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ORIGINAL ARTICLE

Health literacy from the perspective of people with cardiovascular diseases: a study of mixed methods*

HIGHLIGHTS

1. Brazilian study of mixed methods on health literacy.
2. Potential strengths: social support, ability to interact and navigate the system.
3. Weaknesses: sufficient information, active care, and evaluation of information.
4. Integrated results enabled a more comprehensive analysis.

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ABSTRACT

Objective: Analyze health literacy from the perspective of people with cardiovascular diseases. **Method:** Mixed methods study, sequential explanatory, with 124 people in the quantitative stage and six in the qualitative stage. Data collection through the Health Literacy Questionnaire with interviews between April and November 2023 in Ijuí, Rio Grande do Sul, Brazil. Data were analyzed descriptively, inferentially, with content analysis and integration. **Results:** Participants rarely compare health information from different sources, face inequities in guidance, and delegate care to family members. The preventive medicine program can facilitate health literacy by emphasizing “social support” and “active interaction with health professionals” as strategies for overcoming vulnerabilities. **Conclusions:** People with cardiovascular diseases have weaknesses in health literacy, influenced by age and education, compromising their autonomy in care. The integration of data revealed consistency and discrepancies between perception and practice, pointing to the need for specific interventions.

KEYWORDS: Health Literacy; Cardiovascular Diseases; Access to Information; Patient Education as Topic; Hospitalization.

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INTRODUCTION

Cardiovascular diseases (CVD) are responsible for more than 17 million deaths worldwide each year[1]. In Brazil, 72% of deaths result from chronic noncommunicable diseases (CNCDs), with 30% due to CVDs[2]. In addition, such diseases have consequences such as increased morbidity, disabilities, reduced quality of life, increased care demands and, consequently, costs to the individual, family, and health services.[3].

The increase in CVD is related to population aging and risk factors such as high blood pressure, diabetes *mellitus*, dyslipidemia, obesity, physical inactivity, smoking, poor diet, stress, and family history. In view of these factors, it is necessary to strengthen health protection and promotion measures, especially those that promote healthy lifestyles and access to primary and secondary prevention measures associated with the treatment of cardiovascular events.

In this context, Health Literacy (HL) has the potential to contribute and modify negative health factors through clear, understandable, and unique communication focused on each person's needs. It is strategically relevant to public policies, which are based on a healthy population as an essential requirement[4]. HL represents the personal knowledge and skills that are accumulated through daily activities, social interactions, and generations. This knowledge and skills are mediated by organizational structures and the availability of resources, which enable people to access, understand, evaluate, and use information and services in ways that promote and maintain good health and well-being for themselves and those around them[5].

High HL is associated with behavioral changes. Interventions focused on HL—such as the use of printed materials, individualized support, collective education, and a combination of these strategies—show promise in promoting better outcomes related to nutrition, physical activity, and cholesterol levels[6]. That said, it is believed that HL can impact user commitment to attitude modification, especially in relation to modifiable risk factors, but it can be triggered by special and socioeconomic issues[5]. Another study indicates that insufficient LS is associated with inadequate use of health services and leads to unfavorable clinical outcomes. Evidence points to higher hospitalization rates, increased demand for emergency care, reduced use of preventive measures, low adherence to prescribed treatments, and increased mortality rates—especially among individuals with CVD.

In the international and national context, studies have sought to assess the HL of people with VCI, but quantitatively with adult patients in Ethiopia[1], elderly patients in Japan[8], and Brazil[9], with men and women with VCI in Germany[10]. In addition, we found two international studies with a mixed methods (MM) methodological approach, but in clinical contexts different from CVD[11-12].

In this study, we aim to explore HL in individuals with CVD using a MM research design. This methodology seeks to explore both analyses in a single manuscript, given that this is a complex phenomenon[13]. In Brazil, this study is the first to evaluate HL in hospitalized patients with CVD in a private healthcare institution. Added to this is the fact that HL is little explored in the context of health practices and management in Brazil, as well as the scarcity of national and international data through MM.

