
The Relationship Between Patients' Health Literacy Levels and Understanding of Outpatient Service Procedures at Puskesmas Gunungpati

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Abstract. Low health literacy can hinder patients' ability to understand health information and navigate healthcare services. This study aimed to determine the relationship between patients' health literacy and their understanding of outpatient service procedures at Gunungpati Public Health Center, as well as the relationships of age, sex, and educational attainment with health literacy and understanding of service procedures. An analytical correlational quantitative study with a cross-sectional design was conducted among 100 adult and older adult patients selected through purposive sampling. Data were collected using structured questionnaires to measure health literacy and understanding of service procedures, then analyzed using univariate and bivariate analyses with the Chi-Square test at $\alpha = 0.05$. Overall, 52.0% of respondents had good health literacy, while 48.0% had poor health literacy. Regarding understanding of service procedures, 42.0% of respondents demonstrated good understanding, whereas 58.0% demonstrated poor understanding. Age ($p = 0.001$) and educational attainment ($p = 0.001$) were significantly associated with health literacy, while sex was not ($p = 0.121$). Age ($p = 0.228$), sex ($p = 0.960$), and educational attainment ($p = 0.574$) were not significantly associated with understanding of service procedures. Health literacy was also not significantly associated with understanding of service procedures ($p = 0.733$). These findings indicate that improving patients' understanding requires attention not only to individual abilities but also to the clarity, accessibility, and consistency of healthcare service information.

Keywords: Health Literacy; Outpatient Service Procedures; Patients; Puskesmas; Understanding

INTRODUCTION

Health literacy is an important component of effective healthcare utilization because it involves an individual's ability to access, understand, evaluate, and use health information and health services. It is not limited to reading and writing skills but also includes numeracy, communication, interpretation of information, and the ability to make appropriate health-related decisions (1). In addition, health literacy is influenced by an individual's ability to understand written and oral information, administrative documents, health instructions, and service procedures (2). Therefore, adequate health literacy is essential for enabling patients to participate actively in the healthcare system and follow the procedures provided by healthcare facilities. Health literacy is a multidimensional concept involving cognitive, social, and cultural aspects.

The Expanded Model of Health Literacy developed by Zarcadoolas, Pleasant, and Greer explains that health literacy consists of fundamental literacy, science literacy, civic literacy, and cultural literacy. These dimensions influence how individuals receive, interpret, and apply health information in their daily lives and within healthcare settings. In the context of primary healthcare services, these abilities are relevant to understanding registration requirements, interpreting directional signs, following examination procedures, and recognizing instructions provided by healthcare workers. Recent research also emphasizes that health literacy is influenced by individual characteristics and the surrounding information environment, which shape individuals' ability to access, understand, evaluate, and use health information (3).

Several studies have reported that health literacy is associated with sociodemographic characteristics (4) found that health literacy tends to be better among individuals with higher educational attainment and younger age, whereas inadequate health literacy is more frequently observed among older individuals and those with lower educational backgrounds. Educational level may affect a person's ability to process written information, while age may influence cognitive processing, memory, and the ability to understand complex health information. However, differences in health literacy cannot be determined solely by sociodemographic characteristics because social and environmental factors may also influence an individual's access to understandable health information.

The issue of inadequate health literacy has also been identified in healthcare settings in Indonesia. (5) reported that most respondents in a primary healthcare setting had low health literacy. Similarly, (2) found that a considerable proportion of patients had inadequate health literacy, which could create difficulties in understanding health instructions, medication labels, administrative forms, and healthcare procedures. These findings indicate that limited health literacy may become a barrier to effective communication between patients and healthcare providers.

In addition to individual characteristics, the organization of healthcare services can influence patients' understanding of service procedures. Patients are required to understand the sequence of services, beginning with registration, continuing to the examination process, and ending with medication collection or referral when necessary. Clear information and an organized service system can support patients in following each stage of care. Conversely, unclear instructions, inadequate signage, and complicated administrative procedures may cause confusion, delays, and repeated questions directed to healthcare workers (6). Consequently, understanding the outpatient service flow is an important aspect of service quality and healthcare efficiency.

