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A Qualitative Study on the Effects of Health Literacy in Population with Hypertension at Blossom Health Care Center, Kabul City, Afghanistan

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Abstract
Hypertension is a chronic disease common in developing countries like Afghanistan, and improving patient awareness of the risk factors and the significance of regular treatment decreases the burden of the disease. In Afghanistan, a higher level of health literacy can help patients with hypertension to know the risk factors, the role of lifestyle management, and the significance of regular treatment for hypertension. Also, a higher level of health literacy can provide venues for the patient to comprehend the provided information and actively participate in the care. Alternatively, patients with lower health literacy might need to appropriately understand the information related to diet, treatment, and provider communication during the management of hypertension. A lack of understanding of hypertension-related treatment suggestions might lead to poor compliance with hypertension medication. This qualitative study aimed to assess the health literacy level among patients seeking care for hypertension at Blossom Health Care Center in Kabul, Afghanistan. A total of 198 patients who had hypertension participated in the study, and patients were interviewed using a Likert scale for responses generated by a focus group of 10 Afghan doctors practicing in Kabul, Afghanistan. We found that 68.7% of patients with hypertension scored Strongly Disagree to having adequate hypertension knowledge. Moreover, around 37.3% of participants indicated Always visiting a doctor for this condition, and 38.4 indicated Always taking their medication. Studies have shown that lower health literacy in patients with hypertension might negatively impact their health outcomes. Therefore, increasing awareness and knowledge of hypertension related-treatment among people with hypertension might improve their overall health and well-being.

Keywords: Hypertension, Health Literacy, Developing Countries, Compliance, Communication

1. Background

Studies on noncommunicable diseases such as hypertension are limited in Afghanistan. One of the significant reasons that make it challenging to estimate the prevalence of hypertension in Afghanistan is the lack of adequate resources in the health system to provide high-quality data (Saeed, 2017). According to the World Health

Organization's (2018) hypertension fact sheet, around 29.5% (5.3 million) of Afghan adults have hypertension. Moreover, the fact sheet indicated that of the 5.3 million patients with hypertension, 4.2 million patients had poor control of their high blood pressure. According to Mills et al. (2020), in addition to the increase in the prevalence of hypertension in low- and middle-income countries such as Afghanistan, the proportion of hypertension awareness is also low, and uncontrolled urbanization, which can decrease physical activity and increase unhealthy diets, is believed to be the leading factor of hypertension (Ibrahim & Damasceno, 2012). In addition, low literacy rates and poor health care significantly impact awareness of available treatments, treatment compliance, and access to care in Afghanistan (Khan et al., 2022).

1.1. Health Literacy

Health literacy emerged in the health system in the 1970s (Simonds, 1974). Health literacy does not have a universal definition. Molloy-Weir et al. (2016) indicated that there are around 250 definitions of health literacy in the medical literature. Health literacy is a person's ability to understand, locate, and process health information to make reasonable health-related decisions (National Institutes of Health, 2021). Also, health literacy entails three items 1) familiarity with healthcare and health system-related, 2) processing health information, and 3) communication with doctors (Liu et al., 2020).

In the last two decades, health literacy has been a crucial concept in the health system because it can improve population and public health and stabilizes health system finance. (Liu et al., 2020). Just as healthcare services are increasing, people need to know how to stay healthy and effectively use healthcare services to decrease the strain of expenses (McQueen et al., 2007). People with poor health literacy might need to adequately understand the nature of a disease, which can raise the chances of poor compliance with prescribed drugs and inappropriate use of services in health settings (Logan, 2017; Sheridan et al., 2011). Many countries are grappling with the burden of non-communicable diseases. Pleasant et al. (2015) suggested that improving health literacy is an excellent approach to decreasing the burden of different chronic conditions.

Also, health literacy can enhance people's autonomy and participation in care, improving their health outcomes (Samerski, 2019). The relationship between health literacy and medical decisions is assessed, and it is observed that people with lower health literacy participate less in their care (Smith et al., 2014). Moreover, Nutbeam (2008) highlighted that health literacy is a personal asset that can enhance patient skills to make healthcare decisions independently.

