

FUNCTIONAL, COMMUNICATIVE AND CRITICAL HEALTH LITERACY AMONG OLDER POLISH CITIZENS

Anna Mirczak

Pedagogical University of Krakow, Kraków, Poland
Department of Health Science, Institute of Social Affairs and Public Health

ABSTRACT

Background: The level of health literacy possessed by an individual (functional, communicative, critical) determines their ability to effectively self-manage a chronic disease. The aim of the study was to assess the level and functional, communicative, and critical determinants of health literacy in the group of chronically ill older adults. **Material and Methods:** The study was conducted on a representative sample of chronically ill people (N = 400) aged ≥ 65 years, living in Poland. Three levels of health literacy were measured on the basis of the *Functional, Communicative and Critical Health Literacy* scale (FCCHL), employed in Polish social research for the first time. **Results:** The conducted research showed that the average health literacy score of the surveyed older adults, measured on the basis of the FCCHL scale, was 2.81 ± 0.71 (M \pm SD), whereas for the functional subscale of health literacy it was 3.06 ± 0.58 (M \pm SD), for communicative health literacy it was 2.82 ± 0.86 (M \pm SD), and for critical health literacy – 2.71 ± 0.92 (M \pm SD). In terms of functional health literacy, the surveyed seniors most frequently reported problems with reading health-related information, resulting from the use of inadequate font size in information leaflets and brochures. Questions included in the subscale representing communicative health literacy revealed that the majority of the respondents understood the provided information about diseases, nevertheless they were reluctant to share thoughts about their health with other people. Within the framework of critical health literacy, one-third of the respondents did not search for any additional information, trusting that the information obtained was accurate and reliable. **Conclusions:** The surveyed elderly people rated worse their level of communicative and critical health literacy compared to the functional level. As a consequence of the low level of communicative and critical health literacy of the surveyed older adults, a certain deficit in their self-managing a disease entity is forecast. *Med Pr.* 2022;73(3):191–9

Key words: health education, chronic diseases, validation studies, older adults, health literacy, functional health literacy

Corresponding author: Anna Mirczak, Pedagogical University of Krakow, Department of Health Science, Institute of Social Affairs and Public Health, os. Stalowe 17, 31-922 Kraków, Poland, e-mail: anna.mirczak@up.krakow.pl
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INTRODUCTION

Health literacy is defined as “an individual’s capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions” [1]. The World Health Organization (WHO) defines health literacy through the prism of cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand, and use information to promote and maintain good health [2].

According to this approach, health literacy requires a basic knowledge of health, the ability to read, understand, and evaluate health-related information and take preventive measures. It also involves the capacity to exercise self-care and to promote positive health behaviors,

the ability to communicate with healthcare professionals, make informed health decisions or take responsibility for one’s own and for other people’s health.

Previous studies show that older adults with insufficient levels of health literacy have difficulty in following their physicians’ medical recommendations, understanding the purpose of the medication they take, calculating the appropriate dosage, filling out medical forms (e.g., during medical interviews), communicating with healthcare professionals (understanding the content they communicate, as well as the incapability to clearly express their health needs), interpreting the basic results of medical tests, using preventive health services (preventive vaccinations, mammography), and many more [3]. As a consequence, it prevents the long-term chronically ill patients from undertaking an effective chronic disease

self-management process [4]. Moreover, a low level of health literacy increases the risk of frequent emergency hospitalizations and premature deaths in this age group [5].

The model of health literacy, particularly important from the point of view of an individual's ability to self-manage a chronic disease, was proposed by Nutbeam [6]. It consists of 3 levels of health literacy: functional (basic), communicative, and critical. Within the scope of the functional level, an individual has the ability to read and comprehend medical information, such as medication leaflets, administration forms, tables, etc., as well as understand the written and verbal content conveyed by healthcare professionals. It also involves the ability to search accurately for valuable health information. Owing to these factors, a person is able to follow medical recommendations and exercise self-care. The communicative level includes a wide range of skills and competencies that enable an individual to make informed health-promoting choices in active cooperation with healthcare professionals. People who have the critical level of health literacy are able to perform advanced activities in the sphere of disease prevention and health promotion. It also involves the capability to manage one's own and other people's health. Moreover, people who reach the critical health literacy level can make fully autonomous decisions about their own health and disease (empowerment) [7].

