Development of Health Literacy Assessment Tool for Hypertensive Patients in Pakistan having understanding of the Urdu Language

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Abstract

Background: Health literacy is a critical aspect of healthcare, particularly for people with chronic conditions such as hypertension. Low health literacy levels may result in poor health outcomes.

Objective: To determine the health literacy level for hypertension and after development of Health Literacy Assessment Tool in Urdu specifically for patients with hypertension.

Methodology: This was a cross-sectional study conducted on 135 hypertensive patients from October to December 2022. The health literacy assessment tool in Urdu for hypertension was initially tested on patients who met the inclusion criteria at an outpatient department of the Sheikh Zayed Medical Complex Lahore. Patients were interviewed through convenient sampling, ensuring their privacy in a separate waiting area. Following informed consent, followed by a listening session, and then a visual session. A health literacy tool was developed specifically for patients with hypertension. Patients were assessed for visual, listening, and reading ability, with content specifically related to hypertension. The tool was created in consultation with researchers and healthcare providers, and its construct validity was determined based on patients' education levels and their ability to understand visual and verbal information related to health literacy. The tool's reliability was determined using Cronbach's alpha.

Results: The tool's reliability was determined using Cronbach's alpha, which was 0.86. The mean score for health literacy was 6.2±1.9, with a range of 0-10. Based on the categorization, 27% of the participants had inadequate health literacy, 45% had moderate health literacy and 28% had adequate health literacy.

Conclusion: The Health Literacy Assessment Tool showed that about one in four hypertensive has inadequate knowledge about hypertension. By promoting health literacy, individuals with hypertension can make informed decisions about their health.

Keywords: Health literacy assessment tool, Hypertension, Validity, Urdu.

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Introduction

Hypertension is a leading risk factor for cardiovascular disease and affects millions of people worldwide.[1] Adequate health literacy is critical for the management of hypertension, as it requires continuous monitoring and adherence to treatment. Health literacy is the ability to obtain, understand, and use health information to make informed decisions about one's health.[2] However, measuring health literacy can be challenging, particularly in diverse populations with varying levels of education, language, and health literacy. Hypertension, also known as high blood pressure, is a major global public health problem and a leading cause of cardiovascular diseases.[3,4] It affects more than one billion people worldwide and is a significant contributor to mortality and morbidity. Hypertension is a condition in which the force of blood against the walls of arteries is too high, and if left uncontrolled, it can lead to serious complications such as stroke, heart attack, and kidney failure.[5]

Despite the availability of effective treatments and interventions, hypertension remains poorly-controlled in many populations, particularly in low- and middle-income countries.[6] In these settings, access to care and treatment adherence are major barriers to hypertension control. Moreover, hypertension often coexists with other chronic diseases such as diabetes and obesity, which further complicate its management.[7]

Existing health literacy assessment tools are limited in their applicability to hypertensive patients, as they may not capture the specific knowledge and skills required for hypertension management.[7,8] Therefore, there is a need to develop a health literacy assessment tool that is tailored to the needs of hypertensive patients. The development of a health literacy assessment tool for hypertensive patients requires consideration of several factors, including the

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literacy level of the target population, the specific health knowledge and skills required for hypertension management, and the cultural and linguistic context of the population.[9] A comprehensive health literacy assessment tool for hypertensive patients should assess not only reading and numeracy skills but also health-related decision-making and communication skills.[10]

The goal of this research article was to present the development and validation of a health literacy assessment tool for hypertensive patients, with the aim to capture the specific health knowledge and skills required for hypertension management and is tailored to the cultural and linguistic context of the population. The tool was tested for its reliability, validity, and applicability in diverse populations. The ultimate goal of this research was to improve the management of hypertension by identifying patients with low health literacy and tailoring interventions to their needs. Health literacy is a crucial component of healthcare, particularly for individuals with chronic conditions such as hypertension. Poor health literacy leads to poor health outcomes, increased healthcare costs, and reduced quality of life. To address the issue of low health literacy, it is essential to develop and validate health literacy assessment tools that are culturally and linguistically appropriate for diverse populations. Health literacy varies among different populations according to their culture and language.[7,8,9] Based on this observation, a self-constructed health literacy assessment tool for hypertensive patients was developed. The objective of this study was to determine the health literacy level for hypertension development after the development of the Health Literacy Assessment Tool (HLAT) in Urdu specifically for patients with hypertension.