The relationship between health literacy and the understanding of healthcare procedures may be explained through the interaction between individual competencies and the healthcare environment. Patients with adequate health literacy may be more capable of interpreting information, identifying the services they need, and applying instructions provided by healthcare workers. Nevertheless, health literacy alone may not be sufficient to ensure that patients understand the service flow. The clarity of information, availability of visual media, accessibility of signage, and communication skills of healthcare workers may also affect patients' understanding. (7) emphasized that digital and visual communication media, such as educational videos, digital leaflets, websites, and WhatsApp-based information, can improve the accessibility and understanding of health information.

Previous research has also shown that limited health literacy may be associated with the use of healthcare services. (8) reported that individuals with low health literacy may have different patterns of primary healthcare utilization. In addition, inadequate health literacy has been linked to difficulties in understanding medical information and following health recommendations (9). These conditions demonstrate that health literacy is an important issue not only in health promotion and disease prevention but also in the process of accessing and navigating healthcare services.

Based on preliminary observations at Puskesmas Gunungpati, some patients still experienced difficulties in following the outpatient service procedures. Patients were observed asking healthcare workers about the location of service rooms, the sequence of registration and examination, and the process of collecting medication. Some patients also required repeated explanations because the available information and directional signs were not sufficiently clear or easy to understand. These conditions indicate the importance of examining patients' health literacy and their understanding of the outpatient service flow in the local primary healthcare setting.

However, the relationship between patients' health literacy and their understanding of outpatient service procedures at Puskesmas Gunungpati has not yet been clearly established. Furthermore, the extent to which age, sex, and educational attainment are associated with health literacy and understanding of the outpatient service flow requires empirical examination. Therefore, this study aimed to determine the relationship between patients' health literacy and their understanding of outpatient service procedures at Puskesmas Gunungpati, as well as to examine the relationship between sociodemographic characteristics and both study variables.

METHODS

This study employed a quantitative analytical correlational approach with a cross-sectional design and was conducted at Gunungpati Public Health Center, Semarang, Indonesia, from March to July 2026. The study population consisted of patients receiving healthcare services at Gunungpati Public Health Center, with a recorded population of 4,939 patient visits. The sample size was determined using the Slovin formula with a 10% margin of error, resulting in a minimum sample size of 98 respondents; therefore, 100 respondents were included in the study. Respondents were selected using purposive sampling based on predetermined inclusion and exclusion criteria. The inclusion criteria were patients receiving treatment at Gunungpati Public Health Center during the study period, aged ≥ 26 years, able to read and write, willing to participate by providing informed consent, attending the health center independently, and having adequate communication abilities to complete the questionnaire independently or with minimal assistance from the researcher. Patients who were unwilling to participate or refused to complete the questionnaire, as well as those with severe cognitive, hearing, or visual impairments that could interfere with communication or understanding of the questionnaire, were excluded. Respondents' ages were categorized into three groups: 25–45 years, 46–59 years, and ≥ 60 years. Data were collected using structured questionnaires. Health literacy was measured using a 47-item questionnaire adapted from the HLS-EU-Q47 and interpreted based on the Expanded Model of Health Literacy, covering four dimensions: fundamental literacy, science literacy, civic literacy, and cultural literacy. Each item was scored using five response options: “Very Difficult” = 1, “Difficult” = 2, “Easy” = 3, “Very Easy” = 4, and “Do Not Know” = 5 as a missing value. Health literacy scores were categorized as good when the total score was ≥ 134 and poor when the score was < 134 . Understanding of outpatient service procedures was measured using a 20-item questionnaire covering two components, namely understanding and application, with “Yes” scored as 2 and “No” as 1. The total score was categorized as good when it was ≥ 30 and poor when it was < 30 . The instruments were tested for validity and reliability using 30 respondents before the main data collection. All 47 health literacy items and 20 understanding items met the validity criteria, and the combined instrument demonstrated good internal consistency. Respondent characteristics and study variables were analyzed descriptively using frequencies and percentages, while bivariate analysis was performed using the Chi-square test to examine the relationships between sociodemographic characteristics, health literacy, and understanding of outpatient service procedures, with a significance level of $\alpha = 0.05$. Research

permission was obtained from the Semarang City Health Office; however, an ethical clearance number was not documented in the source thesis.

RESULT

Of the 100 respondents, the largest age group was 46–59 years (39.0%), 64.0% were female, and 28.0% had completed senior high school or an equivalent level of education. Overall, 52.0% of respondents had good health literacy, while 58.0% had poor understanding of outpatient service procedures.

Respondent Characteristic.

