0

The data represented in table 26 depicts that out of 150 adults, majority i. e. (100%) are not currently taking any herbal or traditional remedy for high blood pressure.

Table 27: Frequency and Percentage Distribution of Adults according to Ever Measured Blood Sugar by Doctor or Other Health Worker, N= 150

Ever measured blood sugar by doctor or other health worker	Frequency (f)	Percentage (%)
Yes	109	72.7
No	41	27.3

The data represented in table 27 depicts that out of 150 adults, majority i. e. (72.7%) had their blood sugar measured by doctor or other health worker whereas (27.3%) had not measured their blood sugar by doctor or other health worker.

Table 28: Frequency and Percentage Distribution of Adults according to Consumption of Drugs for Diabetes, N= 150

Consumption of drugs for diabetes	Frequency (f)	Percentage (%)
Yes	18	12.0
No	132	88.0

The data represented in table 28 depicts that out of 150 adults, majority i. e. (88.0%) had not taken medications for diabetes whereas (12.0%) had taken medications for diabetes.

Table 29: Frequency and Percentage Distribution of Adults according to Refer Traditional Healer for Treatment of Diabetes, N= 150

Refer traditional healer for treatment of diabetes	Frequency (f)	Percentage (%)
Yes	-	-
No	150	100.0

The data represented in table 29 depicts that out of 150 adults, majority i. e. (100%) had not referred traditional healer for treatment of diabetes.

Table 30: Frequency and Percentage Distribution of Adults according to Currently Taking any Herbal or Traditional Remedy for diabetes, N= 150

Currently taking any herbal or traditional remedy for diabetes	Frequency (f)	Percentage (%)
Yes	-	-
No	150	100.0

The data represented in table 30 depicts that out of 150 adults, majority i. e. (100%) are not currently taking any herbal or traditional remedy for diabetes.

Table 31: Frequency and Percentage Distribution of Adults according to Ever Measured Cholesterol by Doctor or Other Health Worker, N= 150

Ever measured cholesterol by doctor or other health worker	Frequency (f)	Percentage (%)
Yes	41	27.3
No	109	72.7

The data represented in table 31 depicts that out of 150 adults, majority i. e. (72.7%) had their cholesterol measured by doctor or other health worker whereas (27.3%) had not measured their cholesterol by doctor or other health worker.

Table: 32: Frequency and Percentage Distribution of Adults according to consumption of Drugs For High Cholesterol N= 150

Consumption of drugs for high cholesterol	Frequency (f)	Percentage (%)
Yes	9	6.0
No	141	94.0

The data represented in table 32 depicts that out of 150 adults, majority i. e. (94.0%) had not taken medications for high cholesterol whereas (6.0%) had taken medications for high cholesterol.

Table 33: Frequency and Percentage Distribution of Adults according to Refer Traditional Healer for Treatment of High Cholesterol, N= 150

Refer traditional healer for treatment of high cholesterol	Frequency (f)	Percentage (%)
Yes	-	-
No	150	100.0

The data represented in table 33 depicts that out of 150 adults, majority i. e. (100%) had not referred traditional healer for treatment of high cholesterol.

Table 34: Frequency and Percentage Distribution of Adults according to currently taking any Herbal or Traditional Remedy for High Cholesterol, N= 150

Currently taking any herbal or traditional remedy for high cholesterol	Frequency (f)	Percentage (%)
Yes	-	-
No	150	100.0

The data represented in table 34 depicts that out of 150 adults, majority i. e. (100%) are not currently taking any herbal or traditional remedy for high cholesterol.

Section IV: Frequency and Percentage Distribution of Prevalence of NCDS (Hypertension, Obesity and Diabetes) among Adults with their Demographic Variables

Table 35: Frequency and Percentage Distribution of Prevalence of Hypertension Among Adults with their Demographic Variables, n = 83

Demographic Variables	Hypertension (83)	
	Frequency (f)	Percentage (%)
1. Age (in years)		
21 – 30	11	13.25
31 – 40	14	16.86
41 – 50	23	27.72
51 – 60	35	42.17
2. Gender		
Male	72	86.74
Female	11	13.26
3. Educational status		
<10th	6	7.23
Undergraduate	31	37.35
Graduate	36	43.38
Post graduate	10	12.04
4. Occupational status		
Government employee	64	77.10
Private employee	19	22.90
5. Marital status		
Married	67	80.72
Unmarried	15	18.08
Divorced/Separated	1	1.20
Widow	0	0