Older, disabled, uneducated, and poor people are disproportionally affected by lower levels of health literacy (Kutner et al., 2006). People with suboptimal levels of health literacy are prone to developing chronic diseases (Cavanaugh et al., 2008) because they are less likely to use preventive care and participate in their care (Schillinger, 2021).

1.2. Health Literacy in Afghanistan

The literacy level in Afghanistan was 43% for men and women combined in 2019 (United et al. Organization,2020). Furthermore, according to Harsch et al. (2021), research on health literacy is limited in Afghanistan. In a survey of women from four Hazarajat districts in Shuhada Hospital in Ghazni, Afghanistan, they found that 51.6% of women had a lower level of health literacy and 22.7% had an optimal level of health literacy (Harsch et al., 2021). In the regression analysis, they noticed that education was the most critical predictor of health literacy. Also, they noticed that having access to the internet, technology, educated family members, and electricity are the other common predictor after education for health literacy among women (Harsch et al., 2021).

Furthermore, Harsch et al. (2020) found that women with higher levels of health literacy seek healthcare services more than women with lower levels of health literacy. Levy and Janke (2015) found that patients with lower levels of health literacy are more likely to delay their care. Also, Harsch et al. (2021) found that women with higher levels of health literacy sought care from clinicians, and their level of health literacy was significantly associated

with breastfeeding (p=0.001), health-seeking behavior from a professional (p<0.001), and giving birth in a healthcare facility (p<0.001).

Hickey et al. (2019) suggested that the potential elements of a lower level of health literacy are lower access to education, inconsistent access to healthcare services, and a lack of awareness campaigns. According to the World Bank (2023), around 37% of the total population of Afghanistan was literate in 2021. Rostamzadeh et al. (2022), in a cross-sectional study conducted at Barchi National Hospital in Kabul, Afghanistan, on 200 participants, indicated that the level of health literacy among pregnant women was low, and one of the participants' health literacy-associated factors was education level. By investigating the effects and factors of low health literacy, it is also necessary to identify one specific health condition and its effects, if any, on treatment outcomes in developing countries that may be influenced by low health literacy levels.

1.3. Hypertension: Incidence and Influences

According to the Noncommunicable Disease Risk Factor Collaboration (2017), the number of people with hypertension has increased from 594 million to 1.13 billion over the last four decades. The treatment of hypertension accounts for 10% of healthcare expenses globally (Gaziono et al., 2009). This vast increase in the prevalence of hypertension globally can be attributed to its rapid growth in low- and middle-income countries. Population growth variation in low, middle, and higher-income countries can influence the increase in cases. For example, in 2010, nearly 349 million people lived in developed countries, whereas 1.04 billion people lived in low- and middle-income countries (Lindenfield & Jessup, 2017). According to the Global Health Observatory (2022), 41 million lose their life to noncommunicable diseases, including hypertension, annually, and 85% of those deaths happen in low- and middle-income countries.

Other factors that influence the increase in cases of hypertension in developing countries are an unhealthy diet (i.e., excessive salt consumption or poor access to fresh fruits and vegetables), obesity, lack of physical activity, and tobacco and alcohol use (O'Donnell et al., 2020; Popkin et al., 2020; Zhao et al., 2011). Other emerging risk factors are air pollution, uncontrolled urbanization, and reduction in green space (Schutte et al., 2021). In a provincial cross-sectional study in Kabul City, Afghanistan, Saeed (2017) found that significant predictors of hypertension were general obesity, central obesity, tobacco use, limited physical activity, and inadequate consumption of fruits.