Based on this context, this study aimed to analyze LS from the perspective of people with CVD who had been hospitalized.

METHOD

This is a mixed methods (MM) study with a sequential explanatory design. The first phase was conducted using a quantitative approach, and the results were monitored in the second phase. The qualitative phase aims to explain the initial results in greater depth. To facilitate discussion of the design characteristics of MM in the exploratory sequential model, the QUAN→qual notation system is used, since the researcher implements the two elements in a sequence, with quantitative methods first, as they have priority in addressing the study questions, and qualitative methods following to help explain the quantitative results[13].

The quantitative stage took place in a private general hospital in southern Brazil, more specifically in the clinical inpatient units. The institution has a program called "Preventive Medicine in Comprehensive Health Care," which monitors patients enrolled in the program, providing comprehensive care and preparing patients for discharge through a multidisciplinary team.

People aged 18 years or older with a medical diagnosis of CVD, preserved cognitive function, and hospitalized for at least 24 hours were included. Surgical patients, women in labor, and institutionalized patients after hospital discharge were excluded from the study .

The sample was selected for convenience. A total of 152 patients were invited, of whom 26 refused to participate. Data collection was performed by the first author of the article and previously trained undergraduate research fellows.

Regarding data analysis and treatment, the *Joint Form* application was used to transcribe the instruments. The instruments were applied at the bedside, consisting of a sociodemographic questionnaire, together with the *Health Literacy Questionnaire* (*HLQ*), a multidimensional instrument used to measure HL[14], validated for use in Brazil[15].

The instrument comprises 44 items, divided into two parts, distributed across nine scales: Part 1. 1. Understanding and support from healthcare professionals; 2. Sufficient information to take care of one's health; 3. Active health care; 4. Social support for health; 5. Health information assessment; Part 2. 6. Ability to actively interact with healthcare professionals; 7. Navigating the healthcare system; 8. Ability to find good health information; 9. Understand health information and know what to do[14-15].

The *HLQ* does not provide an overall score for the questionnaire, but rather scores for each of the nine scales separately. The scales from 1 to 5 comprise the first part of the instrument and contain questions scored on a Likert scale from (1) strongly disagree to (4) strongly agree, while scales 6 to 9 comprise the second part and are scored on a Likert scale from (1) "always difficult" to (5) "always easy." The score indicates each person's strengths and needs in relation to their HL. The calculation is performed by adding each item on the scales and dividing the total by the number of items on the scale. The result corresponds to the average score of[14-15]. The study obtained prior consent from the authors for use of the instrument (hl-info@swin.edu.au).

Analysis of quantitative data using descriptive statistics, central tendency measures, and measures of variability. The symmetry of continuous distributions was studied using the Kolmogorov-Smirnov test. In comparing continuous variables between two independent groups, Student's t-test and Mann Whitney U test (asymmetric distributions) were used. When comparing scores involving three or more independent groups, Analysis of Variance was used. The assumption of homogeneity of variance was verified by Levene's test and, when rejected, the Brown-Forsythe – *Post Hoc Scheffé* correction was used. When comparing scores between three or more groups, the Krukal Wallys – *Post Hoc* Dunn test was used.

Subsequently, in October and November 2023, the qualitative stage was carried out, with prior scheduling by telephone and subsequent interviews at the home. Inclusion criteria for the qualitative stage: those who presented weaknesses on scales D2, D3, and D5 of the *HLQ* in the first stage, not hospitalized or institutionalized on the day of the interview. Eighteen people were elected18 people were elected. Of these, we had five deaths, four did not answer the phone, and three did not agree to participate. answered the phone and three refused to participate. The interviews lasted approximately 45 minutes, were recorded, and transcribed in full. To ensure anonymity, individuals were identified as P1, P2, P3, and so on. Inductive data analysis was performed using thematic content analysis, which focuses on the historicity of the event studied, based on a critical worldview centered on the collective.