The data represented in table 35 depicts that:

Age group: Out of 83 adults who were hypertensive, majority i. e. (42.17%) belongs to the age group of 51 - 60 years, (27.72%) belongs to the age group of 41 - 50 years, (16.86%) belongs to the age group of 31 - 40 years and only (13.25%) belongs to the age group of 21 - 30 years.
Gender: Out of 83 adults who were hypertensive, majority i. e. (86.74%) were male whereas (13.26%) were female.
Educational status: Out of 83 adults who were hypertensive, majority i. e. (43.38%) were graduates, (37.35%) were undergraduate, (12.04%) were post graduate, and only (7.23%) were <10th level of education.
Occupational status: Out of 83 adults who were hypertensive, majority i. e. (77.10%) were government employee whereas (22.90%) were private employee.
Marital status: Out of 83 adults who were hypertensive, majority i. e. (80.72%) %) were married, (18.08%) were unmarried, and only (1.20%) were divorced / separated.

Table 36: Frequency and Percentage Distribution of Prevalence of Obesity among Adults with their Demographic Variables, n = 84

Demographic Variables	Obesity (84)	
	Frequency (f)	Percentage (%)
1. Age (in years)		
21 – 30	11	13.09
31 – 40	24	28.58
41 – 50	20	23.80
51 – 60	29	34.53
2. Gender		
Male	67	79.76
Female	17	20.24
3. Educational status		
<10th	5	5.95
Undergraduate	26	30.96
Graduate	39	46.42
Post graduate	14	16.67
4. Occupational status		
Government employee	64	76.19
Private employee	20	23.81
5. Marital status		
Married	69	82.15
Unmarried	14	16.66
Divorced / Separated	0	0
Widow	1	1.19

The data represented in table 36 depicts that:

Age group: Out of 84 adults who were obese, majority i. e. (34.53%) belongs to the age group of 51 - 60 years, (28.58%) belongs to the age group of 31 - 40 years, (23.80%) belongs to the age group of 41 - 50 years and only (13.09%) belongs to the age group of 21 - 30 years.

Gender: Out of 84 adults who were obese, majority i. e. (79.76%) were male whereas (20.24%) were female.

Educational status: Out of 84 adults who were obese, majority i. e. (46.42%) were graduates, (30.96%) were undergraduate, (16.67%) were post graduate, and only (5.95%) were $<10^{th}$ level of education.

Occupational status: Out of 84 adults who were obese, majority i. e. (76.19%) were government employee, whereas (23.81%) were private employee.

Marital status: Out of 84 adults who were obese, majority i. e. (82.15%) were married, (16.66%) were unmarried, and only (1.19%) were widow.

Table: 37: Frequency and Percentage Distribution of Prevalence of Diabetes among Adults with their Demographic Variables, n = 27

Demographic Variables	Diabetes (27)	
	Frequency (f)	Percentage (%)
1. Age (in years)		
21 – 30	0	0
31 – 40	3	11.11
41 – 50	7	25.92
51 – 60	17	62.97
2. Gender		
Male	20	74.08
Female	7	25.92
3. Educational status		
$<10^{th}$	5	18.51
Undergraduate	9	33.34
Graduate	13	48.15
Post graduate	0	0
4. Occupational status		
Government employee	27	100
Private employee	0	0
5. Marital status		
Married	27	100
Unmarried	0	0
Divorced / Separated	0	0
Widow	0	0

The data represented in table 37 depicts that:

- **Age group:** Out of 27 adults who were diabetic, majority i. e. (62.97%) belongs to the age group of 51 - 60 years, (25.92%) belongs to the age group of 41 - 50 years, and only (11.11%) belongs to the age group of 31 - 40 years.
- **Gender:** Out of 27 adults who were diabetic, majority i. e. (74.08%) were male whereas (25.92%) were female.
- **Educational status:** Out of 27 adults who were diabetic, majority i. e. (48.15%) were graduates, (33.34%) were undergraduate, and only (18.51%) were $<10^{th}$ level of education.
- **Occupational status:** Out of 27 adults who were diabetic, majority i. e. (100%) were government employee.
- **Marital status:** Out of 27 adults who were diabetic, majority i. e. (100%) were married.

