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# Nursing intervention among patients with hypertension to improved medication adherence

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**Abstract:**

**Background :** Hypertension is a public health problem in many countries.

Cardiovascular disease is the leading cause of death worldwide, with hypertension being a major influencing factor. The prevalence increases with increasing age. In the near future, the hypertensive population will also increase rapidly due to the increase in the elderly population. Hypertension is associated with cardiovascular disease. Nursing interventions have the potential to promote medication adherence in patients with hypertension.

**Aim:**The purpose of this systematic review is to describe the available information on the Effectiveness of nursing interventions to improve medication adherence in patients with hypertension.

**Methods:** A systematic review was conducted. May 2022 and April 2023, a database search was conducted in English and Arabic in PubMed, EBSCO and other databases during 2012-2022. Randomized controlled trials were taken into account. The systematic review followed the criteria of Roy's adaptation theory.

**Results:** Out of the 260 articles found, 9 studies were selected for inclusion. A multifaceted nurse-led intervention (telehealth devices, remote reminders, motivational sessions) had demonstrated significant reductions in blood pressure (especially systolic blood pressure) in the intervention group. Nurse-led interventions also influenced hypertension awareness, self-awareness, and self-control. a positive effect on improving medication adherence, the Positive effects on lower salt intake, consumption of fruits and vegetables, and medication adherence were also described.

**Conclusions :**Nurse-led nursing interventions have a positive effect on improving medication adherence in patients with hypertension.For patients with hypertension, future research is needed to further investigate the effects of e-health, personalized active learning, community activities, and other interventions on medication adherence. In addition, future studies could focus on measuring actual blood pressure and identifying changes associated with educational interventions.

**Keywords:**nursing interventions; hypertension;medication adherence.

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## 1.Introduction:

### 1.1background:

Cardiovascular disease is the main cause of death worldwide(Murray et al., 2012), among which hypertension is the main influencing factor (Lim et al., 2012). With the increase of age, the prevalence will increase. In the near future, due to the increase of the elderly population, the population with hypertension will also increase rapidly (Delavar, Pashaeypoor, & Negarandeh, 2020) . Hypertension can be an asymptomatic disease, with a prevalence of 30 to 45 percent in European and American countries(Piepoli et al., 2016). The cost of treating cardiovascular diseases is very expensive. ~~In 2014, Slovakia ranked third among OECD countries in terms of cardiovascular drug use (683.4 did; accounting for 37.6% of total drug consumption); A total of 155.9 million euros was spent on cardiovascular drugs(OECD, 2016),~~ High blood pressure can lead to vascular damage and increase heart function Therefore, it can lead to a series of serious health problems Heart failure, renal failure, stroke and coronary artery disease Arterial disease. These conditions have increased the use of health care.Resources and services to increase health care related Cost(Rajpura & Nayak, 2014).The World Health Organization has shown that adherence to medication can play an important role in disease control (World Health Organisation [WHO]. 2003)Medication can improve the quality of life, prolong people's life, and reduce treatment costs(Bosworth et al., 2011). Not insisting on taking drugs will cause serious consequences for patients, lose the opportunity to improve their health, Hypertension can lead to pathological changes in many directions, such as the brain, kidneys and eyes, thus increasing the risk of stroke and renal failure(Peeters et al., 2022) It can also cause damage to the eyes, such as retinopathy(Konstantinidis & Guex-Crosier, 2016). Besides,it can also cause great trauma to the social health care system(Odusola et al., 2014). Studies have shown that the main cause of poor blood pressure control worldwide is poor drug compliance(Alhalaiqa, Deane, Nawafleh, Clark, & Gray, 2012). Non compliance is a common phenomenon that prevents patients from achieving the desired treatment effect (Ribeiro et al., 2015). Patients' concerns about their drugs and the potential negative consequences affect their drug compliance (Horne, 1999). Patients who do not see the immediate effect of treatment and alleviate or eliminate their diseases do not feel the need to take drugs to prevent cardiovascular events or other complications, which affects the realization of drug compliance(Ribeiro et al.,

2015). Other independent determinants of intentional non-compliance with medication compliance include logistics, economic conditions, social and psychological factors (Świątoniowska-Lonc, Polański, Mazur, & Jankowska-Polańska, 2021). At present, there are many researches on hypertension, but there are few researches on nursing intervention in hypertension drug treatment, so we want to study in this direction, in the study by Kolcu et al, nurses were instrumental in engaging in care and guiding patients throughout the process in terms of on-time medication use and medication counseling and healthy lifestyles, and the results showed significant improvements in medication adherence and blood pressure in the intervention group.

### 1.2 Definition: hypertension

Hypertension is a clinical syndrome characterized by increased systemic arterial blood pressure (systolic and / or diastolic pressure) (systolic pressure  $\geq 140$  mmHg, diastolic pressure  $\geq 90$  mmHg). Hypertension (BP) is a major risk factor for cardiovascular disease (CVD). Hypertension is the leading cause of disability adjusted life years worldwide (Forouzanfar et al., 2017). The blood pressure of normal people fluctuates within a certain range with the changes of internal and external environment. In the early stage, there may be no symptoms or obvious symptoms. The common symptoms are dizziness, headache, tight neck plate, fatigue, palpitation, etc. Blood pressure increases only after fatigue, mental tension and mood swings, and returns to normal after rest. With the extension of the course of disease and the obvious continuous rise of blood pressure, various symptoms will gradually appear. The common clinical symptoms are headache, dizziness, inattention, memory loss, limb numbness, increased nocturia, palpitation, chest tightness, fatigue and so on. When the blood pressure suddenly rises to a certain extent, there will even be severe headache, vomiting, palpitation, dizziness and other symptoms. In severe cases, there will be confusion and convulsions.

#### Definition : nursing intervention

Nursing intervention is "any treatment based on clinical judgment and knowledge implemented by nurses to improve patient / client outcomes" (Bulechek et al. 2008).

Having a routine source of care is closely related to blood pressure control. People with routine care have lower blood pressure than those without care (Carey, 2018). Nursing interventions can positively change patients' beliefs, which in turn can lead to changes in their behavior, such as better adherence to the treatment recommended by health professionals and possible effects on disease-related variables, such as the

reduction of blood pressure. At the same time, the role of nurses in promoting self-care of patients with hypertension includes planning, managing and evaluating nursing interventions to train individuals to change their lifestyle, improve their understanding of potential complications of hypertension, and observe behavior changes after such guidance [yildiz, 2016]. Educational intervention can create opportunities for patients to better understand their condition and the role of monitoring consultation, and improve their understanding of disease progression and complications. Through health education, the wrong concept of patients' treatment can be clarified, and health professionals can improve patients' knowledge [ozoemena, 2019].

Definition: medication adherence

Compliance means the extent to which the patient meets the prescribed medication recommendations (Raebel, Schmittiel, Karter, Konieczny, & Steiner, 2013). The degree or degree to which the drug provider makes a decision according to the daily treatment suggestions and according to the time, dose and frequency. It can be defined as "the degree to which the patient acts according to the specified time interval and the dose of the dosing regimen" (Cramer et al., 2008).

Hypertensive medication compliance refers to the extent to which hypertensive patients take medication in strict accordance with medical advice. It is an important indicator of antihypertensive treatment in accordance with medical advice.

### 1.3 Nurse's role

Nurses have four basic nursing responsibilities: promoting health, preventing disease, restoring health, alleviating pain and promoting dignified death (ICN). Patients with hypertension may have anxiety, worry and doubt in the process of controlling blood pressure. Nurses should educate and guide patients and eliminate their inner troubles in time. In addition, the process of controlling blood pressure will not be effective in a short time. It is a long-term process. Nurses should encourage patients to make persistent efforts at any time to stimulate their pursuit of health. Of course, we can also educate their families, encourage their families to affirm the patient's blood pressure control, and promote the improvement of family relations. In the research, nurses' leadership has proved to be a valuable tool to improve the effect of drug treatment. Nurse led will be more valuable (Wilkinson et al., 2022). Nurses play a dual role of educators and supporters in the process of patients' self-care. The final step of this model is to evaluate the achievement of goals by both nurses and patients. At this stage, nurses help patients establish standards for self-management plans and help them understand how to change

their action plans (Kassavou & Sutton, 2017). In the nursing process, nurses can provide process support and share the nursing responsibility of hypertension. When primary care providers can delegate day-to-day tasks to teams, they have more time to deal with complex and critical patient care issues. Compared with other implementation strategies of blood pressure control in patients with hypertension, team-based nursing is very effective (Carey, Muntner, Bosworth, & Whelton, 2018).

#### 1.4 Theory

In this paper, we choose Roy's adaptation theory. Roy believes that people are an organic whole with biological, psychological and social attributes (nursing theorists and their work - e-books, adaptation models); As an open system, people interact with the environment constantly. There is an exchange of information, material and energy between the system and the environment. In order to adapt to environmental changes, people can effectively adapt to environmental changes through thinking ability (Roy & Andrews, 1999, p. 36). Adaptation is the process of promoting human physical, psychological and social integrity. The process of controlling blood pressure in patients with hypertension is the process of communication between people and the environment. In order to control blood pressure, patients constantly adapt to the new environment and receive new stimuli. The nurse's job is to look after the patients. As facilitators of adaptation, they provide nursing measures to make these stimuli acceptable to patients and accelerate their adaptability (Roy and Andrews, 1999).

#### 1.5 Problem statement

Hypertension is the leading cause of cardiovascular disease and death worldwide. Adherence to medication is an important means of controlling hypertension. Many studies have shown that factors associated with poor hypertension control outcomes are closely related to poor medication adherence, which decreases when combined with patients' low cognitive level of social characteristics and the absence of external reminders and interventions. In addition, socioeconomic conditions and psychological factors can also affect adherence. Currently, there are many studies on hypertension, but we found few studies on nursing interventions on medication adherence in hypertension, so we will study this aspect.

#### 1.6 Aim and research questions

The purpose of this review is to describe the role of nursing interventions in improving medication adherence in patients with hypertension.



## 2.method

### 2.1 Design

This research was a descriptive literature review (Polit&Beck,2017).

### 2.2 Search strategy

we use the databases PubMed to search for articles with certain limitations, using the keywords "hypertension", "nursing interventions", "medication complication", and the authors also use the synonyms "high blood pressure or elevated blood pressure or htn or hypertensive or blood pressure"-In order to ensure the integrity of the search, author also conducted a manual search, and finally browsed the title and summary of the literature and found 9 articles that might be useful.

A literature search was conducted on PubMed, EBSCO using the following keywords: search (nursing intervention) and (medication adherence)) and (hypertension). Using mesh terms including (blood pressure) (hypertensive) (elevated blood pressure) (htn) (high blood pressure) filters: clinical trials, randomized controlled trials, from 2013 to 2023 author also conducted a manual search, and finally browsed the title and summary of the literature and found 9 articles that might be useful.

Database + Date of search	Limits	Search terms	Number of hits	Potential articles (excluding doubles)
Medline through PubMed 2022.5.5	in 10 years in English	(hypertension )	225,692 results	
Medline through PubMed 2022.5.5	in 10 years in English	Medication adherence	30,228 results	
Medline through PubMed 2022.5.5	in 10 years in English	(nursing) AND ((hypertension )	5,709 results	
Medline through PubMed 2022.5.5	In 10 years All fields	(nursing )) AND (hypertension )) AND (medication adherence)	338 results	71
Medline through PubMed 2022.5.5	in 10 years in English	((nursing )) AND (medication adherence) AND (y_10[Filter]))	558 results	65
Medline through PubMed 2022.5.5	in 10 years in English	(Nursing intervention) AND (hypertension )) AND (medication adherence) AND (y_10[Filter]))	281 results	113
EBSCO 2022.5.29	in 10 years in English	<u>hypertension</u> AND <u>nursing interventions</u> AND	12results	5

		<u>medication adherence</u>		
EBSCO 2022.5.29	In 10 years in English	hypertension or high blood pressure(mesh) or elevated blood pressure(mesh) or htn(mesh) or hypertensive(mesh) or blood pressure(mesh)AND nursing interventionsAND medication adherence (y_10[Filter])	11 results	6
total				260

### 2.3 Selection criteria

hypertension, medication adherence, nursing intervention, ~~qualitative~~ Quantitative research

Inclusion criteria:

Long term medication (Including medication for more than four weeks) ,

~~People over 60 years old,~~

There are no restrictions on age, race, language, gender or region.

