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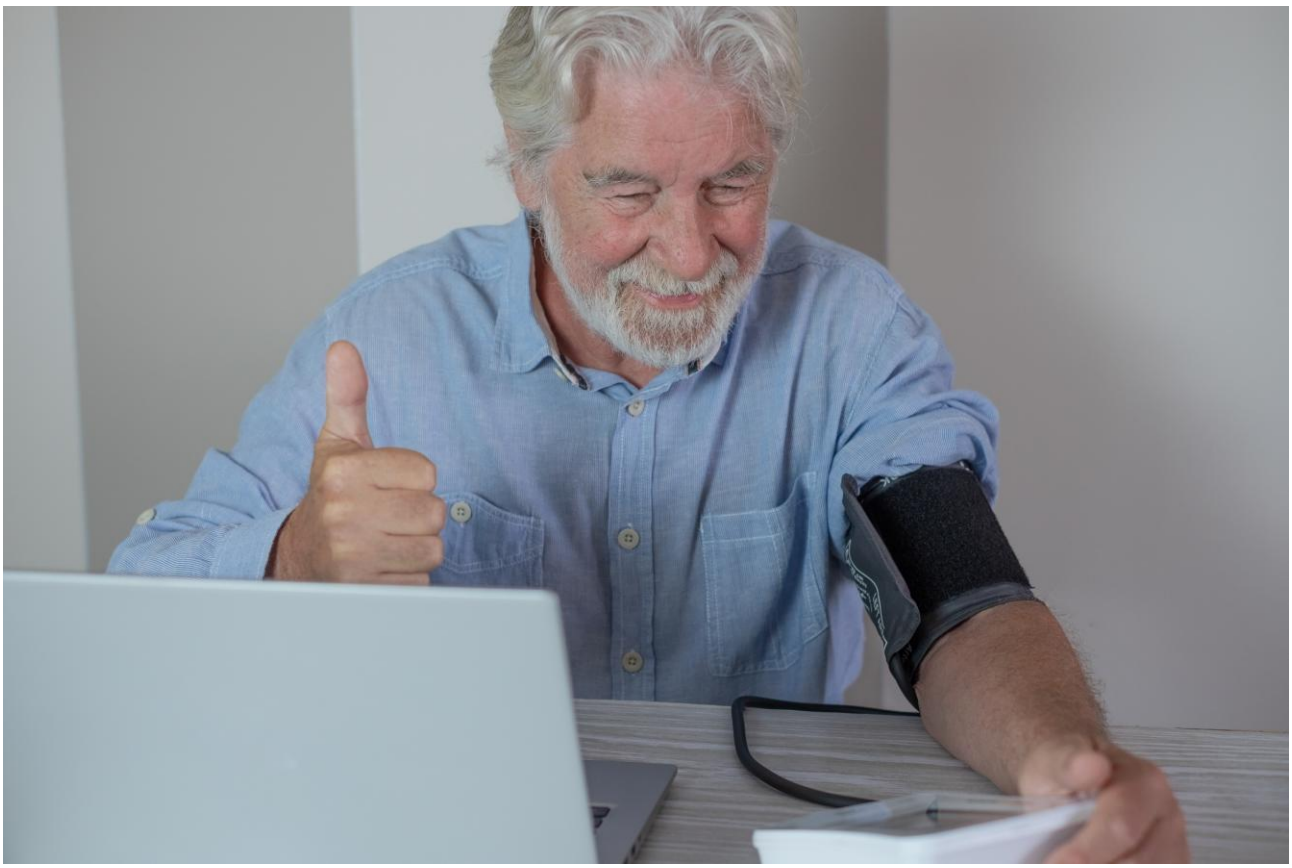

High blood pressure in adults: supporting adherence to self-management

NRF Clinical Practice Guidelines™

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DECLARATION OF INTERESTS: The members of the guideline working group and expert group have no financial or other interests related to the guideline topic that would affect the reliability of the recommendations.

