

BMJ Open Challenges in patient-physician communication: the results of an Angolan cross-sectional study on communicative health literacy and its determinants

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To cite: Israel FEA, Vincze F, Ádány R, *et al.* Challenges in patient-physician communication: the results of an Angolan cross-sectional study on communicative health literacy and its determinants. *BMJ Open* 2026;**16**:e113674. doi:10.1136/bmjopen-2025-113674

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<https://doi.org/10.1136/bmjopen-2025-113674>).

Received 10 November 2025
Accepted 29 April 2026



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ABSTRACT

Objectives Assessing and understanding communicative health literacy (COM-HL) in healthcare settings is essential, as it constitutes a fundamental tool of public health and health promotion. Despite its importance, COM-HL remains an underinvestigated topic in Africa. Consequently, the development and validation of a Portuguese COM-HL scale could be regarded as a significant contribution to the assessment of the COM-HL in Portuguese-speaking African countries. Therefore, the aims of this study were to assess the psychometric properties of the Portuguese COM-HL instruments, to describe the COM-HL of Angolan adults and investigate its determinants.

Design Cross-sectional survey.

Setting Purposively selected recruitment sites within the municipality/district in seven provinces of Angola across the North, South and East regions.

Participants 1839 Angolan adults from 3041 invited persons, predominantly females (53.6%). Quota sampling was used to ensure representation across key sociodemographic strata. Within each quota, recruitment sites, data collection time points and participants were randomly selected. The inclusion criteria were age 18 years or above, Angolan nationality, permanent residence in Angola, the ability to speak the language of the questionnaire and the absence of mental disabilities or any other incapacity to perform the interview.

Primary and secondary outcome measures

Measurement properties of the six-item and 11-item versions of the COM-HL instrument assessed through Cronbach's alpha and Spearman-Brown coefficient, construct validity of the questionnaire investigated by principal component analysis (PCA), the relationship between COM-HL and independent variables measured with linear regression analyses.

Results The Cronbach's alpha of the 11-item COM-HL scale was 0.92, and the Spearman-Brown correlation was 0.89. The items belonged to one factor, and 56.7% of the total variance was explained by this factor based on the PCA. The mean score was 52.4 (95% CI 51.42 to 53.45). For the six-item version, the Cronbach's alpha was 0.86, and the Spearman-Brown correlation was 0.83. The items belonged to one factor, and 58.1% of the total variance

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The communicative health literacy questionnaire, which was originally developed for the European Health Literacy Population Survey 2019–2021, was translated into Portuguese and validated in the survey.
- ⇒ Quota sampling was used to ensure representation across key sociodemographic strata; within each quota, recruitment sites, data collection time points and participants were randomly selected.
- ⇒ The large sample size enhances statistical power and improves the precision and stability of the estimates.
- ⇒ It is not possible to draw conclusions about causal relationships because the results were obtained from a cross-sectional study design.
- ⇒ Due to territorial constraints, list-based random sampling was not feasible, and some sampling bias may have occurred, which cannot be entirely corrected even with poststratification weighting.

was explained by this factor based on the PCA. The mean score was 49.9 (95% CI 48.83 to 50.97). In both versions of the scale, getting enough time in the consultation with your doctor was rated as the most difficult task. The absence of financial deprivation ($p < 0.001$), the location of residence within an urban area ($p < 0.001$) and the possession of at least a fair health status ($p < 0.02$) were identified as positive determinants of COM-HL.

Conclusions The questionnaires can be characterised by good internal consistency and seem to be an appropriate tool to assess COM-HL in Portuguese-speaking countries. Angolan adults scored relatively low for COM-HL. People found it difficult to get enough time during consultations. Therefore, it is recommended to improve the communication skills of physicians and facilitate communication among healthcare users.

INTRODUCTION

Low- and middle-income countries (LMICs) bear a disproportionate share of the global

disease burden, characterised by a complex interplay of communicable, non-communicable (NCD) and emerging diseases.¹ Historically, infectious diseases such as malaria, tuberculosis and HIV/AIDS have been predominant drivers of morbidity and mortality in these regions.^{1 2} Despite significant progress in infectious disease control, LMICs are now facing a dual burden as rates of NCDs, including cardiovascular diseases, diabetes, cancer and chronic respiratory conditions, are rising sharply due to urbanisation, lifestyle changes and ageing populations.¹³

Addressing this multifaceted disease burden requires integrated health strategies that combine infectious disease control, NCD prevention, health promotion and strengthened healthcare systems. A critical component in this response is improving health literacy (HL), particularly communicative HL (COM-HL), to empower individuals and communities in making informed health decisions and engaging effectively with healthcare systems. According to a systematic review, lower influenza vaccine uptake, lower participation in mammography, greater emergency care use, increased hospitalisation and poor ability to interpret health-related information, which can be taken as a communicative challenge, were consistently correlated with lower HL levels.⁴

