

## Assessing the level of Knowledge and Awareness Regarding Hypertension Screening Among Adults aged 35 years and above in Makueni County, Kenya

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### Abstract

Hypertension is a major public health challenge globally and a leading risk factor for cardiovascular diseases, stroke, and premature mortality. This study assessed the level of knowledge and awareness regarding hypertension screening among adults aged 35 years and above in Makueni County. A descriptive cross-sectional study design was employed. The study targeted adults aged 35 years and above attending selected health facilities in Makueni County. Purposive sampling was used to select the health facilities included in the study. Data were collected using a structured questionnaire consisting of closed-ended questions to ensure consistency and ease of analysis. The questionnaire captured socio-demographic characteristics, sources of information regarding hypertension screening, and respondents' knowledge of hypertension risk factors. Data were analyzed using descriptive statistics to summarize frequencies and percentages. The findings indicated that mass media played a significant role in disseminating information about hypertension screening. Television and radio programs were the most commonly reported sources of information, cited by 28% of respondents, demonstrating the importance of mass media in promoting public health awareness. Regarding knowledge of risk factors, physical inactivity or a sedentary lifestyle was the most frequently identified factor, reported by 20% of respondents. Other recognized risk factors included smoking, unhealthy dietary practices, and excessive alcohol consumption. Overall, the results suggest that adults aged 35 years and above in Makueni County have a moderate level of awareness of lifestyle-related risk factors associated with hypertension. The study concludes that although a moderate level of awareness of hypertension risk factors exists among adults in Makueni County, gaps in knowledge and awareness of screening practices remain. Strengthening community-based health education programs and expanding access to routine hypertension screening services are, therefore, essential.

**Keywords:** *Hypertension, Screening, Knowledge and Awareness, Non-communicable diseases*

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## 1. Introduction

Non-communicable diseases (NCDs) are a major global public health challenge (Budreviciute et al., 2020). Literature has shown that hypertension is one of the common NCDs, which is a leading risk factor for cardiovascular diseases such as stroke, heart attack, and kidney failure, contributing significantly to morbidity and mortality worldwide. According to Kario, Okura, Hoshida, and Mogi (2024), hypertension affects millions of adults and is also regarded as a “silent killer” because it frequently develops without noticeable symptoms until serious complications occur. Consequently, many people remain unaware of their condition until it is detected during routine health screening. The burden of hypertension has been increasing rapidly, particularly in low- and middle-income countries. In sub-Saharan Africa, the prevalence of hypertension has risen significantly due to demographic and lifestyle transitions such as urbanization, unhealthy dietary patterns, physical inactivity, alcohol consumption, and increased obesity rates. Estimates indicate that the prevalence of hypertension increases with age, with predicted rates of approximately 16% at age 30 and 35% at age 50 in the region, suggesting the vulnerability of people aged 35 years and above (Burlacu, Kuwabara, Brinza, & Kanbay, 2025).

Despite the growing burden of hypertension, levels of awareness, treatment, and control remain low in many countries. Studies conducted in African populations have reported that only about one-third of individuals with hypertension are aware of their condition. Among those who are aware, an even smaller proportion receives treatment or achieves adequate blood pressure control. Limited knowledge about risk factors, symptoms, and the importance of regular blood pressure screening contributes significantly to this gap in detection and management.

In Kenya, hypertension has become an important public health concern. National surveys indicate that approximately one quarter of adults have hypertension, yet awareness remains very low. For instance, a population-based survey reported that only about 15.6% of individuals with hypertension were aware of their condition, and only a small proportion were receiving treatment (Mohamed et al., 2018). The authors report that awareness levels tend to increase with age but remain inadequate overall (Ibid). These findings demonstrate that many individuals are living with undiagnosed hypertension, placing them at risk of severe cardiovascular complications.

According to Liu (2025), screening plays a critical role in the early detection and prevention of hypertension-related complications. This means that regular blood pressure screening enables people to identify changes in their blood pressure levels before early interventions such as lifestyle modification and pharmacological treatment. However, the effectiveness of screening programs largely relies on the population’s knowledge and awareness regarding hypertension and the importance of routine blood pressure checks. This is even more important for adults aged 35 years and above because the risk of developing high blood pressure increases with advancing age (Lauder et al., 2025). Therefore, understanding the level of knowledge and

awareness of hypertension screening among the group is essential for designing effective health education programs and preventive strategies.