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Introduction

High blood pressure is globally the most significant risk factor contributing to morbidity and premature mortality.[1] If left untreated, hypertension damages the arteries and predisposes individuals to serious conditions, such as myocardial infarction and cerebrovascular disorders. The ideal blood pressure level is below 120/80 mmHg. Hypertension is defined as a blood pressure level exceeding 140/90 mmHg.[2,3]

In Finland, approximately 1.5 million individuals aged 30–79 have been diagnosed with hypertension, of whom fewer than 30 % achieve the target blood pressure level of below 140/90 mmHg.[4] Both genetic and lifestyle-related risk factors contribute to elevated blood pressure. The most important modifiable risk factors include excessive salt intake, unhealthy diet, overweight, physical inactivity, high alcohol consumption, smoking, poor sleep quality, and prolonged stress. Lifestyle changes addressing these risk factors play a central role and are the first-line approach in the self-management of elevated blood pressure.[2,3]

Adherence to self-management is a key factor in achieving treatment goals for hypertension.[3,5] It requires individuals with hypertension to engage actively and purposefully in promoting their own health and managing their elevated blood pressure. Factors influencing adherence include the patient's personal motivation, endurance, comprehensive knowledge of hypertension as a condition, and social support. Healthcare professionals play a crucial role in supporting adherence to self-management.[6,7,8] Support from professionals, a functional therapeutic relationship[6,7,8] an encouraging attitude, and personalised care[6,8,9] all promote adherence. In addition to lifestyle changes, adherence to self-management also includes regular blood pressure monitoring and compliance with pharmacological treatment, if medication has been initiated.[7,9,10, 11,12,13]

This NRF Clinical Practice Guideline™ targets adults diagnosed with hypertension of exogenous origin, where the rise in blood pressure is due to external factors, such as lifestyle-related issues (e.g. salt, alcohol, overweight, stress). The guideline addresses methods that support adherence to non-pharmacological self-management.

Purpose, objectives and key concepts of the guideline

Purpose and objectives

The purpose of this Clinical practice guideline is to present evidence, based on systematically compiled and critically appraised research, regarding the support of adherence to non-pharmacological self-management among individuals over the age of 18 with hypertension. Furthermore, it proposes to provide recommendations for social and healthcare professionals who guide and support individuals with hypertension. The objective of the guideline is to offer evidence-based knowledge to social and healthcare professionals, enabling them to support individuals with hypertension in adhering to self-management practices. Furthermore, it aims to promote the use of meaningful and effective nursing interventions that support adherence to self-management. With the support received, individuals with hypertension may enhance their capacity for self-management, improve their overall health status, and reduce the risk of serious cardiovascular events.

Target groups

This guideline is intended for all social and healthcare professionals who encounter adults over the age of 18 with elevated blood pressure in their work and support them in adhering to self-management. The guideline is applicable in both specialised and primary healthcare, as well as in occupational health services. Additionally, it can be used to ensure the competence of nursing staff and in educational contexts. The guideline is also suitable as learning material and for curriculum development in vocational and continuing education.

Key concepts

High blood pressure and individuals with hypertension

Blood pressure is considered elevated when systolic pressure exceeds 140 mmHg and/or diastolic pressure exceeds 90 mmHg. Typically, blood pressure increases with age and as a result of unhealthy lifestyle habits. The average diastolic pressure tends to rise until approximately the age of 55, and systolic pressure until around the age of 80.[3] The most significant lifestyle-related risk factors for elevated blood pressure include excessive sodium (salt) intake, unhealthy diet, excessive alcohol consumption, smoking, low physical activity, overweight, poor sleep quality, obesity, and prolonged stress.[2,3] The diagnosis of hypertension is based on blood pressure measurements taken both in clinical settings and at home[5]. Home monitoring is the most recommended and generally sufficient method for tracking blood pressure.[3] In this clinical practice guideline, individuals with hypertension are defined as those with exogenous hypertension, meaning the rise in blood pressure is caused by external factors such as lifestyle-related risks (e.g. salt, alcohol, overweight)[14].

Self-management of hypertension and adherence to self-management

Self-management of hypertension includes activities that promote blood pressure health, such as adherence to healthy lifestyle habits: a heart-friendly diet, physical activity, moderate alcohol consumption, non-smoking, weight management, mental well-being, and sleep health[5,15]. Furthermore, self-management involves regular home blood pressure monitoring, attending follow-up appointments, and adherence to medication when prescribed. This guideline focuses on adherence to non-pharmacological self-management among individuals with hypertension.