Only very few countries in Africa have objectively measured HL.⁵ This suggests that within the continent, there remains much to explore in the field of HL, particularly its impact on healthcare services and health outcomes. Concerning HL levels, the first multinational study was conducted in Africa using data collected between 2006 and 2015 in 14 sub-Saharan African countries. The study found the prevalence of high HL to be 35.8% on average, 39.2% for men and 34.8% for women.⁵ Furthermore, the rate of high HL varied by country, ranging from 8.5% in Niger to 63.9% in Namibia.⁵ A study using data from the Angolan Demographic and Health Survey 2015/2016 found that only 31.4% of the 19785 participants aged 15–49 years were considered to have high HL levels, while 68.6% had low HL levels.⁶ Yet, the same study revealed that the prevalence of high HL was about 44.9% for males and only 27.2% for females.⁶

COM-HL, defined as ‘patients’ communicative and social skills that enable them to actively engage in face-to-face encounters with healthcare professionals, to give and seek information, derive meaning from it and apply this information in decision making in co-producing their health care’,^{7 8} is an even more underinvestigated topic in LMICs, especially in Africa. Gupta and colleagues conducted a self-reported study to evaluate the functional, communicative and critical HL challenges on foodborne diseases in Ghana, where nearly half of the respondents acknowledged that they sometimes or often needed help from health professionals to understand the information on foodborne diseases.⁹ The same study found that only 20% of the respondents were able to ‘sometimes’ provide all the necessary information to effectively obtain help during a consultation, while 56% were able to do so ‘often’.⁹ These low

percentages of people able to communicate with health professionals highlight the need to address the topic on a much broader range.

Regarding the challenges in health systems in connection with COM-HL, a HL study conducted in South Africa included two questions to explore COM-HL, and the findings revealed inadequate interaction between patients and health professionals, low levels of trust and communication challenges between professionals and healthcare users.¹⁰ The study also found that about 23.8% of the respondents had at least once in their lives inquired about health information from healthcare professionals, while about 52.4% expressed a preference for obtaining health information from clinics rather than friends or neighbours.¹⁰ Another study carried out in Zimbabwean hospitals found that 40.4% of participants regularly asked for clarification when interacting with physicians. Meanwhile, 53.8% said that they sometimes asked for clarification, while 5.8% indicated that they never asked for clarification during medical consultations, regardless of whether they understood the information.¹¹ The doctor-patient relationship plays an important role in effective disease management, and its quality is influenced by the doctor’s ability to listen to the patient, give them time and help them feel comfortable. Communication needs to be improved for all patients, regardless of their HL level, because better communication could empower patients and improve their self-care.¹²

Regarding factors influencing COM-HL, studies have found that lower education attainment, old age, living in rural areas, limited monthly household and personal income, being illiterate and not having sources of information are some of the factors negatively influencing the individual’s COM-HL.^{13–15} Also, linguistic problems with the dominant dialect, lack of social support and not living within a family fell into this category.^{14 16} Conversely, higher education, living in cities, a younger age, positive peer influence, frequent medical care and chronic disease management were found to have a positive impact on COM-HL.^{13–16} However, a European survey found that financial deprivation and low social status were the only variables that showed a statistically significant association with the COM-HL score across all examined countries.¹⁷

Even though COM-HL was found to improve individuals’ health behaviour, disease self-care management and self-efficacy,^{18–22} to our knowledge, there is no tool nor a single study conducted in Angola that assessed COM-HL before our work. Given that there is no established instrument for this purpose, the development and validation of the Portuguese version of the COM-HL scale could be considered a milestone contribution to assessing the COM-HL in Portuguese-speaking African countries such as Angola.

In this study, we aimed to assess the psychometric properties of the Portuguese COM-HL instrument, to describe the COM-HL of Angolan adults and investigate its determinants.

METHODS

Study design

A cross-sectional study was carried out in seven provinces of Angola across three main regions (North, South and East) in November and December 2023. The regions and municipalities were purposively selected to reflect the general Angolan population in terms of community diversity (rural/urban; ethnic minorities; developed/less developed; high income/low income; social capital). Due to territorial constraints (many areas are sparsely populated and rarely inhabited, with very long distances between settlements), list-based random sampling was not feasible. Therefore, quota sampling was used to ensure representation across key sociodemographic strata (age, sex, settlement type). Within each quota, recruitment sites, data collection time points and participants were randomly selected. The inclusion criteria were age 18 years or above, Angolan nationality, permanent residence in Angola, the ability to speak the language of the questionnaire and the absence of mental disabilities or any other incapacity to perform the interview. During data collection, minor discrepancies relative to the intended quotas were observed, and post-stratification weights were applied to adjust for these differences and ensure that the estimates reflect the general adult Angolan population by age, sex, education level and area of residence. Overall, the weighted sample provides a strong approximation of the general adult Angolan population for the variables included in the quota and weighting procedures. Although a formal *a priori* sample size calculation was not performed, the achieved sample size ($n=1839$) provides precise estimation of COM-HL scores. Despite the quota-based design, a *post hoc* sensitivity analysis indicated that the margin of error for the mean HL score is small (approximately 1 point on a 0–100 scale) at 95% confidence level.