The aim of the study was to assess the level and functional, communicative, and critical determinants of health literacy in the group of chronically ill elderly people.

MATERIAL AND METHODS

Study population

The study was conducted on a representative sample of chronically ill people (N = 400) aged ≥ 65 years, living in Poland. The data was obtained using the CATI survey method (computer assisted telephone interview) in March–April 2021 by interviewers employed by an external company Biostat (Biostat Sp. z o.o., Rybnik, Poland).

Ethics statement

The study was approved by the Rector's Research Ethics Board of the Pedagogical University of Krakow (No. R/D. 0201-19/2020 of 7 Sept. 2020). A prerequisite for starting the interview was obtaining informed consent from the respondents to voluntarily participate in the research.

Research tool

The interview questionnaire consisted of 2 parts. The first part covered socio-demographic characteristics of

the study group and included questions regarding gender, age, education, marital status, place of residence, financial situation, and health status. The second part of the questionnaire concerned health literacy and the questions included were based on a scale developed by Ishikawa et al. [8] (*Functional, Communicative and Critical Health Literacy* scale – FCCHL). The scale was originally intended for measuring the level of health literacy in the population of patients with type 2 diabetes, but it was later modified for use in other population groups. So far, the scale has been used in Germany [9], France [10], Iran [11], the Netherlands [4,12], and the USA [13].

The FCCHL scale included 14 items comprising a 3-factor scale of functional (P1–P5), communicative (P6–P10), and critical competencies (P11–P14). The questions included in the part covering functional health literacy assessed the ability to read and comprehend health information, whereas the questions within the scope of communicative health literacy evaluated the capacity to search for, find, understand, and apply health information as well as the capacity to communicate personal views about the disease entity. The third part concerned critical health literacy and diagnosed proficiency in critical assessment of the reliability of available health information. Each question was rated on a 4-point scale from 1 (never) to 4 (often), where the more often an activity was performed, the higher the score. Only on the subscale representing functional health literacy, the results were organized the other way round (lower score meant higher health literacy). In order to unify all 3 subscales for the purposes of this analysis, the score on the functional health literacy subscale was reversed. One overall average score for health literacy could have been calculated for all 14 questions. It was also possible to calculate the score of the 3 subscales as an average score for questions 1–5, then 6–10, and 11–14 [theoretical range: 1 (limited health literacy) – 4 (high health literacy)]. Upon the consent of the authors, the FCCHL scale was adapted to account for the specificity of Polish culture and was used in the above mentioned project, for the first time in Polish social research. The assessment of the scale's psychometric parameters was conducted on a representative sample of 400 older adults (N = 400).

Statistical analysis

The validity and reliability of research instruments were measured using Cronbach's α coefficient. During the course of the study, the value of the coefficient was

determined to be 0.811, which means that the questionnaire was prepared properly and is internally coherent. In the case of the subscales, the coefficients were as follows: for functional health literacy 0.701, for communicative health literacy 0.869, for critical health literacy 0.859. The values of Cronbach's α coefficient were also analyzed after removing one item. In the case of removal of one of the items P1–P5, the value of the coefficient increased on an overall scale, but at the same time it decreased for functional health literacy. In the case of the other 2 subscales, the FCCHL scale indicator decreased with a simultaneous increase of the detailed indicator. In view of the above, it was considered appropriate to retain all the items. The reliability of research instruments was measured using confirmatory factor analysis (CFA). As a result of the performed analysis, the 3-factor model of the scale was considered to be valid.

The data was compiled using MS Excel and the Statistica v. 10 statistical software package. The values of the FCCHL scale and the subscales were quantitative variables, therefore the choice of the test was based on the number of groups of nominal variables. In the case of 2 nominal groups, significance was established with the Mann-Whitney U test, and for more than 2 nominal groups, the Kruskal-Wallis H-test was chosen. The standard significance level of $\alpha = 0.05$ was assumed.

RESULTS

Women prevailed among the respondents (60.5%), and more than half of the respondents (58.8%) were married. The most frequently indicated level of education was secondary education (40.7%) and vocational education (31.5%). The overall characteristics of the respondents are presented in Table 1.