1.4. Hypertension and Health Literacy

Even though the level of health literacy is different between countries, surveys from developing countries reveal that a significant proportion of the population has a suboptimal level of health literacy (Duong et al., 2020). Multiple investigations are available on the role of health literacy in recognizing and treating hypertension (Magnani et al., 2018). McNaughton et al. (2014) highlighted this relationship in an observational cross-sectional study of patients enrolled in a randomized controlled trial. The results indicated that patients with lower levels of health literacy had a 1.8 to 2.7 greater risk of not obtaining optimal blood pressure and lower adherence to refilling their medication (McNaughton et al., 2014). Patients with lower levels of health literacy are prone to misunderstand and misuse medications prescribed for the treatment of hypertension. Magnani et al. (2018) indicated that patient-centered, health literacy-specific education could improve hypertension medication compliance in patient populations with lower levels of health literacy. Patient-centered educational interventions can also reduce patient misunderstanding of the provider's instructions (Magnani et al., 2018).

For example, a 2-Arm multisite patient randomized pragmatic trial by Wolf et al. (2016) used patient-centered drug labeling to improve diabetes and hypertension medication compliance in the study participants. Patient-centered label strategies that integrated evidence-based practices such as larger font size, white space, and conveying instruction via Medication Universal Schedule (morning, noon, evening, and bedtime) appeared to affect patient outcomes positively. A simple modification to medication labeling with minimal financial cost improved medication compliance. The result of Wolf et al. (2016) indicated that the intervention improved medication compliance among participants with lower levels of health literacy 4-fold. Another small study (n=68)

by Yeung et al. (2017) found that digital and physical aids, such as flashcards and short videos, helped patients comply with their medication schedules. Implementing individualized educational strategies in a simplified regimen and other multilevel strategies helped improve blood pressure control in patients with low health literacy levels (Magnani et al., 2018).

1.5. Health Literacy Patient-centered Education and Medication Compliance

A patient population prescribed multiple medications makes these patients susceptible to self-administration medication errors. This risk is higher among people with lower levels of health literacy (Davis et al., 2006). In a systematic review, Berkman et al. (2011) highlighted that low health literacy can lead to suboptimal health outcomes. A possible causal correlation between low health literacy and poor health outcomes is attributed to poor medication reconciliation, knowledge, and medication self-management (Mackey et al., 2016; Patzer et al., 2016; Persell et al., 2007).

Mackey et al. (2016) indicated that a patient population with a lower level of health literacy might not appropriately communicate the list of medications they regularly take in situations where the provider needs to reconcile the active list of medications. According to the World Health Organization (2017), health literacy enables the patient population to actively engage in medical decisions, and they consider health literacy a crucial health determinant. Additionally, higher health literacy might enhance healthy behavior; Bruthan et al. (2016) highlighted that low health literacy could lead to a higher prevalence of cardiovascular risk factors in patients with cardiovascular disease due to lower health-related knowledge.

1.6. Issues with Lack of Training for Healthcare Professionals

Healthcare providers are well-trusted sources for conveying health information to many community members. Building trust can improve cooperation between healthcare clinicians and the patient population, enhancing the success of the treatment interventions (Castro et al., 2016). Moreover, Castro et al. (2016) highlighted that interactive communication between providers and the patient population during healthcare delivery could improve treatment protocol efficiency and reduce costs. In the health system, health literacy is vital to interactive and effective communication (Wu et al., 2016).

Unfortunately, many healthcare providers are either unaware or untrained in using health literacy strategies for proper patient education in managing chronic disease.

In a cross-sectional analytic study, Mor-Anavy et al. (2021) found that one-third of the participants (providers and administrators) needed to learn that a lower level of health literacy could contribute to unnecessary healthcare services. Furthermore, they noticed a significant association ($p<0.05$) between clinicians' awareness of health literacy methods and strategies and their attitudes to promoting health literacy using various approaches to communicate effectively with a patient with a lower level of health literacy. Improving health literacy among the patient population with hypertension can be problematic if we do not improve the skills of the providers and healthcare professionals related to health literacy intervention and initiatives (Parker & Ratzan, 2010).

1.7. Possible Interventions and Solutions

1.7.1. Provider Training

The Agency for Healthcare Research and Quality Health Literacy Universal Toolkit can help healthcare professionals simplify health care and improve patient understanding of health information. Using this Toolkit can help educate providers on methods to assist patients with various levels of health literacy to increase compliance with treatment recommendations. Health literacy universal precautions steps aim to simplify communication to improve patients' comprehension, decrease the risk of miscommunication, make health system navigation more straightforward, and support patients in improving their health (Brega et al., 2015). (See Table 1).