Data collection

Data were collected using the Portuguese version of the COM-HL instrument developed under the umbrella of the European Health Literacy Population Survey 2019–2021 (HLS₁₉).²³ The original instrument was in English.²³ The Portuguese version was translated by two independent translators. One version was translated by a Portuguese translator, interpreter and Portuguese-English teacher. Another version was translated by an Angolan. Both translators had Portuguese as their mother tongue and worked as English-Portuguese interpreters and translators. The two versions were brought together, but before being finalised, each was independently reviewed by two people. After careful revision for adjustments the two versions were reconciled to create the final Portuguese questionnaire. The instrument was also subjected to a focus group discussion ($n=8$) and a pilot study ($n=32$) before the survey was officially administered.

In the main survey data were collected via pen-and-paper personal interviews with an anonymous questionnaire. During this phase trained interviewers conducted

the fieldwork. The timing and locations of the data collection were determined using a random number generator in Excel. Additionally, raffle tickets listing various sites within the municipality/district were used to randomly select the specific location. Participants were selected using a systematic random sampling approach, where every second eligible individual was invited to participate to enhance randomisation.

Ethical approval was granted by the Ethics Committee of the Ministry of Health (CEMS) Angola (reference No. 024/CEMS/2023) on 9 September 2023. The National Institute of Health Research served as the review board and assessed the study protocol. The study was conducted in accordance with the Declaration of Helsinki. Before the start of the survey, the interviewer informed each participant of the purpose of the study, the voluntary nature of participation and the right to withdraw at any time without consequence. This information was also included in the introductory section of the questionnaire. After this information was provided, participants were asked to give their verbal informed consent prior to participation. The questionnaire was administered anonymously to ensure compliance with data protection and confidentiality standards.

Patient and public involvement

The study did not directly involve patients, but members of the public were involved in the initial design stage, considering that eight crucial contributors with different sociodemographic and professional backgrounds were consulted to review the draft questionnaire during the focus group discussion. Their involvement focused on assessing the clarity, comprehensibility, and cultural appropriateness of the survey items. Afterwards, a pilot study, which involved 32 randomly selected subjects, was conducted to test the questionnaire. Their feedback led to key revisions, enhancing comprehension and adjustments to the layout of the questionnaire. Though public contributors were not involved in subsequent phases, such as analysis, their early input made a substantial addition to the overall understandability and acceptability of the survey tool.

Domains of the questionnaire

Sociodemographic data

We collected information on age (categorised as 18–29, 30–49, 50–69, 70+ years), sex (male/female), training in a health profession (yes/no), level of education (non-formal education, primary education, lower secondary education, upper secondary education, higher education), employment status (employed, self-employed, unemployed, retired, student/trainee, domestic tasks) and area of residence (urban/rural). Following the HLS₁₉ methodology, financial deprivation was assessed based on the difficulty of affording (1) needed medication, (2) medical examination or treatments and (3) paying all bills with responses given on a four-point Likert-scale ranging from 'very difficult' to 'very easy'. Financial deprivation



was calculated as the percentage (measured on a scale of 0–100) of items with valid responses that were answered as ‘very difficult’ or ‘difficult’, with scores above 50 being considered as deprived.²³

Self-perceived health and perceived social status

Self-perceived health was measured using a five-point Likert-scale (from ‘very bad’ to ‘very good’), based on a question of the European Health Interview Survey 2019.²⁴ Meanwhile, self-perceived social status was measured on a scale from 1 to 10, where 1 corresponds to the lowest and 10 to the highest level in society and a score <5 indicates low social status.²³

Communicative HL

To assess the main challenges related to HL in health-care communication and the overall level of COM-HL, both the long (11-item, HLS19-COM-P-Q11) and short (six-item, HLS19-COM-P-Q6) versions of the Portuguese HLS19-COM-P questionnaire were used. The questions could be answered on a four-point Likert-scale from ‘very easy’ to ‘very difficult’.²⁵ In accordance with international recommendations,²⁵ the final COM-HL score is computed as a percentage (0–100%) of valid items answered as ‘very easy’ or ‘easy’, a higher score indicates a higher level of COM-HL. Scores were only computed for the respondents who validly answered at least 80% of the items. If more than 20% of the items contained invalid responses, the score was set as ‘missing’.²⁵

Statistical analysis

During the data cleaning phase, any subject with missing demographic information required for calculating the poststratification weights was automatically excluded. If the poststratification weights could not be calculated due to the missing values pertaining to age, sex, education level and area of residence, a listwise deletion was applied. Imputation techniques to address missing values were not used during the analysis. Poststratification weights were constructed based on age group, sex, education level and region using the Iterative Proportional Fitting algorithm, implemented via the rake function of the survey package in R. The required marginal distributions of the population were obtained from the latest Angolan Population Census (2014). We reported the sociodemographic characteristics and COM-HL of the participants using statistically weighted frequencies and mean scores with the corresponding 95% CIs to produce estimates that better reflect the structure of the adult Angolan population.