Adherence to self-management refers to the active and goal-oriented efforts of individuals with hypertension to manage their condition in collaboration with healthcare professionals. Factors associated with adherence include personal responsibility for care, cooperation with healthcare professionals, a sense of normality, motivation, self-efficacy, perceived treatment outcomes, fear of complications and disease progression, and support from family, nurses, and physicians[16,13,17,18,19]. Many factors influence adherence; for example, motivation has been identified as a key factor [20,21]. Interactive and client-centred lifestyle counselling has been shown to promote commitment to lifestyle changes[7]. Finally, comprehensive knowledge of the disease and understanding the significance of the diagnosis support adherence[7,9,12].

A central element in adherence to self-management is the modification of lifestyle-related risk factors, which is the first step in lowering blood pressure without pharmacological treatment[3]. Key modifiable lifestyle-related risk factors include excessive sodium (salt) intake, unhealthy diet, overweight, low physical activity, excessive alcohol consumption, poor sleep quality, smoking, and prolonged stress.[5,22,15]

Self-efficacy

In this guideline, self-efficacy refers to the individual's belief in their own ability to achieve blood pressure treatment goals. Self-efficacy is closely linked to motivation and changes in health behaviour. The concept is based on social cognitive learning theory.[23] A strong sense of self-efficacy has been associated with better physical functioning, improved mental well-being, and reduced anxiety. Furthermore, self-efficacy supports adaptation to hypertension[24] and enhances quality of life[25]. Higher self-efficacy promotes general adherence to self-management[26,27,28], lifestyle changes[29], adherence to a blood pressure-supportive diet[30,31,32,33], weight management[30,33,34], non-smoking[33], and physical activity[31,33,34,35].

Recommendations

1. Therapeutic relationship

Agree on regular follow-up appointments with the individual with hypertension, tailored to their individual needs, to ensure continuity of care and the establishment of a trusting therapeutic relationship, because

- **the experience of a trusting therapeutic relationship may support adherence to self-management among individuals with hypertension[36]. (C)**

  - A trusting therapeutic relationship is based on mutual respect and recognition of the individual's own expertise regarding their life situation. Adherence to self-management requires active participation from both parties. A key factor in strengthening the patient's self-management capacity is interaction with the same healthcare professional.[37,38].

- **individuals with hypertension may perceive that regular follow-up appointments with a healthcare professional promote the achievement of treatment goals[39]. (C)**

  - According to healthcare professionals, insufficient information and poor communication are the main reasons why individuals with hypertension do not adhere to their care plans[40].
  - When blood pressure is at the target level, the frequency of follow-up visits should be planned individually, based on medication and comorbidities. After the diagnosis of hypertension and the initiation or adjustment of medication, contact is recommended every 1–2 months until blood pressure control is achieved.[3]
  - Telephone and remote guidance can also be utilised in the follow-up of clients whose blood pressure is under control. Those outside the target range should be referred for an in-person appointment. Risk factor assessment is recommended at least every two years.[3]

2. Supporting the prerequisites for self-management

Individuals with hypertension are more likely to adhere to self-management if they possess strong self-efficacy, knowledge of their condition, good self-management abilities, and high health literacy.

Identify the need for guidance and provide support that enhances self-care abilities, because

- **guidance on self-management is likely to increase individuals' knowledge of their condition[41,42,43,44]. (B)**
    - The need for guidance can be assessed using, for example, the digital health check-up by Duodecim, available through the national Omaolo service: *www.omaolo.fi*.
- **guidance that supports self-efficacy appears to increase commitment to lifestyle changes among individuals with hypertension[45,46]. (B)**
- **utilising digital methods may reduce uncertainty related to the condition among individuals with hypertension[47]. (C)**
- **self-management guidance focused on readiness for change may increase commitment to lifestyle changes among individuals with hypertension[48,49]. (C)**
    - In a randomised controlled trial, self-management guidance targeting cognitive-behavioural readiness for change (i.e. an individual's readiness and ability to reflect on and modify thoughts and behaviours purposefully) increased physical activity, reduced cardiovascular risk, and decreased salt intake among women. The results were measurable one year after the intervention.[48]
    - In another randomised controlled trial, digital self-management guidance targeting readiness for change reduced blood pressure and cholesterol levels, particularly in men. The results were measurable one year after the intervention.[49]
- **guidance focused on hypertension management may improve adherence to non-pharmacological self-management methods[50]. (C)**