Data analysis in MM studies consists of analyzing numerical (quantitative) data and discourse (qualitative), as well as grouping the two forms simultaneously. The integration of MM results should occur in different phases. The interpretation and presentation of results can take different forms, such as narration, data transformation, and joint display. Integration allows quantitative and qualitative results to be observed and identified in a coherent manner, expanding understanding[13].

The two sets of results were merged using joint display. The two sets of data were interpreted, identifying convergences, divergences, and the relationships between them, allowing for a better understanding of the objects of study. Finally, a broader interpretation of the results was carried out and meta-inferences were extracted.

We decided to use all negative domains of the *HLQ* in the integrated analysis, as we sought a comprehensive and holistic understanding of the phenomenon studied. Furthermore, integrating quantitative and qualitative data can provide complementary *insights* that help to better understand the complexities of the phenomenon under study.

Research approved on February 28, 2023, by the Research Ethics Committee through Opinion No. 5,915,197.

RESULTS

Quantitative results

A total of 124 people participated in the study. The average age of participants was 68.7 years, ranging from 29 to 97 years. Of the participants, 67 were female (54%), 117 self-identified as white (94.4%), 74 were married (59.7%), 90 were retired (72.6%), and 48 (38.1%) reported an income of up to five minimum wages. Regarding education, 74 (59.7%) did not study and/or had completed elementary school, 114 (91.9%) have a caregiver, 90 (72.6%) live with them, 61 (49.2%) have had CVD for more than 14 years, among them, hypertension 115 (69.3%), cardiac arrhythmias 6 (3.6%), and unspecified heart disease 4 (2.4%). Regarding hospital admissions in the last year, 54 (42%) people were admitted, with 36 (28.6%) once, 24 (19%) twice, and 12 (9.5%) three to 10 times.

When evaluating HL scores, we identified average values for potentialities: social support for health (3.5), ability to actively interact with health professionals (3.8) and navigate the health system (3.5), and weaknesses in the scales: sufficient information to take care of health (2.8), active health care (2.9) and evaluation of health information (2.4), respectively, as shown in Table 1.

Table 1. Measures of central tendency, variability, and internal consistency of the HLQ scales. Ijuí, RS, Brazil, 2023

			Quarters			
				Median		
HLQ	**A**	**SD**	**Q1**	**Q2**	**Q3**	**αC**
Part 1 - Score 1-4						
D1. Understanding and support from healthcare professionals	3.3	0.4	3.0	3.2	3.7	0.722
D2. Sufficient information to take care of your health	2.8	0.6	2.2	3.0	3.2	0.804
D3. Active health care	2.9	0.5	2.6	3.0	3.2	0.701
D4. Social support for health	3.5	0.4	3.2	3.6	4.0	0.768
D5. Health information assessment	2.4	0.7	2.0	2.4	3.0	0.799
Part 2 – Score from 1 to 5						
D6. Ability to actively interact with healthcare professionals	3.8	0.9	3.3	4.0	4.6	0.754
D7. Navigating the healthcare system	3.5	1.0	2.8	3.6	4.2	0.816
D8. Ability to find good health information	3.1	1.0	2.4	3.0	3.8	0.794
D9. Understanding health information and knowing what to do	3.1	0.9	2.5	3.2	3.8	0.755

Caption: D: Domain; A: Average; SD: Standard deviation; Q: Quartile; αC: Cronbachs alpha.

Source: The authors (2023).

Table 2 shows a comparison between the scales that obtained low averages and the sociodemographic characteristics. The age of the subjects was compared to the scales that guided the comparisons in this table, and a statistically significant negative correlation was detected in the domain "assessment of health information (CA)" (r = -0.232; p=0.009), indicating that high scores on this scale should be correlated with lower ages observed in the sample. It was identified that CA was significantly higher in the 50-69 age group (2.7±0.6) compared to other age groups above 69 years (2.3±0.7).