We used the terminology from the COnsensus-based Standards for the selection of health status Measurement INstruments taxonomy when describing the measurement properties of the questionnaire.²⁶ The internal consistency of the COM-HL scale was assessed using Cronbach’s Alpha, Spearman-Brown Coefficient, and ‘alpha if item deleted’ (change in coefficient alpha after single component removal). As evidenced in the literature, a value between 0.70 and 0.95 is considered

good internal consistency.^{27 28} The reliability indicator was quantified using the Spearman-Brown Coefficient split-half reliability method. Consistency is classified as moderate for correlation values between 0.50 and 0.69, strong for correlations ranging from 0.70 to 0.89 and very strong when the Spearman-Brown coefficient >0.90. As a sensitivity analysis, we also tested the internal consistency of the COM-HL scale in the socioeconomic subsamples. The questionnaire’s factor structure was determined through a principal component analysis (PCA) of the valid responses. The factorability of the data was evaluated using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett-test.

Linear regression analyses were performed to measure the relationship between COM-HL and independent variables. As such, the level of COM-HL was considered our outcome variable, and participants’ age, sex, area of residence, education level, employment status, training in a health profession, financial deprivation, self-perceived health and self-perceived social status were treated as independent variables. Prior to conducting the linear regression analyses, the assumptions of the models were evaluated. Multicollinearity among the independent variables was assessed using the variance inflation factor (VIF). The normality of residuals was examined using Q-Q plots, while linearity and homoscedasticity were evaluated by inspecting residual plots. For model estimation, all selected independent variables were entered into the regression models simultaneously using the enter method. The results were expressed as regression coefficients (β) with 95% CIs. A significant level was set at $p < 0.05$.

Data entry was carried out using Kobo Toolbox Software V.2023.2.4. with predefined answer options to reduce human errors and data analysis was performed using SPSS software V.25.0 and V.29.0 (IBM Corporation, Armonk, New York, USA).

RESULTS

Characteristics of the sample

The total number of invited individuals was 3041: 717 persons refused to participate, 299 people could not participate because they did not fulfil the inclusion criteria, and 186 records were excluded during the data cleaning. We have included in our analysis a total of 1839 respondents (response rate: 60.5%). The weighted distribution of the study parameters can be seen in [table 1](#).

The average age of the respondents was 30.1 years (range: 18–88 years, SD: 12.3 years). In terms of sex, respondents were predominantly females (53.6%), and about 57.7% of the respondents claimed to live in urban areas. Approximately half of the participants (48.8%) had lower or upper secondary education. The proportion of people with a status of employed (employed, self-employed or performing domestic tasks) was 53.9%. Only 20.2% had received training in a health profession. Regarding self-perceived health status, 41.9% reported fair health. The rate of financially deprived people was

Table 1 Sample characteristics, weighted by sex, age, education level and area of residence

		Weighted proportion (95% CI)	Unweighted proportion (95% CI)
Sex	Male	46.4% (44.2% to 48.7%)	47.0% (44.7% to 49.3%)
	Female	53.6% (51.3% to 55.8%)	53.0% (50.7% to 55.3%)
Age groups	18–29 years	48.1% (45.8% to 50.4%)	61.0% (58.8% to 63.2%)
	30–49 years	34.3% (32.2% to 36.6%)	30.4% (28.3% to 32.5%)
	50–69 years	13.3% (11.8% to 14.9%)	7.0% (5.9% to 8.2%)
	70+ years	4.3% (3.4% to 5.3%)	1.6% (1.1% to 2.2%)
Area of residence	Urban	57.7% (55.4% to 59.9%)	54.8% (52.5% to 57.0%)
	Rural	42.3% (40.1% to 44.6%)	45.2% (43.0% to 47.5%)
Education level	No formal education	24.0% (22.1% to 26.0%)	2.3% 1.7% 3.1%
	Primary education	20.7% (18.9% to 22.6%)	2.4% 1.8% 3.2%
	Lower secondary education	23.4% (21.5% to 25.4%)	17.7% to 16.0% 19.5%
	Upper secondary education	25.4% (23.5% to 27.5%)	54.8% to 52.5% 57.1%
	Higher education	6.5% (5.4% to 7.7%)	22.8% to 20.9% 24.7%
Trained in a health profession	Yes	20.2% (18.4% to 22.1%)	31% (29% to 33%)
	No	69.0% (66.9% to 71.1%)	64% (61% to 66%)
	Do not know/do not want to answer	10.8% (9.5% to 12.3%)	5% (4% to 6%)
Self-perceived health	Very good	8.7% (7.5% to 10.1%)	7.0% (5.9% to 8.2%)
	Good	23.5% (21.6% to 25.5%)	26.0% (24.0% to 28.0%)
	Fair	41.9% (39.7% to 44.2%)	53.0% (50.7% to 55.3%)
	Bad	10.5% (9.2% to 12.0%)	53.0% (50.7% to 55.3%)
	Very bad	7.6% (6.5% to 8.9%)	3.9% (3.1% to 4.9%)
	Do not know/do not want to answer	7.8% (6.6% to 9.1%)	3.8% (3.0% to 4.7%)
Employment status	Employed	20.8% (19.0% to 22.7%)	32.2% (30.1% to 34.4%)
	Self-employed	25.0% (23.1% to 27.0%)	17.8% (16.1% to 19.6%)
	Unemployed	23.1% (21.1% to 25.0%)	17.6% (15.9% to 19.4%)
	Retired	1.9% (1.4% to 2.6%)	2.1% (1.5% to 2.8%)
	Student/trainee	15.3% (13.7% to 17.0%)	24.3% (22.3% to 26.3%)
	Domestic tasks	8.1% (7.0% to 9.5%)	3.4% (2.7% to 4.3%)
	Do not know/do not want to answer	5.8% (4.8% to 7.0%)	2.7% (2.0% to 3.5%)
Financial deprivation	Non-deprived	23.6% (21.6% to 25.8%)	26.6% (24.5% to 28.8%)
	Deprived	76.4% (74.2% to 78.0%)	73.4% (71.2% to 75.5%)
Perceived social status	Low (score <5)	80.3% (78.4% to 82.1%)	70.7% (68.5% to 72.8%)
	Normal (score >4)	19.7% (17.9% to 21.6%)	29.3% (27.2% to 31.5%)

