



## Assess practice related Non-pharmacological Methods among Hypertensive Elderly Patients

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### Abstract:

**Background:** Non-pharmacological methods have gained recognition as important components of hypertension management, offering benefits in reducing blood pressure, improving overall cardiovascular health, and potentially reducing the reliance on pharmacotherapy **Aim:** This study aimed to assess practice related Non-pharmacological Methods among Hypertensive Elderly Patients. **Methods:** A descriptive design used to accomplish this study, carried on 200 hypertensive elderly at bany shiple. Researcher used a structured interview questionnaire included demographic data, medical history, and practices for data collection. **Results:** Age of the studied elderly patients has high frequency negative effect on practice at  $p = .007$ . As well, Education level (High), Time of suffering from blood pressure, Follow-up with the doctor (Always), and measure your blood pressure (Daily) of the studied elderly patients has high frequency positive effect on practice at  $p = .005$ ,  $p = .001$ ,  $p = .009$  and  $p = .009$  respectively. Besides, their Income, gender (female), and marital status (married) have slight frequency positive effect on practice at  $p = .043$ ,  $p = .038$ , and  $p = .040$ , respectively. **Conclusion:** shows that slightly more than half of the studied elderly patients (51.0%) have satisfactory total practices related to non-pharmacological methods, while almost half of them (49.0%) have unsatisfactory total practices. shows that slightly less than two thirds of the studied elderly patients (61.5%). **Recommendations:** Further studies to explore the non-pharmacological methods among hypertensive elderly patient and implement an educational program about non-pharmacological method of hypertensive elderly patient with chronic conditions. and in implementing awareness programs to improve knowledge, attitude, lifestyle practices and control of elderly hypertension in Egypt.

**Keywords:** Practice, Non-pharmacological Method, Hypertensive Elderly

### Introduction:

Hypertension, commonly known as high blood pressure, is a significant health concern globally, affecting individuals of all age groups. However, it is particularly prevalent among the elderly population. Managing hypertension is crucial to reduce the risk of cardiovascular diseases and other

associated complications (Abdalla, 2021). While pharmacological interventions are often employed, non-pharmacological methods play a vital role in hypertension management, particularly among elderly patients. This background study aims to assess the practice of non-pharmacological methods among hypertensive elderly

patients, exploring their effectiveness, adherence, and impact on blood pressure control (**Ademe et al., 2019**).

Hypertension is highly prevalent among the elderly population, and its incidence increases with advancing age. The physiological changes associated with aging, such as decreased arterial compliance and increased peripheral vascular resistance, contribute to the higher prevalence. Furthermore, comorbidities and lifestyle factors, including sedentary behavior, unhealthy diet, and stress, can exacerbate hypertension in this age group. Uncontrolled hypertension among the elderly is associated with an increased risk of stroke, myocardial infarction, heart failure, renal dysfunction, and cognitive decline (Chantakeeree et al., 2022).

**Non-pharmacological Methods in Hypertension Management:** Non-pharmacological methods have gained recognition as important components of hypertension management, offering benefits in reducing blood pressure, improving overall cardiovascular health, and potentially reducing the reliance on pharmacotherapy (**Khanal et al., 2021**). These methods encompass lifestyle modifications, dietary changes, physical activity, stress reduction techniques, and adherence to treatment plans (**Bhandari et al., 2021**).

Non-pharmacological methods play a crucial role in the management of hypertension among elderly patients. These methods encompass various lifestyle modifications, behavioral changes, and therapeutic interventions that can effectively reduce blood pressure and improve overall cardiovascular health (**Bashaar et al., 2019**).

Understanding the practice and effectiveness of non-pharmacological methods among elderly hypertensive patients is crucial for optimizing hypertension management (**Chapman et al., 2022**). This study aims to assess the adherence to non-pharmacological interventions, identify barriers to their implementation, evaluate their impact on blood pressure control, and explore the patients' perceptions and experiences with these methods. The findings will contribute to the development of tailored interventions and strategies to enhance the adoption of non-pharmacological methods among hypertensive elderly patients, ultimately improving their overall health outcomes

### **Methods:**

**Aim:** This study aimed to assess practice related Non-pharmacological Methods among Hypertensive Elderly Patients

### **Research question:**

Q1: What is the level of practice related Non-pharmacological Methods among Hypertensive Elderly Patients?