Considering the comparison of educational attainment in relation to domains, a statistically significant difference was identified in the CA domain, in which those with high school education (2.5±0.6) and higher education (3.0±0.5) had significantly higher average scores when compared to those with lower levels of education – no schooling/elementary education (2.2±0.6).

When comparing the scores with the variable "participation in preventive medicine program," a statistically significant difference was detected on the sufficient health information scale (HSI), with a higher score among those investigated who were part of the program (2.2±0.6). As for the other scales, there were no significant results.

Table 2 shows a comparison between the scales that obtained low averages and the sociodemographic characteristics.

Table 2. Mean and standard deviation for the HSI, AMH, and CA scales of the HLQ scale. Ijuí, RS, Brazil, 2023

Features	**n**	**HLQ**					
		Health care information (HSI)		**Active health management (AHM)**		**Health information assessment (CA)**	
		M	**DP**	**M**	**DP**	**M**	**DP**
Age range (years)							
Up to 49	6	2.7	0.5	2.8	0.4	2.5^{ab}	0.6
From 50 to 69	38	2.7	0.6	3.0	0.4	2.7^{a}	0.6
(p)^A			0.761		0.186		**0.002**
Above 69	80	2.8	0.6	2.8	0.5	2.3^{b}	0.7
Age (years) - *r* (p)		0.124 (p = 0.170)		-0.048 (p=0.593)		**-0.232 (p=0.009)**	
Sex							
Women	67	2.8	0.6	2.9	0.4	2.4	0.7
Male	57	2.7	0.6	2.8	0.5	2.5	0.6
(p)^B			0.503	0.322		0.428	
Education							
Did not study/ Elementary school	74	2.8	0.6	2.8	0.5	2.2^{b}	0.6
High school	28	2.8	0.5	2.8	0.4	2.5^{b}	0.6
Higher Education	22	2.8	0.6	3.0	0.5	3.0^{a}	0.5
(p)^A			0.881	0.552		≤ 0.001	
Can read							
Yes	118	2.8	2.9	0.4	0.9	2.4	0.6
No	6	3.0	2.7	0.6	0.7	2.0	0.9
(p)^B		0.507		0.360		0.098	
Can write							
Yes	119	2.8	0.6	2.9	0.4	2.4	0.6
No	5	2.9	1.1	2.8	0.5	2.1	0.9
(p)^B		0.674		0.874		0.265	
CVD time							
Up to 1 year	7	2.5	0.2	2.5	0.5	2.4	0.6
1 to 5 years	23	2.6	0.6	2.9	0.5	2.4	0.7
5 to 14 years old	33	3.0	0.6	2.9	0.5	2.4	0.7
Over 14 years old	61	2.8	0.6	2.9	0.4	2.4	0.7
(p)^A		0.085		0.211		0.983	
Preventive Medicine							
Yes	40	3.0	0.5	2.9	0.5	2.5	0.6
No	84	2.7	0.6	2.8	0.4	2.4	0.7
(p)^B		0.018		0.311		0.169	

Caption: M= Mean; SD= Standard Deviation; A: Analysis of variance test (*One Way*) – *Post Hoc* Bonferroni. "a" Mean score significantly higher than the other means in the specific domain; B: Student's t-test for independent groups; *r*: Pearson correlation coefficient.
Source: The authors (2023).

Qualitative results

Six people participated in the study, ranging in age from 57 to 88 years old. There was a predominance of females, with four (66.7%) women. All participants self-identified as retired and white. Furthermore, four (66.7%) reported a monthly income of up to five minimum wages. In terms of education, four (66.7%) participants had completed elementary school, and two (33.3%) had completed higher education. Regarding the time of clinical diagnosis, all participants had been living with CD for more than 14 years. Among the conditions reported, the following stood out: five with high blood pressure (83.3%), one with cardiac arrhythmias (16.7%), and two with unspecified heart disease (33.4%).