% (95% CI): variables weighted proportion in per cent and 95% CI.

76.4%, and 80.3% characterised themselves as having a low social status.

Questionnaire's reliability and validity measures

Reliability tests

For the total sample, the internal consistency measured by Cronbach's Alpha was 0.92 for the long and 0.86 for the short version, whereas the split-half reliability as calculated via the Spearman-Brown correlation coefficient was 0.89 for the long and 0.83 for the short version.

The results for the subsamples are presented in online supplemental file 1. For the long version, Cronbach's Alpha ranged from 0.66 (age group 70+ years) to 0.94 (age groups 18–29 years and 50–69 years, as well as those with no formal education, lower secondary education and those engaged in domestic tasks). The Spearman-Brown correlation coefficient ranged from 0.49 (age group 70+ years) to 0.93 (age group 50–69 years and participants with no formal education). For the short version, Cronbach's



Alpha ranged from 0.15 (age group 70+ years) to 0.92 (performing domestic tasks). Similarly, the Spearman-Brown correlation coefficient varied between 0.55 (age group 70+ years) and 0.91 (performing domestic tasks).

We assessed the effect on Cronbach's Alpha coefficient by removing items individually. For the long version, we found that it resulted in the same value for the total sample (online supplemental file 1), except for items 1, 3, 6 and 7 where a very slight decrease (from 0.92 to 0.91) was observed. For the short version, it decreased for all items. In all cases, the item-total correlations were above the minimum acceptable criterion of 0.3. The lowest values were for items fourth and ninth (0.62) in the case of the long version and for item sixth (0.61) in the case of the short version (online supplemental file 2).

Structure validity of the questionnaire

Based on the results of the PCA, the items of the long version load into a single factor (Bartlett's test $p < 0.001$; KMO value=0.921), which explains 56.76% of the total variance (table 2). Similarly, for the short version, the analysis also indicates a one-factor structure (Bartlett's test $p < 0.001$; KMO=0.843), accounting for 58.13% of the total variance (table 2).

The COM-HL of Angolan adults

The weighted mean score of the COM-HL scale was 52.43 (95% CI 51.42 to 53.45) for its long version, while the mean score of the short version was 49.9 (95% CI 48.83 to 50.97). Elderly people aged 70 years and above, self-rated very bad health and living in rural areas had the lowest mean score of the COM-HL scale in both versions. Respondents with no formal education and living in rural

areas scored comparatively lower in the short version. The highest scores were among people with higher education, students/trainees, those with no financial deprivation and with normal social status in both versions (table 3).

The task described as the most difficult was 'to get enough time in the consultation with your doctor' followed by 'to be involved in decisions about your health in dialogue with your doctor' and 'express your personal views and preferences to your doctor'. Meanwhile, the easiest tasks were 'to use the information from your doctor to take care of your health' (long version) and 'to recall the information you get from your doctor' (short version). More detailed results are shown in figure 1.

The determinants of COM-HL

All linear regression assumptions were met. Multicollinearity was low, with VIF values well below commonly used threshold (≤ 10). Examination of Q-Q plots indicated that the residuals were approximately normally distributed, and inspection of residual plots confirmed linearity and homoscedasticity. Our results show that the level of COM-HL (regardless of the length—long or short version—of the questionnaire) was higher among participants living in urban areas (β_{long} : 4.312, $p < 0.001$; β_{short} : 4.716, $p < 0.001$), were not financially deprived (β_{long} : 5.349, $p < 0.001$; β_{short} : 4.446, $p < 0.001$), those who had a very good (β_{long} : 7.757, $p < 0.003$; β_{short} : 8.836, $p < 0.002$), good (β_{long} : 8.017, $p < 0.001$; β_{short} : 8.164, $p < 0.001$) or fair (β_{long} : 4.906, $p < 0.007$; β_{short} : 4.821, $p < 0.014$) health status. There was no association between COM-HL and sex, age, educational level, health professional training or social status, while the

Table 2 Results of the principal components analysis for the long and short version of the Communicative Health Literacy Questionnaire