Health literacy's relationship to blood pressure control is assessed in multiple studies. Pandit et al. (2009) found that multivariable analysis associated lower health literacy with uncontrolled hypertension. Hall et al. (2016) highlighted that a higher level of health literacy is associated with optimal blood pressure using hierarchal and logistic regression. Health literacy dimensions such as access to information and decision-making were critical elements of a healthy lifestyle in improving blood pressure in a cross-sectional study in Iran (Gaffari-Fam et al., 2020).

Table 1: Health Literacy Universal Toolkit

Tool	Title
1	Build a team
2	Make a roadmap for health literacy improvement
3	Expand the level of health literacy
4	Use plain language
5	Apply the tell, ask, listen, and understand? method
6	Follow up the patients
7	Improve access to communication tools
8	Reconcile patient medications
9	Address language barriers appropriately
10	Respect patients traditional and cultural beliefs
11	Use the material that are easy to comprehend
12	Apply educational materials appropriately
13	Accept patient with nice attitude
14	Listen to the questions and motivate patients to ask questions
15	Create action plan
16	Assist patient in remember medication time and use
17	Listen to the patients concerns and recommendations
18	Guide patients to supportive resources
19	Guide patients to medical resources
20	Introduce patients to health literacy programs
21	Make care transition smooth

Source: Brega, A. G., Barnard, J., Mabachi, N. M., Weiss, B. D., DeWalt, D. A., Brach, C., Cifuentes, M., Albright, K., & West, D. R. (2015). AHRQ health literacy universal precautions toolkit. https://www.ahrq.gov/sites/default/files/publications/files/healthlittoolkit2_4.pdf.

1.7.2. Lifestyle Modification

Preventing chronic diseases like cardiovascular disease depends on self-care competencies (Riegel et al., 2009). According to Riegel et al. (2004), self-care is a naturalistic decision-making process that the patient population uses to choose behaviors to stabilize physiological functions, and health literacy entails some of the critical skills that can empower self-care components such as understanding health information and comprehension of healthcare professional messages (Aaby et al., 2017). A large population-based study, Aaby et al. (2017) found a remarkable association between health literacy and self-care, such as physical activity, healthy diet, and comprehension of medical information in a patient population with self-reported cardiovascular disease.

Lifestyle modifications such as physical exercise, a healthy diet, and bodyweight management are essential to controlling hypertension (Te Riet et al., 2015). Self-management is a vital step in controlling hypertension. Du et al. (2018) suggested that the patient population needs adequate health literacy to comprehend the educational material on hypertension and apply the learned concepts in their daily routine.

1.7.3. Communication with Providers

Multilevel and multidisciplinary strategies prioritizing communication and patient empowerment can improve medication adherence. In the case of hypertension management, interventions that support patients at the community level can have a positive impact through local outreach, providing health literacy level appropriate education, and offering community-based monitoring of blood pressure levels (DeWalt et al., 2010; Náfrádi et al., 2016).

Castro et al. (2016) highlighted that patient care which entails interactive communication and promotes self-management and patient involvement in the care could make healthcare services effective and efficient. Health literacy is crucial to effective communication in healthcare service delivery (Wu et al., 2016). Study results indicated that people with low health literacy encounter challenges in grappling with chronic health conditions and exploring the health system (Heijmans et al., 2015; Miller, 2016). For example, a lack of comprehension of providers' instruction in oral, written, and digital forms can lead to difficulties in communication with providers and affect adherence to new information (Rowlands et al., 2015). Therefore, it is crucial for providers to understand how to create health literacy-appropriate educational materials to educate patients at all levels, thus improving patient-centered communication. Coleman (2013) suggested that ineffective communication between providers and patient populations can lead to miscommunication and suboptimal compliance with treatment recommendations.