When evaluating the HL scores, the following strengths were identified: social support for health (3.5), the ability to actively interact with health professionals (3.9) and navigate the health system (3.6), and weaknesses in the scales: sufficient information to take care of health (2.8), active health care (2.9), and evaluation of health information (2.5), respectively, as shown in Table 1.

Participants generally highlighted the fact that they had a social support network for home care as a positive factor. During the interviews, some weaknesses were identified in relation to the HL, such as not having sufficient information to take care of their health, lack of planning to stay healthy and actively take care of their health, and not comparing health information from different sources.

Integrated results

Data integration at the interpretation level was achieved by displaying the results together in Chart 1, with the left column representing the quantitative results of the *HLQ* and the right column representing the perception of people with CVD on the scale. This integration allowed for a more comprehensive analysis of the data *corpus*. It can be observed that, when evaluating the results, there were convergences and divergences. The meta-interventions identified are listed in Chart 2.

Chart 1. Actual quotes from participants related to HLQ scales. Ijuí, RS, Brazil, 2023

(continued)

Quantitative scales/results (Average)	Qualitative results
Sufficient information to take care of your health (2.8)	*No, we don't have all the information; we are always learning more. They gave me a piece of paper with activities for me to bring [...] But I'm bad at reading (P1)* *But I couldn't follow those guidelines; I would have become malnourished. Out of touch with reality (P3)* *The nursing staff explained the medications very clearly when I was discharged (P2).* *I think so, I am quite well informed (P7)* *I even have all the information (P3, P6).* *The information is very good (P2)*

Chart 1. Actual quotes from participants related to HLQ scales. Ijuí, RS, Brazil, 2023

(conclusion)

Quantitative scales/results (Average)	Qualitative results
Active health care (2.9)	*My wife organizes the medicines (P1)* *To take my medicine, I have my secretary. We are taking care of ourselves (...) I'm taking my medication as prescribed, getting the tests done as required, and doing all the tests the doctor asks me to do (P2).* *I leave information about medications to my wife; I'm very lax about that. She goes to the doctor's appointments with me, and gives me my medicine every day to take, putting it on the table (P3)* *I watch what I eat because I have diabetes and high blood pressure, right? (P6)* *I go to the gym, lift weights, ride a bike, and do arm exercises. And I take good care of my diet (P5)* *Yeah, I'm taking care of my health, trying. I consulted with a nutritionist and it has improved a lot. I go walking, and I go dancing (P1)* *I leave information about medications to my wife; I'm very lax about that. She goes to the doctor's appointments with me, and gives me my medicine every day to take, putting it on the table (P3)* *Always take a medicine at the same time... Physical activity, I walk when I can walk (P4)* *I go to the gym, lift weights, ride a bike, and do arm exercises. And I take good care of my diet (P5)* *I watch what I eat because I have diabetes and high blood pressure, right? (P6)* *I'll put it this way, I actually take good care of my diet. I eat a lot of fruit and vegetables (P7)*
Assessment of health information (2.4)	*I am semi-literate, I don't seek out much information either (P1)* *I have practically no education. I talk to him [the doctor] a lot, I ask questions, because he pays a lot of attention to me (P3)* *I ask questions, I never leave with doubts (P5)* *I don't leave the office with any questions; I always ask. Doctor, how do ... explain that again (P4)* *No, I don't bother checking information... And social media ... they post whatever they want, and I have my approach that is working (P4)* *Ask questions, investigate, talk to the girls at the health center, the health workers who visit homes. Often I pick up an exam and don't know what it is. They're handing them out, so I go over and ask them (P6).* *Sometimes I look at some tests, some names, some things, and I go straight to Google to take a look (P6)*

Source: The authors (2023).