### **Research design:**

The descriptive design was used to conduct this study.

### **Setting:**

The existing study was conducted at bany shiple which was randomly selected from 75 main villages, and 64 satellite villages. of Zagazig city districts which also was selected from the 21 districts of Sharkia governorate.

**Sample:** The sample composed of 200 hypertensive elderlies. from the above-mentioned setting who fulfilled the following criteria: -

**Inclusion criteria:** Age: patients over  $\leq 60$  year with hypertension and Able to communicate and accept to participate in the study.

**Exclusion criteria:** Elderly who has communication problems as (speech & hearing problems), Elderly who has malignant diseases or last stage diseases and Elderly patients diagnosed with mental or psychological diseases.

**Sample size calculation:**

A Purposive sample composed of (200) hypertensive elderly. So, the sample size was calculated by software Epi-info package, assuming a prevalence of hypertension among elderly is 51.0% (Debalina et al ,2014) from 935 elderly were residing in Bany Shepl village, level of confidence 95%, margin of error 5% and power of test were 80%.and size effect.

**Sampling technique:**

A multistage cluster sampling technique was the most appropriate method for the selection of the elderly hypertension to be included in the study as the following:

**First stage (selection of district):** The study was conducted in Sharkia Governorate, which consists of 75 main villages, and 64 satellite villages. The researcher used simple random sampling technique to pick up district, it was Elenita district, (consists of 75 main village and 64 satellite).

**Second stage (selection of village):** The researcher picked up one village from the 75 main villages, and 64 satellite villages, (randomly bany shiple).

**Third stage (selection of participants):** The selected village was divided into several clusters. From each cluster **five streets** were selected randomly and finally building from these streets included (door to another door) to

yield the desired purposive sample elderly hypertension which were to be in the study.

**Tools for data collection:**

Three tools were utilized to collect the required data:

**Tool I: A structured interview questionnaire:**

It was developed by the researcher after reviewing the related literature to collect the necessary data for the study. It consisted of three parts.

**Part 1: Demographic characteristics: questions (1-11).** This part was used to assess demographic characteristics of the studied elderly hypertension, which included: age, gender, Place of residence, Occupation before pension, marital status, educational level, current working, monthly income, living condition, who do you live with, Monthly Income.

**Part 2: Medical history of the studied: questions (1-3):** elderly that include the present and past medical history and family history of the studied elderly which included How long have you had high blood pressure, do you suffer from any other health problems, Your perception of your health.

**Tool II: Non-pharmacological management of hypertension questionnaire:**

It was designed to evaluate non-pharmacological management of hypertension by the researcher after reviewing of related literature:

**Part 1: knowledge of Non-pharmacological management among hypertensive elderly patients which include questions: (1-5)** Non-pharmacological management meaning,

What are the non-drug ways to lower blood pressure, Are the non-drug methods mentioned more effective in lowering blood pressure, From your point of view, are non-drug methods more important than pharmacological methods, Are there any friends or relatives who applied non-drug methods to lower blood pressure. guided by **Debalina et al., 2019.**

**Part 2: nutrition of hypertensive elderly patients related to Non-pharmacological management that include questions (1-11)**

Does the food you eat cause high blood pressure, Can weight gain lead to high blood pressure, Are you trying to lose weight after suffering from high blood pressure, What do you eat from the following as a source of animal protein, What are the benefits of eating vegetables and fruits, Do you follow a diet low in fat and saturated fat, such as red meat and butter, Do you limit the use of sugars and food containing sugar (sweets, Do you eat the serving of carbohydrates from bread, cereal, rice and pasta specified by your doctor each day, do you eat a quantity of fruits and vegetables every day, do you eat a low-salt diet rich in meat, poultry, fish, dried beans, eggs and nuts every day, do you reduce dairy products such as butter and full fat milk based on **Sanusi et al, 2017.**

**Part 3: smoking of hypertensive elderly patients regarding non-pharmacological management that include (1-4)**

Do you smoke, how many cigarettes do you smoke per day, have you tried to quit smoking as soon as you got high blood pressure, do you think that smoking has a relationship with high blood pressure.