Methodology

This was a cross-sectional study conducted on 135 hypertensive patients from October to December 2022. The Health Literacy Assessment Tool in Urdu for hypertension was initially tested on patients who met the inclusion criteria at an outpatient department of Sheikh Zayed Medical Complex Lahore. Patients were interviewed through convenient sampling, ensuring their privacy in a separate waiting area. Following informed consent, demographic information was collected, followed by a listening session and then a visual session. Ethical approval was taken from Institutional Review Board (Ref. No. F.39/NHRC/Admn/IRB/58, Dated: 23-09-2022). A health literacy tool was developed specifically for patients with hypertension. Patients were assessed for visual, listening, and reading ability, with content specifically related to hypertension. The tool was created in consultation with researchers and healthcare providers, and its construct validity was determined based on patients' education levels and their ability to understand visual and verbal information related to health literacy. The tool's reliability was determined using Cronbach's alpha.

Steps of Development of HLA:

I. Identification of target population:

To evaluate the health-related literacy level of hypertensive individuals, a questionnaire was created using a predefined set of data. A custom tool was devised to measure the comprehension level of individuals who understand Urdu, the national language when presented with health-related information. The tool's accuracy, complexity, and validity were assessed by healthcare experts and researchers based on information gathered from a hypertension clinic.

II. Extensive literature review and development of the tool for HLA in Urdu for hypertensive population:

After conducting an extensive review of the literature, the researcher recognized the need for a culturally appropriate tool to measure health literacy in hypertensive patients that would account for their unique requirements and avoid potential embarrassment during assessment. To achieve this, the researcher utilized a standard definition of health literacy with slight modifications, defining it as “the ability to obtain, process, comprehend, and communicate health-related information necessary to make informed health decisions”. The aim was to assess patients' understanding of their condition and their ability to seek assistance from healthcare professionals to improve their health outcomes. Following consultation with healthcare experts, the researcher created a tool that evaluated the comprehension level of hypertensive patients through a series of questions based on both verbal and visual information about hypertension.

III. Development of the HLAT:

The Health Literacy Assessment Tool for hypertensive patients was constructed under the

guidance of preformed tools used in the USA and Europe, and their translated versions in different countries.[11,12] The key area of focus for evaluating health literacy was the patients' comprehension of their condition, as determined by their conceptual knowledge. This comprehension was assessed through two subdomains: listening comprehension and visual understanding of provided health information. A questionnaire was developed using a modified version of the Newest Vital Sign (NVS), which gauges a patient's reading and numeracy abilities by presenting them with an image. The self-constructed tool involved showing patients a brochure for visual evaluation, providing oral health information, and engaging in a verbal exchange between the researcher and the patient to evaluate their health literacy.

HLAT tool:

The domain of listening skills encompassed information about hypertension, including its indications, symptoms, and treatment. The researcher proceeded to pose five questions, in ascending order of difficulty, based on the provided information.

Question 1:What do you know about hypertension now?

0 Points: No response or response that indicates a complete lack of knowledge about hypertension.

1 Point: Response that indicates a basic understanding of hypertension.

2 Points: Response that demonstrates a comprehensive understanding of hypertension.

Question 2: What are the signs of hypertension?

0 points: No response or response that indicates a complete lack of knowledge about the signs of hypertension.

1 point: Response that identifies one or two of the signs of hypertension.

2 points: Response that identifies all or most of the signs of hypertension.

Question 3: What are the symptoms of hypertension?

0 points: No response or response that indicates a complete lack of knowledge about the symptoms of hypertension.

1 point: Response that identifies one or two of the symptoms of hypertension.

2 points: Response that identifies all or most of the symptoms of hypertension.

Question 4: How can hypertension be controlled?

0 points: No response or response that indicates a complete lack of knowledge about how hypertension can be controlled.

1 point: Response that identifies one or two ways to control hypertension.

2 points: Response that identifies all or most of the ways to control hypertension.

Question 5: What is the target blood pressure?

0 points: No response or response that indicates a complete lack of knowledge about the target blood pressure.

1 point: Response that identifies a range for the target blood pressure.

2 points: Response that identifies the specific target blood pressure.

Visual Skills Domain:

Question 1: What is shown in this picture?