Items of the scale	Long version		Short version	
	Factors	Uniqueness	Factors	Uniqueness
Item 1: describe to your doctor your reasons for coming to the consultation	0.79	0.63	–	–
Item 2: make your doctor listen to you without being interrupted	0.75	0.57	–	–
Item 3: explain your health concerns to your doctor	0.81	0.66	0.79	0.62
Item 4: get enough time in the consultation with your doctor	0.68	0.46	0.72	0.52
Item 5: express your personal views and preferences to your doctor	0.72	0.51	0.79	0.62
Item 6: get the information you need from your doctor	0.80	0.64	–	–
Item 7: understand the words used by your doctor	0.79	0.62	–	–
Item 8: ask your doctor questions in the consultation	0.76	0.57	0.78	0.61
Item 9: be involved in decisions about your health in dialogue with your doctor	0.69	0.47	0.75	0.57
Item 10: recall the information you get from your doctor	0.78	0.60	0.74	0.54
Item 11: use the information from your doctor to take care of your health	0.72	0.51	–	–
Variance	6.24		3.49	
Variance proportion (%)	56.76		58.13	

Table 3 The weighted* mean score of the short and long version of the Communicative Health Literacy Questionnaire by the key sample subgroups

		Long version	Short version
		Weighted mean score (95% CI)	Weighted mean score (95% CI)
Total mean score		52.43 (51.42 to 53.45)	49.90 (48.83 to 50.97)
Sex	Male	52.11 (50.56 to 53.65)	49.71 (48.09 to 51.33)
	Female	52.71 (51.36 to 54.06)	50.06 (48.63 to 51.48)
Age groups	18–29 years	52.16 (50.57 to 53.75)	50.13 (48.45 to 51.81)
	30–49 years	54.94 (53.32 to 56.47)	51.64 (49.95 to 53.34)
	50–69 years	51.69 (48.93 to 54.46)	49.24 (46.38 to 52.09)
	70+ years	39.13 (36.93 to 41.32)	36.56 (34.51 to 38.61)
Area of residence	Urban	56.11 (54.77 to 57.46)	53.95 (52.53 to 55.37)
	Rural	47.50 (46.01 to 48.98)	44.53 (42.98 to 46.08)
Education level	No formal education	46.41 (44.22 to 48.60)	42.24 (40.08 to 44.41)
	Primary education	53.86 (51.84 to 55.88)	53.11 (50.94 to 55.28)
	Lower secondary education	53.57 (51.34 to 55.79)	51.32 (48.94 to 53.71)
	Upper secondary education	54.99 (53.14 to 56.85)	52.35 (50.39 to 54.32)
	Higher education	57.76 (53.96 to 61.56)	55.73 (51.64 to 59.83)
Trained in a health profession	Yes	54.14 (51.78 to 56.49)	52.52 (50.01 to 55.03)
	No	53.24 (52.07 to 54.41)	50.67 (49.43 to 51.91)
Self-perceived health	Very good	50.62 (46.59 to 54.65)	47.30 (43.15 to 51.46)
	Good	54.53 (52.58 to 56.48)	53.18 (51.04 to 55.32)
	Fair	54.17 (52.71 to 55.62)	51.32 (49.76 to 52.89)
	Bad	53.88 (51.38 to 56.39)	51.90 (49.45 to 54.34)
	Very bad	42.41 (38.21 to 46.61)	40.80 (36.70 to 44.98)
Occupational status	Employed	53.78 (51.43 to 56.12)	51.02 (48.59 to 53.45)
	Self-employed	50.70 (48.63 to 52.78)	49.19 (46.95 to 51.43)
	Unemployed	52.25 (50.07 to 54.43)	49.07 (46.79 to 51.35)
	Retired	57.12 (52.18 to 62.06)	50.58 (45.96 to 55.21)
	Student, trainee	57.36 (54.99 to 59.72)	55.02 (52.46 to 57.58)
	Domestic tasks	52.24 (49.16 to 55.31)	49.15 (45.81 to 52.50)
Financial deprivation	Deprived	51.25 (50.10 to 52.40)	48.83 (47.61 to 50.06)
	Non-deprived	57.75 (55.36 to 60.15)	54.59 (52.02 to 57.16)
Perceived social status	Normal (score >4)	57.10 (54.94 to 59.26)	54.51 (52.27 to 56.76)
	Low (score <5)	52.11 (50.98 to 53.24)	49.54 (48.34 to 50.74)

*Weighted by sex, age, education level and area of residence

relationship between COM-HL and occupational status was not convincing (see table 4).

DISCUSSION

The present study has three main aims: first, to assess the psychometric properties of the Portuguese version of the long and short version of the COM-HL questionnaires; second, to measure the COM-HL levels in the Angolan adult population; third, to describe the factors influencing COM-HL levels.

The results indicate that the two halves of the test are highly correlated, and the questionnaire has good internal consistency without meaningful discrepancy between the two versions. Based on our analysis, no modification in the set of questions is needed to improve the reliability and consistency of the COM-HL scale. Our study had a higher Cronbach's Alpha compared with some countries that took part in the HLS₁₉.^{7 29} The outcome of the factor analyses assumes that a one-factor structure is suitable for the COM-HL scale, with the 11/six questions assessing the same construct.