The characteristics of the respondents were described based on age, sex, and educational attainment. These characteristics provide an overview of the demographic profile of the respondents involved in the study. A total of 100 respondents participated in this study, with variations in age, sex, and level of education.

Table 1 Age Characteristics

Age Characteristic	f	%
25-45	36	36
46-59	39	39
>60	25	25

Based on the analysis of respondent characteristics, among the 100 respondents involved in this study, the largest proportion belonged to the 46–59-year age group, comprising 39 respondents (39%). This age group represented the highest proportion of respondents in the study. Furthermore, 36 respondents (36%) were aged 26–45 years, while 25 respondents (25%) were aged ≥ 60 years. The distribution of respondents across these age groups indicates that the study involved participants from various stages of adulthood, with the largest proportion concentrated in the 46–59-year age group. Overall, 75 respondents (75%) were under 60 years of age, while the remaining 25 respondents (25%) were aged ≥ 60 years. This distribution provides an overview of the age characteristics of the respondents involved in the study and indicates that most participants were adults below 60 years of age.

Table 2 Sex Characteristics

Sex Characteristic	f	%
Male	36	36
Female	64	64

Based on Table X, the majority of respondents were female, comprising 64 respondents (64%) of the total 100 respondents involved in this study. Meanwhile, 36 respondents (36%) were male. The distribution of respondents by sex shows that the number of female respondents was higher than that of male respondents. Overall, the distribution indicates that female respondents represented the larger proportion of participants in this study. Thus, based on sex, the characteristics of the respondents were predominantly female, accounting for 64% of the total respondents.

Table 3 Educational Attainment Characteristics

Educational Attainment Characteristic	f	%
No Formal Education	5	5
Elementary School/Equivalent	22	22
Junior High School/Equivalent	23	23

Educational Attainment Characteristic	f	%
Senior High School/Equivalent	28	28
Higher Education	22	22

In this study, the majority of respondents had completed senior high school or an equivalent level of education, comprising 28 respondents (28%) out of the total 100 respondents. Furthermore, 23 respondents (23%) had completed junior high school or an equivalent level, 22 respondents (22%) had completed elementary school or an equivalent level, 22 respondents (22%) had attained higher education, and 5 respondents (5%) had never received formal education. Although senior high school or equivalent was the most common educational attainment, differences in educational backgrounds should still be considered by providing information that is simple and easy to understand to improve patients' health literacy and understanding of outpatient service procedures.

Variable Categories

The variables in this study were categorized to describe the respondents' levels of health literacy and understanding of outpatient service procedures. Health literacy was classified into two categories, namely good and poor, while understanding of outpatient service procedures was also categorized as good and poor.

Table 4 Variable Categories

Variable	Categories	F	%
Health Literacy	Good	52	52
	Poor	48	48
Understanding of Outpatient Service Procedures	Good	42	42
	Poor	58	58

Based on the table, out of 100 respondents, 52 respondents (52%) had a good level of health literacy, while 48 respondents (48%) were categorized as having poor health literacy. Meanwhile, understanding of outpatient service procedures showed that 42 respondents (42%) had good understanding, while 58 respondents (58%) had poor understanding. These results indicate that although the majority of respondents had good health literacy, their understanding of outpatient service procedures remained relatively poor.

Relationship Between Respondent Characteristics and Health Literacy and Understanding of Outpatient Service Procedures.

The relationship between respondent characteristics and the study variables was analyzed to determine whether age, sex, and educational attainment were associated with health literacy and understanding of outpatient service procedures. The analysis was conducted using statistical tests with a significance level of 0.05.

Table 5 Relationship Between Respondent Characteristics and Variables

Characteristics	<i>p-value</i> Health Literacy	<i>p-value</i> Understanding of Outpatient Service Procedures
Age	0,001	0,228
Sex	0,121	0,960
Educational Attainment	0,001	0,574

Based on the table, age and educational attainment showed significant associations with health literacy, each with a p-value of 0.001 ($p < 0.05$). This indicates that age and educational attainment were associated with respondents' health literacy levels. Meanwhile, sex did not show a significant association with health literacy, with a p-value of 0.121 ($p > 0.05$). For the variable of understanding of outpatient service procedures, age ($p = 0.228$), sex ($p = 0.960$), and educational attainment ($p = 0.574$) did not show significant associations, as all p-values were > 0.05 . Furthermore, the Chi-Square test examining the relationship between health literacy and understanding of outpatient service procedures yielded a p-value of 0.733, indicating no significant association between the two variables.