Assessing the level of knowledge and awareness regarding hypertension screening among adults aged 35 years and above helps identify gaps in health literacy and barriers to early detection. The findings from this study can inform policymakers and healthcare providers in developing targeted community-based interventions, strengthening screening programs, and improving public health outcomes. Therefore, increasing awareness and encouraging regular blood pressure screening are crucial steps toward reducing the burden of hypertension and preventing its associated complications among residents of Makueni County.

### **1.1 Problem Statement**

There have been sustained efforts by the government of Kenya to combat hypertension, yet recent reports indicate it affects approximately 24%–29% of adults, with a high prevalence of undiagnosed and uncontrolled cases (Ministry of Health, 2023). According to the WHO report, hypertension is now recognized as a significant disease burden in a developing country, including Kenya (WHO, 2018). Things are considerably worse for the elderly. Among Kenyans aged 45 to 69, at least 25.9% engage in behaviors that increase their risk of non-communicable disease (Mbogori & Zhang, 2020). About 75% of people with hypertension live in low- and middle-income countries, where awareness of hypertension, its treatment, and control measures is generally low (Mills et al., 2016). This lack of awareness often leads to poor healthcare-seeking behaviour, which in turn contributes to the high prevalence of undiagnosed hypertension in these populations. A few studies have examined knowledge and awareness of hypertension screening among adults aged 35 years and older in Makueni County, Kenya. This is a gap in the existing literature that this study seeks to fill.

### **1.2 Objectives**

The main objective of this study is to assess the level of knowledge and awareness regarding hypertension screening among adults aged 35 years and above in Makueni County, Kenya. Specifically, the study sought to:

- i. Examine sources of information regarding hypertension screening among adults aged 35 years and above in Makueni County, Kenya
- ii. Identify factors influencing knowledge and awareness of hypertension screening among adults aged 35 years and above in Makueni County, Kenya

### **2. Literature Review**

They studied adopted public health theories that have been widely used to explain and predict health behaviors, especially preventive health actions such as disease screening (Blue, Shove, Carmona, & Kelly, 2016). For instance, the Health Belief Model, developed by Irwin Rosenstock in 1950, suggests that a person's decision to engage in health-related behavior, such as hypertension screening, is influenced by their perceptions about a disease and the benefits of preventive action (Wang et al., 2024). Based on this theory, people are more likely to participate in hypertension screening if they believe that they are likely to be infected with hypertension (perceived susceptibility), understand the seriousness of the disease and its complications, such as stroke and heart disease (perceived severity), and believe that screening

can help detect the disease early and prevent complications (perceived benefits). Several empirical studies have examined the sources through which adults obtain information about hypertension and hypertension screening. Access to reliable information plays an important role in improving knowledge, awareness, and participation in blood pressure screening programs. Studies conducted in different regions indicate that healthcare professionals, mass media, social networks, and digital platforms are among the most common sources of hypertension-related information.

Studies conducted in Saudi Arabia on awareness of hypertension complications found that the most common sources of information were healthcare workers, social media, and the internet, which together accounted for about 16.9% of respondents, followed by direct information from healthcare providers at 12.4% (Alhazmi et al., 2025). The study further indicated that individuals who accessed information through these channels demonstrated higher awareness of hypertension and its complications. This suggests that healthcare professionals and digital platforms play a significant role in disseminating health information and promoting screening behaviors among adults. Similarly, research examining knowledge and awareness of hypertension among community members reported that mass media sources such as television, radio, newspapers, and magazines were widely used to obtain information about hypertension (Rea et al., 2022). In addition, the study identified family members, friends, and community opinion leaders as important informal sources of health information. These social networks often influence individuals' perceptions of disease risk and encourage them to seek screening services, especially among older adults.

Another research focusing on non-communicable disease awareness found that health facilities and healthcare providers remain key channels for disseminating information about hypertension screening. Respondents reported gaining knowledge about hypertension during hospital or clinic visits through interactions with doctors and nurses or through health education sessions. Access to accurate information from healthcare providers was associated with improved understanding of hypertension and a greater likelihood of undergoing blood pressure screening (Piper et al., 2015). In addition, community-based research revealed that schools, public health education programs, and mass media campaigns also contribute to increasing awareness of hypertension among adults and families. For instance, some households reported receiving information about hypertension through educational programs in schools or through community outreach activities. These educational interventions play an important role in raising awareness about risk factors, prevention strategies, and the importance of routine blood pressure screening.