Offer guidance individually to the person with hypertension, because

- **lifestyle-related self-management guidance appears to support adherence to healthy lifestyle habits[51,52]. (B)**

    - Dietary counselling helps individuals suffering from hypertension to adopt a low-sodium diet. In one study, the counselling was provided at the individual's home.[53]

- **guidance that does not address individual needs may weaken commitment to lifestyle changes[31]. (C)**

Support the individual's self-care capacity by strengthening their confidence in their ability to manage their condition, because

- **better self-efficacy among individuals with hypertension appears to promote adherence to self-management4[26,28,29,30,31,32,33,34,35]. (B)**

    - In this context, self-efficacy refers to the individual's belief in their ability to achieve blood pressure treatment goals. Self-efficacy is closely linked to motivation and changes in health behaviour. The concept is based on social cognitive learning theory.[23]
    - A strong sense of self-efficacy has been associated with better physical functioning, improved mental well-being, and reduced anxiety. Furthermore, self-efficacy supports adaptation to hypertension[54] and enhances quality of life.[25]
    - Higher self-efficacy promotes general adherence to self-management[26,27,28], lifestyle changes[29], adherence to a blood pressure-supportive diet[30,31,32,33], weight management[30,33,34], non-smoking[33], and physical activity[31,33,34,35].

- **confidence in one's self-care ability may support adherence to self-management[51]. (C)**

- **negative perceptions and attitudes related to the condition and its treatment may weaken adherence to self-management[52,55]. (C)**

Whenever possible, use a variety of guidance methods to support the patient's self-efficacy, because

- **self-management guidance supports self-efficacy among individuals with hypertension[42,46,50,56,57,58,59]. (A)**

Discuss the nature of hypertension and the importance of self-management with the individual, because

- **knowledge of hypertension promotes adherence to self-management[28,29,32,52,60,61,62,63]. (A)**

    - Adherence to self-management is supported by understanding the necessity of dietary changes despite medication[32] and the connection between dietary salt and high blood pressure.[62]
    - Adherence to pharmacological treatment is a key part of self-management, especially when lifestyle changes alone are insufficient.[3]
    - The most important risk factors for elevated blood pressure include excessive sodium (salt) intake and lifestyle-related factors such as unhealthy diet, excessive alcohol consumption, smoking, low physical activity, overweight, poor sleep quality, obesity, and prolonged stress.[2,3]
    - A heart-friendly diet rich in vegetables, fruits, and berries lowers elevated blood pressure. The effect is enhanced by reducing sodium intake and increasing the use of fibre-rich products.[2,3,64]

- **willingness to receive lifestyle counselling may support achieving blood pressure control[62]. (C)**

Tailor self-management guidance to the individual's capacity to absorb information, because

- **health literacy among individuals with hypertension may be associated with adherence to self-management[65]. (C)**

    - Younger individuals with hypertension have been found to have stronger health literacy than older individuals[65].

3. Factors affecting adherence to self-management

Consider the individual factors that influence adherence to self-management among people with hypertension, because

- **women with hypertension are more likely to adhere to lifestyle changes than men[29,31,34,51,66,67,68]. (B)**
    - In general, women are more likely to adhere to self-management than men[29,51,66], and specifically to abstain from alcohol and smoking[67,68], as well as following a low-sodium diet[67]. On the other hand, when compared to men, women are less likely to adhere to physical activity[31,34].
    - In a cross-sectional study, men with hypertension were more likely to have uncontrolled hypertension than women[69].

- **a known genetic disposition may increase adherence to weight management among individuals with hypertension[34]. (C)**

- **evidence on the association between age and adherence to self-management among individuals with hypertension is inconsistent[28,29,34,52,61,65,66,67,68,70]. (C)**
    - According to a cross-sectional study, individuals aged 50 or older with hypertension may be more likely to have uncontrolled hypertension than those under[69].
    - However, other studies suggest that older individuals with hypertension may be more likely to commit to, for example, blood pressure monitoring[67], non-smoking[68], alcohol abstinence[68], and physical activity[34] than younger individuals.