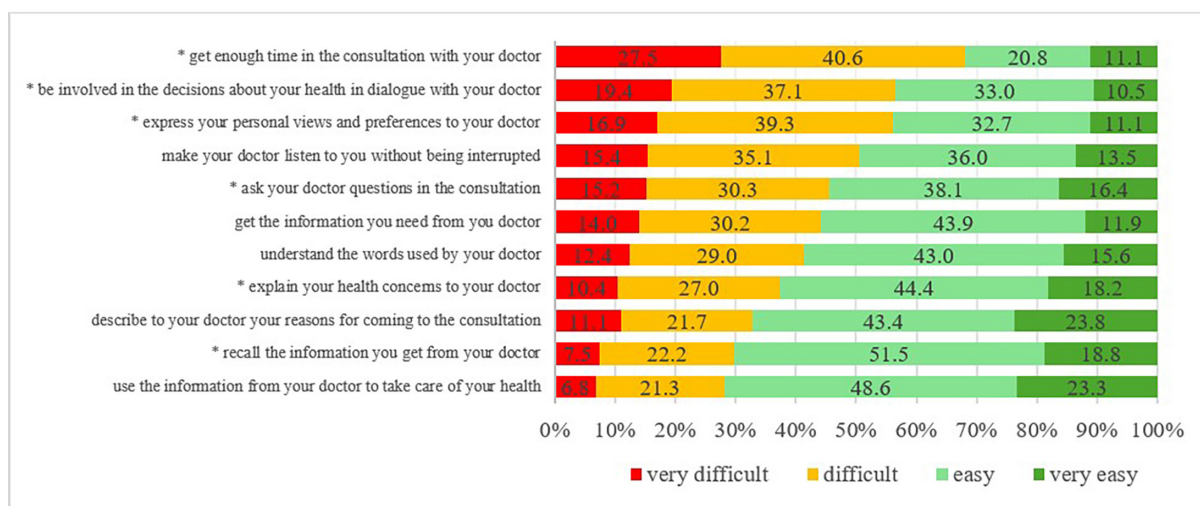


Figure 1 Percentage of responses to each item obtained using the long and short version of the Communicative Health Literacy Questionnaire, categorised by Likert scale value. Introductory question in the English version: ‘On a scale from very easy to very difficult, how easy would you say it is for you to...’ was also used in the Portuguese version. Data were weighted by age, sex, level of education and area of residence. *Items of the short version of the Communicative Health Literacy Questionnaire.

Regarding the percentage of responses to COM-HL items, the majority of the respondents in our study reported difficulty in finding enough time during consultations with their doctors. This result is congruent with the finding of the HLS₁₉ study,¹⁷

except in France and the Czech Republic, where ‘to be involved in the decisions about your health in dialogue with your doctor’ and ‘to express your personal views and preferences to your doctor’ were perceived as the most challenging task.¹⁷

Table 4 The determinants of communicative health literacy measured by the long and short version of the Communicative Health Literacy Questionnaire

		Long version		Short version	
Dependent variables		β*(95% CI)	P value	β* (95% CI)	P value
Sex (ref: female)		−0.072 (−2.179 to 2.034)	0.946	−0.345 (−2.598 to 1.908)	0.764
Age		0.019 (−0.083 to 0.120)	0.719	0.007 (−0.103 to 0.116)	0.905
Primary education or less (ref: higher education)		−1.290 (−7.304 to 4.725)	0.674	−1.294 (−7.800 to 5.212)	0.697
Lower secondary education (ref: higher education)		−2.878 (−6.571 to 0.815)	0.127	−3.003 (−6.942 to 0.937)	0.135
Upper secondary education (ref: higher education)		0.386 (−2.375 to 3.146)	0.784	−0.160 (−3.107 to 2.786)	0.915
Residence area (ref: rural)		4.312 (2.061 to 6.563)	<0.001	4.716 (2.305 to 7.127)	<0.001
Trained in a health profession (ref: no)		0.073 (−2.244 to 2.390)	0.951	−0.127 (−2.607 to 2.353)	0.920
No financial deprivation (ref: deprived)		5.349 (2.834 to 7.865)	<0.001	4.446 (1.744 to 7.147)	<0.001
Perceived social status (reference: low)		1.710 (−0.699 to 4.119)	0.164	2.283 (−0.296 to 4.862)	0.083
Your health in general (ref: bad/very bad)	Very good	7.757 (2.567 to 12.946)	<0.003	8.836 (3.322 to 14.350)	<0.002
	Good	8.017 (4.100 to 11.935)	<0.001	8.164 (3.986 to 12.342)	<0.001
	Fair	4.906 (1.313 to 8.499)	<0.007	4.821 (0.991 to 8.651)	<0.014
Occupational status (ref: unemployed)	Employed	−0.319 (−3.590 to 2.951)	0.848	0.190 (−3.304 to 3.684)	0.915
	Self-employed	1.502 (−1.895 to 4.900)	0.386	2.048 (−1.593 to 5.690)	0.270
	Retired or domestic tasks	4.436 (−0.923 to 9.795)	0.105	5.967 (0.245 to 11.688)	0.041
	Student, trainee	1.545 (−1.818 to 4.907)	0.368	1.388 (−2.205 to 4.980)	0.449

*β (95% CI): linear regression coefficient (95% CI), ref: reference category. Significant results are highlighted in bold.