With nursing intervention

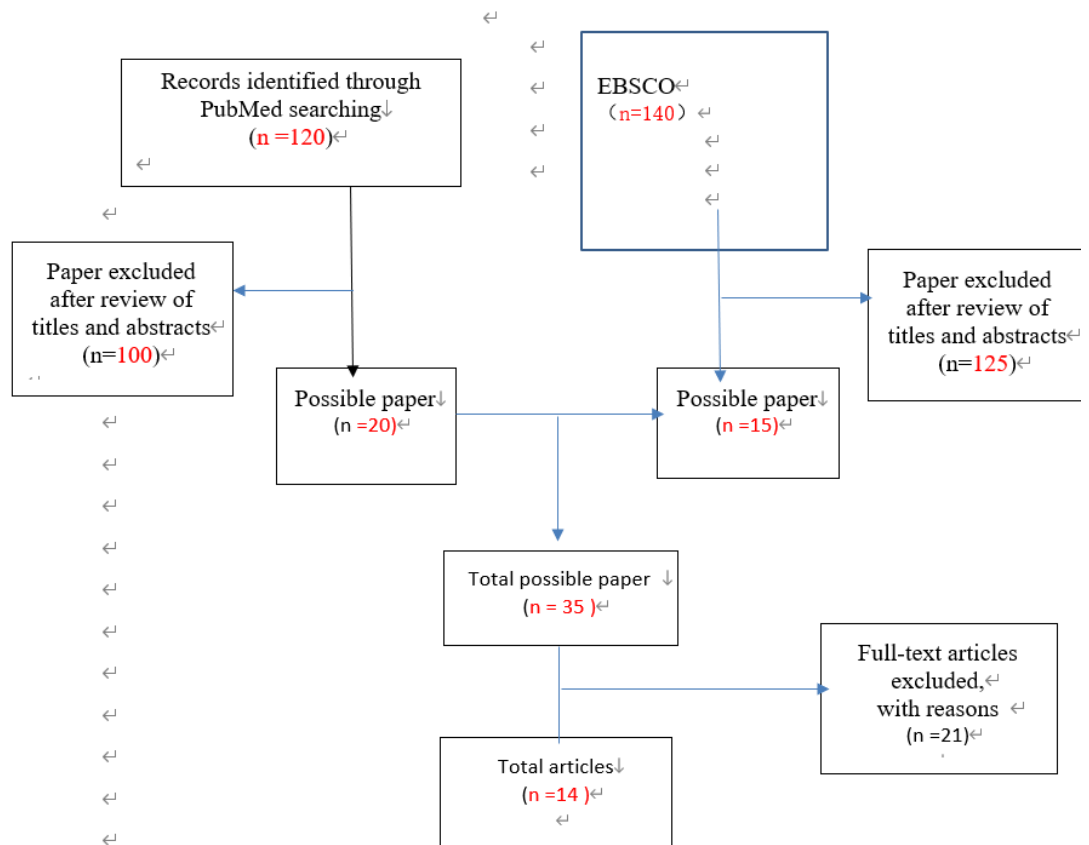
Exclusion criteria:

Non drug treatment, such as hypertension treatment scheme with exercise diet;

Study on drug compliance without nursing support

### 2.4 Selection process

We first determine the selected keywords, search the literature according to the selected keywords, and roughly determine the selected literature through the keywords and introduction. If the key words or the introduction part are inconsistent with our topic, we will discharge the literature. The specific process is shown in the figure



## 2.5 Data analysis

Before reading the article, we will first consider the purpose of reading the article and read the article with questions. When we encounter something that may be useful, we will mark it and add color or remarks. After reading, we will think about the similarities and differences between the articles and share our thoughts with our peers.

The following conditions must be met in the articles found as reference articles that can be used in this paper:

1. true randomization of participants in all groups of the randomized controlled trial.
2. The control and intervention groups were similar at baseline.
3. the treatment allocation to participants in the outcome was not blinded.
4. the outcome measures for the intervention group were the same or similar to those for the control group.

## 2.6 Ethical considerations

There is no plagiarism in this degree project. All articles are read objectively without the subjective consciousness of the author. The content of the article is displayed without reservation, and everything is realistic.

### 3.Result:

Through research on 15 articles, four themes were established:

1. Research direction
  2. Introduction to the Compliance Scale
  3. Intervention methods
  4. Sociodemographic characteristics
- and the following four sub themes
1. Medication adherence
  2. BP
  3. The control rate of BP
  4. HT knowledge score
  5. Quality of life score

Theme	Sub-theme
1. Research direction	1. Medication adherence
2. Introduction to the Compliance Scale	2. Blood pressure
3. Intervention methods	3. The control rate of BP
4. Sociodemographic characteristics	4. HT knowledge score
	5. Quality of life score

#### 3.1 Research direction:

##### 3.1.1 Medication adherence:

At baseline, there was no significant difference between the intervention group and the control group (Delavar et al., 2020), and drug compliance was generally low. As the intervention progressed, the scores of both the intervention group and the control group improved (Bhandari, Narasimhan, Jayasuriya, Vaidya, & Schutte, 2022), and the scores of the intervention group showed significant changes. Drug compliance was significantly higher than that of the control group (Abu-El-Noor, Aljeesh, Bottcher, & Abu-El-Noor, 2021). The proportion of regular medication has significantly increased (Edward, Kagaruki, Manase, Appel, & Matsushita, 2022). By conducting telephone follow-up on the intervention group and maintaining routine care in the control group, the MASES-SF scale was used for measurement. The change in drug

compliance scores before and after intervention in the intervention group was significantly greater than that in the control group, with a significant increase in scores. The numerical changes in the control group were not very significant, only slightly increased (Kes and Polat (2022)). This result is also reflected in other groups, by using the validated universal hypertension treatment compliance questionnaire, the score of the intervention group showed an upward trend, with the score already higher than the initial average score in the twelfth week ( $p < 0.001$ ); The average score of the control group at week 12 was lower than the initial score Mattei da Silva Â, de Fátima Mantovani, Castanho Moreira, Perez Arthur, and Molina de Souza (2020). Besides, use the 8-item Morisky Drug Compliance Scale to measure the medication adherence. After intervention, the drug compliance status of the intervention group was also significantly better than that of the control group ( $P = 0.002$ ) Delavar et al. (2020). Sending electronic messages and reminders to the intervention group, using the Hill Bone Compliance Scale to measure drug compliance, the results showed that the intervention group's drug compliance score was significantly higher than the control group Bhandari et al. (2022). By providing tailored intervention measures and education to the intervention group, and evaluating compliance with conventional hypertension treatment questionnaires, the research results showed that the compliance score of the intervention group was higher than that of the control group Esquivel Garzón, Díaz Heredia, Grisales Romero, and Cañon-Montañez (2022). In the following studies, researchers used the Morisky Drug Compliance Scale to evaluate drug compliance ( Kolcu and Ergun (2020) ( Beune et al. (2014) ( Khadoura, Shakibazadeh, Mansournia, Aljeesh, and Fotouhi (2021) and medication adherence improved in both groups as the process progressed. However, self-reported medication adherence did not improve, which may be related to the large time interval between each intervention and the low frequency of the intervention Beune et al. (2014). Of course, in the other group, adherence to antihypertensive treatment was measured on multiple scales and adherence improved significantly in both groups Edward et al. (2020) (Abu-El-Noor, Aljeesh, Bottcher), and Abu-El-Noor (2021). In the following two experimental groups, their nursing interventions included healthy lifestyle interventions ( Beune et al. (2014); (Kolcu and Ergun 2020). In one group of experiments, healthcare professionals directly intervened and influenced patients' healthy lifestyles, and patients received sufficient stimulation and feedback, again showing a significant difference between the two groups and a significant improvement in medication adherence ( Kolcu and Ergun

2020). In contrast, there was no change in medication adherence results in the other group ( Beune et al. 2014).

### 3.1.2BP:

At baseline, there was no significant difference in blood pressure levels between the intervention group and the control group(Kes & Polat, 2022). As the intervention progressed, the research results showed that there were significant changes in the intervention group before and after the intervention(Kolcu & Ergun, 2020), and blood pressure significantly decreased after the intervention(Tu, Xiao, Ullah, Fuller, & Du, 2020); The control group also showed changes in blood pressure before and after intervention, but the magnitude of the changes was smaller than that of the intervention group (Bhandari et al., 2022).

Through telephone follow-up of the intervention group, while the control group maintained routine care, the research results showed that the blood pressure control rate of the intervention group was higher than that of the control group Kes and Polat (2022). Similar results have been found in other articles. Provide health education, discharge support, and discharge support to the intervention group; The control group received routine health education and regular follow-up, and the results showed a significant decrease in blood pressure in the intervention group, while the control group showed an upward trend in blood pressure Tu et al. (2020). In addition, the intervention group received nursing consultations, phone calls, home visits, group and individual health education activities, while the control group received routine care, including blood pressure monitoring and free distribution of hypertension drugs. The results showed that the blood pressure of the intervention group showed a downward trend compared to the control group, while the blood pressure of the control group showed an upward trend Mattei da Silva Â et al. (2020). The intervention group held face-to-face meetings and provided education. The control group received routine care, including blood pressure measurement and medication prescription. The results showed that the blood pressure of the intervention group was significantly controlled and lower than that of the control group, and the blood pressure of the control group showed an upward trend Delavar et al. (2020). Of course, in one study, there was no significant difference in blood pressure between the intervention group and the control group. Divide the experiment into three groups. The medication bottle group will use wireless electronic medication bottles for SMS reminders, while the two-way SMS group will provide SMS reminders for a total of 4 months; The control group received routine care. The results

indicate that there is no significant difference between the intervention group and the control group, which may be related to the lack of improvement in compliance to control blood pressure, or the fact that some participants have refractory hypertension and blood pressure is difficult to control and treat Mehta et al. (2019); In other group, the blood pressure control was almost equal between the intervention group and the control group. The intervention group received routine care and customized interventions, with researchers conducting weekly evaluations of participants and providing educational materials; The control group received standard care, and the results showed that all blood pressure in the intervention group was under control, while 90% of the control group was under control Esquivel Garzón et al. (2022).

#### 3.1.3 The control rate of the BP:

At the baseline level, the blood pressure of the intervention group and the control group were basically the same (Esquivel Garzón et al., 2022). As the intervention progressed, the blood pressure in the intervention group was relieved to a certain extent (Mattei da Silva Â et al., 2020), and the blood pressure control rate was significantly higher than that in the control group (Kes & Polat, 2022); In contrast, the blood pressure in the control group was not effectively controlled (Esquivel Garzón et al., 2022) and was significantly lower than that in the intervention group (Beune et al., 2014)

#### 3.1.4 HT knowledge score

At baseline, the scores of hypertension in the intervention group and control group were basically equal, with no significant changes (Tu et al., 2020). Through intervention methods, the scores of the intervention group showed a significant improvement before and after intervention (Kolcu & Ergun, 2020), significantly higher than the scores of the control group; Compared with the intervention group (Bhandari et al., 2022), the score improvement in the control group was not significant and was lower than that in the intervention group (Kolcu & Ergun, 2020)

#### 3.1.5 Quality of life score:

Before measurement, there was no significant difference in quality of life scores between the intervention group and the control group (Kolcu & Ergun, 2020).. As the intervention progressed, the quality of life in the intervention group showed a significant upward trend (Tu et al., 2020), with a certain degree of improvement compared to the baseline, and a faster growth rate compared to the control group; The quality of life in the control group showed a decreasing trend compared to baseline (Tu et al., 2020)



For the intervention group, provide participants with health education, discharge support, and discharge support; The control group received routine health education and regular follow-up. By using the QLICD-HY scale to measure quality of life, the results showed that the overall quality of life in the intervention group showed an upward trend, with a faster growth rate compared to the control group; The quality of life in the control group showed a decreasing trend Tu et al. (2020). The intervention group received nursing consultation, telephone contact, home visits, group and individual health education activities, while the control group received routine care, including blood pressure monitoring and free distribution of hypertension medication. Measure quality of life using a validated version of the mini questionnaire on quality of life for hypertensive patients. The results showed no significant difference between the two groups. This may be related to complications, marital status, and physical activity Mattei da Silva Â et al. (2020).

### 3.2 Introduction to the Compliance Scale

It uses the Drug Compliance Self Efficacy Scale developed by Ogedegbe et al. (MASES-SF) to assess the Hypertensive patients receiving medication treatment. The 13-item short form of the scale was tested for validity and reliability by Hacıhasanoglu et al. in 2012. Item-total correlations ranged from 0.63 to 0.80 on the scale. Item-factor loadings ranged from 0.69 to 0.84 on the scale. According to this scoring system, possible scores ranged from 13 to 52. A high total score showed that adherence to antihypertensive drug treatment was good. Assessment of participants' drug compliance through telephone follow-up. Participants were divided into intervention and control groups. The scale assesses two groups of participants before and after intervention, and keeps records (Kes & Polat, 2022).

Using the Hypertension Knowledge Level Scale, HK-LS was composed of 22 items to examine hypertension knowledge from six dimensions: definition, treatment, drug compliance, lifestyle, diet, and complications. Use the Treatment Compliance Questionnaire for Hypertensive Patients. TAQPH is a 28item hypertension specific questionnaire with high reliability and validity. Using the Chronic Disease Quality of Life Scale is an effective, reliable, and practical tool that includes 47 projects to assess the quality of life in four areas: physical, psychological, social, and hypertension specificity (Tu et al., 2020).

The quality of life was measured using a validated version of the mini questionnaire on quality of life for hypertensive patients. The questionnaire included 17 items. According to the 4-point scale of the Likert scale, from 0 (none at all) to 3 (yes, very much), the lower the score, the better the quality of life (Mattei da Silva et al., 2020).

This self-reported measure of drug compliance includes four questions with two answer options (Yes/No). Answering "no" to all questions is considered high drug compliance; Answering "Yes" to one to two questions is considered moderate compliance, and answering "Yes" to three to four questions is considered low compliance. In the Türkiye validity and reliability study of Bahar et al., the internal consistency is 0.62. In this study, the reliability coefficient of the previous measurement table was 0.82. This scale was used twice before and after the intervention to assess the participants' drug compliance (Kolcu & Ergun, 2020).

Use the validated universal hypertension treatment compliance questionnaire. The maximum score of the questionnaire is 110 points, and the minimum score is 60 points. The lower the score, the lower the degree of persistence (Mattei da Silva et al., 2020).

The 8-item Morisky Drug Compliance Scale was used to assess drug compliance. The scale was developed by Morisky et al. in 2008. It includes seven "yes/no" dichotomy questions and a Likert 4-point system question, as follows: "always": 1; "Normal": 1; "Sometimes": 0; And "Ray/Never": 0. Therefore, like the previous seven projects, the response to item 8 was also treated in two. Therefore, the possible total score for this scale is 0-8 points. The score is explained as follows: Score 8: Good drug compliance; Score 6-7.99: Moderate drug compliance; Score below 6: poor medication compliance. Research in Iran has reported the acceptable validity and reliability of the scale (Delavar et al., 2020).