The most frequently reported health problems among the respondents included arterial hypertension (58.8%), high cholesterol (29.5%), cardiac diseases (25.8%), diabetes (21.5%), and rheumatic diseases (21.3%). The average duration of the underlying disease in the study group was 14.4 years.

The average score for health literacy among the surveyed older adults measured by the FCCHL scale was $M \pm SD = 2.81 \pm 0.71$, whereas for the subscale of functional health literacy it was $M \pm SD = 3.06 \pm 0.58$, for communicative health literacy $M \pm SD = 2.82 \pm 0.86$, and for critical health literacy $M \pm SD = 2.71 \pm 0.92$. In the further part of the analysis "general competencies" were defined as competencies connected with the FCCHL

Table 1. Characteristic of respondents (N = 400), Poland, 2021

Variable	Participants (N = 400)	
	n	%
Age		
65–69 years	142	35.5
70–74 years	99	24.7
75–79 years	60	15.0
80–84 years	52	13.0
≥85 years	47	11.8
Gender		
female	242	60.5
male	158	39.5
Marital status		
single, never married	15	3.8
married	235	58.8
separated/divorced	36	9.0
widowed	97	24.3
living with significant other	17	4.3
Education level		
higher	77	19.3
secondary school	163	40.7
vocational education	126	31.5
elementary	34	8.5
Place of residence		
city		
<20 000 inhabitants	68	17.0
20 000–100 000 inhabitants	113	28.3
>100 000 inhabitants	129	32.3
rural	90	22.5
Children		
yes	350	87.5
no	50	12.5
Material situation assessment		
very good	12	3.0
good	104	26.0
average	222	55.5
bad	52	13.0
very bad	10	2.5

scale on N = 400, unless otherwise indicated. The distribution of responses to individual questions included in the scale is presented in Table 2. Its analysis reveals

Table 2. Distribution of answers to questions included in the *Functional, Communicative and Critical Health Literacy* (FCCHL) scale (N = 400), Poland, 2021

FCCHL scale question	Participants answers [%]			
	never	rarely	sometimes	often
P1. You have found that the print was too small to read	19.0	26.2	31.2	23.6
P2. You have found characters and words that you did not know	31.2	34.6	29.5	4.6
P3. You have found that the content was too difficult	38.8	37.6	20.3	3.4
P4. You have needed a long time to read and understand them	39.2	32.9	23.6	4.2
P5. You have needed someone to help you read them	84.0	11.4	4.2	0.4
P6. You have collected information from various sources	20.0	18.5	32.8	28.8
P7. You have extracted the information you wanted	17.0	13.5	36.5	33.0
P8. You have understood the obtained information	16.8	7.3	23.5	52.5
P9. You have communicated your thoughts about your health to someone	12.3	30.0	36.0	21.8
P10. You have applied the obtained information to your daily life	18.8	16.3	38.5	26.5
P11. You have considered whether the information was applicable to your situation	18.8	16.8	38.8	25.8
P12. You have considered the credibility of the information	19.0	17.0	32.0	32.0
P13. You have checked whether the information was correct	26.5	15.8	29.0	28.8
P14. You have collected information to make decisions about your health	20.5	16.0	32.5	31.0

that the respondents were apparently more likely to encounter difficulties related to too small font size (“often” 23.6%) compared to the lack of understanding of words and characters, complexity of the text or the need for more time to read and comprehend the content of brochures and/or leaflets. On the other hand, the vast majority of the surveyed seniors never depended on other people’s assistance to read texts (84.0%). More than half of the respondents often understood information concerning their disease (52.5%), but rather reluctantly shared their thoughts on health with other people: this was rarely done by 30% of the respondents, and often by 21.8%. Every fifth respondent has never collected information from various sources. Slightly more than a quarter of the surveyed seniors never checked whether the information they obtained about their disease was correct (26.5%). The vast majority of the respondents wondered whether the information was relevant to their situation, with “sometimes” the most frequent response (38.8%). Distribution of the answers to question 11 is very close to the distribution of responses to question 6, since the questions convey similar content.

Analysis of the collected material showed lack of significant differences between the level of health literacy and the respondents’ gender or education. As far as age is concerned, no differences were observed with regard to functional health literacy ($p = 0.461$).

For communicative and critical health literacy, in turn, the scores on a given scale were inversely proportional to age, which means that older respondents were characterized by a lower level of health literacy, nonetheless the oldest age group obtained slightly higher scores than seniors aged 80–84 years (Table 3).