**Part 4: sporting of hypertensive elderly patients regarding non-pharmacological**

**management that include (1-4)** Do you do physical exercise, What type of sport do you do, how many times a week do you exercise, do you think that exercise may improve blood pressure.

**Part 5: treatment of hypertensive elderly patients regarding non-pharmacological management that include (1-4).** Does the food you eat have a role in developing high blood pressure. Does the drug have any side effects? If yes, what are the symptoms, Do you take treatment according to the doctor's instructions, no matter how good your condition is, Did the doctor try to regulate your diet with you before you started taking the medications, Did the doctor tell you about the side effects of some blood pressure medications, What are the reasons for your irregularity in taking treatment, What do you do when you feel a headache.

**Scoring system:**

Each item was evaluated as Always “two score”, sometimes “one score”, never “zero score” for nutrition domain, while smoking, exercise, and medication scored as yes “two score”, sometimes “one”, No “zero” for positive items and vice versa for negative item. These scores were summed up and converted into a percentage score. It was classified into two categories:

- **Satisfactory practice** if score > 70%
- **Unsatisfactory practice** if score 70% or less

**Validity:**

The tools were revised by three experts in the field of community health nursing and Obstetrics and Gynecological Nursing at the faculty of nursing in Zagazig University, where the panel reviewed the tools content for relevance, clarity, comprehensiveness,

and understandability. All recommended modifications were done.

#### **Reliability:**

The reliability of tools was tested by measuring their internal consistency. It demonstrated a good level of reliability with Cronbach's alpha as follow:

	<b>Cronbach alpha</b>	<b>Interpretation</b>
<b>Practice</b>	0.866	Good

#### **Pilot study:**

A pilot study was carried out on a sample of 10 elderlies (10% of the calculated sample). The purposes of the pilot study were to test applicability, feasibility, applicability of the study tool and to determine the time needed to fill out the questionnaire sheet. All participants received a clear clarification for the study purpose. Since there was no modification in the data collection tools after conducting the pilot study, the pilot elderly patients weren't included later in the main studied sample.

#### **Fieldwork:**

Once the permission was granted to progress in the study, the researcher started to organize a schedule for collecting the data. The researcher visited study setting to be familiar with work process, time of work and observe elderly attending the study settings to set schedule for data collection. The researcher used to go to the study setting for interviewing the elderly who fulfill the criteria and introduced herself to the patient. The purpose of the study was explained to each elderly individually, and then the elderly was asked to participate in the study. The study tool questions were answered by each patient privately. The time needed to answer the interview questionnaire ranged from 15 to 25 minutes.

The fieldwork was executed over six months (the period extended from the beginning of July 2022 up to the end of December 2022); two days per week (Saturday and Thursday) from 9.00 am to 12.00 pm.

#### **Ethical considerations:**

Firstly, the study proposal was approved by the Research Ethics Committee (REC) and Postgraduate Committee of the Faculty of Nursing at Zagazig University. Then, oral informed consent for participation was obtained from each subject after full explanation of the aim of the study. Participants were given the opportunity to refuse participation, and they were notified that they could withdraw at any stage of filling the questionnaire. No names were included in the questionnaire sheet and anonymity of each woman was protected by the allocation of code number for each woman. They were assured that the information would be confidential and used for research purpose only.

#### **Statistical Analysis:**

Data collected from the studied sample was revised, coded, and entered using Personal Computer (PC). Computerized data entry and statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS) version 22. Data were presented using descriptive statistics in the form of frequencies, percentages, and Mean SD. Chi-square to assess the relations between variables and their characteristics. A correlation coefficient "Pearson correlation" is a numerical measure of some type of correlation, meaning a statistical relationship between two variables. Linear regression is a linear approach for modelling the relationship between a scalar response and one or more explanatory variables.

Significance of the results:  
Highly significant at p-value < 0.01.

Statistically significant was considered at p-value < 0.05.

Non-significant at p-value  $\geq$  0.05

### Results:

**Table (1a):** Number and percentage distribution of the studied elderly patients according to their personal information (n= 200).