The Hill Bone Compliance Scale is used to measure compliance with antihypertensive treatment. It consists of 14 projects: 9 drug projects, 3 salt intake projects, and 2 appointment projects. The score for each item is 1-4 points. The total score compliance tool for Hill Bone is 56, with a total score of 36 for drug related issues, 12 for salt intake, and 8 for appointment retention. The lower the score, the higher the compliance with antihypertensive treatment. In this study, the reliability coefficient of the overall Hill Bone Compliance Scale, Cronbach's alpha, was 0.87 at baseline and 0.92 at follow-up. Drug compliance self-efficacy workers have 13 items, with a score range of 1-4. The higher the score, the better the drug compliance self-efficacy. The reliability coefficient of the medication compliance self-efficacy tool, Cronbach's alpha, was 0.98

at baseline and 0.97 at follow-up. During the follow-up period, participants in the SMS intervention group were also asked about the acceptability of using the Marshfield usability survey tool. The tool contains 13 items, each with 1-4 responses. We also conducted in-depth qualitative interviews with participants in five intervention groups based on their age [18-45 years (N-2), 46-60 years (N-2), 61-69 years (N-1)], gender [male (N-2), female (N-3)], and educational level [literacy (N-2), illiteracy (N-3)]. All research tools have been pre tested and necessary modifications have been made before actual data collection. Hill Bone (Bhandari et al., 2022).

Drug compliance is measured by the proportion of days a patient opens a drug bottle or replies to a text message. Strictly comply with the bottle from the registration date onwards. After the first bottle opening, a more relaxed compliance test began. Strict adherence to text messages only includes valid "yes" answers. Relaxed insistence on texting is also a confirmation of insistence (Mehta et al., 2019).

This study used a universal questionnaire, the Treatment Compliance Questionnaire for Hypertensive Patients (TAQPH). The TAQPH questionnaire has 28 questions. These issues are divided into six factors, as follows: (i) medication, (ii) diet, (iii) exercise, (iv) weight control, (v) stimulation, and (vi) stress relief. The score for each item is between 1 and 4, as shown below: (1=Never, 2=Sometimes, 3=Most of the time, 4=All of the time). The scores obtained from this questionnaire vary between 28 and 112. These scores are added together to give a total range, with higher scores indicating better compliance. The recommended cutoff point for determining the compliance of this instrument with clinical significance is 84 (Esquivel Garzón et al., 2022).

### 3.3 Intervention methods

In this research (Kes & Polat, 2022), In the control group, patients received the usual standard of care provided by the center for patients with hypertension. The intervention group was assisted by telephone monitoring of PI (principal investigator) on the basis of routine nursing care, and telephone follow-up was conducted at the 2nd, 4th, 6th, 8th, and 12th weeks. During the follow-up period, PI evaluated blood pressure monitoring and medication compliance, and together with the patient, evaluated blood pressure measurements taken at the patient's own home. Telephone monitoring is conducted on Mondays and Sundays from 1 p.m. to 6 p.m. Short messages are sent one-way by researchers, with both information and reminders.

In this study, interventions aimed at health care system factors include: (1) two-way referral: (1a) hospital-initiated referral, coordinated by the patient's discharge nurse, receiving 6 months of post discharge support from one of the six community health

centers; And (1b) referral of patients to specialist clinics, coordinated by general practitioners and community nurses, in order to adjust medication in a timely manner. Interventions aimed at service provider factors include (2) individualized discharge education for nurses in charge; (3) Individualized drug treatment plans formulated by medical experts before discharge; (4) General practitioners and community nurses provide 6 months of post discharge support at the community health center. Interventions for home care include: (5) goal setting and action planning to make participants become informed and proactive individuals (Tu et al., 2018). The control group received routine discharge education in the hospital, and the patient's nurse in charge briefly discussed the impact of medication, medication, and their outpatient clinical appointments. Routine follow-up visits were conducted at the hospital outpatient department at 3 and 6 months, respectively (Tu et al., 2020).

The study was conducted by researchers and participants in intervention groups, including individual and group interventions and actions taken at the institutional level. These interventions included six health education sessions, followed by four short motivational meetings for each elderly person in the intervention group every other week. Students who do not want to participate in group education are given individual education. Before the incentive meeting, we developed an action plan with the patient to discuss the effectiveness of the actions specified in the action plan, and repeated blood pressure and anthropometric measurements were taken at each incentive meeting. Participants were encouraged to eat a DASH diet rich in fruits and vegetables, low in fat, and high in potassium, magnesium, calcium, fiber, and protein. The entire study period is planned to last 24 weeks, including 20 weeks of intervention. Participants in the control group received routine care in their nursing home. This includes a clinical evaluation every 6 months, the procurement and management of anti HT drugs, as well as twice daily blood pressure measurements, and the time when patients report feeling unwell. After the post test evaluation, the researchers provided education on HT management to the control group (Kolcu & Ergun, 2020).

**Control group:** The standard of care received by the routine care group is as follows: free distribution of hypertension drugs, meetings to update medical prescriptions, monitoring blood pressure every two months, making medical and nursing appointments, and consulting nutritionists, dentists, psychologists, and other experts based on the needs of patients. The data were collected at an office of the health unit through a nursing consultation that lasted approximately 45 minutes at baseline and a 12 month follow-up (Mattei da Silva Â et al., 2020).

**Intervention group:** The case management intervention was implemented by one of the researchers (i.e., the case manager) and The following management activities were arranged: nursing consultation, telephone contact, home visits, and group and individual health education activities. Consultations are conducted to gather information in order to draft personal care plans and determine mutually agreed goals. The consultation time is approximately 45 minutes, including customized health education, blood pressure measurements, waist circumference measurements, and body mass index (BMI) calculations. Conduct phone calls every 2 months to reassess the patient's healthcare plan, remind them of their consultation schedule, provide guidance on adopting health habits and disease control, and use WhatsApp ® As a communication tool, each call lasts about 5 minutes. During home visits, the patient provides health education, measures blood pressure, checks the patient's weight, reviews goals and healthcare plans, and makes modifications as necessary. All verbal instructions were recorded and the home visit took approximately 30 minutes. Group activities include informational lectures and interesting/interactive activities. These activities focus on topics such as healthy habits development, physical activity, treatment compliance, blood pressure measurement, and chronic complications. Collective health education activities were carried out in community spaces for low and medium risk patients twice, and for high-risk and extremely high-risk patients once every three months. These activities last approximately 60 minutes. Provide personalized educational activities in nursing consultation, home visits, and phone calls. All guidance and information obtained during nursing consultations, phone calls, home visits, and health education activities, as well as measurements such as weight and blood pressure, are recorded so that the nurse manager can review this information when needed (Mattei da Silva Â et al., 2020).

Participants in the intervention group had face-to-face meetings of 30-45 minutes twice a week in the study environment during the first two weeks of the study, and received SMEs tailored to their HL. After face-to-face education, a 15 minutes telephone education is conducted twice a week in the afternoon. Educational materials are obtained by searching existing literature and customizing participant HLs. To this end, four experts (one critical care expert and three health promotion experts) assessed whether educational materials met human rights standards. Educational materials cover the definition of hypertension and its risk factors, complications, drugs, drug side effects, the importance of drug compliance, and the importance of regular medical attention to monitor blood pressure. Due to the older age and low physical fitness of the participants, we use the method of Muslim education to provide educational materials in face-to-face and

telephone teaching. Educational materials for all participants in the intervention group were provided by the same teacher. Participants in the control group received only routine care services, including medical visits, medication prescriptions, and blood pressure measurements, provided to all hypertensive patients involved in the study environment (Delavar et al., 2020).

The intervention group received mobile messages containing (a) general educational information about the patient (hypertension and its treatment, complications, signs and symptoms, medication, common side effects and consequences of non-compliance, physical activity, low salt, low fat diet, and some cultural information) and (b) medication reminders. The information related to smoking and alcohol (c) is tailored to each patient. Send text messages three times a week (9-10 am) for three months, with an average length of 160 characters. We hired a company (Aakash SMS: <https://aakashsms.com/>) Provide text messages using Nepal Telecom and N Cell telecom providers. The "routine care" control group received standard treatment. In Nepal, hypertensive patients receive medication prescriptions and follow-up treatment recommendations. At the end of the study, we provided all control group participants with a booklet containing educational information on hypertension and recommending lifestyle and healthy behavior changes (Bhandari et al., 2022).

Patients in the bottle group and the two-way SMS group receive daily feedback about persisting in taking medication the previous day, as well as reminders about taking medication the same day, all of which are automatically completed by the platform. Participants in the drug bottle group received a wireless electronic drug bottle (Adhere-Tech) for a high blood pressure medication. The vial electronically monitors the opening and transmits it to the platform. According to the participants' medication situation the day before, they will receive one of two feedback messages every day: "Congratulations on taking your medication yesterday! Remember to take your medication today" or "It seems like you didn't take your medication yesterday. Remember to take your medication today." The participants in the two-way messaging group receive a text message through the TH platform, prompting them to reply to their persistence that day through the text message. As the patient reported compliance through the arm, the participants received the following initial message on the registration day, "Did you take your medication today?" If so, reply with a text message saying yes Like the medication bottle arm, the feedback in the next few days will either be: "Congratulations on taking your medication yesterday! Did you take your medication today? If so, reply with a text message saying yes." Or, "Our records show that you didn't take all your medication yesterday. Did you

take your medication today? If so, reply with a text message saying yes." Patients in the medication bottle and text message groups were monitored for 4 months. Patients randomly assigned to the control group received routine care provided by clinical practice (Mehta et al., 2019).

The control group received standard nursing, including follow-up every three months, medical control, nurses, dietitian and psychological counseling, in which patients received information about diseases and suggestions on changing unhealthy lifestyles, blood pressure measurement and drugs. The treatment compliance of this group was evaluated at baseline and 4 weeks.

The intervening group received standard care and TI, provided by nurses in the research group. Tailored interventions include once a week for 4 weeks, each lasting approximately 20 minutes. In the initial meeting, after medical consultation, life guidance and TAQPH questionnaire were applied. The results provided feedback to the participants, and later, using decision algorithms, a matrix was applied to provide relevant information for each patient to enhance their understanding of their health status, or to provide tools to develop skills for adopting healthy behaviors or determine personal motivation to undertake commitments related to health. To effectively participate in treatment, guide patients in finding and using available personal resources to improve their lifestyle and adhere to treatment plans. Researchers contact patients via phone every week to reassess their healthcare plans, provide guidance on developing healthy habits and disease control, and evaluate whether the mutually agreed goals have been achieved. Each conference call lasts approximately 20 minutes. In addition, participants received an educational material with a focus on encouraging patients to adhere to the themes of their health regimen, such as developing healthy habits and measuring physical activity blood pressure. In the last face-to-face meeting, a second evaluation of compliance was conducted 4 weeks after the intervention began, and the patient's performance and motivation to adhere to the behavior were evaluated. A research assistant who was unaware of the intervention strategy measured the two groups at the beginning and end of the study (Esquivel Garzón et al., 2022).

#### 3.4 Sociodemographic characteristics:

During the baseline evaluation period, sociodemographic variables (independent variables) were evaluated, including gender, age, years of education, and per capita income (Mattei da Silva Â et al., 2020).

At baseline, there were no significant differences in chi-square test between the groups in terms of gender, marital and employment status, education level, income level,

and smoking status ( $P>0.05$ ;). In addition, the MannWhitney U-test showed no significant difference in the median age of participants between the intervention and control groups (64 vs. 63.9;  $P=0.887$ )(Delavar et al., 2020).

The baseline characteristics of study participants were similar in terms of age (more than 50% of participants were between the ages of 46 and 60), gender, education, marital status, and religious beliefs in the intervention and control groups. All socioeconomic, blood pressure, and behavioral characteristics were comparable between the intervention and control groups ( $p=20.20$ ), except for a slightly higher Hill bone salt related score in the intervention group ( $p=0.043$ )(Bhandari et al., 2022).

The average age is 55.7 years ( $SD=10.7$ ). The majority of them are women (63.38%) mainly because the proportion of women is higher than that of men, and the prevalence of female smokers in Gaza society is very low; Literate (88.7%); Married (89.86%); Unemployed individuals (84.79%) and non-smokers (91.27%) had obesity as the dominant factor, as 27.61% of participants were overweight (BMI 25-29.9) and 65.92% were obese ( $BMI \geq 30$ ). Among participants, 49.30% had uncontrolled blood pressure, with an average SBP and DBP of 132.24 ( $SD=16.29$ ) and 84.45 ( $SD=11.17$ ), respectively. More than half of the participants (52.11%) were diagnosed with hypertension for more than 5 years, with an average of 7.80 ( $SD=6.78$ ) years. The prevalence of two or more comorbidities among patients, excluding hypertension, is approximately 16.06%(Khadoura, Shakibazadeh, Mansournia, Aljeesh, & Fotouhi, 2021).

Adults (aged 18 and above) diagnosed with hypertension and prescribed at least one antihypertensive drug at least one year prior to data collection. In addition, participants will read Arabic and possess and be able to use smartphones(Abu-El-Noor et al., 2021).