- **living environment may be associated with adherence to weight management among individuals with hypertension[34]. (C)**
    - In a cross-sectional study, individuals with hypertension living in rural areas were less likely to adhere to weight management than those living in urban areas[34].

- **a higher level of education among individuals with hypertension may be associated with better adherence to self-management[34,55,68]. (C)**

- **a positive perception of one's own health may be associated with better dietary quality among individuals with hypertension[30]. (C)**

Consider comorbidities in self-management guidance, because

- **comorbidities appear to impair the achievement of blood pressure control among individuals with hypertension[62,69]. (B)**

- **evidence on the association between comorbidities and adherence to self-management is inconsistent[29,55,71]. (C)**

Consider the duration of the condition in self-management guidance, because

- **individuals in the early stages of hypertension appear to be less likely to adhere to self-management than those who have had the condition longer[29,31,66,68]. (B)**

    - An exception was found in one cross-sectional study, where individuals who had been diagnosed with hypertension for no more than three months were more likely to engage in physical activity than those with a longer disease duration[31].

4. Guidance methods supporting self-management

Select guidance methods in collaboration with the individual with hypertension, as multiple methods and their combinations can support self-management and adherence. Furthermore, it is important to ensure that the individual understands the content of the guidance. You may utilise the teach-back method, which supports the client's ability to absorb information about hypertension as a condition. This method allows both parties to confirm understanding and identify any need for additional information or repetition.[72]

Whenever possible, utilise digital methods in self-management guidance, because

- **the use of digital methods promotes adherence to self-management[73] and to a healthy diet[56,73]. (A)**

    - Remote guidance may support the self-care and self-monitoring of individuals with chronic conditions at least as effectively as conventional care or guidance. Remote guidance and monitoring appear to have a positive effect on blood pressure among individuals with hypertension.[74]

    - The likelihood of uncontrolled hypertension is higher among individuals who do not follow dietary recommendations. In the study, uncontrolled blood pressure was defined as RR ≥150/90 mmHg in individuals aged 60 or older, or ≥140/90 mmHg in those under 60, and in all individuals with diabetes or chronic kidney disease, unless a different target had been agreed upon.[69]

- **the use of digital methods supports blood pressure control[47,73,75,76,77]. (A)**

- **digital methods appear to promote physical activity[56] and weight management[56,76]. (B)**

    - The likelihood of uncontrolled hypertension is higher among physically inactive individuals. In the study, uncontrolled blood pressure was defined as RR ≥150/90 mmHg in individuals aged 60 or older, or ≥140/90 mmHg in those under 60, and in all individuals with diabetes or chronic kidney disease, unless a different target had been agreed upon.[69]

- **individuals with hypertension appear to find digital methods meaningful in supporting self-management[78,79]. (B)**

- **the use of digital methods may promote self-management[47]. (C)**

Whenever possible, utilise face-to-face self-management guidance, because

- **face-to-face guidance may support blood pressure control[80]. (C)**

- **individualised face-to-face guidance sessions may help individuals with hypertension maintain regular meal patterns[59]. (C)**

    - Face-to-face guidance may be more suitable than other methods, especially if the patient has communication challenges (e.g. language barriers). The nature of the guidance need (e.g. how new, complex, or sensitive the topic is) may also affect the suitability of remote guidance[74].

Whenever possible, utilise small group sessions in self-management guidance, because

- **small group guidance tailored to the needs of individuals with hypertension appears to support smoking cessation[59]. (B)**

    - In a cross-sectional study, non-smoking adults with hypertension adhered to self-management better than smokers.[65]

- **participation in interactive small group guidance appears to reduce blood pressure[44,46,57]. (B)**

- **small group guidance appears to promote physical activity[41,44,59]. (B)**

- **small group guidance may promote adherence to self-management[81] and to therapeutic diet[41,44]. (C)**

- **interactive small group guidance may improve nutrition among overweight women with hypertension[57]. (C)**

- **a small group programme aimed at improving health literacy may promote adherence to dietary recommendations[82]. (C)**

Consider combining different methods in self-management guidance, because

- **combining face-to-face and text message-supported guidance appears to promote adherence to a personal exercise plan[83]. (B)**

- **combining home-based and telephone self-management guidance may promote adherence[84]. (C)**

    - In a randomised controlled trial, a three-month nurse-led self-management support programme, including a home visit and biweekly telephone follow-up, promoted adherence to physical activity, sodium reduction, and home blood pressure monitoring[84].