Personal information	N	%
<b>Age</b>		
60-69 year	151	75.5
70-79 year	45	22.5
$\geq$ 80 year	4	2.0
$\bar{x}$ S.D 66.84 $\pm$ 4.65		
<b>Gender</b>		
Male	87	43.5
Female	113	56.5
<b>Residence</b>		
Rural	200	100.0
Urban	0	0
<b>Marital status</b>		
Single	5	2.5
Married	136	68.0
Divorced	8	4.0
Widowed	51	25.5
<b>Educational level</b>		
Illiterate	61	30.5
Reads and writes	8	4.0
Primary education	30	15.0
Preparatory education	19	9.5
Secondary Education	55	27.5
University Education/Postgraduate Studies	27	13.5

**Table 1a** shows that about three quarters of the studied elderly patients (75.5%) range in age between 60 to 69 years old with mean  $\bar{x}$  S.D 66.84 $\pm$ 4.65 years. As well, more than half of them (56.5%) are females. In addition, all of them (100%) live in rural areas. Besides, more than two thirds of them (68.0%) are married. Also, more than one quarter of them (30.5%, 27.5%) are illiterate and have secondary education, respectively.

**Table (1b):** Number and percentage distribution of the studied elderly patients according to their personal information (n= 200).

Personal information	N	%
<b>Occupation before pension</b>		
Craftsman	2	1.0
Farmer	19	9.5
Merchant	1	0.5

Employee	111	55.5
Housewife	67	33.5
<b>Current work</b>		
Working	6	3.0
Not working	194	97.0
<b>Live with</b>		
With the family	178	89.0
On my own	22	11.0
<b>Monthly Income</b>		
Not enough	134	67.0
Enough	66	33.0
<b>Current source of income</b>		
Pension	195	97.5
Children's assistance	3	1.5
Income of property	2	1.0

**Table 1b** indicates that more than half of the studied elderly patients (55.5%) were employees before pension and the majority of them (97.0%) are not working currently. As well, most of them (89.0%) live with their family. In addition, live in rural areas. Besides, more than two thirds of them (67.0%) have not enough monthly income. Also, the current source of income among majority of them (97.5%) is pension.

**Table (2a):** Number and percentage distribution of the studied elderly patients according to their medical history (n= 200).

Items	N	%
<b>Time of suffering from blood pressure disease:</b>		
0-9 year	113	56.5
10-19 year	57	28.5
≥20 year	30	15.0
<b>Suffer from any other health problems</b>		
Yes	153	76.5
No	47	23.5
<b>*If yes, what is it n=153</b>		
Chronic kidney disease	4	2.6
Diabetes	77	50.3
Respiratory system disease	41	26.8
Heart disease	21	13.7
Digestive system disease	13	8.5
Osteoporosis	10	6.5
Anemia	3	2.0
<b>Perception of your health</b>		
Very good	22	11.0
Good	137	68.5
Moderate	3	1.5
Bad	38	19.0

\*more than one answer

**Table 2a** demonstrates that more than half of the studied elderly patients (56.5%) suffered from blood pressure disease up to 9 years ago. In addition, more than three quarters of them (76.5%) suffer from other health problems and about half of them (50.3%) suffer from diabetes. As well, more than two thirds of them (68.5%) have good perception of their health.



**Table (2b):** Number and percentage distribution of the studied elderly patients according to their medical history (n= 200).

Items	N	%
<b>Go to follow-up with the doctor</b>		
Always	19	9.5
Sometimes	29	14.5
No	152	76.0
<b>Measure your blood pressure</b>		
Daily	8	4.0
Weekly	32	16.0
When going to the doctor	148	74.0
No	12	6.0
<b>Reasons for attend follow-up</b>		
Because there is a health problem	137	68.5
To take treatment	24	12.0
To measure pressure	39	19.5
<b>Reasons for not attending the follow-up</b>		
Laziness	107	53.5
Difficulty in transportation	17	8.5
Need for help	9	4.5
Financial problems	67	33.5
<b>Source of information about high blood pressure</b>		
Physician	91	45.5
Nurse	9	4.5
Pharmacist	49	24.5
Friends and relatives	30	15.0
The media	21	10.5

**Table 2b** illustrates that more than three quarters of the studied elderly patients (76.0%) don't go to follow-up with a doctor. In addition, almost three quarters of them (74.0%) measure their blood pressure when going to the doctor. Furthermore, more than two thirds of them (68.5%) report that they attend follow-up because there is a health problem. Also, more than half of them (53.5%) report that they are not attending the follow-up because of laziness. Moreover, less than half of them (45.5%) their source of information about high blood pressure is the physician.

