Innovations

Health Literacy in Rural Field Practice Area of a Tertiary Health Centre in Coastal Andhra Pradesh: A Cross-Sectional Study

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Abstract:

Background: *Health literacy (HL) plays a vital role in determining health outcomes by enabling individuals to access, comprehend, assess, and utilize health information for making informed choices. Low HL is linked to poor disease management, non-adherence to medical advice, and health inequalities, especially in underserved communities. Despite its significance, there is a scarcity of data on HL levels and determinants in rural Indian settings. This study aimed to evaluate functional, communicative, and critical HL among the general adult population in a rural field practice area of a tertiary health center in coastal Andhra Pradesh, India, and to identify related socio demographic factors to guide targeted interventions.* ***Methods:*** *A cross-sectional study was carried out among 114 adults (57.9% female, 42.1% male) in a randomly chosen village from the rural field practice area of Konaseema Institute of Medical Sciences, Amalapuram. Systematic random sampling was used, surveying every fifth household. A pre-designed, pre-tested questionnaire was employed to assess socio demographic profiles, health behaviors, and HL across functional (reading and understanding health information), communicative (interactions with healthcare providers), and critical (health decision-making) domains. Participants included adults over 18 years who provided informed consent, excluding those with medical education or disabilities affecting comprehension. Data were analyzed for frequencies and associations using chi-square tests, with a p-value <0.05 indicating significance. Ethical clearance and informed consent were obtained.* ***Results:*** *Functional HL varied, with 43.9% able to understand health information independently, while 56.1% needed help. Communicative HL revealed that 48.2% consistently shared complete information with providers, but 14.9% avoided questions due to medical jargon. Critical HL showed that 53.5% could independently track health metrics, though 47.4% were hesitant to question provider recommendations. Education was significantly linked to promoting healthy behaviors (p<0.001), but not to awareness of local health resources (p=0.744) or campaigns (p=0.378). Awareness of health promotion initiatives (p=0.034) and healthy behavior promotion (p=0.044) were associated with lower rates of communicable and chronic diseases, respectively.* ***Conclusion:*** *Although awareness of health resources is high, gaps in functional and communicative HL remain, particularly among less-educated individuals. Community-based interventions, such as simplified materials and communication training, are crucial to improving HL and reducing health disparities.*

Keywords: *Health literacy , health education , prevention , awareness*

Introduction:

Health literacy (HL), which originated in the 1970s within the realms of health education and social policy, emphasizes an individual's capacity to utilize basic reading and numerical skills in health-related contexts.[1,2] HL encompasses more than just basic literacy; it involves the informed use of healthcare services, complex decision-making, understanding of rights and privacy, and self-management of personal health.[3]

Recently, the Health Literacy Score (HLS)-Eu Consortium has offered a more comprehensive definition, describing health literacy as being connected to literacy and involving people's knowledge, motivation, and abilities to access, comprehend, evaluate, and apply health information. This enables them to make informed decisions in daily life regarding healthcare, disease prevention, and health promotion, ultimately aiming to maintain or enhance quality of life throughout their lifespan. Key factors influencing health literacy include education, age, migration, employment status, and income. Health literacy is widely recognized as a crucial determinant of health and a priority on the public health policy agenda.[1,4] Insufficient HL has been associated with poor disease management, non-adherence to treatment recommendations, and medication errors by patients or caregivers. Whether for patients or healthcare professionals, HL is essential for disease prevention and management.[5,6] Among refugees, the primary factors contributing to low HL are unfamiliarity with the host country's healthcare services, cultural differences, and language barriers.[7]

This study aims to address the knowledge gap regarding HL in the general adult population. Therefore, the study's objective is to assess the level of HL and its determinants among the general adult population to inform policymakers and healthcare providers about HL gaps and vulnerable groups, enabling the development of targeted interventions to enhance HL and, consequently, achieve better health outcomes.[8] Thus, adequate HL levels are vital for individuals to effectively manage their health and navigate the healthcare system.

Objectives

- To assess health literacy among general population.
- To identify possible determinants related to health literacy.