## **4. Discussion**

### **4.1 Main results:**

According to Roy's theory, Roy believes that the purpose of nursing is to promote adaptive responses and reduce or eliminate ineffective responses. The results of this study indicate that nursing interventions can improve hypertension patients in the following aspects: drug compliance. 3. Blood pressure control rate 4. The quality of life index is 5. Knowledge level of hypertension. Family follow-up can improve participants' blood pressure status and drug compliance. Sending information reminders using electronic devices has a significant impact on participants' medication compliance. In addition, providing health guidance to participants, such as conducting health education, plays an indispensable role in improving compliance. In order to achieve the goal of promoting



adaptive responses among participants, nurses take measures including family follow-up, sending text messages, reminding participants to take medication in a timely manner, and keeping blood pressure within the range of adaptation; Encourage participants to creatively apply their knowledge through health education to successfully respond to changes in blood pressure, maintain their own integrity, and promote health.

The purpose of this study is to describe the medication compliance of nursing interventions for hypertensive patients, and several results have been summarized through research on different articles. Firstly, through nursing interventions such as electronic messaging, telephone follow-up, face-to-face interviews, and educational support for participants, these interventions have a significant impact on improving medication compliance. In addition to medication compliance, through health education and educational guidance, participants have gained a more effective understanding of hypertension, enabling them to have a deeper understanding of blood pressure control. They will improve their current unhealthy lifestyle habits and lifestyles, and move towards a healthier life. Therefore, their quality of life will also be improved to a certain extent. Sending regular text messages can constantly remind participants whether to take their medication on time today and whether to adhere to standards. The message also includes encouragement for participants, which is beneficial for stimulating their enthusiasm for the experiment and their own health. SMS can provide timely feedback to researchers and make corresponding adjustments to participants. Family interviews can provide researchers with a more intuitive understanding of the participants' current situation, making adjustments based on their current situation, and jointly developing a series of plans with the participants.

## 4.2 Results discussion:

### 4.2.1 Medication adherence:

This review indicates that through nursing interventions, participants' drug compliance was significantly improved after the intervention, which is similar to the research results of Kassavou et al. (2020), but different from the research results of L. Buis et al. (2017), which may be due to the small sample size and short study time.

#### **4.2.2 BP :**

This review indicates that through nursing interventions, participants' blood pressure significantly decreased after the intervention, which is similar to the research results of Kao, Chen, Cheng, Lin, and Chang (2019), but slightly different from the research results of L. Buis et al. (2017) (blood pressure changes but not too much), which is likely related to a small sample size.

#### **4.2.3 Control rate of BP:**

This review indicates that through nursing interventions, the blood pressure control rate of participants was improved after the intervention, which is similar to the research results of L. R. Buis et al. (2019) This review did not find a decrease in control rate, which may be related to the limited literature searched.

#### **4.2.4 HT knowledge score:**

This review indicates that through nursing interventions, participants' hypertension knowledge scores improved after the intervention, which is similar to the research results of Kao et al. (2019). Nursing interventions have increased participants' confidence in blood pressure control and awareness of health levels.

#### **4.2.5 Quality of life score:**

This review indicates that through nursing interventions, the quality of life of participants is improved after the intervention, which is similar to the research results of Kao et al. (2019). Nursing interventions have improved participants' understanding of blood pressure, indirectly affecting their quality of life.

Through nursing interventions, participants' drug adherence to the intervention group was higher than that of the control group, and drug adherence was improved. This is similar to the research results of Kassavou et al. (2020), but is different in L. Buis et al. (2017), the results showed no significant difference in drug compliance between the two groups, which was unexpected because there was a definite connection between drug compliance self-efficacy and drug compliance, which may be due to the small sample size leading to the inability to reveal drug compliance self-efficacy. In terms of blood pressure, our results show that nursing interventions have a significant effect on controlling and adjusting blood pressure, which is similar to the research results of Kao et al. (2019). However, In the study by L. Buis et al. (2017), although the results were

similar, the effect was not very significant, only in terms of quantity. This may be due to the lack of statistical impact due to the small sample size. The different blood pressure standards level can also have an impact on the experimental results, which may lead to the loss of participants and affect the accuracy of the results. This is evident reflected in the study by L. R. Buis et al. (2019). According to Roy's theory, Roy believes that the purpose of nursing is to promote adaptive responses and reduce or eliminate ineffective responses. In order to achieve the goal of promoting adaptive responses among participants, nurses take measures including family follow-up, sending text messages, reminding participants to take medication in a timely manner, and keeping blood pressure within the range of adaptation; Encourage participants to creatively apply their knowledge through health education to successfully respond to changes in blood pressure, maintain their own integrity, and promote health.

### **4.3 Methods discussion**

#### **4.3.1 Advantages**

In this study, the following intervention methods were roughly used: 1. SMS reminder 2. Education guidance 3. Family follow-up. SMS reminders have a significant effect on improving medication compliance in hypertensive patients, similar to the research results of Schroeder et al. (2020). However, there was no significant change in this point in the study by L. Buis et al. (2017). This may be related to the low frequency of sending text messages per week (only twice a week) and the quality of the text message content, which does not involve the consequences and side effects of not taking medication on time.

Educational guidance has a significant effect on improving blood pressure and scoring hypertension knowledge. This is reflected in the study by Kao et al. (2019).where participants showed a significant improvement in blood pressure amplitude at the sixth month. This may be related to correct measurement, ability to record blood pressure, and multiple good educational guidance. However, in the study by Schroeder et al. (2020). Educational guidance did not significantly improve hypertension, which may be related to the low cognitive level of participants in the study.

Family follow-up has a significant effect on blood pressure and blood pressure control, which is similar to the research results of Kassavou et al. (2020).

#### **4.3.2 Limitations**

This review only accessed a large database of articles published in English between 2013 and 2023, and the search was completed in May 2022. This means that articles after this date were not included in this review, including some potential related articles that

were not available through multiple searches. In addition, due to the small number of articles searched in a database, the search terms may not cover all useful words, resulting in some differences in the results. The cultural and educational level of participants, disease status, and complications may all affect the intervention of nurses.

#### **4.4 Clinical implications**

This paper explores the importance of nursing interventions to improve medication adherence in hypertensive patients. For the growing population of hypertensive patients, compliance with medication adherence is the most important prerequisite for controlling the disease, and how to improve and better improve patient adherence and symptoms is very important for the implementation of care. This study shows that low cognitive levels and advanced age require more training to improve cognition, which will prompt the care team to add more weight to improving knowledge education. The study shows that different forms of interventions, especially mobile devices with higher frequency, can improve participant adherence and lead to the development of more diverse interventions and monitoring methods for care measures.

#### **4.5 Suggestions for future research**

Hypertension is a global chronic disease and one of the three major causes of global mortality. The study of hypertension is very important. This review mainly describes how nursing interventions can improve drug compliance in hypertensive patients. Future research should explore the effectiveness of e-health, personalized active learning, community activities and other interventions on drug compliance. In addition, future research can focus on measuring actual blood pressure and identifying changes related to educational interventions. In addition, it is also necessary to study whether hypertension complications have an impact on nursing interventions.

### **5 Conclusions**

This study demonstrated that a nurse-led intervention to manage and improve hypertensive patients is effective in managing and improving medication adherence in patients with hypertension. Among the 14 articles selected in this paper, for the nursing intervention, the improvement in medication adherence after the nursing intervention was different by demographic factors, with a greater improvement in low literacy and older participants. The number of subjects evaluated was small and single. So the number of subjects assessed was small, so the generalizability of the results warrants in-depth study. By searching articles within 10 years, 14 articles were selected after rigorous screening and research for analysis and review, yielding the best evidence for nursing interventions

to improve medication adherence in hypertensive patients and providing a programmatic approach for nursing practitioners to better implement efficient care.

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APPENDIX 1:

Authors,years,country	title	Design and approaches	sample	Data collection method	Method of data analysis	Study code
Anbrasi Edward, Gibson B. Kagaruki Frank Manase , Lawrence J. Appel and Kunihiro Matsushita(2022) USA	Efectivene ss of instructional videos for enhancing healthcare provider competencies for hypertension management – a pre-post study in primary healthcare settings, Tanzania	Explorative study/quantitative approach	Age : over30 Number:166(61male105female)	1.Checklist 2.direct interview, 3.indirect interview	Descriptive statistical unpaired and paired t-tests were used to determine the differences before and after training. The equal weight ten point screening quality index SQI was calculated. Determination of correlation between patient facilities and	A

						SQI through bivariate analysis	
Khalid Jamal Khadoura, Shakibazadeh, Mohammad Ali Mansournia, Yousef Aljeesh, Akbar Fotouhi(2021) European Journal of Cardiovascular Nursing	Effectiveness of motivational interviewing on medication adherence among Palestinian hypertensive patients: a clustered randomized controlled trial	Exploratory study/quantitative approach	Number:355 Age:mean 55.7female(225)male(130) Inclusion criteria: Over 18 years of age, Have been diagnosed with hypertension for at least one year, Take at least one high blood pressure, And was diagnosed as antihypertensive drug compliance Exclusion criteria:not mentioned	Mercury 1.sphygmomanometer 2.Eight drug compliance scales 3.Self Reporting Scale 4.Self regulation questionnaire score	1.Extended equation estimation (GEE) analysis using binomial family, logit link, exchangeable correlation matrix and robust variance 2.Compliance was measured as a binary variable (optimal or	B	

					suboptimal compliance).	
Anastasia A Chatziefstratiou(2021)	Impact of nurse-initiated education on HeartScore in patients with hypertension: a randomised trial	Explorati ve study/quantitat ive approach	Number:92 Age:40-65 Inclusion criteria: 1Were aged between 40-65 years 2 Were Greek nationals 3 Were native Greek speakers 4 Were able to communicate verbally 5 Had been taking antihypertensive medication for at least 1 year prior to the study. Exclusion criteria:not mentioned	1.Demograph ic and socioeconomic questionnaire; 2.HeartScore	The mean scores were compared using the t-test, and Student's t-test was applied to compare the qualitative variable between the two groups.	C
Kassavou A, Mirzaei V, Brimicombe J,	<b>A Highly Tailored Text</b>	Explorati ve	Age:over 50 Number:135male(73)femal e(62)	1.Blood pressure	1. Histogram is used to explore	D

<p>Edwards S, Massou E, Prevost AT, Griffin S, Sutton S. (2020)ENGLAND</p>	<p>and Voice Messaging Intervention to Improve Medication Adherence in Patients With Either or Both Hypertension and Type 2 Diabetes in a UK Primary Care Setting: Feasibility Randomized Controlled Trial of Clinical Effectiveness</p>	<p>study/quantitative approach</p>	<p>Inclusion criteria: (1) at least 18 years old, (2) diagnosed as hypertension, type 2 diabetes or two health conditions; (3) At least one antihypertensive drug or hypoglycemic drug recorded in the practice record has been issued within 3 to 6 months before employment; (4) Their blood pressure (controlled by age group) and blood glucose level recorded in their medical records were poorly controlled, or there was a gap in collecting duplicate prescriptions within 6 months before the study invitation.</p> <p>Exclusion criteria: (1) they are participating in another drug compliance or digital</p>	<p>monitoring equipment Level 5 EQ-5D 2. Drug Compliance Assessment Scale 3. Drug event detection system</p>	<p>the distribution of continuous variables. 2. Levene test is used to evaluate the hypothesis of equal variance between groups. 3. Use t test to study the differences between independent groups. 4. Histogram is used to explore the distribution of continuous variables. 5.</p>
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			intervention, or (2) their health status may impair their participation in the study		Levene test is used to evaluate the hypothesis of equal variance between groups. 6. Use t test to study differences between independent groups, 7. Subgroup analysis to explore differences in outcomes due to missing data	
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<p>Calvin Kalun Or, PhD, Kaifeng Liu, PhD, and Michael Tow Cheung, PhD (2020) Hong Kong</p>	<p>Improving Self-Care in Patients With Coexisting Type 2 Diabetes and Hypertension by Technological Surrogate Nursing: Randomized Controlled Trial</p>	<p>Explorative study/quantitative approach</p>	<p>Age:over 18 Number:299 Inclusive criteria: 1. Age 18 and above; 2. Receive the diagnosis of type 2 diabetes and hypertension confirmed by the doctor at least one month ago; 3. Therefore, oral medicine was prescribed; 4. Self management of chronic diseases; And can read Chinese and speak Cantonese. Exclusion criteria: 1. Those excluded from the study are individuals with visual, cognitive or physical disorders or unstable or life-threatening diseases who are unable to manage themselves.</p>	<p>1. Questionnaire survey ( mobile phone population and health information ) 2. Use blood pressure monitor to measure BP and BG twice before and after</p>	<p>Independent t test and chi square test were used to compare the characteristics of IG and CG. Mann Whitney test was used to compare the frequency of self testing between the two groups of patients</p>	<p>E</p>
<p>Nasser Ibrahim Abu-El-Noor, Yousef Ibrahim Aljeesh,</p>	<p>Impact of a mobile phone app on</p>	<p>Explorative</p>	<p>Age:over18 Number:218</p>	<p>1.The demographic data, disease history and</p>	<p>Use the social science statistics</p>	<p>F</p>



Bettina Bottcher and Mysoon Khalil Abu-El-Noor(2020)Palestine	adherence to treatment regimens among hypertensive patients: A randomised clinical trial study	study/quantitative approach	Inclusion criteria: adults diagnosed with hypertension at least one year ago and prescribed at least one antihypertensive drug; Participants are required to be able to read Arabic, have smart phones and be able to use	drug history of the participants 2. Hill bone CHBPTS questionnaire	software package to calculate and analyze data. T-test and chi square test were used to compare the mean and difference between different variables to evaluate the impact of the application on the treatment level	
Sujitha Elavally (2020) England	Effect of nurse-led home-based	Explorative	Number:666 Age:35-75	1. Data Table of Demography	The data were analyzed	G