Relationship Between Health Literacy and Understanding of Outpatient Service Procedures

The relationship between health literacy and understanding of outpatient service procedures was analyzed to determine whether the level of health literacy was associated with respondents' understanding of the procedures. The analysis was conducted using the Chi-Square test with a significance level of 0.05.

Table 6 Relationship Between Health Literacy and Understanding of Outpatient Service Procedures

Health Literacy	Poor Understanding	Good Understanding	Total
Good	27	21	48
Poor	31	21	52
Total	58	42	100

Based on the table, among the 48 respondents with poor health literacy, 27 respondents (27%) had poor understanding of outpatient service procedures, while 21 respondents (21%) had good understanding. Meanwhile, among the 52 respondents with good health literacy, 31 respondents (31%) had poor understanding, while 21 respondents (21%) had good understanding. These results indicate that respondents with both good and poor health literacy were more likely to have poor understanding of outpatient service procedures. This finding suggests that having a good level of health literacy does not necessarily correspond to good understanding of outpatient service procedures.

DISCUSSION

The findings of this study showed that 52.0% of respondents had good health literacy, while 48.0% had poor health literacy. Although the proportion of respondents with good health literacy was slightly higher, nearly half of the respondents remained in the poor category. This finding indicates that patients at Gunungpati Public Health Center still had varying levels of ability to obtain, understand, evaluate, and use health information. Health literacy is not solely determined by an individual's ability, but may also be influenced by educational background, age, previous experience, access to health information, and the information environment in which healthcare is provided. The relatively large proportion of respondents with poor health literacy therefore indicates the need for health information to be delivered using simple, clear, and easily accessible communication.

Regarding understanding of outpatient service procedures, 58.0% of respondents were categorized as having poor understanding, while 42.0% had good understanding. This finding indicates that understanding the outpatient service flow remains a challenge for a considerable proportion of patients at Gunungpati Public Health Center. Understanding service procedures involves not only receiving information but also recognizing and applying the sequence of services that patients need to follow. Previous studies cited in the thesis indicate that education and assistance regarding healthcare procedures can improve patients' understanding. Therefore, information regarding outpatient procedures should be presented consistently through clear explanations and easily understood

educational media, particularly for patients who may have difficulty navigating healthcare services. This is supported by (10) who reported that healthcare providers encountered difficulties in communicating with patients with low health literacy and emphasized the need to adapt communication and assess patients' understanding.

The main finding of this study was that health literacy was not significantly associated with understanding of outpatient service procedures. The Chi-square test produced a p-value of 0.733 ($p > 0.05$). Among 52 respondents with good health literacy, 21 respondents had good understanding of the outpatient service flow and 31 had poor understanding. Meanwhile, among 48 respondents with poor health literacy, 21 had good understanding and 27 had poor understanding. These findings indicate that good health literacy was not necessarily accompanied by good understanding of the outpatient service flow. Conversely, some respondents with poor health literacy were still able to demonstrate good understanding of the service flow.

This finding is supported by (11), who reported that health literacy was not significantly associated with heart failure self-care adherence. Their findings indicate that health literacy does not necessarily translate directly into a specific health-related behavior or outcome. Similarly, in the present study, general health literacy may not directly determine whether patients understand a specific outpatient service procedure. Understanding the service flow may depend on additional factors, such as the clarity of information provided by the healthcare facility, patients' previous experience using healthcare services, the availability of directions or signage, and the consistency of information provided by healthcare staff. Therefore, the absence of a significant association in this study does not mean that health literacy is unimportant, but rather suggests that understanding outpatient service procedures may involve factors beyond individual health literacy.

The finding of this study differs from research by (12) which found a significant relationship between health literacy and self-care management among patients with diabetes mellitus. The study reported significant relationships between several health literacy components, including obtaining, understanding, assessing, and applying health information, and patients' self-care management. This difference may be related to the characteristics of the outcome being measured. Self-care management requires patients to apply health information to daily health behaviors, whereas understanding outpatient service procedures focuses more specifically on recognizing and following the sequence of healthcare services. Thus, the relationship between health literacy and patient outcomes may vary according to the type of information and behavior being assessed.