### **3. Methodology**

A descriptive cross-sectional approach was used in this study. The researcher conducted a cross-sectional survey to gather information from the sample. The study design was selected because it made it easy to collect data from a cross-section of Makueni County. It helped collect a large amount of data rapidly. According to Maier, Thatcher, Grover, and Dwivedi (2023), this approach provides a one-time assessment of variables, making it useful for understanding the prevalence of a condition, behavior, or characteristic in each population.

Purposive sampling was used to select target facilities. According to Rai and Thapa (2015), this sampling technique focuses on a particular characteristic of the populations of interest that

best enables the researcher to answer the research question. In this sampling technique, the study facilities have been selected based on the availability of knowledge, connection, and judgment of the topic under study.

#### **Data collection tools**

Data were collected using structured questionnaires. Some questionnaires were administered directly by the researcher to respondents who were available at the time of data collection. In addition, a number of questionnaires were left at the healthcare facility and distributed via drop-off to respondents who were not readily accessible during the data collection period. These respondents were allowed sufficient time to complete the questionnaires, after which the researcher returned to collect the completed forms. This approach helped to increase response rates and ensured that participants who were unavailable during the initial data collection phase were still able to participate in the study.

For this study, data were collected using a structured questionnaire consisting of closed-ended questions. Closed-ended questions were selected because they allow respondents to provide specific and standardized responses, making the data easier to analyze and compare across participants. This format also enhances the consistency, reliability, and objectivity of the collected data, thereby supporting more accurate interpretation of the study's findings. Prior to administering the questionnaire, participants were informed of the study's purpose and their rights as respondents. Informed consent was obtained to ensure that participation was voluntary and that ethical research standards were upheld. After consent was granted, each respondent was provided with a questionnaire to complete at their convenience. The researcher offered brief explanations and guidance as needed to ensure that respondents clearly understood the questions and could provide accurate responses.

#### **4. Findings**

The study assessed the level of knowledge and awareness regarding hypertension screening among adults aged 35 years and above in Makueni County, Kenya. The age distribution of respondents shows the majority were aged 46–50 years (35%), followed by 41–45 years (23%) and 56–60 years (17%). Respondents aged 35–40 years and those aged 61 years and above constituted smaller proportions of 9% and 6%, respectively. This indicates that most respondents fall within the age range that is at higher risk for developing hypertension, highlighting the importance of targeted screening and awareness interventions for the 41–60-year age group.

Regarding education, most respondents had primary school (34%) or KCSE (29%) as their highest level of education, while those with higher education qualifications, including Bachelor's, Master's, or PhD degrees, accounted for only 21% of the sample. Additionally, 5% of respondents reported having no formal education. In terms of occupation, the majority were unemployed (39%), followed by self-employed individuals (29%) and those formally or informally employed (24%), while retired individuals made up 9% of the respondents. Overall, the study highlights that hypertension awareness initiatives in Makueni County should focus on adults aged 41–60 years, particularly those with lower educational levels and those who are unemployed or self-employed. Tailored, accessible health education strategies are essential for

improving knowledge and promoting routine hypertension screening among these high-risk groups.

**Table 1: Demographic Information of the Respondents**

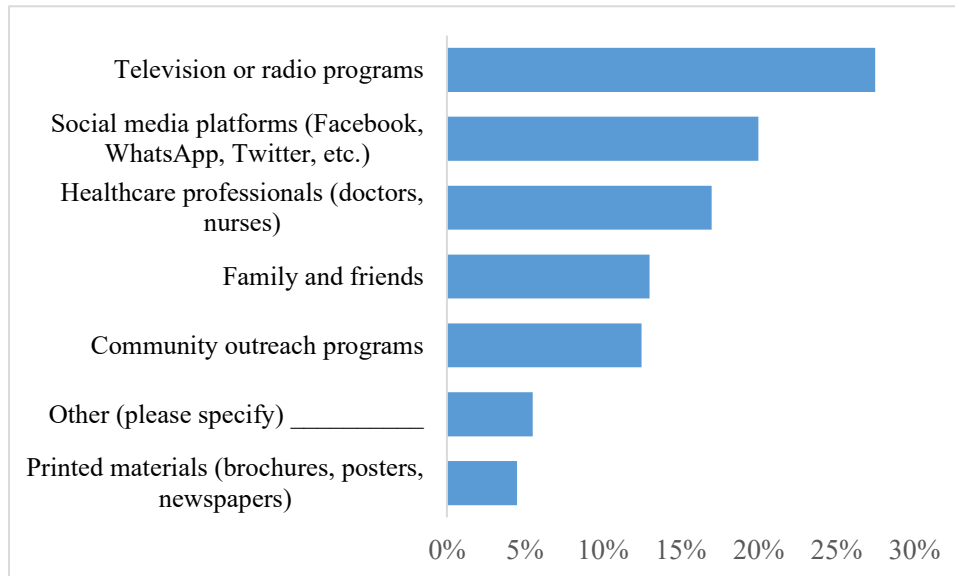
	Description	Frequency	Percent
Age	35yrs-40yrs	17	9%
	41yrs-45yrs	45	23%
	46yrs-50yrs	70	35%
	51yrs-55yrs	23	12%
	56yrs-60yrs	34	17%
	61+yrs	11	6%
Education level	PhD	9	5%
	Masters	14	7%
	Bachelors degree	17	9%
	Diploma	25	13%
	KCSE	58	29%
	Primary school	68	34%
	None	9	5%
Occupation	Unemployed	77	39%
	Self-employed	58	29%
	Employed (formal/informal)	48	24%
	Retired	17	9%