**Figure (1):** Percentage distribution of the studied elderly patients according to their total practices of hypertensive elderly patients related to nonpharmacological methods (n= 200).



**Figure (1)** shows that slightly more than half of the studied elderly patients (51.0%) have satisfactory total practices related to non-pharmacological methods, while almost half of them (49.0%) have unsatisfactory total practices.

**Table (3):** Relationship between socio-demographic characteristics of studied elderly patients and their total practices of hypertensive elderly patients related to nonpharmacological methods (n= 200).

Items		Total practice				X <sup>2</sup>	P-Value
		Satisfactory N=102		Unsatisfactory N=98			
		N	%	N	%		
Age	60-69	91	89.2	60	61.2	10.120	.001**
	70-79	11	10.8	34	34.7		
	≥80	0	0	4	4.1		
Gender	Male	19	18.6	68	69.4	4.204	.027*
	Female	83	81.4	30	30.6		
Residence	Rural	102	100.0	98	100.0	1.401	.058
	Urban	0	0	0	0		
Marital status	Single	4	3.9	1	1.0	4.804	.015*
	Married	89	87.3	47	48.0		
	Divorced	3	2.9	5	5.1		
	Widowed	6	5.9	45	45.9		
Educational level	Illiterate	4	3.9	57	58.2	9.801	.002**
	Reads and writes	1	1.0	7	7.1		
	Primary education	10	9.8	20	20.4		
	Preparatory education	13	12.7	6	6.1		
	Secondary Education	51	50.0	4	4.1		
	University Education/ Postgraduate Studies	23	22.6	4	4.1		
Monthly	Not enough	53	52.0	81	82.7	3.982	.036*

income	Enough	49	48.0	17	17.3		
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\*Significant at  $p < 0.05$ . \*\*Highly significant at  $p < 0.01$ . Not significant at  $p > 0.05$

**Table 3** illustrates that there is a highly statistically significant relation between the studied elderly patient's total practices and their age and educational level at ( $p < 0.01$ ). Besides, there is a statistically significant relation with their gender, marital status and monthly income at ( $p < 0.05$ ). Additionally, there is no statistically significant relation with their residence at ( $p > 0.05$ ).

**Table (4):** Multiple Linear regression model for total practice

	Unstandardized Coefficients		standardized Coefficients		
	B		B	T	P. value
<b>Age</b>	-.249		.197	4.012	.007**
<b>Education level (High)</b>	.280		.233	4.670	.005**
<b>Income</b>	.170		.112	2.261	.043*
<b>Gender (Female)</b>	.189		.121	2.533	.038*
<b>Marital status (Married)</b>	.177		.104	2.366	.040*
<b>Time of suffering from blood pressure</b>	.346		.310	5.900	.001**
<b>Follow-up with the doctor (Always)</b>	.278		.213	3.768	.009**
<b>Measure your blood pressure (Daily)</b>	.250		.201	3.544	.009**
<b>Model</b>	<b>R<sup>2</sup></b>	<b>Df.</b>		<b>F</b>	<b>P. value</b>
<b>Regression</b>	<b>0.63</b>	<b>7</b>		<b>14.500</b>	<b>.000**</b>

a. Dependent Variable: Total practice

b. Predictors: (constant): Age, Education level (High), Income, Gender, (Female), Marital status (Married), Time of suffering from blood pressure, Follow-up with the doctor (Always), Measure your blood pressure (Daily)

**Table 4** declares that high significant model detected through f test 14.500, p value= .000. This explains 63% of the variation at practice detected through  $R^2$ 0.63. As well, it indicates that Age of the studied elderly patients has high frequency negative effect on practice at  $p = .007$ . As well, Education level (High), Time of suffering from blood pressure, Follow-up with the doctor (Always), and measure your blood pressure (Daily) of the studied elderly patients has high frequency positive effect on practice at  $p = .005$ ,  $p = .001$ ,  $p = .009$  and  $p = .009$  respectively. Besides, their Income, gender (female), and marital status (married) have slight frequency positive effect on practice at  $p = .043$ ,  $p = .038$ , and  $p = .040$ , respectively.