The sociodemographic analysis showed that age was significantly associated with health literacy, while sex was not significantly associated with health literacy. Descriptively, poor health literacy was more frequently observed among respondents aged ≥ 60 years, whereas good health literacy was more frequently observed among respondents aged 26–45 years. This finding is consistent with recent research showing that age is associated with differences in health literacy. (4) examined health literacy among patients in primary healthcare settings and identified patient characteristics associated with health literacy and health behavior. More recent evidence also indicates that health literacy may decline with increasing age and that education is an important factor associated with health literacy. The absence of a significant association between sex and health literacy in the present study suggests that sex alone may not sufficiently explain differences in patients' health literacy.

Educational attainment was also significantly associated with health literacy ($p = 0.001$). In this study, good health literacy was most frequently observed among respondents with senior high school or equivalent education, whereas poor health literacy was most frequently observed among respondents with junior high school or equivalent education. This finding is supported by recent studies showing that educational attainment is associated with health literacy. A 2023 study among patients identified

lower educational attainment as one of the factors associated with limited critical health literacy. Similarly, recent population-level evidence found that higher education was positively associated with health literacy. Education may support an individual's ability to receive, understand, process, and use health information. However, the present finding should be interpreted as an association rather than evidence that education directly causes higher health literacy.

In contrast, none of the examined sociodemographic characteristics showed a significant association with understanding of outpatient service procedures. Age was not significantly associated with understanding ($p = 0.228$), sex was not significantly associated with understanding ($p = 0.960$), and educational attainment was not significantly associated with understanding ($p = 0.574$). For age, poor understanding was most frequently observed in the 46–59-year group, whereas good understanding was most frequently observed in the 26–45-year group; however, the difference was not statistically significant. This finding suggests that demographic characteristics alone may not determine whether patients understand the outpatient service flow.

Similarly, sex was not significantly associated with understanding of outpatient service procedures. Although female respondents constituted the larger proportion of both the poor and good understanding groups, the difference was not statistically significant. Educational attainment also showed no significant association with understanding. These findings indicate that understanding a specific healthcare procedure may depend more on the information environment and communication process than on patients' demographic characteristics alone. Research on healthcare communication has shown that the way information is delivered can influence patients' ability to understand health information, particularly among individuals with limited health literacy. Therefore, healthcare facilities should ensure that outpatient service information is presented consistently, clearly, and in language that can be easily understood by patients with different backgrounds.

Overall, the findings indicate that health literacy and understanding of outpatient service procedures should not be viewed as entirely interchangeable concepts. Although health literacy represents an important individual capacity for accessing and using health information, patients' understanding of a specific service flow may also depend on the healthcare facility's information environment and the way service procedures are communicated. Recent evidence on patient navigation also demonstrates the importance of guidance and assistance in helping patients access and understand healthcare services. Therefore, efforts to improve patients' understanding should not rely solely on increasing individual health literacy. Clear service-flow information, consistent explanations from healthcare staff, accessible signage, and patient education may also be important components in improving patients' ability to navigate outpatient services. (13) similarly highlighted that the understanding of health information within a patient pathway can be influenced by factors that either facilitate or hinder patients' ability to comprehend the information provided.

This study has several limitations. First, the cross-sectional design measures health literacy and understanding of outpatient service procedures at a single point in time; therefore, the findings cannot establish a causal relationship between the variables. Second, the study used purposive sampling with a relatively small sample of 100 respondents from a single public health center, which may limit the generalizability of the findings to other healthcare facilities or populations. Third, both variables were measured using questionnaires, so the results may be influenced by respondents' ability and willingness to provide accurate answers. Finally, the study focused on individual health literacy and selected sociodemographic characteristics, while other contextual factors, such as previous experience with healthcare services, clarity of service information, signage, communication from healthcare staff, and accessibility of information, were not directly measured. These factors may contribute to patients' understanding of outpatient service procedures and should be considered in future research.

CONCLUSION

A total of 52.0% of respondents had good health literacy, while 58.0% had poor understanding of outpatient service procedures. Age and educational attainment were significantly associated with health literacy, whereas sex was not. None of the three sociodemographic characteristics showed a significant association with understanding of outpatient service procedures, and health literacy was also not significantly associated with understanding of outpatient service procedures ($p = 0.733$). These findings indicate that improving patients' understanding requires a combination of patient-centered communication and clearer, more accessible service information. Gunungpati Public Health Center is recommended to strengthen visual media for service procedures, ensure consistency in directional signage, and provide brief explanations at registration and service points.

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