#### **4.1 The main source of information about hypertension screening among adults in Makueni County**

This study explored the main sources of information about hypertension screening among adults in Makueni County. The findings show that television and radio programs were the most common sources, reported by 28% of respondents, indicating that mass media remains a critical channel for health education in the region. This was followed by social media platforms such as Facebook, WhatsApp, and Twitter, which accounted for 20% of the sources, reflecting the increasing role of digital platforms in disseminating health information. Healthcare professionals, including doctors and nurses, were cited by 17% of participants, highlighting the importance of clinical encounters in promoting awareness and knowledge of hypertension screening.

Furthermore, other notable sources included family and friends, as well as community outreach programs, each contributing 13%, suggesting that interpersonal communication and local health initiatives also play a meaningful role in raising awareness. A smaller proportion of respondents relied on printed materials, such as brochures, posters, and newspapers (5%), while

6% indicated other unspecified sources. These findings emphasize the need for a multifaceted approach to health education that combines traditional media, social media, professional advice, and community engagement to reach a wider audience effectively.

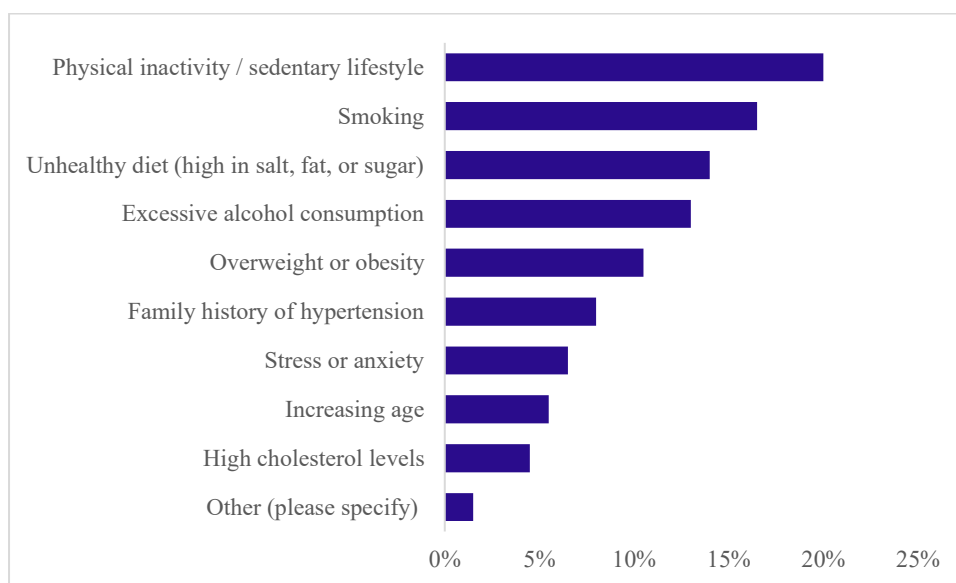


**Figure 1: The main source of information about hypertension screening among adults in Makeni County**

#### 4.2 General knowledge on factors contributing to hypertension

This study assessed participants' knowledge of factors that contribute to hypertension. Among the respondents, physical inactivity or a sedentary lifestyle was the most frequently recognized factor, reported by 20%, indicating that a significant portion of adults are aware of the link between lack of exercise and hypertension. Smoking was identified by 17% of participants, followed by an unhealthy diet high in salt, fat, or sugar (14%) and excessive alcohol consumption (13%), reflecting moderate awareness of lifestyle-related risk factors.