0 points: No response or response that indicates a complete lack of understanding of what is shown in the picture.

1 point: Response that identifies one or two elements shown in the picture.

2 points: Response that identifies all or most of the elements shown in the picture.

Question 2: What is happening to the person?

0 points: No response or response that indicates a complete lack of understanding of what is happening to the person.

1 point: Response that identifies one or two symptoms or signs of hypertension in the picture.

2 points: Response that identifies all or most of the symptoms or signs of hypertension in the picture.

Question 3: What information do you get from this?

0 points: No response or response that indicates a complete lack of understanding of the information conveyed in the picture.

1 point: Response that identifies one or two key pieces of information conveyed in the picture.

2 points: Response that identifies all or most of the key pieces of information conveyed in the picture.

Question 4: Can you give a reason for this condition?

0 points: No response or response that indicates a complete lack of understanding of the reason for the person's condition.

1 point: Response that identifies one or two possible reasons for the person's condition.

2 points: Response that identifies the most likely reason for the person's condition.

Question 5: What measures are to be taken?

0 points: No response or response that indicates a complete lack of understanding of the measures that need to be taken.

1 point: Response that identifies one or two measures that need to be taken.
2 points: Response that identifies all or most of the measures that need to be taken.

Table I: Scoring of Health Literacy Assessment Tool.

Health Literacy Level	Score Range	Interpretation
Adequate	12-15	Demonstrates a high level of understanding of hypertension and its management.
Moderate	8-11	Has some knowledge of hypertension but may need further education or support to effectively manage the condition.
Inadequate	0-7	Has limited understanding of hypertension and its management, and may require significant education and support to manage the condition effectively.

Review and pilot test of Health Literacy Assessment Tool:

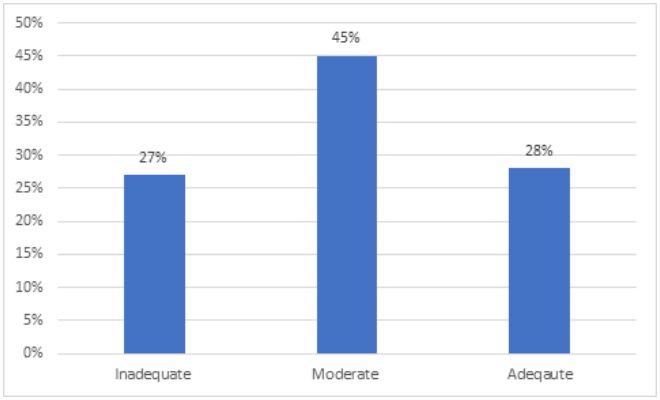
The health literacy assessment tool for hypertension was initially tested on 10 patients who met the inclusion criteria at an outpatient department, with a sample size of 135 patients determined using a power of precision of 3. Following informed consent, demographic information was collected, followed by a listening session and then a visual session. The process took about four minutes per patient, which was convenient for both the patient and the researcher as it coincided with the patient's waiting time for their appointment. The researcher concluded each session by addressing any concerns the patient may have had regarding their health, and all patients reported being satisfied with the process. After pilot testing and the response obtained from it, the tool was reviewed and refined with minor changes in it so that the outcome of results can be generalized. The final step was to validate the tool using a larger sample of the target population. This included testing the tool for reliability and validity and identifying any psychometric properties that needed to be addressed.

The Health Literacy Assessment Tool for hypertension was analyzed to determine its internal consistency and validity using Cronbach's alpha. Participants' health literacy levels were evaluated based on their scores, which were categorized as follows: scores of 0-7 indicating inadequate health literacy, 8-11 indicating moderate health literacy, and 12-15 indicating adequate health literacy. The mean, standard deviation, and percentage were calculated for each category. The study also examined the impact of age (30-50 years and 51-65 years), gender (male and female), education level (literate and illiterate), duration of hypertension (≤5 years and 6-10 years), and health literacy level on blood pressure control. The variables were analyzed for their association with blood pressure control using the chi-square test of significance. SPSS version 20 was used for data analysis. Ethical approval was sought from the Hospital Ethics Committee.