Chart 2. Meta-interferences identified from the integration of results. Ijuí, RS, Brasil, 2023

a. The analysis of the study demonstrated fragility of HL in some HLQ scales, such as having sufficient information to take care of one's health, active health care, and evaluation of health information. These presented convergence and divergence of information in the qualitative stage, which partly explains the results.
b. The scale "having sufficient information to take care of one's health" showed weakness in HL, but according to the qualitative stage reports, there were discrepancies in the reports, which may be associated with the fact that some participants were part of the preventive medicine program, which showed better averages in the HLQ analysis.
c. The "active health care" scale showed weakness in HL, given that some participants assigned their care to family members, did not usually make plans to stay healthy, and did not set health and fitness goals.
d. The "assessment of health information" showed weakness in HL; quantitative correlation analysis showed that older people evaluated this domain negatively, i.e., they do not usually seek and compare information from other sources and/or did not attend elementary school, presenting lower averages, which was confirmed by the study participants' reports.
e. Participants demonstrated potential for HL in terms of social support and ability to interact actively with healthcare professionals. These areas demonstrate that people have a good relationship with healthcare professionals, question them about the guidance they receive until they feel empowered, and reaffirm their disagreements with the study's objective of addressing weaknesses.

Source: The authors (2023).

DISCUSSION

This study makes a big difference to multidisciplinary teams, who are super important in healthcare because they make sure info is safe and they know what's going on in hospitals and primary care. It also serves as a resource for health managers and professionals and for educational institutions for health management practices.

This allowed for further investigation of the weaknesses of HL in people with CVD and broadened understanding of the results based on the MM approach. In the quantitative phase, the HL showed weaknesses in domains D2, D3, and D5 of the *HLQ*, suggesting low HL on the scales of health information, active health care, and health information assessment. The study evaluated the HL of 384 people who visited the emergency department of a public hospital in Victoria, Australia, and presented similar results on the D2 (2.9±0.5), D3 (2.9±0.5), and D5 (2.8±0.5) scales[16].

Regarding "sufficient information to take care of their health," participants showed weaknesses in the *HLQ* assessment, revealing gaps in their knowledge and a lack of the information necessary to live with and manage their health problems. These results have important implications and reaffirm the need for advances in the care of people with CVD, based on assertive communication between patients and professionals in a unique way[17].

It is clear that access to information is not the main problem, but rather its quality, since people need to understand the guidelines clearly in order to manage themselves. To this end, educational materials about the disease and its treatment, written in accessible language and from reliable sources, are resources that can be adopted[18].

In this sense, the improvement of HL is reinforced through the implementation of strategies, the availability of information, adequate communication, and structured education19. One strategy is assertive communication , which can be employed through the teach back technique (confirming the information conveyed), which promotes understanding of the information[18]. These strategies provide support for people to increase their knowledge, capacity for shared decision-making, engagement, and self-management[20].

People should receive clear and understandable information so that they can evaluate, decide, and use health care and services according to their needs, facilitating their LS[21]. This study presented discrepancies in the participants' reports between the quantitative and qualitative stages, as some reported having the information they needed and considered that the medication plan for home use was clearly explained at hospital discharge.

To this end, the way patients understand and manage their disease is influenced not only by their own level of HS, but also by the communication skills of healthcare professionals. A study conducted in Germany showed that patients did not receive clear information, felt they did not have enough information to take care of their health, and that the time for questions was limited due to the demands of professionals, causing embarrassment when asking questions[22]. It is clear that having an established relationship with at least one healthcare professional contributes to the patient's confidence in asking questions when they do not understand the information received1.

With regard to health information, programs based on the principles of LS[5] that work with patients individually and focus on disease prevention contribute to a good patient-health professional relationship, promoting connection and trust in the information they receive about their health[14]. This context makes individuals proactive and confident that they have knowledge about their disease[23], encourages assertive decision-making when navigating the healthcare system, and favors their HS, with better health outcomes[24].

The domain "active health care" also showed weaknesses for HL. Being related to responsibility for one's health and proactive involvement in making one's own decisions, we observed that some participants delegate their care to family members and do not usually make plans to stay healthy and set health and fitness goals[14].