Section V: Frequency and Percentage Distribution of Adults with NCDS (Hypertension, Obesity and Diabetes) with their Associated Factors

Table 38: Frequency & Percentage Distribution of Adults with Hypertension with their Associated Factors, n=83

Adults with hypertension and its associated factors	Frequency (f)	Percentage (%)
1. Current smokers		
Yes	34	40.97
No	49	59.03
2. History of intake of alcohol		
Yes	50	60.25
No	33	39.75
3. Consumption of additional salt with food		
Yes	38	45.79
No	45	54.21
4. Work involved with vigorous intensity activity (like carrying or lifting heavy loads)		
Yes	20	24.09
No	63	75.91
5. Work involved with moderate intensity activity (like carrying light loads)		
Yes	83	100
No	0	0
6. Walk for at least 10 minutes in a day apart from daily activities		
Yes	83	100
No	0	0

The data represented in table 38 depicts that:

Current smokers: Out of 83 adults who had hypertension, majority i. e. (59.03%) were non smokers, whereas (40.97%) were current smokers.

History of intake of alcohol: Out of 83 adults who had hypertension, majority i. e. (60.25%) had history of intake of alcohol, whereas (39.75%) had no history of intake of alcohol.

Consumption of additional salt with food: Out of 83 adults who had hypertension, majority i. e. (54.21%) do not consume additional salt with food, whereas (45.79%) consume additional salt with food.

Work involved with vigorous intensity activity (like carrying or lifting heavy loads): Out of 83 adults who had hypertension, majority i. e. (75.91%) were not involved in doing vigorous intensity activity, whereas (24.09%) were involved in doing vigorous intensity activity.

Work involved with moderate intensity activity (like carrying light loads): Out of 83 adults who had hypertension, majority i. e. (100%) were involved in doing moderate intensity activity.

Walk for at least 10 minutes in a day apart from daily activities: Out of 83 adults who had hypertension, majority i. e. (100%) walk for at least 10 minutes in a day continuously to get to and from places.

Table 39: Frequency & Percentage Distribution of Adults with Obesity with their Associated Factors, n=84

Adults with obesity and its associated factors	Frequency (f)	Percentage (%)
1. History of intake of alcohol		
Yes	50	59.53
No	34	40.47
2. Consumption of additional salt with food		
Yes	38	45.24
No	46	54.76
3. Work involved with vigorous intensity activity (like carrying or lifting heavy loads)		
Yes	20	23.81
No	64	76.19
4. Work involved with moderate intensity activity (like carrying light loads)		
Yes	84	100
No	0	0
5. Walk for at least 10 minutes in a day apart from daily activities		
Yes	84	100
No	0	0

The data represented in table 39 depicts that:

History of intake of alcohol: Out of 84 adults who were obese, majority i. e. (59.53%) had history of intake of alcohol, whereas (40.47%) had no history of intake of alcohol.

Consumption of additional salt with food: Out of 84 adults who were obese, majority i. e. (54.76%) do not consume additional salt with food, whereas (45.24%) consume additional salt with food.

Work involved with vigorous intensity activity (like carrying or lifting heavy loads):

Out of 84 adults who were obese, majority i. e. (76.19%) were not involved in doing vigorous intensity activity, whereas (23.81%) were involved in doing vigorous intensity activity.

Work involved with moderate intensity activity (like carrying light loads):
Out of 84 adults who were obese, majority i. e. (100%) were involved in doing moderate intensity activity.

Walk for at least 10 minutes in a day apart from daily activities: Out of 84 adults who were obese, majority i. e. (100%) walk for at least 10 minutes in a day continuously to get to and from places.

Table 40: Frequency & Percentage Distribution of Adults with Diabetes with their Associated Factors, n=27

Adults with diabetes and its associated factors	Frequency (f)	Percentage (%)
1. Current smokers		
Yes	9	33.34
No	18	66.66
2. History of intake of alcohol		
Yes	11	40.75
No	16	59.25
3. Consumption of additional salt with food		
Yes	10	37.04
No	17	62.96
4. Work involved with vigorous intensity activity (like carrying or lifting heavy loads)		
Yes	6	22.23
No	21	77.77
5. Work involved with moderate intensity activity (like carrying light loads)		
Yes	27	100
No	0	0
6. Walk for at least 10 minutes in a day apart from daily activities		
Yes	27	100
No	0	0

The data represented in table 40 depicts that:

Current smokers: Out of 27 adults who were diabetic, majority i. e. (66.66%) were non smokers, whereas (33.34%) were current smokers.