Material and methods:

Study design:

Cross sectional study

Study population:

Population of Rural field practice area of Konaseema Institute of Medical Sciences And Research Foundation, Amalapuram

Sample size:
The sample size is calculated using the formulae (n) =4pq/L2 (where q = 1-p). Where p= 65%,q=35%, L=10% of p = 6.5, from a study conducted among general population according to study conducted by Mittal N et al [9]
Sample size is 114

Sampling technique
The rural field practice was divided into 12 villages. Using simple random sampling, one village was selected from the 12 villages .Starting from the 1st house of the Ward 1 of the village panchayat, using systematic random sampling, every 5th house was selected for data collection.

Inclusion criteria:
- Males and females above 18 years of age
- Persons who gave informed consent.

Exclusion criteria:
- Persons having formal education in medical and health sciences were not included.
- Patients with any learning, audio-visual, psychiatric or intellectual disability or disorder.

Data collection:
A pre-designed pre-tested questionnaire was used to collect socio demographic profile, educational qualification, health behaviour and attitude of the participants.

Ethical consideration:
Institutional Ethics Committee clearance was obtained before starting the study.
Informed consent was taken from the study participants

Results:
Among 114 respondents 66(57.9%) are females and 48(42.1%) are males. Among them 31.6% are between age group 16-25 , 14% are between age group 26-35, 21.9% are between age group 36-45, 11.4% are between age group 46-55, 13.1% are between age group 56-65, 6.1% are between age group 66-75, 1.8% are between age group 76-85

In the study conducted 14 % are illiterate, 16.7% studied up to primary school, 17.5% studied up to secondary school and 57.8% are graduates. From the study 69.3% people promote healthy behaviour and lifestyles among friends and family,

59.6% are aware of local health promotion initiatives and campaigns, 77.2% are aware of local health resources, clinics and health centres.

Table 1: Assessment of Functional health literacy among respondents (n=114)

Question		Frequency
i. How often do you need someone to help you when you are given information to read by your doctor, nurse ?	**a**. I'm able to read and understand without anyone help.	50(43.9%)
	b. I always need help.	28(24.6%)
	c. I am able to read and understand but need someone help sometimes.	36(31.6%)
ii. Can you understand health related instructions Eg:- allergens on food labels, avoiding calorie dense foods in obesity etc..	**a**.I'm able to understand and follow without anyone help.	49(43%)
	b. I am able to understand but sometimes it's difficult to follow.	31(27.2%)
	c.I am not able to understand.	34(29.8%)
iii. Can you track your health metrics (like blood pressure, blood glucose, spo2 , heart rate)	**a .**I'm able to track	61(53.5%)
	b. I am able to measure , but don't know whether it's normal or not	24(21.1%)
	c. I am not able track , need someone help to track	29(25.4%)

Table 1 presents the assessment of functional health literacy among 114 respondents. For the question on needing assistance with information provided by healthcare professionals, 43.9% (n=50) reported being able to read and understand without help, 31.6% (n=36) needed help sometimes despite being able to read and understand, and 24.6% (n=28) always required assistance. Regarding understanding health-related instructions (e.g., allergens on food labels or dietary restrictions for obesity), 43.0% (n=49) could understand and follow without help, 27.2% (n=31) understood but found it difficult to follow at times, and 29.8% (n=34) were unable to understand. For tracking health metrics (e.g., blood pressure, blood glucose, SpO2, heart rate), 53.5% (n=61) could track independently, 21.1% (n=24) could measure but were unsure about interpreting normality, and 25.4% (n=29) required assistance to track.

Table 2: Assessment of Communicative health literacy among respondents (n=114)

Question		Frequency
i. When you talk to a doctor or nurse, do you give them all the information they need to help you?	**a.** Yes, always.	55(48.2%)
	b. Yes, but not always.	34(29.8%)
	c. No, I deliberately hides some info like smoking,alcohol intake, drug overdose, anything related to genital parts and sexual history.	12(10.5%)
	d. No, as doctor uses words that I'm not able to understand.	13(11.4%)
ii. When you talk to a doctor or nurse, do you ask the Questions you need to ask?	**a** .Yes, always.	49(43%)
	b. Yes, but not always.	48(42.1%)
	c. No, as doctor uses words that I'm not able to understand.	17(14.9%)
iii. Do you feel comfortable discussing your Menstrual history, about genital parts, sexual history?	**a.**Comfortable with menstrual history.	22(19.3%)
	b. Comfortable with menstrual history and about Genital parts only.	14(12.3%)
	c. Comfortable to discuss anything doctor asks.	40(35.1%)
	d. Not comfortable but responds on difficulty.	27(23.7%)
	e. Do not respond	11(9.6%)