	<p>biofeedback intervention on the blood pressure levels among patients with hypertension: Pretest–posttest study</p>	<p>study/quantitative approach</p>	<p>Inclusion criteria: patients with primary hypertension without complications in the first stage; Use of antihypertensive drugs for at least three months</p> <p>Exclusion criteria: there are currently structured relaxation projects; Serious impairment of vision; Changing the hypertensive drugs for any reason; take <math>\beta</math> Blocker patients</p>	<p>and Clinical Variables</p> <p>2.Use Blood Pressure Data Meter</p>	<p>using SPSS version 17. Chi-squared test was used to assess the baseline differences between the groups</p> <p>Repeated measures ANOVA was employed to identify the intervention effect on blood pressure and GSR across the three posttests. Bonferroni</p>	
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					correction was employed	
Duygu Kes PhD, MSc, RN, Assistant Professor   Ulku Polat PhD, MSc, RN, Professor(2020) Turkey	The effect of nurse-led telephone support on adherence to blood pressure control and drug treatment in individuals with primary hypertension: A randomized controlled study	Explorative study/quantitative approach	Number:354 Age:40-64 Inclusion criteria: 1.A diagnosis of primary hypertension 2.An age of 40–64 years 3.A mean BP measurement of $\geq 140/90$ mmHg 4.Use of antihypertensive medication for at least 6 months 5.Education to at least primary school level, and ability to speak Turkish 6.Being communicative and cooperative	1.use the same instrument by nurse to measure BP. 2.the drug compliance self-efficacy scale	SPSS was used for all statistical analysis. Kolmogorov Smirnov test, Cronbach alpha coefficient, independent sample t-test and Pearson x2 analysis were used.	H

			<p>7. Not having problems of seeing or hearing</p> <p>8. The ability to use a mobile phone</p> <p>9. Having or being able to acquire a BP measuring instrument</p> <p>Exclusion criteria:</p> <p>1. patients with chronic diseases such as heart failure, renal failure,</p> <p>2. Patients with diabetes, cancer, myocardial infarction, dementia, stroke or mental illness, and secondary hypertension</p> <p>3. International Classification of Diseases (ICD) Code</p>			
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<p>Merve Kolcu and Ayse Ergun(2020) Country:Turkey</p>	<p>Effect of a nurse-led hypertension management program on quality of life, medication adherence and hypertension management in older adults: A randomized controlled trial</p>	<p>Explorative study/quantitative approach</p>	<p>Number:76 participants Age:over 76 years old 1.Hypertensive adults over 65 years old; No hearing and visual impairment; 2.Have cultural quality; He was diagnosed with hypertension at least six months ago; 3.No other diseases at the time of participating in the study; 4.No structured education</p>	<p>1. the Standardized Mini-Mental State Examination 2. Quality of Life Scale (SF-36), 3.four-item Morisky Medication Adherence Scale (MMAS-4), 4.a descriptive information form (sociodemographic characteristics) 5. hypertension management knowledge and</p>	<p>1Data analyzed by statisticians Comparing Demographic Characteristics 2Using the X-Test Comparison between groups using nonparametric tests 3Comparison of quality of life tables using Mann whitney u test</p>	<p>I</p>
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				behavior questionnaire		
Qiang Tu   Lily Dongxia Xiao   Shahid Ullah   Jeffrey Fuller   Huiyun Du (2019) Australia	A transitional care intervention for hypertension control for older people with diabetes: A cluster randomized controlled trial	Explorative study/quantitative approach	Age:over 60 years old Number:270 Interventions targeting health care system factors included two-way referral: referral initiated by the hospital, and participants received 6-month support from one of the six community health centers coordinated by the discharged nurse of the patient after discharge; And when the general practitioner needs and the community nurse coordinates, the patient will be transferred to the specialized clinic for timely drug adjustment. Interventions for service provider factors	1.Data collection adopts a self-filled questionnaire survey, 2. Use baseline through their hospital health records to search demographic data and drug. 3.Medical data were recorded from baseline data of hospital health records and records of community health	The social science statistical software package and STAT software are used for data analysis, and the multiple multi-level mixed effect linear regression model is used for analysis Adjusted for baseline values and confounders,	J

			include individualized discharge education by nurses in hospitals; Before discharge, medical experts shall formulate individualized medication treatment plan; General practitioners and community nurses provide support at the community health center for 6 months after discharge.	centers or outpatient specialist clinics.	including age, sex, and BMI	
Ângela Taís Mattei da Silva RN, Msc, PhD   Maria de Fátima Mantovani RN, PhD   Ricardo Castanho Moreira RN, PhD   Juliana Perez Arthur RN, Msc, PhD   Roberto Molina de	Nursing case management for people with hypertension in primary health care: A randomized controlled trial	Explorative study/quantitative approach	Age : over49 Number:94(female73male21) Inclusive criteria are: 1. The age is 18 - 58 years old; 2. The patient is diagnosed with hypertension; 3. Urban residents; 4. Achieve the lowest score in the Brazilian Portuguese mini mental state test.	1. home visits and health education activities through nursing consultation telephone 2.The blood pressure measuring instrument is the semi-automatic	Participant s' baselines were compared using a chi square test of categorical variables. Mann Whitney U test was used to determine the	K

<p>Souza PhD (2019) Brazil</p>			<p>The exclusion criteria are as follows: 1. Known pregnancy and high probability of moving to another town.</p> <p>Criteria for stopping participating in the study: 1. death, 2. verbal or written expression of wish to withdraw from the study, 3. pregnancy again during the monitoring period or moving to another town.</p>	<p>instrument MA100G-TECH. 3.use BMI to measure body mass index. 4.use the systematic hypertension treatment compliance questionnaire</p>	<p>difference between the two groups in baseline time numerical variables. McNemar test was used to evaluate the dichotomous results of the intervention group and the control group. Evaluation of differences between groups at baseline and 12 months later using the t-test</p>	
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					of continuous variables with normal distribution	
Farzaneh Delavar, Shahzad Pashaeypoor, Reza Negarandeh, (2019) Tehran, Iran	The effects of self-management education tailored to health literacy on medication adherence and blood pressure control among elderly people with primary hypertension: A randomized controlled trial	Explorative study/quantitative approach	Number : 353 Age:over 60 years old Inclusion criteria: 1. Age above 60; 2. Clear diagnosis of uncontrollable primary hypertension (blood pressure 140/90mmhg or above); 3. Use of antihypertensive drugs; 4. Ability to speak Persian; 5. No cognitive or mental disorders such as depression and dementia; 6. No drug addiction,  Exclusion criteria: 1. Participants are unwilling to continue to participate in the	1. demographic questionnaire, 2.eight morisky drug compliance scale 3. data sheet recording systolic and diastolic blood pressure.	Statistical analysis was carried out using the social science statistical software package (SPSS 16.0 version). Fisher exact test and Chisquare test were used for comparison between groups. Independent sample t test and	L

			<p>study; 2. Serious health conditions lead to hospitalization or death; 3. Failure to attend a face-to-face research intervention meeting; 4. Failure to answer two or more of our calls,</p>		<p>Mann Whitney U test were used for comparison between groups. The baseline value was used as the covariate, and the analysis of covariance (ANCOVA) was used for adjustment between groups. All statistical analyses were performed at a significance level less than 0.05.</p>
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<p>Stephen D. Persell, MD, MPH, Kunal N. Karmali, MD, MS, [...], and Michael S. Wolf, MA, MPH, PhD(2018)USA</p>	<p>Effect of Electronic Health Record-Based Medication Support and Nurse-Led Medication Therapy Management on Hypertension and Medication Self-management</p>	<p>Explorative study/quantitative approach</p>	<p>Age:over 18 Number:794(female545male249) Inclusion criteria are (1) 18 years old or above; (2) Self report 3 or more prescription drugs (for any purpose); (3) The systolic pressure is at least 130 mm Hg or the diastolic pressure is at least 80 mm Hg with diabetes or the systolic pressure is at least 135 mm Hg or the diastolic pressure is at least 85 mm Hg, without diabetes; (4) The mini gear test score is no less than 3 points (the score range is 0-5 points, the lower the score, the higher the risk of dementia) 9; (5) Self report that no one else is responsible for taking medicine;</p>	<p>1.use baseline questions to assess health status, and participant reports. 2. use automated blood-pressure equipment. 3.the health questionnaire of physiological and psychological scoring</p>	<p>Intention to treat was used to compare the mean difference and reported odds ratio after investigation using generalized linear mixed model and random interception effect</p>	<p>M</p>
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			6) There is no change in the source of care in the next year; (7) English communication ability.			
David Edelman, MD Rowena J. Dolor, MD, Cynthia J. Coffman, PhD Katherine C. Pereira, PhD Bradi B. Granger, PhD Jennifer H. Lindquist, MStat Alice M. Neary, RN Amy J. Harris, BS Hayden B. Bosworth, PhD(2014)USA	Nurse-Led Behavioral Management of Diabetes and Hypertension in Community Practices: A Randomized Trial	Explorative study/quantitative approach	Age:58-60 Nimber:377 male(170)female(207) Inclusion criteria: 1. Patients are required to have diabetes and hypertension, 2. Drugs for these two diseases must be taken at the same time, 3. Inadequate control of blood sugar Exclusion criteria: type I diabetes; Unable to accept English telephone intervention; Participate in another diabetes or	1. Use ALC instrument to measure ALC, blood pressure instrument to measure blood pressure, 2. and weight scale to measure weight; 3. Use IPAQ to measure	1.Linear mixture model (LMM) with clinical random effects and 2.unstructured covariance model with repeated measurements	N

			hypertension study; Living under the support of auxiliary equipment	physical activity; Perceived ability scale measures self-efficacy; REALM measures health literacy		
Jackson GL, Oddone EZ, Olsen MK, Powers BJ, Grubber JM, McCant F, Bosworth HB. (2012) USA	Racial Differences in the Effect of a Telephone-Delivered Hypertension Disease Management Program	Explorative study/quantitative approach	Age : 63-66 Number:573 284 African Americans 289 Non Hispanic White 6 Hispanic 11 Other ethnic groups 1 Reject Inclusion criteria: patients must: 1 have a diagnosis of hypertension;	1.Wireless home blood pressure instrument and telemedicine equipment  2.Intervention software applications	1.Diastolic and systolic pressure are treated with general linear model  2.Include unstructured variance to	O

			<p>2. Drugs that can lower blood pressure are being used;</p> <p>3 Poor blood pressure control (the average VA clinical blood pressure in the past year was 140/90 mmHg).</p> <p>Exclusion criteria:</p> <p>1. Receive dialysis;</p> <p>2 Serum creatinine&gt;2.5 or no renal function record;</p> <p>3 Having received organ transplantation;</p> <p>4 Hospitalization due to stroke, myocardial infarction or coronary artery reconstruction within 3 months;</p> <p>5. Have been diagnosed with metastatic cancer or dementia;</p>		explain repeated measurement	
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			6 No home phone; 7 Living in a nursing home; 8 Access to family health care; Or 9 severely impaired hearing			
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APPENDIX 2:

Author(s)	Aim	Results
Anbrasi Edward1*, Gibson B. Kagaruk, Frank Manase6 , Lawrence J. Appel and Kunihiro Matsushita10(2022)	Aims:Effectiveness of instructional videos for enhancing healthcare provider competencies for hypertension management	After the preoperative knowledge is improved through teaching video. Sqi of all the managed persons improved significantly after training, including nurses, assistant medical officers and medical officers, as well as assistant clinical officers and clinical officers. After training, the compliance in the management of HT patients was significantly improved.
Khalid Jamal Khadoura, Elham Shakibazadeh, Mohammad Ali Mansournia, Yousef Aljeesh, Akbar Fotouhi(2021) European Journal of Cardiovascular Nursing	Aim:Effectiveness of motivational interview on drug compliance in Palestinian patients with hypertension	The compliance status of the intervention group with routine nursing plus MINT treatment was significantly higher than that of the control group with routine nursing only
Chatziefstratiou AA, Fotos NV , Giakoumidakis K , Brokalaki H.(2021)	Aim:To evaluate the effect of nurse led educational intervention on the total cardiovascular risk of patients with hypertension.	Through the intervention education of follow-up for 3 months and 12 months, the patients in the intervention group who completed the study were significantly higher than those in the control group who completed the experiment, and the overall cardiovascular risk was reduced.