2. Study Design

The study used a qualitative design using a survey from a convenience sample in **Blossom Health Care Center**, Kabul City, Afghanistan. The survey questionnaire was created based on the providers' concerns about poor compliance with hypertension medication, suboptimal follow-ups, and misunderstanding of the uses of hypertension medication. Therefore, a focused group of 10 doctors with experience in Adult Internal medicine working in Kabul City and with experience treating hypertension patients Kabul City residents created a survey questionnaire to assess the level of health literacy of patients with hypertension for educational and awareness purposes.

2.1. Methods

From February 2023 to May 2023, 198 patients were interviewed in person. At the end of the patient's visit, the provider asked the patient if they would like to participate in the survey on health literacy in patients with hypertension. For data collection and analysis, surveys were deidentified, and patient information was not collected to maintain confidentiality. The study's objective was explained to the patient that it was for educational purposes. After the patient's consent, the participant's demographics, care continuation, and regular use of their medication were asked verbally based on the patient's preference in Pashto and Dari at **Blossom Health Care Center** in Kabul City, Afghanistan. Formal approval from the **Blossom Health Care Center** in Kabul City for this Exempt review was obtained for the anonymous collection of survey data and responses to the survey.
Question 1: Do you think you have adequate knowledge of hypertension?
Question 2: Do you regularly follow up with a provider for hypertension?
Question 3: Do you regularly take your hypertension medication prescribed by your provider?
Question 4: Do you know how long you have had hypertension?

2.2. Inclusion and Exclusion Criteria

We included patients above 18 years old and excluded patients who did not have hypertension and were not residents of Kabul City, Afghanistan.

3. Results

A total of 198 patients with hypertension were surveyed. About 30.3% of participants were male, and 69.7% were female. Participants' educational backgrounds include high school graduates (13.6 %), bachelor's (15.6%), master's (0.5%), doctorate (2.5%), and illiterate (67.8%) (See table 2).

Table 2: Survey Participants Demographics

Variable	**Population (n=198)**	**Percentage**
Gender	Men (n= 60)	30.3
	Women (n= 138)	69.7
Educational Backgrounds	High School Graduate (n= 27)	13.6
	Bachelor's degree (n=31)	15.6
	Master's degree (n= 1)	0.5
	Doctorate (n= 5)	2.5
	Illiterate (n= 134)	67.8
Age	>18 years old (n= 198)	100