In addition, the study identified some factors such as being overweight or obese (11%), family history of hypertension (8%), stress or anxiety (7%), increasing age (6%), and high cholesterol levels (5%). A small proportion (2%) mentioned other unspecified factors. Overall, the findings suggest that while there is some awareness of major lifestyle-related contributors to hypertension, knowledge gaps remain regarding genetic, age-related, and other medical risk factors, highlighting the need for comprehensive health education programs to improve understanding of all key determinants of hypertension.



**Figure 2: General knowledge on factors contributing to hypertension**

### 4.3 Discussion

This study assessed the level of knowledge and awareness regarding hypertension screening among adults aged 35 years and above in Makueni County, Kenya. The findings revealed important patterns in both the recognition of hypertension risk factors and the sources through which respondents obtained information about hypertension screening. Respondents most frequently identified lifestyle-related risk factors such as physical inactivity (20%), smoking (17%), unhealthy diet (14%), and excessive alcohol consumption (13%) as contributors to hypertension. These findings are consistent with global evidence demonstrating that behavioural factors significantly influence hypertension risk and that awareness of these contributors is essential for effective prevention. Research indicates that sedentary lifestyles and unhealthy diets are major determinants of high blood pressure and cardiovascular disease, and that knowledge of these factors can motivate behavioural change (Agyemang et al., 2023).

Although media platforms were the most frequently cited sources of information on hypertension screening, fewer participants reported receiving information from healthcare professionals (17%) or formal community outreach (13%). This pattern aligns with findings from Kenya and other sub-Saharan African settings, where awareness and screening uptake remain low, and mass media often serve as primary channels for health information, sometimes without reinforcement from clinical or community health services (Kimani, Murray, & Grant, 2018). The role of interpersonal networks underscores the importance of social communication in the transfer of health knowledge. However, only a small proportion of respondents cited printed educational materials (5%) as an information source, suggesting that existing health education materials may not be widely accessible or effectively distributed within the community.

While modifiable lifestyle factors were relatively well recognized, awareness of non-modifiable determinants such as age and family history was comparatively lower. This observation is similar to findings from other studies, in which knowledge of genetic and

age-related risk factors for hypertension is often less well established in the general population (Mendis, Raymont, & Tabet, 2021). This knowledge gap is significant because understanding both behavioural and biological determinants strengthens individuals' readiness for screening and long-term management.

Empirical evidence also suggests that comprehensive health education delivered by healthcare professionals and community health workers can improve hypertension knowledge and screening behaviors more effectively than media alone (Ataklte et al., 2015). Engaging trusted health workers in outreach, through clinics, community forums, and targeted education campaigns, could therefore deepen awareness and reinforce the importance of routine blood pressure monitoring. In summary, this study's findings echo broader regional and global trends: awareness of some key lifestyle risk factors for hypertension exists, but substantial gaps remain in comprehensive knowledge and in exposure to formal screening education. Strengthening multifaceted health communication strategies is critical to improving awareness of hypertension screening and encouraging preventive behaviors in Makueni County.

## 5. Conclusion

This study observes that adults aged 35 years and above in Makueni County have moderate awareness of lifestyle-related risk factors for hypertension, such as physical inactivity, smoking, unhealthy diet, and excessive alcohol consumption. However, knowledge gaps exist regarding non-modifiable factors such as age and family history, and exposure to formal health education delivered by healthcare professionals or structured community programs remains limited. Mass media platforms, including television, radio, and social media, are the primary sources of information, suggesting that while awareness is present, it may not always be comprehensive or actionable. The findings emphasize the need for more accessible, targeted, and context-appropriate health education interventions to enhance both knowledge and engagement in hypertension screening, particularly among middle-aged adults, the unemployed, and those with lower levels of education.

## 6. Recommendations

Based on these findings, it is recommended that multifaceted strategies be implemented to improve hypertension awareness and screening uptake in Makueni County. First, healthcare professionals should be more actively involved in community outreach, providing clear information about both modifiable and non-modifiable risk factors and the importance of regular blood pressure monitoring. Second, public health campaigns should leverage both mass media and social media platforms while ensuring messages are simple, culturally relevant, and tailored to adults with lower literacy levels. Finally, periodic assessment of knowledge, attitudes, and screening practices should be conducted to evaluate the effectiveness of these interventions and guide future health education efforts.

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