<p>Sujitha Elavally1 , Muralidharan Thoddi Ramamurthy2 , Jeyagowri Subash3 , Ramesh Meleveedu4 , Venkatasalu5, Munikumar Ramasamy (2020)</p>	<p>Aims:To investigate the effect of nurse-led home-based biofeedback intervention on the blood pressure levels among patients with hypertension.</p>	<p>After the abdominal breathing assisted relaxation teaching course, family-based behavioral intervention centered on biofeedback can reduce the blood pressure of hypertensive patients</p>
<p>Calvin Kalun Or, PhD, Kaifeng Liu, PhD, and Michael Tow Cheung, PhD ( 2020 ) Hong Kong</p>	<p>Aim:Test and prove the effectiveness and safety of the prototype TSN provided to patients with typical complex chronic diseases coexisting with type 2 diabetes and hypertension.</p>	<p>The effectiveness of TSN has significantly and directly improved through the compliance of diabetes knowledge and hypertension knowledge, which proves that TSN can improve the self-care of patients while meeting the self safety conditions of patients.</p>
<p>Nasser Ibrahim Abu-El-Noor, Yousef Ibrahim Aljeesh, Bettina Bottcher and Mysoon Khalil Abu-El-Noor (2020)</p>	<p>Aims:The objective of this study was to evaluate the impact of using a mobile phone app on the level of adherence to treatment regimens among hypertensive patients in the Gaza Strip.</p>	<p>The use of mobile apps improves the compliance of hypertension treatment and has the opportunity to reduce cardiovascular mortality and incidence rate. The use of mobile apps improves the compliance of hypertension treatment.</p>

<p>Elavally S, Ramamurthy MT, Subash J, Meleveedu R, Venkatasalu MR. (2020)</p>	<p>Aim:To investigate the effect of nurse-led home-based biofeedback intervention on the blood pressure levels among patients with hypertension.</p>	<p>The systolic and diastolic blood pressure of the subjects in the study group decreased significantly, and the behavioral intervention of biochemical markers of sympathetic nervous system activity can reduce the blood pressure of hypertensive patients.</p>
<p>Duygu Kes PhD, MSc, RN, Assistant Professor   Ulku Polat PhD, MSc, RN, Professor(2020) Turkey</p>	<p>Aim:The aim of this study was to evaluate the effect of telephone monitoring, in combination with texts, on medication adherence and blood pressure (BP) control in primary hypertension.</p>	<p>The drug compliance of the intervention group was significantly higher than that of the control group. The use of SMS and nurse-led telephone monitoring improved the compliance and blood pressure control of adult hypertensive patients in primary health care.</p>
<p>Merve Kolcu1 and Ayse Ergun (2020)</p>	<p>Aims:This study evaluated the effects of a nurse-led hypertension management program on quality of life, medication adherence and hypertension management in older adults.</p>	<p>The nurse-led hypertension management plan implemented in this study provides an example of an effective plan. The score of hypertension knowledge, drug compliance rate and quality of life scale of the intervention group were significantly higher than those of the control group.</p>

<p>Qiang Tu   Lily Dongxia Xiao   Shahid Ullah   Jeffrey Fuller   Huiyun Du (2019) Australia</p>	<p>Aims: To evaluate the effect of a nurse-coordinated hospital-initiated transitional care programme on hypertension control for older people with diabetes in China.</p>	<p>The average systolic blood pressure and average diastolic blood pressure of the intervention group decreased. Compared with the control group, the hypertension knowledge, treatment compliance, quality of life, readmission rate and emergency treatment rate of the intervention group were significantly improved. The transitional nursing intervention initiated by the hospital and coordinated by the nurses can improve the control of hypertension.</p>
<p>Mattei da Silva ÂT, de Fátima Mantovani M, Castanho Moreira R, Perez Arthur J, Molina de Souza R. (2020)</p>	<p>Aim: Effectiveness of nursing case management in controlling blood pressure among Brazilian adults with hypertension in UHS</p>	<p>Nursing case management may effectively improve the prognosis of hypertension patients. The improvement of waist circumference, body mass index and treatment compliance in the intervention group is significantly greater than that in the conventional nursing group, and the blood pressure in the intervention group is significantly decreased.</p>
<p>Farzaneh Delavara, Shahzad Pashaeypoorb, Reza Negarandeha,* (2019)</p>	<p>Aims: To evaluate the effects of self-management education tailored to health literacy on medication adherence and blood pressure control.</p>	<p>After self-management education intervention aiming at demographic characteristics, medical history and drug compliance, significantly reduce systolic and diastolic blood pressure, and increase medication compliance due to intervention.</p>

<p>Persell SD, Karmali KN, Lazar D, Friesema EM, Lee JY, Rademaker A, Kaiser D, Eder M, French DD, Brown T, Wolf MS. (2018)</p>	<p>Aim : To test medication management tools delivered through a commercial electronic health record (EHR) with and without a nurse-led education intervention.</p>	<p>Compared with routine nursing, the participants who received EHR tool plus nurse-led education showed more frequent and correct understanding of drug description and dose of several measures.</p>
<p>Edelman D, Dolor RJ, Coffman CJ, Pereira KC, Granger BB, Lindquist JH, Neary AM, Harris AJ, Bosworth HB. (2014)</p>	<p>Aim:To assess the effectiveness of nurse behavioral management of DM and HTN in community practices among patients with both diseases.</p>	<p>In the best environment, the case management of telephone nurses does not lead to the improvement of SBP, and the self-management intervention of telephone behavior may not be translated into broader benefits</p>
<p>Jackson GL, Oddone EZ, Olsen MK, Powers BJ, Grubber JM, McCant F, Bosworth HB. (2012)</p>	<p>Aim:The goal of this study was to examine whether there were differences in change in blood pressure (BP) for African American and non-Hispanic white patients in response to a medication management and tailored nurse-delivered telephone behavioral program.</p>	<p>The combination of home blood pressure monitoring, remote drug management and telephone custom behavior self-management is particularly effective in improving blood pressure of African Americans.</p>

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APPENDIX 3:

Result direction	Process:					Article Title
SBP	Experimental group	133.3 (17.1)	128.8 (12)			Khadoura KJ, Shakibazadeh E, Mansournia MA, Aljeesh Y, Fotouhi A. Validity of a motivational interview for medication adherence in Palestinian hypertensive patients: a whole-group randomized controlled trial. European J Cardiovascular Care. 2021 29 Mar 20;5(411):420-10. doi: 1093.015/EURJCN/ZVAA34009313. password: <>.
	Control group	132.2 (15.2)	132.5 (13.4)			
	Data were collected through a structured interview-based questionnaire and analyzed by adjusting for covariates through a generalized equation estimation model.					
	Experimental group	Baseline: 137.4 (134.6-140.2)	8 weeks: 132.7 (129.9-135.6)b	16 weeks 134.8 (132.0-137.7)	24 weeks 134.6 (131.7-137.4)	or CK, Liu K, Su MKP, Zhang B, Ren LYC, Tiwari A, Liu YFE, Liu T, Xu PSG, Cheng H, Tan J, Zhang MT. Improving self-care through technology replacement care in patients with coexisting type

Control group	137.6 (134.8-140.3)	135.2 (132.3 - 138.0)	135.9 (133.0-138.7)	138.1 (135.3-140.9)	2 diabetes and hypertension: a randomized controlled trial. Medical Internet Research 2020 27 Jul 22;3(16769):e10. doi: 2196.16769/32217498. password: 7148548; PMID: PMC<>.
The 24-week parallel-group randomized controlled trial (RCT) was designed and implemented in outpatients with diabetes and hypertension. Participants were randomly assigned to either the intervention group, provided with a prototype tablet-based TSN app, or a traditional self-administered control group.					
Experiment	140.77 (8.31)	136.93 (7.96)			Elavally S, Ramamurthy MT, Subash J, Meleveedu R, Venkatasalu MR. Effect of a nurse-led home biofeedback intervention on blood pressure levels in patients with hypertension: a pre-test - post-test study. j Family Med Primary Care. 2020 Oct 9;9(4833):4840-10. DOI: 4103.210/jfmpe.jfmpe_20_3320980
Sociodemographic, clinical and outcome variables [baseline blood pressure and galvanic skin response (GSR)] were collected. Patients in the study group received four sessions of abdominal breathing-assisted relaxation instruction facilitated by GSR biofeedback. Daily home practices were encouraged and monitored to measure the effect on blood pressure and GSR					

						9. password: 7652173; PMCID: PMC<>.
	Experimental group	Initial 156.26±5.14	All around 142.10±9.18	Eight weeks 148.00±9.33	Twelve weeks 149.24±8.42	Kes D, Polat U. The effect of nurse-led telephone support on adherence to blood pressure control and drug treatment in individuals with primary hypertension: a randomized controlled study. Int J Nurs Pract. 2022 Jun;28(3):e12995. doi: 10.1111/ijn.12995. epub 2021 Jul 27. PMID: 34318542.
	Control group	155.32±5.67	147.24±9.29	148.00±9.33	149.24±8.42	
SBP	Training was provided to both groups. The training covered how to properly measure blood pressure, hypertension and its complications, and adherence to antihypertensive treatment. At the end of the training, patients were given a booklet on blood pressure control and medication adherence, as well as a blood pressure monitoring card (NIHR Collaboration for Applied Health Research and Care Leadership, Greater Manchester and British Hypertension Society, n.d.; Karch, 2014). In the control group, patients received the normal standard of care provided to hypertensive patients. At the end of training, the intervention group was supplemented by telephone monitoring of PI on top of usual care, with telephone follow-up at weeks 2, 4, 6, 8 and 12. During the follow-up visits, PI assessed compliance with blood pressure monitoring and					



<p>medication and worked with patients to assess blood pressure measurements in their own homes. Telephone monitoring will take place on Mondays and Sundays from 1 p.m. to 6 p.m.</p>					
Experimental group	129.18	118.64			<p>Kolcu M, Ergun A. Effect of a nurse-led hypertension management program on quality of life, medication adherence and hypertension management in older adults: a randomized controlled trial. Geriatr Gerontol Int. 2020 Dec;20(12):1182-1189. doi: 10.1111/ggi.14068. epub 2020 Oct 20. PMID: 33079474.</p>
Control group	119.18	130.54			
<p>Specific interventions were implemented by both researchers and participants in the intervention group and included individual and group interventions as well as actions taken at the institutional level. These interventions consisted of six health education sessions followed by four brief motivational sessions every other week for each older adult in the intervention group. Those who do not wish to participate in group education will receive individual education. Each new session will be individually scheduled according to the needs of the participants. Motivational sessions will include blood pressure measurements and anthropometric measurements. Institutional arrangements include removal of salt shakers from</p>					

<p>the table, distribution of pill boxes and planning of appropriate places for regular exercise. Participants are encouraged to consume the DASH diet, which is rich in fruits and vegetables and low in fat, potassium, magnesium, calcium, fiber and protein. Inactive patients performed active and passive exercise three days a week. The program lasted 24 weeks and included 20 weeks of intervention. Participants in the control group received usual care in a nursing home. Similar care measures were used for HT patients at both institutions. Data were collected by using a standardized Mini-Mental State Examination, the Quality of Life Scale (SF-36), the Four Moritzky Medication Adherence Scale (MMAS-4), descriptive information sheets (sociodemographic characteristics), and an investigator-developed knowledge and behavior questionnaire for the management of hypertension.</p>					
Experimental group	136.7	Three weeks 133.3	Six weeks 132.9		<p>Tu Q, Xiao LD, Ullah S, Fuller J, Du H. A transitional care intervention for hypertension control for older people with diabetes: a cluster randomized controlled trial. <i>J Adv Nurs</i>. 2020 Oct;76(10):2696-2708. doi: 10.1111/jan.14466. epub 2020 Aug 3. PMID: 32744373.</p>
Control group	135.5	137.0	142.3		
<p>The framework for the intervention design was adapted from an integrated care model developed by the McCall Center for Healthcare Innovation in the United States. The</p>					

	<p>intervention included individualized discharge education for the charge nurse; an individualized medication regimen developed by a medical specialist prior to discharge; and six months of post-discharge support by a general practitioner and community nurse at a community health center. Goal setting and action plans enabled participants to become informed and active individuals who were in charge of their own care at home. The control group received routine discharge education in the hospital, and the patient's charge nurse provided a brief discussion on medication administration and use. Routine follow-up visits were conducted at the hospital outpatient department at 3 and 6 months, respectively.</p>					
	Intervention group	135.2 (initial)-	126.9 (final)			<p>Mattei da Silva ÂT, de Fátima Mantovani M, Castanho Moreira R, Perez Arthur J, Molina de Souza R. Nursing case management for people with hypertension in primary health care: a randomized controlled trial. <i>res Nurs Health</i>. 2020 Jan;43(1):68-78. doi: 10.1002/nur.21994. epub 2019 Nov 11. pmid: 31710134.</p>
	Control group	134.7 -	135.8			
SBP	<p>The researchers implemented the intervention according to the case management measures presented in the Ulbrich and Mantovani Hypertension Complications Prediction Scale (Silva, Mantovanni, Godoy, Kalinke, &amp; Ulbrich, 2017; Ulbrich, Mantowani, Mattei, &amp; Mendes, 2017). The following management activities were scheduled separately: nursing consultations, telephone contact, home visits, and group and individual health education activities. Consultations lasted approximately 45 minutes and included customized health education,</p>					

<p>blood pressure measurement, and body mass index (BMI) calculation; telephone contacts were made every two months and group health education activities were conducted for approximately five minutes in a community space using WhatsApp. It was conducted twice for low- and medium-risk patients and once every three months for high- and very high-risk patients. Activities lasted approximately 60 minutes.</p>					
Experimental group	156.43 (initial)	142.59 (after one month)			<p>Delavar F, Pashaeypoor S, Negarandeh R. The effects of self-management education tailored to health literacy on medication adherence and blood pressure control among elderly people with primary hypertension: a randomized controlled trial. <i>patient Educ Couns</i>. 2020 Feb;103(2):336-342. doi: 10.1016/j.pec.2019.08.028. epub 2019 Aug 19. pmid: 31451361.</p>
Control group	154.22	148.45			
<p>Participants in the intervention group had two 30-45 minute face-to-face sessions per week for the first two weeks of the study. Following face-to-face education, they had two 15-minute telephone education sessions each week in the afternoon. Educational materials were created by searching existing literature and customizing participant HLs. Educational materials were delivered in the form of face-to-face and telephone lectures through the use of Islam. Educational materials for all participants in the intervention group were provided by the same teacher. Participants in the control group received only the usual care services for all patients with hypertension in the study setting, including office visits, medication prescriptions, and blood pressure measurements.</p>					
Usual care	148.6	141.2	139.9		