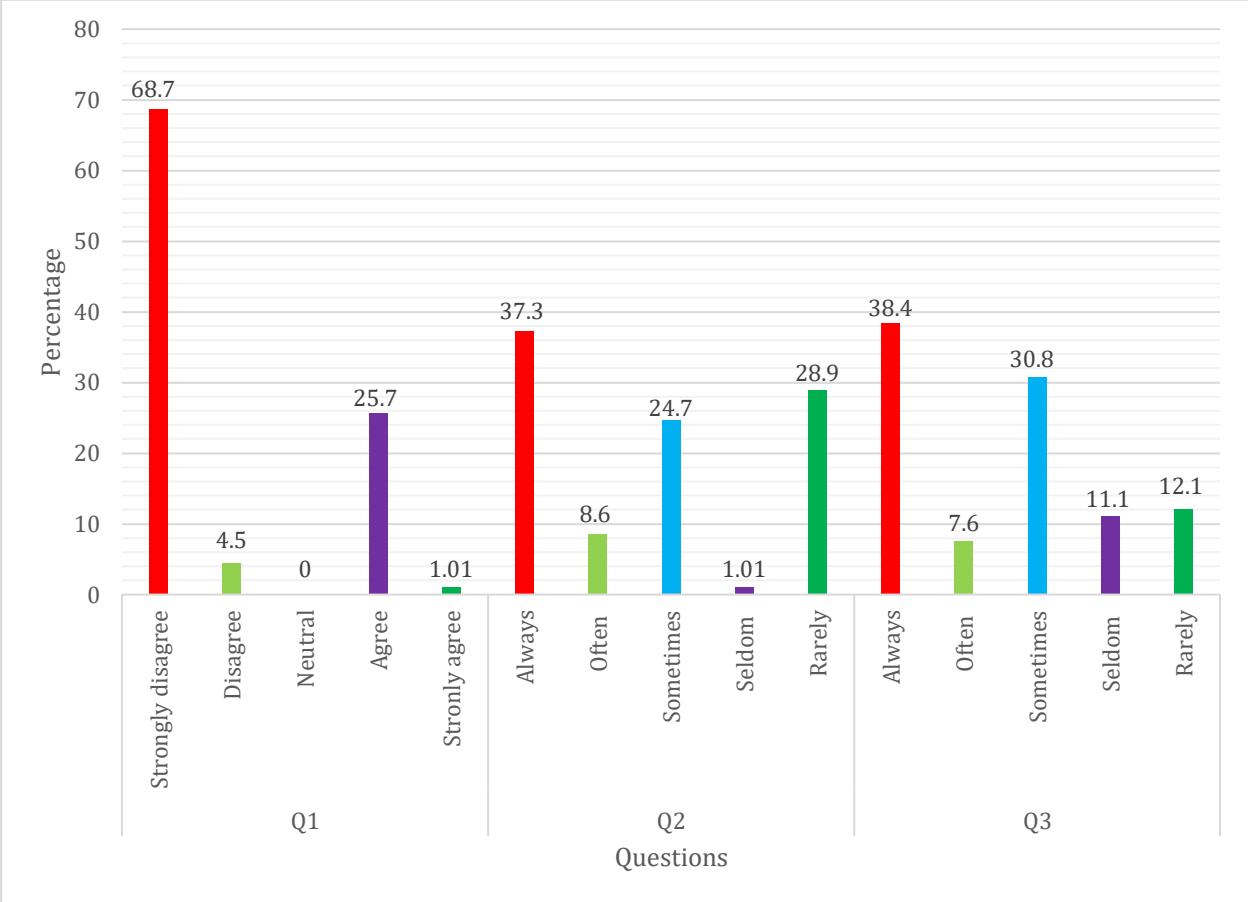

Figure 3: Responses to Question 1, 2, and 3

Likert scale scoring criteria are used to score participants' responses to the questions in the survey. In the sample, 68.7% of participants Strongly Disagree, and 25.7% Agree with having adequate hypertension knowledge. For doctor's visits, around 37.3% always visit a doctor, 8.6% often, 24.7% sometimes, 1.01% seldom, and 28.9% rarely visit a doctor for hypertension. Furthermore, around 38.8% of participants indicate that they always take their medication for hypertension, and 7.6% often, 30.8% sometimes, 1.01% seldom, and 28.7 rarely. (See figure 3)