A study that evaluated the HL of 122 people with cardiovascular diseases identified that the factors that influenced HL were age, education, and medical diagnosis of systemic arterial hypertension (SAH), with similar results in this study. While individuals with some professional occupation and higher education levels showed higher levels of HL[25]. With regard to education, the findings of this study are consistent with the literature, which shows that individuals with lower levels of education have lower HL scores, poorer reading skills, less autonomy in seeking health information from different sources, and difficulty in understanding and judging what is best for their well-being[26]. In addition, individuals with higher levels of education may feel more confident and clearer when communicating their needs to healthcare professionals[26-27].

According to the reports of the study participants, we can infer that they delegate their care to family members, demonstrating that they receive all the social support they need for their health care, which may increase their dependence on health professionals and family members.

A study showed that participants had difficulties in more complex interactions with the healthcare system, difficulties in using the information they received, and in judging when they needed a second opinion from another professional. In addition, they noted that they did not receive sufficient information about their health problems and considered the information to be very superficial, feeling that they were often unable to ask all the questions they wanted to ask10.

Regarding the scale for evaluating health information, there was weakness in HL in this investigation. The quantitative analysis showed that older people do not usually seek and compare information from other sources and have low levels of education, which was confirmed by the reports of some participants in the qualitative stage of the study. Another detail was the search for health information on the internet as a positive and sometimes negative strategy, but there were no reports of reliable sources.

Regarding the use of the internet as a source of information, this corroborates the study in which participants agreed that HL is crucial for identifying reliable sources of information. Most patients, specifically, had difficulty assessing the reliability of information found on the internet and pointed out that learning about reliable sources would be an important step toward rehabilitation and a healthy life. Even today, we need to consider the use of artificial intelligence as an opportunity to access information[28].

This is the first Brazilian study to use an MM research design in the context of CVD. This approach was appropriate for achieving the research objective of analyzing people's perceptions of the weaknesses of the HL. Using an MM project meant that it was possible to gather data from various sources, allowing the discovery of latent patterns and themes, enabling the use of new analysis techniques.

Furthermore, it is important to recognize the limitations of this study, such as the fact that the instrument was used in only one private institution; the population eligible for the qualitative stage of the interviews was considered too small to answer the study questions; and the potential for facilitating understanding of the weaknesses presented by HL in this population was not evaluated, nor was the fact that HL is still under development in Brazil, making dialogue with other similar studies, which are still scarce, difficult.

CONCLUSION

The study demonstrated that the HL weaknesses of people with CVD were respectively on the scales: assessment of health information, sufficient information to take care of health, and ability to find good health information. The variables age, education, literacy, duration of chronic illness, and participation in preventive medicine programs influenced the average HL scores.

In the integrated analysis, it was observed that advanced age and low educational attainment were associated with frailty in the *HLQ* domains and converged with the qualitative data. Participants reported difficulties understanding health information, delegating care to family members. They evaluated the search for information using the internet negatively. *internet* without identifying reliable sources. The study revealed discrepancies between quantitative and qualitative data: participants reported taking care of their diet, exercising, and asking questions of health professionals. Even so, many delegate care to family members, do not plan to maintain their health, and do not set goals.

The findings highlight the need for accessible communication strategies and actions that promote autonomy in healthcare, with integrated action by multidisciplinary teams.

Further research is recommended, exploring health literacy interventions for people with CVD and the use of mixed methods with focus groups and professional participation. In teaching, the importance of HL-sensitive training and coordination between teaching, service, and the community is highlighted.

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Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - **Rodrigues FO, Romero MP, Colet CF, Sangoi KCM, Kunkel GK, Thum C, Kolankiewicz ACB.** Drafting the work or revising it critically for important intellectual content - **Rodrigues FO, Romero MP, Colet CF, Sangoi KCM, Kunkel GK, Thum C, Kolankiewicz ACB.** Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - **Rodrigues FO, Romero MP, Colet CF, Sangoi KCM, Kunkel GK, Thum C, Kolankiewicz ACB.** All authors approved the final version of the text.

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