		Basic	Three months	Six months		Persell SD, Karmali KN, Lazar D, Friesema EM, Lee JY, Rademaker A, Kaiser D, Eder M, French DD, Brown T, Wolf MS. Effect of Electronic Health Record-Based Medication Support and Nurse-Led Medication Therapy Management on Hypertension and Medication Self-management: a Randomized Clinical Trial. <i>JAMA Intern Med.</i> 2018 Aug 1;178(8):1069-1077. doi: 10.1001/jamainternmed.2018.2372. PMID: 29987324; PMCID: PMC6143105.
	Alone	145.5	35.2	134.8		
	Education	141.5	133.5	134.2		
<p>During the intervention year, nurses conducted post-treatment medication education and medication reviews. When a new medication is prescribed to treat a chronic condition, the nurse will contact the participant within 4 to 7 days to determine if they have received a new prescription, to assess utilization, and to identify any problems. Nurses will actively call participants who have not returned within 3 months, those with uncontrolled hypertension or diabetes, and those with controlled hypertension within 6 months. The nurse communicates with the treating clinician using electronic medical record-based email, telephone, or pager to clarify questions and document the review in the EHR.</p>						
	(Behavioral Management vs. Usual Care)	African American:	-2.8 (95 % CI -8.9, 3.3)	0.8 (95 % CI -5.2, 6.8)	-1.2 (95 % CI -7.0, 4.6)	Edelman D, Dolor RJ, Coffman CJ, Pereira KC, Granger BB, Lindquist JH, Neary AM, Harris AJ, Bosworth HB. Nurse-led behavioral

	Medication Management vs. Usual Care		-2.3 (95 % CI -8.3, 3.7)	-2.4 (95 % CI -8.4, 3.6)	-6.6 (95 % CI -12.5, -0.7)	management of diabetes and hypertension in community practices: a randomized trial. J Gen Intern Med. 2015 May;30(5):626-33. doi: 10.1007/s11606-014-3154-9. epub 2015 Jan 8. PMID: 25567758; PMCID: PMC4395596.
	Combined vs. Usual Care		-0.3 (95 % CI -6.7, 6.0)	-2.5 (95 % CI -8.9, 3.9)	-9.7 (95 % CI -16.0, -3.4)	
	(Behavioral Management vs. Usual Care)	White:	5.0 (95 % CI -0.8, 10.8)	-2.1 (95 % CI -8.0, 3.8)	-0.4 (95 % CI -6.5, 5.7)	
	Medication Management vs. Usual Care		-1.3 (95 % CI -7.2, 4.6)	-2.8 (95 % CI -8.7, 3.1)	-1.5 (95 % CI -7.7, 4.7)	

	Combined vs. Usual Care		4.6 (95 % CI -1.6, 10.9)	0.6 (95 % CI -5.8, 6.9)	3.1 (95 % CI - 3.5, 9.7)	
	<p>An experienced nurse provided customized behavioral interventions and attention control. For both groups, calls were conducted every two months for a total of 12 sessions. In the intervention group, the nurse's behavioral modifications were tailored to each patient's individual barriers. These included behaviors that facilitated improved blood pressure or blood glucose control, including physical activity, weight loss, low salt intake, smoking cessation, medication adherence, hypoglycemia management, and glucose monitoring. Fidelity was assessed by two nurse investigators (KP, BG) who listened to 5% of the total call sample to provide the desired content. However, the calls received by control patients were not customized; they provided a range of traditional didactic messages on topics unrelated to HTN, DM, or any of the behaviors we were trying to improve. Content was strictly scripted to limit the possibility of effective interaction between nurse and patient</p>					
DBP	Experiment al group	85.36 (11.5)	82.12 (7.4)			Khadoura KJ, Shakibazadeh E, Mansournia MA, Aljeesh Y, Fotouhi A. Validity of a motivational interview for
	Control group	83.88 (11.2)	85.40 (8.1)			

<p>Data were collected through a structured interview-based questionnaire and analyzed by adjusting for covariates through a generalized equation estimation model.</p>					<p>medication adherence in Palestinian hypertensive patients: a whole-group randomized controlled trial. European J Cardiovascular Care. 2021 29 Mar 20;5(411):420-10. doi: 1093.015/EURJCN/ZVAA3400931 3. password: &lt;&gt;.</p>
Experimental group	74.7 (73.1-76.2)	74.7 (73.1-76.2)	74.1 (72.5-75.7)	74.2 (72.6-75.8)	<p>or CK, Liu K, Su MKP, Zhang B, Ren LYC, Tiwari A, Liu YFE, Liu T, Xu PSG, Cheng H, Tan J, Zhang MT. Improving self-care through technology replacement care in patients with coexisting type 2 diabetes and hypertension: a randomized controlled trial. Medical Internet Research 2020 27 Jul 22;3(16769):e10. doi: 2196.16769/32217498. password: 7148548; PMID: PMC&lt;&gt;.</p>
Control group	76.2 (74.6-77.7)	74.6 (73.0-76.2) <sup>b</sup>	74.8 (73.3-76.4)	76.1 (74.5-77.6)	
<p>The 24-week parallel-group randomized controlled trial (RCT) was designed and implemented in outpatients with diabetes and hypertension. Participants were randomly assigned to either the intervention group, provided with a prototype tablet-based TSN app, or a traditional self-administered control group.</p>					



Experiment	88.24 (5.42)	85.77 (4.66)				Elavally S, Ramamurthy MT, Subash J, Meleveedu R, Venkatasalu MR. Effect of a nurse-led home biofeedback intervention on blood pressure levels in patients with hypertension: a pre-test - post-test study. <i>J Family Med Primary Care</i> . 2020 Oct 9;9(4833):4840-10. DOI: 4103.210/jfmpc.jfmpc_20_3320980 9. password: 7652173; PMID: PMC<>.
Sociodemographic, clinical and outcome variables [baseline blood pressure and galvanic skin response (GSR)] were collected. Patients in the study group received four sessions of abdominal breathing-assisted relaxation instruction facilitated by GSR biofeedback. Daily home practices were encouraged and monitored to measure the effect on blood pressure and GSR						
Intervention group	95.08±4.22	88.64 ± 6.00	89.33 ± 5.22	86.56 ± 4.84		Kes D, Polat U. The effect of nurse-led telephone support on adherence to blood pressure control and drug treatment in individuals with primary hypertension: a randomized controlled study. <i>Int J</i>
Control group	94.16±4.66	94.84±4.97	92.87±5.48	93.61±5.57		

	<p>Training was provided to both groups. The training covered how to properly measure blood pressure, hypertension and its complications, and adherence to antihypertensive treatment. At the end of the training, patients were given a booklet on blood pressure control and medication adherence, as well as a blood pressure monitoring card (NIHR Collaboration for Applied Health Research and Care Leadership, Greater Manchester and British Hypertension Society, n.d.; Karch, 2014). In the control group, patients received the normal standard of care provided to hypertensive patients. At the end of training, the intervention group was supplemented by telephone monitoring of PI on top of usual care, with telephone follow-up at weeks 2, 4, 6, 8 and 12. During the follow-up visits, PI assessed compliance with blood pressure monitoring and medication and worked with patients to assess blood pressure measurements in their own homes. Telephone monitoring will take place on Mondays and Sundays from 1 p.m. to 6 p.m.</p>				<p>Nurs Pract. 2022 Jun;28(3):e12995. doi: 10.1111/ijn.12995. epub 2021 Jul 27. PMID: 34318542.</p>	
DBP	Intervention group	79.72	77.8	3		<p>Kolcu M, Ergun A. Effect of a nurse-led hypertension management program on quality of life, medication adherence and hypertension management in older adults: a randomized controlled trial. Geriatr Gerontol Int. 2020 Dec;20(12):1182-1189. doi:</p>
	Control group	75.13	82.7	0		
	<p>Specific interventions were implemented by both researchers and participants in the intervention group and included individual and group interventions as well as actions taken at the institutional level. These interventions consisted of six health education sessions followed</p>				<p>Geriatr Gerontol Int. 2020 Dec;20(12):1182-1189. doi:</p>	

<p>by four brief motivational sessions every other week for each older adult in the intervention group. Those who do not wish to participate in group education will receive individual education. Each new session will be individually scheduled according to the needs of the participants. Motivational sessions will include blood pressure measurements and anthropometric measurements. Institutional arrangements include removal of salt shakers from the table, distribution of pill boxes and planning of appropriate places for regular exercise. Participants are encouraged to consume the DASH diet, which is rich in fruits and vegetables and low in fat, potassium, magnesium, calcium, fiber and protein. Inactive patients performed active and passive exercise three days a week. The program lasted 24 weeks and included 20 weeks of intervention. Participants in the control group received usual care in a nursing home. Similar care measures were used for HT patients at both institutions. Data were collected by using a standardized Mini-Mental State Examination, the Quality of Life Scale (SF-36), the Four Moritzky Medication Adherence Scale (MMAS-4), descriptive information sheets (sociodemographic characteristics), and an investigator-developed knowledge and behavior questionnaire for the management of hypertension.</p>					<p>10.1111/ggi.14068. epub 2020 Oct 20. PMID: 33079474.</p>
Intervention group	81.6	79.7 (three weeks)	79.0 (six weeks)		<p>Tu Q, Xiao LD, Ullah S, Fuller J, Du H. A transitional care intervention for hypertension control for older people with</p>
Control group	80.3	80.7	81.7		

<p>The framework for the intervention design was adapted from an integrated care model developed by the McCall Center for Healthcare Innovation in the United States. The intervention included individualized discharge education for the charge nurse; an individualized medication regimen developed by a medical specialist prior to discharge; and six months of post-discharge support by a general practitioner and community nurse at a community health center. Goal setting and action plans enabled participants to become informed and active individuals who were in charge of their own care at home. The control group received routine discharge education in the hospital, and the patient's charge nurse provided a brief discussion on medication administration and use. Routine follow-up visits were conducted at the hospital outpatient department at 3 and 6 months, respectively.</p>	<p>diabetes: a cluster randomized controlled trial. <i>J Adv Nurs</i>. 2020 Oct;76(10):2696-2708. doi: 10.1111/jan.14466. epub 2020 Aug 3. PMID: 32744373.</p>				
<p>Intervention group</p>	<p>85.6 (start)</p>	<p>78.2 (end)</p>			<p>Mattei da Silva ÂT, de Fátima Mantovani M, Castanho Moreira R, Perez Arthur J, Molina de Souza R. Nursing case management for people with hypertension in primary health care: a randomized controlled trial. <i>Res Nurs Health</i>. 2020 Jan;43(1):68-78. doi: 10.1002/nur.21994. epub 2019 Nov 11. pmid: 31710134.</p>
<p>Control group</p>	<p>85.1</p>	<p>84.5</p>			
<p>The researchers implemented the intervention according to the case management measures presented in the Ulbrich and Mantovani Hypertension Complications Prediction Scale (Silva, Mantovanni, Godoy, Kalinke, &amp; Ulbrich, 2017; Ulbrich, Mantowani, Mattei, &amp; Mendes, 2017). The following management activities were scheduled separately: nursing consultations, telephone contact, home visits, and group and individual health education activities. Consultations lasted approximately 45 minutes and included customized health education,</p>					

<p>blood pressure measurement, and body mass index (BMI) calculation; telephone contacts were made every two months and group health education activities were conducted for approximately five minutes in a community space using WhatsApp. It was conducted twice for low- and medium-risk patients and once every three months for high- and very high-risk patients. Activities lasted approximately 60 minutes.</p>					
Intervention group	96.11	96.03			<p>Delavar F, Pashaeypoor S, Negarandeh R. The effects of self-management education tailored to health literacy on medication adherence and blood pressure control among elderly people with primary hypertension: a randomized controlled trial. <i>patient Educ Couns</i>. 2020 Feb;103(2):336-342. doi: 10.1016/j.pec.2019.08.028. epub 2019 Aug 19. pmid: 31451361.</p>
Control group	88.52	92.15			
<p>Participants in the intervention group had two 30-45 minute face-to-face sessions per week for the first two weeks of the study. Following face-to-face education, they had two 15-minute telephone education sessions each week in the afternoon. Educational materials were created by searching existing literature and customizing participant HLs. Educational materials were delivered in the form of face-to-face and telephone lectures through the use of Islam. Educational materials for all participants in the intervention group were provided by the same teacher. Participants in the control group received only the usual care services for all patients with hypertension in the study setting, including office visits, medication prescriptions, and blood pressure measurements.</p>					

	(Behavioral Management vs. Usual Care)	African American:	-0.6 (95 % CI -4.1, 2.9)	0.7 (95 % CI -2.8, 4.1)	-1.4 (95 % CI -4.7, 2.0)	Edelman D, Dolor RJ, Coffman CJ, Pereira KC, Granger BB, Lindquist JH, Neary AM, Harris AJ, Bosworth HB. Nurse-led behavioral management of diabetes and hypertension in community practices: a randomized trial. J Gen Intern Med. 2015 May;30(5):626-33. doi: 10.1007/s11606-014-3154-9. epub 2015 Jan 8. PMID: 25567758; PMCID: PMC4395596.
	Medication Management vs. Usual Care		0.0 (95 % CI -3.7, 3.8)	-0.2 (95 % CI -3.9, 3.5)	-1.1 (95 % CI -4.8, 2.5)	
	Combined vs. Usual Care		-0.7 (95 % CI -4.5, 3.1)	0.1 (95 % CI -3.8, 3.9)	-4.8 (95 % CI -8.5, -1.0)	
	(Behavioral Management vs. Usual Care)	White	1.3 (95 % CI -2.0, 4.7)	-2.9 (95 % CI -6.3, 0.5)	1.0 (95 % CI -2.6, 4.5) 1.5 (95 % CI -2.3, 5.4)	