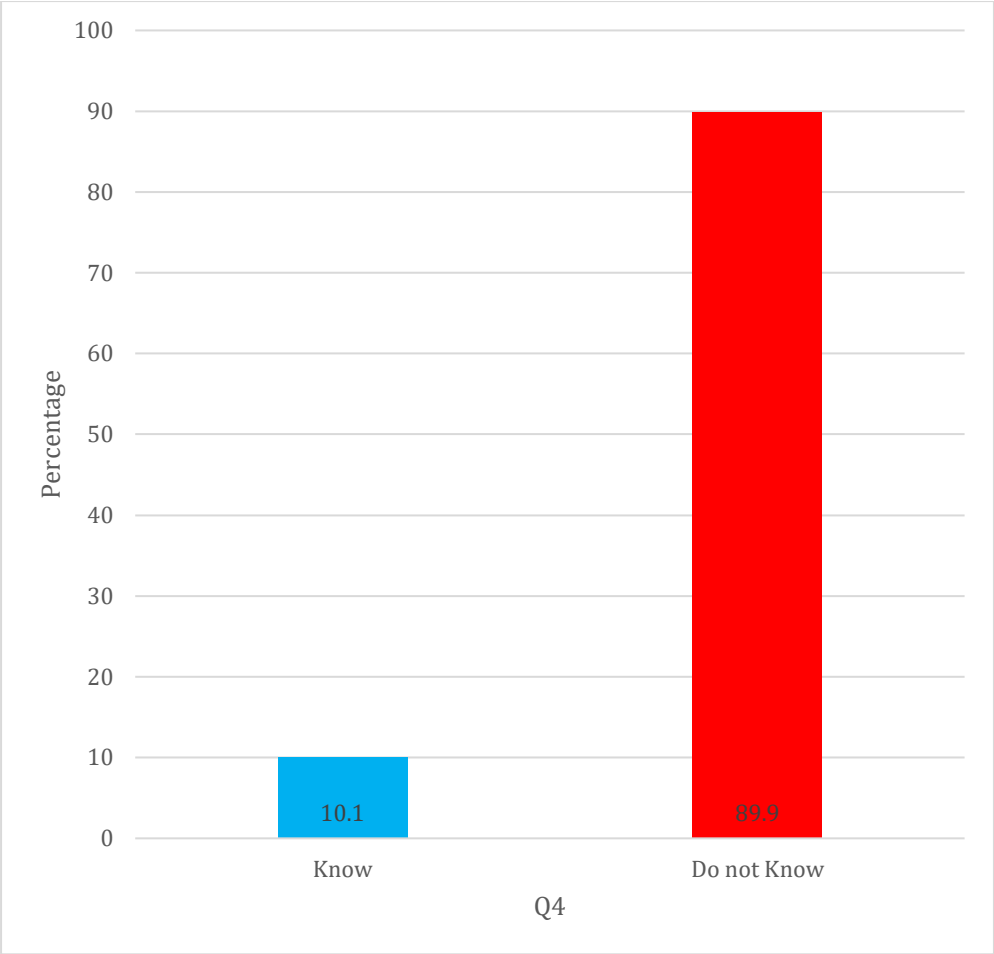

Figure 4: Responses to Question 4

Regarding how long the participants have a history of hypertension, around 10.1% know how long they have a history of hypertension, and around 89.9% do not know how long they have a history of hypertension. (See Figure 4)

4. Discussion

According to the World Bank (2023), around 37% of the total population of Afghanistan was literate in 2021, and research on health literacy is limited in Afghanistan (Harsch et al., 2021). We found that around 68.8% of participants strongly disagreed, and 25.7% agreed to have adequate hypertension knowledge. Harsch et al. (2021) found that 51.6% of women had a lower level of health literacy, and 22.7% had an optimal level of health literacy in Ghazni, Afghanistan. Also, Rostamzadeh et al. (2022), in a cross-sectional study conducted at Barchi National Hospital in Kabul, Afghanistan, indicated that the level of health literacy among pregnant women was low, and one of the health literacy-associated factors was education level.

Multiple study results highlighted that low health literacy and poor health outcomes are attributed to poor medication reconciliation, knowledge, and self-management (Mackey et al., 2016; Patzer et al., 2016; Persell et al., 2007). We found that 38.5% of participants always and 30.8% sometimes take their hypertension medication. Moreover, Magnani et al. (2018) indicated that patient-centered, health literacy-specific education could improve hypertension medication compliance in patients with lower levels of health literacy. Patient-centered educational interventions can also reduce patient misunderstanding of the provider's instructions (Magnani et al., 2018).

5. Limitations

We cannot generalize the results of this study due to the nature of the study, which is qualitative, and the data is collected through face-to-face interviews with potential interviewer biases. Also, Blossom Hospital is a private hospital. People with lower income might not be able to afford their care there, and the sample might not be representative of patients with lower income.

6. Conclusion

Hypertension is a non-communicable disease that needs regular management. A patient's appropriate level of health literacy can be essential in comprehending the information regarding healthy behavior, participating in care, and maintaining compliance with medication. In Afghanistan, low literacy and health literacy levels can negatively impact patient outcomes and overall well-being. Programs to increase patients' awareness and hypertension knowledge can decrease the burden of early complications from hypertension, positively impacting the health system in general. In addition, provider training on using health literacy-appropriate concepts and materials may also be essential in improving the quality of care for patients with hypertension in developing countries like Afghanistan.

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