Results

This study included 135 hypertensive patients. The health literacy level for hypertension was categorized as inadequate, moderate and adequate based on the scores obtained from the assessment tool. The mean score for health literacy was 6.2±1.9, with a range of 0-10. Based on the categorization, 27% of the participants had inadequate health literacy, 45% had moderate health literacy and 28% had adequate health literacy. (Figure-I)

Figure I: Health Literacy Level among Hypertensive Patients



The association between health literacy level and blood pressure control was analyzed using a chi-square test of significance. The results showed that there was a significant association between health literacy level and blood pressure control level ($p<0.05$). Participants with inadequate health literacy had poor control compared to those with moderate or adequate health literacy. Age, gender,

education, and duration of hypertension were also analyzed for their association with blood pressure control levels. Participants aged 51-65 years and those with hypertension for 6-10 years had poor control compared to younger participants and those with hypertension for ≤5 years. Gender and education were not significantly associated with blood pressure control levels.

It can be observed that the correct percentage for the questions in the listening domain ranges from 31.1% to 74.1%, indicating varying levels of understanding among participants. On the other hand, in the visual domain, the correct percentage ranges from 14.8% to 64.4%, again indicating varying levels of understanding.

Of the participants, 43% scored 7 or below on the HLAT for hypertensive patients, indicating inadequate health literacy. Meanwhile, 37% scored between 8 and 11, indicating moderate health literacy, and 20% scored between 12 and 15, indicating adequate health literacy.

Discussion

Health literacy is an important determinant of health and health-seeking behaviors. The development of a Health Literacy Assessment Tool for hypertensive patients in Pakistan is needed not only for hypertension but other diseases as well, and is an important contribution to the field of healthcare, especially in a country where hypertension is prevalent and there is a lack of adequate tools to assess health literacy among patients. In this regard, we compared the findings of this study with those of previous research studies.[11,12,13]

The results showed that health literacy level had a significant association with blood pressure control, with those having adequate health literacy having better control than those with inadequate or moderate health literacy levels. Age, education, and duration of hypertension were also found to have a significant association with blood pressure control. So, the assessment tool was found to be valid and reliable for assessing health literacy levels in the population of Pakistan who understand the Urdu language. The tool can be used to identify patients with inadequate health literacy and provide appropriate education to improve their understanding of hypertension management. The Cronbach alpha coefficient of 0.84 obtained in this study is higher than the acceptable threshold of 0.70, indicating that the tool has good internal consistency. This finding is consistent with the results of previous studies that reported high Cronbach alpha values for health literacy assessment tools.[14] Moreover, the test-retest reliability coefficient of 0.86 is also considered acceptable and indicates that the tool has good stability over time. This study also found a significant association between health literacy level and hypertension control level among hypertensive patients, which is consistent with the findings of previous studies.[15,16] Similarly a study conducted in Malaysia found that patients with inadequate health literacy had poor control.[17]

Similarly, earlier study conducted in Iran found a significant association between health literacy level and blood pressure control among hypertensive patients.[18] These findings suggest that health literacy plays a significant role in the management of hypertension, and interventions aimed at improving health literacy can lead to better health outcomes among hypertensive patients. In Urdu-speaking communities, there is a need for accurate health literacy assessment tools that can measure health literacy and develop effective patient education interventions for individuals with hypertension. Urdu is widely spoken in Pakistan, India, and other parts of the world, and many healthcare providers use Urdu as a common language to communicate with patients. However, there was a lack of validated health literacy assessment tools in Urdu that are specific to patients with hypertension, which can hinder efforts to improve health outcomes in these populations. To address this need, a Health Literacy Assessment Tool was developed in Urdu specifically for patients with hypertension to determine their health-related behavior, having good Cronbach's alpha.

Conclusion

In conclusion, the Health Literacy Assessment Tool developed for hypertensive patients in Pakistan has demonstrated good internal consistency and an association with hypertension control levels. These findings are consistent with previous studies and highlight the importance of health literacy in the management of hypertension. The tool can be used in clinical settings to identify patients with inadequate health literacy and tailor interventions to improve their health outcomes. Future research should explore the effectiveness of interventions aimed at

improving health literacy among hypertensive patients.

Authors Contribution: HBH: Conception of work, Acquisition and Analysis of data and Drafting. **RS:** Acquisition and Analysis of data, Interpretation of data and revising. **HN:** Design of work, Acquisition and Analysis of data and revising. **SA:** Interpretation of data and revising.
All authors critically revised and approve its final version.

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