In the case of married people, the scores for each subscale were quite similar to the average scores of the entire sample. Lower-level competencies were observed among widows and widowers, and within the scope of critical health literacy and FCCHL, the score was significantly worse ($p < 0.001$ and $p = 0.001$). Only the score for functional health literacy was close to the overall average. Divorced and separated people as well as those in cohabiting relationships showed a higher level of critical health literacy and general health literacy. A significantly lower level of communicative, critical, and general health literacy was observed among respondents residing in towns with <20 000 residents (the respective values being $p: 0.025, 0.019$ and 0.015) (Table 3). The respondents’ level of critical health literacy was significantly influenced by the fact of having children: the childless scored higher ($p = 0.014$). Functional health literacy score was directly proportional to the financial situation declared by the respondents, i.e., a significant decrease of competencies was noted along with deteriorating financial situation ($p = 0.021$). Statistically

Table 3. The average scores and standard deviation for the *Functional, Communicative and Critical Health Literacy* (FCCHL) subscales and scale (N = 400), Poland, 2021

Variable	FCCHL scale							
	functional subscale		communicative subscale		critical subscale		total	
	M±SD	p	M±SD	p	M±SD	p	M±SD	p
Gender		0.091		0.479		0.179		0.484
female	3.11±0.58		2.78±0.88		2.65±0.94		2.79±0.73	
male	2.98±0.57		2.86±0.82		2.79±0.90		2.85±0.66	
Age		0.461		0.015		<0.001		<0.001
65–69 years	3.03±0.56		3.00±0.75		2.96±0.79		2.97±0.63	
70–74 years	3.16±0.56		2.84±0.83		2.77±0.93		2.90±0.64	
75–79 years	2.97±0.62		2.77±0.92		2.65±0.97		2.74±0.77	
80–84 years	3.01±0.66		2.55±0.94		2.29±0.99		2.54±0.75	
≥85 years	3.12±0.52		2.56±0.93		2.34±0.92		2.55±0.79	
Education level		0.135		0.382		0.235		0.319
higher	3.23±0.54		2.63±1.00		2.52±1.03		2.66±0.85	
secondary	3.01±0.59		2.80±0.87		2.68±0.93		2.80±0.69	
vocational education	3.03±0.54		2.91±0.76		2.82±0.88		2.89±0.64	
elementary	3.19±0.65		2.96±0.73		2.82±0.74		2.93±0.64	
Marital status		0.694		0.059		<0.001		0.001
single	3.33±0.47		2.57±1.03		2.72±1.10		2.72±0.94	
married	3.04±0.59		2.89±0.82		2.74±0.89		2.86±0.66	
separated/divorced	3.19±0.50		3.02±0.58		3.20±0.65		3.12±0.46	
widowed	3.07±0.59		2.55±0.99		2.36±1.00		2.55±0.81	
living with significant other	3.00±0.61		3.13±0.45		3.22±0.51		3.12±0.35	
Place of residence		0.191		0.025		0.019		0.015
city								
<20 000 inhabitants	3.03±0.56		2.53±0.92		2.40±0.99		2.55±0.76	
20 000–100 000 inhabitants	3.04±0.57		2.91±0.91		2.80±0.93		2.90±0.70	
>100 000 inhabitants	2.98±0.62		2.85±0.77		2.83±0.85		2.84±0.69	
rural	3.21±0.54		2.86±0.82		2.64±0.92		2.86±0.67	
Having children		0.407		0.164		0.014		0.091
yes	3.07±0.57		2.79±0.86		2.67±0.93		2.79±0.71	
no	2.96±0.63		2.97±0.78		2.99±0.83		2.95±0.66	
Financial situation assessment		0.021		0.896		0.284		0.612
very good	3.40±0.40		2.78±0.84		2.96±0.61		2.93±0.62	
good	3.23±0.51		2.78±0.96		2.60±1.00		2.78±0.79	
average	3.00±0.59		2.80±0.84		2.68±0.93		2.78±0.70	
bad	2.98±0.59		2.91±0.74		2.93±0.79		2.95±0.54	
very bad	2.53±0.70		3.02±0.68		3.00±0.83		2.97±0.69	
Learning disability		0.040		0.903		0.297		0.722
yes	2.35±0.70		2.91±0.54		3.08±0.28		2.88±0.34	
no	3.07±0.57		2.81±0.87		2.69±0.94		2.81±0.72	

significant differences were observed also in the case of diagnosed learning disabilities: people with a confirmed diagnosis of the aforementioned learning difficulties showed a lower level of functional competencies ($p = 0.040$) (Table 3).