Medication Management vs. Usual Care		-1.1 (95 % CI -4.7, 2.6)	-1.5 (95 % CI -5.1, 2.2)	2.4 (95 % CI -1.5, 6.4)	
Combined vs. Usual Care		1.9 (95 % CI -1.8, 5.6)	-0.6 (95 % CI -4.4, 3.2)		
<p>An experienced nurse provided customized behavioral interventions and attention control. For both groups, calls were conducted every two months for a total of 12 sessions. In the intervention group, the nurse's behavioral modifications were tailored to each patient's individual barriers. These included behaviors that facilitated improved blood pressure or blood glucose control, including physical activity, weight loss, low salt intake, smoking cessation, medication adherence, hypoglycemia management, and glucose monitoring. Fidelity was assessed by two nurse investigators (KP, BG) who listened to 5% of the total call sample to provide the desired content. However, the calls received by control patients were not customized; they provided a range of traditional didactic messages on topics unrelated to HTN, DM, or any of the behaviors we were trying to improve. The content was strictly scripted to limit the possibility of effective interaction between nurse and patient</p>					

Medication Adherence	65.5%	97.6%				Edward A, Kagaruki GB, Manase F, Appel LJ, Matsushita K. Effectiveness of instructional videos in improving healthcare providers' capacity to manage hypertension - an ex ante study in a Tanzanian primary health care setting. <i>bmc Health Services Research</i> 2022 31 Mar 22;1(721):10. doi: 1186.12913/s02208064535641952. password: 9153873; PMID: PMC<>.
		p<0.01				
	Descriptive statistics, unpaired (adherence to patient screening) and paired t-tests (provider knowledge assessment) were conducted to determine differences in quality of care training before and after and provider knowledge competencies before and after					
	Intervention group	4.53 (4.46-4.60)	4.57 (4.50-4.64)	4.53 (4.46-4.60)	4.56 (4.49-4.63)	or CK, Liu K, Su MKP, Zhang B, Ren LYC, Tiwari A, Liu YFE, Liu T, Xu PSG, Cheng H, Tan J, Zhang MT. Improving self-care through



Control group	4.52 (4.45-4.59)	4.64 (4.57-4.71)	4.58 (4.51-4.65)	4.58 (4.51-4.65)	<p>technology replacement care in patients with coexisting type 2 diabetes and hypertension: a randomized controlled trial. Medical Internet Research 2020 27 Jul 22;3(16769):e10. doi: 2196.16769/32217498. password: 7148548; PMCID: PMC&lt;&gt;.</p>
<p>The 24-week parallel-group randomized controlled trial (RCT) was designed and implemented in outpatients with diabetes and hypertension. Participants were randomly assigned to either the intervention group, provided with a prototype tablet-based TSN app, or a traditional self-administered control group.</p>					
Intervention group	15.64	11.73			<p>Abu-El-Noor NI, Aljeesh YI, Bottcher B, Abu-El-Noor MK. Effect of cell phone apps on adherence to treatment regimens in patients with hypertension: a randomized clinical trial study. European J Cardiovascular Care. 2021 29 Mar 20;5(428):435-10. doi: 1177.1474515120938235/32631080. password: &lt;&gt;.</p>
Experimental group	15.92	13.98			
<p>The sociodemographic characteristics of the two groups are listed. The results of random grouping showed that the two groups were evaluated using chi-square test, t-test and ANOVA in both groups.</p> <p>After random assignment of subjects to the control and intervention groups, differences between the control and intervention groups were shown using Hill-Bone CHBPTS as well as subdomain scores.</p>					

Intervention group	142.8 (11.6)	144.1 (12.6)				Chatziefstratiou AA, Fotos NV, Giakoumidakis K, Brokalaki H. Impact of nurse-initiated education on HeartScore in patients with hypertension: a randomised trial. <i>br J Nurs.</i> 2021 Jun 24;30(12):722-728. doi: 10.12968/bjon.2021.30.12.722. pmid: 34170736. (This article is in the blood pressure direction and needs to be revised)
Control group	146.3 (15.4)	147.6 (16.1)				
<p>Patients with hypertension are registered in Hypertension. Check-ups were performed in the unit every 3 months. Demographic and socioeconomic questionnaires were observed regarding the follow-up time of the patients in the unit</p>						
Intervention group	21.87+- 4.93 (t=- 0.571,p=0.577 )	41.92+-5.64 (t=10.06,p=0.001 )				Kes D, Polat U. The effect of nurse-led telephone support on adherence to blood pressure control and drug treatment in individuals with primary hypertension: a randomized controlled study. <i>Int J Nurs Pract.</i> 2022 Jun;28(3):e12995. doi:
Control group	22.45+- 4.02 (t=-	28.55+-6.01 (t=10.06,p=0.001)				

		o.571,p=0.577 )				10.1111/ijn.12995. epub 2021 Jul 27. PMID: 34318542.
	<p>Training was provided to both groups. The training covered how to properly measure blood pressure, hypertension and its complications, and adherence to antihypertensive treatment. At the end of the training, patients were given a booklet on blood pressure control and medication adherence, as well as a blood pressure monitoring card (NIHR Collaboration for Applied Health Research and Care Leadership, Greater Manchester and British Hypertension Society, n.d.; Karch, 2014). In the control group, patients received the normal standard of care provided to hypertensive patients. At the end of training, the intervention group was supplemented by telephone monitoring of PI on top of usual care, with telephone follow-up at weeks 2, 4, 6, 8 and 12. During the follow-up visits, PI assessed compliance with blood pressure monitoring and medication and worked with patients to assess blood pressure measurements in their own homes. Telephone monitoring will take place on Mondays and Sundays from 1 p.m. to 6 p.m.</p>					
Medication Adherence	Intervention group	93.7 (start)-	98.4: (end)			Mattei da Silva ÂT, de Fátima Mantovani M, Castanho Moreira R, Perez Arthur J, Molina de Souza R.

Control group	94.9	93.8			Nursing case management for people with hypertension in primary health care: a randomized controlled trial. <i>res Nurs Health</i> . 2020 Jan;43(1):68-78. doi: 10.1002/nur.21994. epub 2019 Nov 11. pmid: 31710134.
<p>The researchers implemented the intervention according to the case management measures presented in the Ulbrich and Mantovani Hypertension Complications Prediction Scale (Silva, Mantovanni, Godoy, Kalinke, &amp; Ulbrich, 2017; Ulbrich, Mantowani, Mattei, &amp; Mendes, 2017). The following management activities were scheduled separately: nursing consultations, telephone contact, home visits, and group and individual health education activities. Consultations lasted approximately 45 minutes and included customized health education, blood pressure measurement, and body mass index (BMI) calculation; telephone contacts were made every two months and group health education activities were conducted for approximately five minutes in a community space using whatsApp. It was conducted twice for low- and medium-risk patients and once every three months for high- and very high-risk patients. Activities lasted approximately 60 minutes.</p>					
Usual care	140/229	178/239			Persell SD, Karmali KN, Lazar D, Friesema EM, Lee JY, Rademaker A, Kaiser D, Eder M, French DD, Brown T, Wolf MS. Effect of Electronic Health Record-Based Medication Support and Nurse-Led
Alone	160/238	189/256			
Education	134/236	191/267			
<p>During the intervention year, nurses conducted post-treatment medication education and medication reviews. When a new medication is prescribed to treat a</p>					

	<p>chronic condition, the nurse will contact the participant within 4 to 7 days to determine if they have received a new prescription, to assess utilization, and to identify any problems. Nurses will actively call participants who have not returned within 3 months, those with uncontrolled hypertension or diabetes, and those with controlled hypertension within 6 months. The nurse communicates with the treating clinician using electronic medical record-based email, telephone, or pager to clarify questions and document the review in the EHR.</p>				<p>Medication Therapy Management on Hypertension and Medication Self-management: a Randomized Clinical Trial. <i>JAMA Intern Med.</i> 2018 Aug 1;178(8):1069-1077. doi: 10.1001/jamainternmed.2018.2372. PMID: 29987324; PMCID: PMC6143105.</p>	
<p>HT knowledg e score</p>	<p>Intervention group</p>	<p>12.10</p>	<p>20.75</p>			<p>Kolcu M, Ergun A. Effect of a nurse-led hypertension management program on quality of life, medication adherence and hypertension management in older adults: a randomized controlled trial. <i>Geriatr Gerontol Int.</i> 2020 Dec;20(12):1182-1189. doi: 10.1111/ggi.14068. epub 2020 Oct 20. PMID: 33079474.</p>
	<p>Control group</p>	<p>12.02</p>	<p>12.21</p>			
	<p>Specific interventions were implemented by both researchers and participants in the intervention group and included individual and group interventions as well as actions taken at the institutional level. These interventions consisted of six health education sessions followed by four brief motivational sessions every other week for each older adult in the intervention group. Those who do not wish to participate in group education will receive individual education. Each new session will be individually scheduled according to the needs of the participants. Motivational sessions</p>					

<p>will include blood pressure measurements and anthropometric measurements. Institutional arrangements include removal of salt shakers from the table, distribution of pill boxes and planning of appropriate places for regular exercise. Participants are encouraged to consume the DASH diet, which is rich in fruits and vegetables and low in fat, potassium, magnesium, calcium, fiber and protein. Inactive patients performed active and passive exercise three days a week. The program lasted 24 weeks and included 20 weeks of intervention. Participants in the control group received usual care in a nursing home. Similar care measures were used for HT patients at both institutions. Data were collected by using a standardized Mini-Mental State Examination, the Quality of Life Scale (SF-36), the Four Moritzky Medication Adherence Scale (MMAS-4), descriptive information sheets (sociodemographic characteristics), and an investigator-developed knowledge and behavior questionnaire for the management of hypertension.</p>					
Intervention group	13.3	16.7 (three weeks)	17.9 (six weeks)		<p>Tu Q, Xiao LD, Ullah S, Fuller J, Du H. A transitional care intervention for hypertension control for older people with diabetes: a cluster randomized controlled trial. <i>J Adv Nurs.</i> 2020 Oct;76(10):2696-</p>
Control group	13.4	14.4	14.0		
<p>The framework for the intervention design was adapted from an integrated care model developed by the McCall Center for Healthcare Innovation in the United States.</p>					

	<p>The intervention included individualized discharge education for the charge nurse; an individualized medication regimen developed by a medical specialist prior to discharge; and six months of post-discharge support by a general practitioner and community nurse at a community health center. Goal setting and action plans enabled participants to become informed and active individuals who were responsible for their own care at home. The control group received routine discharge education in the hospital, and the patient's charge nurse provided a brief discussion on medication administration and use. Routine follow-up visits were conducted at the hospital outpatient department at 3 and 6 months, respectively.</p>				<p>2708. doi: 10.1111/jan.14466. epub 2020 Aug 3. PMID: 32744373.</p>
Quality of life	Intervention group	170.1	172.9	179.8	<p>Tu Q, Xiao LD, Ullah S, Fuller J, Du H. A transitional care intervention for hypertension control for older people with diabetes: a cluster randomized controlled trial. <i>J Adv Nurs.</i> 2020 Oct;76(10):2696-2708. doi: 10.1111/jan.14466. epub 2020 Aug 3. PMID: 32744373.</p>
	Control group	170.3	165.7	161.8	
	<p>The framework for the intervention design was adapted from an integrated care model developed by the McCall Center for Healthcare Innovation in the United States. The intervention included individualized discharge education for the charge nurse; an individualized medication regimen developed by a medical specialist prior to discharge; and six months of post-discharge support by a general practitioner and community nurse at a community health center. Goal setting and action plans enabled participants to become informed and active individuals who were responsible for their</p>				

<p>own care at home. The control group received routine discharge education in the hospital, and the patient's charge nurse provided a brief discussion on medication administration and use. Routine follow-up visits were conducted at the hospital outpatient department at 3 and 6 months, respectively.</p>					
Intervention group	12.4	8.8			<p>Mattei da Silva ÂT, de Fátima Mantovani M, Castanho Moreira R, Perez Arthur J, Molina de Souza R. Nursing case management for people with hypertension in primary health care: a randomized controlled trial. <i>res Nurs Health</i>. 2020 Jan;43(1):68-78. doi: 10.1002/nur.21994. epub 2019 Nov 11. pmid: 31710134.</p>
Control group	11.6	9.9			
<p>The researchers implemented the intervention according to the case management measures presented in the Ulbrich and Mantovani Hypertension Complications Prediction Scale (Silva, Mantovanni, Godoy, Kalinke, &amp; Ulbrich, 2017; Ulbrich, Mantowani, Mattei, &amp; Mendes, 2017). The following management activities were scheduled separately: nursing consultations, telephone contact, home visits, and group and individual health education activities. Consultations lasted approximately 45 minutes and included customized health education, blood pressure measurement, and body mass index (BMI) calculation; telephone contacts were made every two months and group health education activities were conducted for approximately five minutes in a community space using whatsapp. It was conducted twice for low- and medium-risk patients and once every three months for high- and very high-risk patients. Activities lasted approximately 60 minutes.</p>					



Self-efficacy	Intervention group	3.28 (0.89)	3.71 (1.1)			Khadoura KJ, Shakibazadeh E, Mansournia MA, Aljeesh Y, Fotouhi A. Validity of a motivational interview for medication adherence in Palestinian hypertensive patients: a whole-group randomized controlled trial. <i>European J Cardiovascular Care</i> . 2021 29 Mar 20;5(411):420-10. doi: 1093.015/EURJCN/ZVAA34009313 . password: <>.
	Control group	3.12 (0.86)	3.07 (0.9)			
	Data were collected through a structured interview-based questionnaire and analyzed by adjusting for covariates through a generalized equation estimation model.					