Table 2 evaluates communicative health literacy among the same 114 respondents. When asked if they provide all necessary information to healthcare providers, 48.2% (n=55) always did so, 29.8% (n=34) did so inconsistently, 10.5% (n=12) deliberately withheld sensitive information (e.g., smoking, alcohol intake, sexual history), and 11.4% (n=13) cited difficulty understanding medical terminology as a barrier. Regarding asking questions during consultations, 43.0% (n=49) always asked necessary questions, 42.1% (n=48) did so inconsistently, and 14.9% (n=17) refrained due to difficulty with medical terminology. On discussing sensitive topics like menstrual history, genital parts, or sexual history, 35.1% (n=40) were comfortable discussing any topic, 19.3% (n=22) were comfortable only with

menstrual history, 12.3% (n=14) with menstrual history and genital parts, 23.7% (n=27) responded with difficulty, and 9.6% (n=11) did not respond.

Table 3: Association between Educational qualification and Awareness of local health resources, clinics and health centres, health promotion initiatives and promotion of healthy behaviours and lifestyles

Educational qualification	Awareness of local health resources, clinics and health centres		Are you aware of local health promotion initiatives and campaigns?		Do you promote healthy behaviours and lifestyles among friends and family?	
	No	Yes	No	Yes	No	Yes
Graduate & above	12	47	20	39	7	52
Illiterate	3	13	9	7	12	4
Primary school	6	13	9	10	7	12
Secondary school	5	15	8	12	9	11
P - value	0.744		0.378		0.000	

Table 3 examines the association between educational qualification and awareness of local health resources, health promotion initiatives, and promotion of healthy behaviors. Among respondents with graduate-level education or above, 47 were aware of local health resources compared to 12 who were not, while for illiterate respondents, 13 were aware versus 3 who were not (p=0.744). Awareness of health promotion initiatives showed similar patterns, with 39 graduates aware versus 20 unaware, and 7 illiterate respondents aware versus 9 unaware (p=0.378). However, promoting healthy behaviors was significantly associated with education (p=0.000), with 52 graduates promoting healthy behaviors compared to 7 who did not, while only 4 illiterate respondents promoted healthy behaviors compared to 12 who did not.

Table 4: Association between Awareness of local health promotion initiatives and campaigns and people suffering from any communicable diseases?

Are you aware of local health promotion initiatives and campaigns?	Do you / Did you suffer from any communicable diseases?		P value
	No	Yes	
No	25	21	0.034
Yes	50	18	

Table 4 shows the association between awareness of local health promotion initiatives and the prevalence of communicable diseases (p=0.034). Among those unaware of initiatives, 25 had no history of communicable diseases, while 21 did. In contrast, among those aware, 50 had no history, and 18 did, indicating a statistically significant association.

Table 5: Association between promotion of healthy behaviours and lifestyles among friends and family and people with chronic illness

Do you promote healthy behaviours and lifestyles among friends and family?	Do you suffer from any chronic illness?		P value
	No	Yes	
No	16	19	0.044
Yes	52	27	

Table 5 explores the association between promoting healthy behaviors among friends and family and the presence of chronic illness (p=0.044). Among those who did not promote healthy behaviors, 16 had no chronic illness, while 19 did. Among those who promoted healthy behaviors, 52 had no chronic illness, and 27 did, suggesting a significant association.

Discussion:

Health literacy (HL) plays a vital role in achieving favorable health outcomes by empowering individuals to effectively access, comprehend, assess, and apply health-related information in everyday decision-making. This study assessed HL among patients attending primary and community health centers associated with the Konaseema Institute of Medical Sciences, providing valuable insights into the functional, communicative, and critical aspects of HL within a diverse population. The results reveal a mixed picture, with strengths in basic health awareness contrasted by

weaknesses in deeper engagement and independence. Positively, the study found strong general awareness of health resources and proactive behaviors. Notably, 69.3% of participants reported encouraging healthy habits among their peers, while 77.2% were aware of nearby health facilities. These findings indicate a foundational level of HL that supports community health promotion. However, exploring the intricacies of HL uncovers significant gaps that could hinder long-term health management and equity.