### Discussion:

Hypertension is one of the most important preventable cardiovascular risk factors which impacts health, disease, and death. Hypertension is one of the most common non-communicable diseases

treated in primary care and if not treated properly can lead to various serious complications like myocardial infarction, stroke, renal failure, and death (**Mahmoud et al., 2019**).

Regarding practices of hypertensive elderly patients related to no pharmacological methods, the current study illustrated that more than two thirds of the studied elderly patients reported that always weight gain led to high blood pressure. As well, nearly three quarters of them sometimes limit the use of sugars and food containing sugar (sweets). Additionally, more than two fifths of them never try to lose weight after suffering from high blood pressure. This result might be due to lack of awareness about healthy diet for hypertension.

The pervious study results agreed with a study conducted by **Abdalla, (2021)** in Khartoum State and showed that patients had awareness about health lifestyle but struggling with diet free from salt and sugar. Conversely, this finding disagreed with study carried out in America by **Oliveros et al. (2020)** who concluded that studied elderly sample follow health diet through reduce always reduce salt and sweet diet.

Regarding to smoking, the current study demonstrated that reveals that more than one fifth of the studied elderly patients are smokers and more than half of them smoke 1 to 10 cigarettes per day. Moreover, almost half of them sometimes try to quit smoking as soon as they got high blood pressure. Additionally, about two thirds of them report that smoking has a relationship with high blood pressure.

In agreement with study carried out in Egypt by **Hamza et al. (2019)** and showed that about one third of the studied elderly sample smoker. On the contact, this finding disagreed with study done in Lebanon by **Machalani et al. (2022)** who reported

more than two thirds of studied sample and one quarter of them try to stop smoking.

According to practice regarding exercise, the present study revealed that half of the studied elderly patients do exercise and most of them do walking exercise. Moreover, less than two thirds of them do exercise daily. Additionally, most of them report that exercise may improve blood pressure.

The previous findings were in the same line with those of other previous studies carried out in Ghana by **Anowie & Darkwa, (2015)** who measured the knowledge, attitudes and lifestyle practices of hypertensive patients and reported that more than half of the studied sample do exercise and most of them do walking exercise.

According to total practices of hypertensive elderly patients related to nonpharmacological methods, the present study showed that slightly more than half of them have satisfactory, while almost half of them have unsatisfactory total practices. The previous findings were in the same line with those of other previous studies carried out in Ethiopia by **Ademe et al. (2019)** and revealed that less than two thirds of the studied sample had good total self-practices of hypertension. Conversely this result disagreed with study by **Sadeq & Lafta, (2017)** in Iraq and revealed that only of the studied sample had good practices about hypertension related to no pharmacological methods.

The current study indicated that age of the studied elderly patients has high frequency negative effect on practice. As well, Education level (High), Time of suffering from blood pressure, Follow-up with the doctor (Always), and measure your

blood pressure (Daily) of the studied elderly patients has high frequency positive effect on practice. Besides, their Income, gender (female), and marital status (married) have slight frequency positive effect on practice. There was also a significant fair positive correlation between age and practice score regarding hypertension.

In accordance with the aforementioned finding, **Buang et al. (2019)** who found that age has negative effect on practice, while education and follow up has positive effect on practice.

### **Conclusion & Recommendations:**

**In conclusion**, shows that slightly more than half of the studied elderly patients (51.0%) have satisfactory total practices related to non-pharmacological methods, while almost half of them (49.0%) have unsatisfactory total practices. shows that slightly less than two thirds of the studied elderly patients (61.5%).

**The study recommends**, Further studies to explore the non-pharmacological methods among hypertensive elderly patient and implement an educational program about non-pharmacological method of hypertensive elderly patient with chronic conditions. and in implementing awareness programs to improve knowledge, attitude, lifestyle practices and control of elderly hypertension in Egypt.

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