- **combining face-to-face and email-based guidance may promote adherence to lifestyle changes[83]. (C)**

    - In a randomised controlled trial, combining face-to-face and text message-based guidance increased physical activity and adherence to therapeutic diet among individuals with poorly controlled hypertension[83].

- **combining individually tailored face-to-face and telephone guidance may help reduce blood pressure readings[85]. (C)**

- **combining written and video material as well as group discussions may increase adherence to self-management[43]. (C)**

    - In the study, participants in the intervention group received written and video materials and participated in professional-led group sessions as well as discussions on hypertension and its self-management. The group sessions lasted 60 minutes per week for 12 weeks. The intervention increased home blood pressure monitoring, dietary quality, physical activity, and awareness of elevated blood pressure, and reduced tobacco and alcohol use.[43]

- **combining telephone and text message-based guidance may increase adherence to self-management[58]. (C)**
- **combining small group and telephone-based guidance may support blood pressure control[86]. (C)**
- **combining home blood pressure monitoring with an exercise programme may promote adherence to physical activity[87]. (C)**
- **combining home blood pressure monitoring with telephone guidance appears to increase the achievement of target blood pressure readings[88]. (C)**

5. Supporting mental well-being

Support individuals with hypertension to address fears, anxiety, and depression related to their condition, because

- **symptoms of depression appear to be associated with poorer adherence to lifestyle changes among individuals with hypertension[28,30,60,61]. (B)**
- **fear of complications related to the condition may hinder the achievement of blood pressure control[62]. (C)**
- **anxiety related to the condition may weaken adherence to healthy lifestyle habits among individuals with hypertension[31]. (C)**
    - In a cross-sectional study, anxiety related to the condition increased the risk of physical inactivity and low consumption of fruits and vegetables among individuals with hypertension[31].

6. Social support

Discuss about the importance of social support with the individual with hypertension during self-management guidance, because

- **social support improves adherence to self-management among individuals with hypertension[29,30,35,55,60,71]. (A)**

7. Home blood pressure monitoring

Encourage individuals with hypertension to measure their blood pressure regularly at home, because

- **home blood pressure monitoring may increase awareness of the relationship between blood pressure and lifestyle habits[40,89]. (C)**

  - Individuals with hypertension report that home monitoring strengthens collaboration between themselves and healthcare professionals. On the other hand, a potential drawback is that individuals may make decisions based on home readings about whether to follow medical advice. These decisions may concern, for example, the self-initiated start or discontinuation of medication, or adherence to lifestyle recommendations.[89]
  - Individuals with hypertension may feel uncertain about how often they should measure their blood pressure at home and the reliability of the readings.[89]
  - The appropriate frequency of home blood pressure monitoring depends on the current blood pressure level and individual treatment goals. When blood pressure is under control, measuring on 2–4 days per month is sufficient[3,90]. Prior to a clinical appointment, a more intensive measurement period is recommended to assess treatment needs: blood pressure should be measured before taking medication in the morning (between 6–9 a.m.) and in the evening (between 6–9 p.m.), twice at 1–2-minute intervals, over 4–7 days. The average of morning and evening readings should be calculated and recorded.[3]
  - Home measurements provide a more reliable picture of blood pressure levels than those taken in clinical settings. For 30 minutes prior to measurement, individuals should avoid strenuous physical activity, smoking, and consumption of caffeinated beverages (coffee, tea, cola drinks, and energy drinks).[3]

- **regular home blood pressure monitoring may help older individuals achieve their target blood pressure readings[91]. (C)**

  - In a randomised controlled trial, automated recording of home blood pressure readings increased adherence to home monitoring. Among those using automated recording, 76.5% measured their blood pressure at all checkpoints, compared to 25.4% of those using conventional manual recording.[92]

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