Functional HL, which involves the basic skills to interpret and act on health information, showed variability. While 43.9% of respondents could independently navigate health materials, a majority (56.1%) required assistance either frequently or occasionally. This pattern highlights the challenges posed by complex medical documentation or cultural mismatches in information delivery. Such observations align with established research indicating that educational attainment does not always equate to practical understanding, especially when health materials are not adapted to diverse literacy levels.[3] Similarly, in Southeast Asian contexts, limited functional HL has been common, with studies reporting rates as high as 94.2% in some subgroups, underscoring the need for simplified, culturally sensitive resources to bridge these gaps.[10] These deficiencies can significantly impact self-management of chronic illnesses, adherence to treatment plans, and participation in preventive measures, ultimately worsening health disparities.

Communicative HL, focused on effective interactions between patients and healthcare providers, also emerged as a concern. Only 48.2% of participants regularly shared comprehensive details with their providers, and 14.9% refrained from asking essential questions due to unfamiliarity with medical terminology. This hesitation points to underlying issues of empowerment and communication barriers, which may lead to incomplete assessments or inadequate treatment plans. Broader literature supports that limited communication—stemming from linguistic, educational, or cultural obstacles—hinders active involvement in personal healthcare, potentially increasing risks like mortality from preventable conditions.[11]

National surveys in the United States have echoed these findings, showing that a significant portion of adults struggle with health-related tasks requiring clear provider-patient exchanges, such as understanding prescription labels or effectively discussing symptoms.[12] Enhancing communicative HL through training for both patients and providers could alleviate these issues, promoting more collaborative care environments.

Critical health literacy (HL), which involves the ability to critically evaluate health information and make independent decisions, was found to be moderately proficient. About 53.5% of individuals could identify appropriate treatment options, and 51.8% were skilled at weighing risks against benefits. However, only 47.4% felt confident in questioning a provider's advice, reflecting cultural norms that favor

deference or low self-efficacy in healthcare environments. This reluctance is especially evident in non-Western or hierarchical systems, where paternalistic models may discourage questioning.[13] Tools that assess various aspects of HL, including critical dimensions, have confirmed these challenges in primary care, highlighting the need for interventions that enhance analytical skills and confidence.[14]

Addressing critical HL is essential for empowering individuals to navigate misinformation and advocate for their health needs. Statistical analyses revealed significant associations, such as between education and health-promoting behaviors ($\chi^2 = 26.56$, $p < 0.001$). Individuals with higher education, particularly graduates, were more likely to share health knowledge and utilize services. Interestingly, education did not correlate with awareness of local campaigns or clinics, suggesting that dissemination strategies do not uniformly reach all socioeconomic levels. This misalignment is consistent with national data showing that nearly half of adults have below-basic or basic HL, necessitating inclusive, targeted messaging to ensure equitable reach. Additionally, those involved in health promotion reported lower rates of chronic illness ($p = 0.044$), suggesting a protective role of active HL.

Nonetheless, the cross-sectional design limits causal inferences, a common limitation in observational research that requires longitudinal follow-up for validation.[15] In summary, this study highlights the complex nature of HL in a regional Indian context, revealing strengths in awareness alongside gaps in functional, communicative, and critical domains. These findings advocate for comprehensive interventions, including simplified materials, communication training, and community programs to enhance HL across populations. By addressing these issues, healthcare systems can improve patient empowerment, reduce inequities, and enhance overall outcomes. Future research should use prospective designs to explore causality and intervention efficacy, building on these foundational findings.

Conclusion: This study emphasizes the urgent need for community-based health literacy programs that go beyond merely providing information. Interventions such as pictorial guides, street-level health talks, culturally appropriate analogies, and simplified provider communication can bridge the HL gap, especially among the elderly and less educated. Such strategies may not only improve comprehension but also empower individuals to actively participate in their care. Longitudinal and interventional studies are recommended to evaluate the effectiveness of these approaches and better understand the pathways linking HL to long-term health outcomes.

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