DISCUSSION

The conducted research enabled an assessment of functional, communicative, and critical health literacy on a representative sample of people aged ≥ 65 years residing in Poland. The FCCHL scale, which makes it possible to evaluate 3 levels of health literacy in accordance with Nutbeam's concept [14], was used in this project for the first time in Polish research.

In Poland, the level of health literacy among the general population including older adults has been studied so far only by a few authors using the HLS-EU-Q47 survey questionnaire [15–17], or HLS-EU-Q16 [18]. The research conducted concerned the assessment of the general level of health literacy.

As regards international research, the majority of studies focused on health literacy are primarily concerned with diagnosing the functional level of health literacy, while studies with simultaneous assessment of functional, communicative, and critical health literacy are rarely performed. The results of several studies conducted in Japan [8,19], on a control group of diabetic patients showed that the study of 3 levels of health literacy is particularly important in the context of the assessment of one's ability to effectively self-manage a chronic disease (chronic disease self-management). On that basis, it is possible to forecast possible deficits in patients' self-care knowledge and skills, as a result of which health education can be properly planned and patients can independently advocate for their own healthcare needs.

The results of this research showed that the general level of health literacy of the surveyed seniors measured with the use of the FCCHL scale was relatively good. A satisfactory score may result from the fact that the surveyed individuals have been suffering from an underlying disease for many years (on average >14 years). Thereby, they were able to reach a high level of knowledge and experience in dealing with the diagnosed disease. In order to fully explain this relationship, the level of health literacy should be examined using the same research tool among the groups of patients with newly diagnosed illnesses. The respondents obtained the highest scores in terms of functional health literacy, followed by

communicative and critical health literacy. A similar tendency was also confirmed by studies conducted in other countries [4,9–13]. In terms of functional health literacy, the surveyed seniors reported problems that were mainly related to reading health information, which resulted from the use of inadequate font size in information leaflets and brochures. However, those difficulties were not significant enough to require other people's assistance in reading. An analysis of answers to questions diagnosing communicative health literacy revealed that the majority of the respondents understood the provided information about diseases but they were rather unwilling to share thoughts about their health with other people. It might have been dictated by a reluctance to shift the burden of their problems onto outsiders.

When analyzing individual items of the subscale concerning critical health literacy, one may notice that slightly more than half of the surveyed seniors presupposed the accuracy of the information about their health they managed to obtain, simultaneously checking whether the information they were provided was correct and actually relevant to their health status. On the other hand, one-third of the respondents did not look for additional information, trusting that the information they gained was accurate and reliable. In this case, one might assume the possible influence of the doctor's authority in the context of information on diseases obtained by the respondents. It might result from a higher level of trust that elderly people place in healthcare professionals with whom they can actively discuss their health problems as opposed to the "inanimate" sources of information such as the internet [20].

An analysis of the impact of socio-demographic factors on the level of health literacy revealed that there was no relationship between gender or education and the level of the respondents' health literacy. The influence of gender on health literacy of elderly people was also not confirmed by other studies [21], whereas some researchers, e.g., Geboers et al. [22] and Hochhauser et al. [23] indicated that education was a factor that had a significant bearing on health literacy, in favour of people with a higher level of education. Another variable that was analyzed within the conducted research was the age of the respondents. The obtained results showed that in terms of communicative and critical health literacy, age was a significantly differentiating factor. The more advanced the age was, the lower level of health literacy was indicated within the studied ranges, which corresponded with the findings of other studies [4]. Geboers et al. [22] proved that the level of health

literacy was significantly lower in the group of people aged ≥ 80 years as compared to younger respondents. Garcia et al. [24] demonstrated similar contingencies in his study, whereby any increase in an age group was associated with >3 times higher risk of low level of health literacy.