History of intake of alcohol: Out of 27 adults who were diabetic, majority i. e. (59.25%) had no history of intake of alcohol, whereas (40.75%) had history of intake of alcohol.

Consumption of additional salt with food: Out of 27 adults who were diabetic, majority i. e. (62.96%) do not consume additional salt with food, whereas (37.04%) consumes additional salt with food.

Work involved with vigorous intensity activity (like carrying or lifting heavy loads): Out of 27 adults who were diabetic, majority i. e. (77.77%) were not involved in doing vigorous intensity activity, whereas (22.23%) were involved in doing vigorous intensity activity.

Work involved with moderate intensity activity (like carrying light loads): Out of 27 adults who were diabetic, majority i. e. (100%) were involved in doing moderate intensity activity,

Walk for at least 10 minutes in a day apart from daily activities: Out of 27 adults who were diabetic, majority i. e. (100%) walk for at least 10 minutes in a day continuously to get to and from places.

5. Discussion

Out of 150 respondents, majority 32% belongs to the age group of 51 - 60 years, 80% were males, 40% were graduates, 74% were government employees, 78.7% were married. It was found that the majority i. e.56.0% were Obese, with mean score of Body Mass Index 25.72±3.62.55.33% were Hypertensive with mean score of systolic BP 138.53±18.76, and diastolic BP 86.12±12.08 and only 18% were Diabetic with mean score of Random Blood Glucose 131.03±46.27.

It was found that high prevalence of the associated factors was observed that is majority i. e 77.3% of adults were current smokers, 35.3% of adults consume more than 3 cigarettes per day, 66.7% of adults have history of alcohol intake, 73.3% of adults sometimes consume processed food high in salt, 27.3% of adults spent 2 hours in doing moderate intensity activities in a day, 74.7% of adults spent less than 60 minutes for walking in a week and 46% of adults spent more than 6 hours sitting or reclining in a day.

- With respect to the demographic variables, the prevalence of NCDs i. e. hypertension were found highest among the males i. e. (86.74%)
- With respect to the demographic variables, the prevalence of NCDs i. e. obesity were found highest among the married i. e. (82.15%)
- With respect to the demographic variables, the prevalence of NCDs i. e. diabetes were found highest among the married and government employees i. e. (100%)
- With respect to the associated factors, the prevalence of NCDs i. e. hypertension were found among adults i. e. (75.91%) who were not involved in vigorous intensity activities, and (60.25%) who had history of alcohol intake.
- With respect to the associated factors, the prevalence of NCDs i. e. obesity were found among adults i. e. (76.19%) who were not involved in vigorous intensity activities and (59.53%) who had history of alcohol intake
- With respect to the associated factors, the prevalence of NCDs i. e. diabetes were found among adults i. e. (77.77%) who were not involved in vigorous intensity activities

6. Conclusion

Through this study, it has been concluded that out of 150 adults, the prevalence of obesity was 84 (56%) followed by hypertension i. e.83 (55.33%) and lastly diabetes i. e.27 (18%). It was seen that the adults at the selected offices are exposed to various associated factors for NCDs with smoking, alcohol intake, physical inactivity being the most prevalent associated factors in this study. Moreover, the associated factors mainly smoking, alcoholism, salt intake, physical inactivity are some common factors of NCDs. Physical inactivity was the most common in hypertension, obesity and diabetes. Alcoholism was also the second most common associated factors in both hypertension and obesity. Indeed, NCDs has become one of the major health challenges in 2023 which might increase in near future. Nursing can make enormous contribution to this battle against developing the associated factors of NCDs by mainly focusing on urgent need to work out community - based interventions at different levels including health promotion, prevention, early diagnosis, treatment and rehabilitation. Nursing organizations need to provide standardized intervention for NCDs problem at the local level and procedures and guidelines that will fit the population in their context. Thus, population specific health promotion interventions centered on public health interests is recommended to reduce in developing the risk factors of NCDs.

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