Another factor which determined the level of health literacy was the marital status of the surveyed seniors. As far as critical health literacy is concerned, widowed individuals scored lower than divorced people, those living in cohabiting relationships, and childless people. The difference may result from the fact that married people usually solve problems together and help each other over a long period of time. The same is true for people having children, who enjoy greater opportunities to receive support from their closest relatives in covering their current needs and solving health problems. When they become widowed, elderly people suddenly have to deal with all matters of everyday life alone, at the same time carrying the burden of losing a close person. By contrast, seniors who are not in formal relationships usually need to act alone since assistance and support may be limited. The higher rate of health literacy among divorced older persons was also confirmed by other studies [25]. Further analysis of the collected material showed that the respondents who rated their financial situation as poor were characterized by a low level of functional health literacy. The influence of income on health literacy was also confirmed by other studies [4].

In conclusion, the conducted research showed that communicative and critical health literacy among Polish seniors remain at a lower level than functional health literacy. The disproportion may result in limited capabilities in terms of health and disease self-management in the group of older adults [4,26]. This translates into the capacity to take conscious control and responsibility for one's own disease: by identifying and monitoring the symptoms of the disease as well as committing to actively participate in the therapeutic process, dealing with exacerbation of the disease, following medical recommendations, preventing afflictions by maintaining a healthy lifestyle, and using available support effectively [27]. The low score on the level of critical health competencies suggests that many elderly patients may encounter problems with a reliable assessment of obtained health information, and consequently may be unable to apply it to maintain and improve their own health. This justifies the necessity to undertake educational activities addressed to seniors with regard to the assessment of the credibility and reliability of health information

in order to increase their health literacy and a sense of responsibility for their own health [28].

The conducted research also outlined certain socio-demographic variables which may determine the level of health literacy in the group of chronically ill older adults. However, in order to fully identify the determinants of health literacy among Polish seniors using the FCCHL scale, a further, in-depth study should be conducted, including healthy people as well. Developing health literacy falls within the framework of innovative health promotion which assumes responsibility and conscious commitment of individuals to exercising control over their own health. The process of developing health literacy among older adults is bound to intensify in the near future as it brings multidimensional benefits to both the individual and the society as a whole. Moreover, in the age of access to new technologies, which can become a satisfactory information source about health, the need arises to equip patients with the ability to obtain health information [29], process it through critical evaluation, and apply it in the context of their own health.

Practice implications

The practical value of the study results mainly from the pioneering use of a new research tool, namely the FCCHL scale to study the 3 levels of health literacy (functional, communicative, and critical) in Polish conditions. The scale has good psychometric properties, nonetheless to fully assess the reliability of the presented tool for the evaluation of health literacy of the chronically ill older adults surveyed, it is recommended that further research be conducted on an increased sample size, differentiated in terms of age. However, a number of advantages offered by the tool can already be emphasized. They certainly include a small number and simplicity of the survey questions and thus the ease of conducting research in various clinical conditions. The scale can be completed independently by the examined person or by healthcare professionals. The presented tool can be applied to everyday medical practice by healthcare personnel with the aim to quickly identify the presence and level of health literacy deficits. On the basis of the obtained results, healthcare professionals can design tools for acquiring appropriate health education, adjusting the language and content to match the recipients' ability levels.

Study limitations

The limitations of the study are primarily due to the relatively small sample size, which makes it difficult to

extrapolate these results to the general population (generalization of the results). Furthermore, to fully assess the parametric values of the research instrument as well as its clinical value in the elderly population in Poland, it is necessary to test it on a larger number of senior citizens.

CONCLUSIONS

The obtained results confirmed a low level of health literacy in the subgroup of patients of advanced age, in a worse financial position, widowed, and living in small towns. An analysis of the problems faced by the surveyed seniors in terms of functional, communicative, and critical health literacy outlined some important factors that must be considered when developing health literacy skills in older people, to mention the following: increasing accessibility of educational materials by adjusting their comprehensibility and form (proper font size), developing the ability to critically analyze the content of materials read, which will make it easier to get access to necessary and reliable health information from various sources (including the internet), encouraging an active attitude which is expressed by asking questions about health and disease as well as sharing one's thoughts and observations both with healthcare specialists and one's own relatives and friends. The author of this study notes the necessity of a systematic implementation of tools to quickly assess a patient's current health literacy level, which will enable healthcare specialists to know the patient's current problems and needs in understanding, receiving, and processing information necessary for an effective therapeutic process.

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