* β (95% CI): linear regression coefficient (95% CI), ref: reference category. Significant results are highlighted in bold.

The results of both the short and the long versions of the COM-HL scale indicate that Angolan adults have relatively low levels of COM-HL. The mean score of the COM-HL scale was 52.4 for the long version and 49.9 for the short version, which is significantly lower compared with the European countries that took part in the HLS₁₉ study and used the same questionnaire, where the mean score ranged between 62.5 and 76.6.¹⁷ The above comparisons are intended to illustrate how levels of COM-HL vary across different societies. For appropriate comparisons, we must take into consideration the social and economic disparities since they can influence these levels. The results from the Angolan population and European studies suggest that a substantial proportion of people worldwide face difficulties related to COM-HL. This indicates that many individuals struggle to obtain, understand and use health information effectively during interactions with physicians. Furthermore, they highlight the importance of fostering a supportive environment in which patients feel comfortable asking questions.

Based on our results, better self-perceived health status, living in urban areas and not experiencing financial deprivation were positively associated with COM-HL. A study found that 20% of patients with chronic diseases have difficulties with COM-HL and consequently find it hardest to manage their health.³⁰ A similar pattern was observed in our study, where respondents in very poor health had lower COM-HL scores. The study of Polish adults revealed low levels of COM-HL, especially among elderly people and those living in towns with less than 20 000 people.³¹ Not only the COM-HL but even the general HL level was found to be linked with living in an urban or rural area: a systematic review of studies on HL in the developed and developing countries found that 43% of studies in the developed countries and 89% of studies in the developing countries reported higher HL in urban populations.³² These results align with ours and suggest that rural-urban HL disparities may be related to a set of factors, such as the access to different services. Similarly, HLS₁₉ shows that financial deprivation and low social status are negatively associated with COM-HL across all countries.¹⁷ Even though the above COM-HL study was carried out in high-income countries, yet some patterns were similar to those in our study, especially with regard to good financial status, which was significantly positively associated with COM-HL. A French validation study of another COM-HL tool reported that age, not being financially deprived and having a higher level of education were significantly associated with higher levels of COM-HL.³³ In alignment with the previous study, the Iranian study also confirmed that education level, age and good financial status were positive determinants of COM-HL,³⁴ contrary to our study, which found associations only with good financial status, but we used a different COM-HL questionnaire. Heijmans *et al* also confirmed that lower income, a low education level and older age were correlated with lower COM-HL, but in our results, education level was not the case.³⁰ In relation to these factors, in systems where healthcare interactions are more provider-driven and less participatory, COM-HL may be more dependent on structural factors, such as consultation time, the communication skills and style

of healthcare providers and institutional culture, than on educational background. For instance, if opportunities for dialogue are limited, even highly educated individuals may struggle to engage actively in interactions with their physician.

Recommendations

Considering the results of our study, the interaction between physicians and patients should be improved, starting with allocating sufficient time for consultations to ensure patients do not feel neglected. Another issue is patients feeling that they are not involved in the decisions about their health, meaning that physicians and patients should collaborate for an easier healthcare navigation system. Effective communication is key in this regard, especially since poor interaction with physicians can sometimes make patients feel abandoned and uncertain.³⁵ There is no doubt that health information has the potential to enhance patients' understanding of their health status and foster more effective communication between them and physicians. Nevertheless, availability and accessibility to health information alone do not guarantee that patients will be informed, involved and able to make appropriate decisions. Therefore, in addition to providing information in a simple and clear language, implementing teaching techniques such as 'teach back', making health educators available in and outside of healthcare services would help significantly.³⁷

There is a need for policymakers to intervene with practical strategies to improve individuals' COM-HL. However, this intervention should prioritise mitigating rural-urban health disparities, considering that sociodemographic factors play an important role in the rural-urban HL differences.³² We believe that another strategy to improving people's COM-HL would be the integration of health educators in healthcare services and schools,^{37 38} as well as properly identifying vulnerable groups, so that physicians can set aside more time for them. In addition, studies showed that social support and household income positively influence health outcomes and COM-HL,^{39 40} indicating that socioeconomic conditions should be improved, especially in LMICs. In summary, improving individuals' COM-HL needs organisational reforms to allow adequate consultation time, training healthcare professionals in patient-centred communication, encouraging shared decision-making practices and creating supportive environments where patients feel safe to express their views.

Strengths and limitations

As a strength, unlike a few earlier studies conducted in Africa, this study is the first to implement an internationally validated instrument specifically designed to measure the COM-HL of the adult population. As the first Angolan study to explore COM-HL, this research provides the first baseline data on COM-HL in Angola, establishing an essential reference point for future research, informing policy development and guiding the design of targeted public health interventions. Additionally, the study sample

was selected based on the Angolan National Census to reflect the general adult population. The study is further strengthened by a sufficiently large sample size, which enhances statistical power, improves the precision of the estimates and ensures stable and reliable coefficient estimates and robust modelling of factors associated with HL.

However, it is important to highlight that there are some limitations to our study. First, we cannot draw conclusions about causal relationships because the results were obtained from a cross-sectional study design and self-reporting bias may exist because of the self-report nature of the data collection. Due to territorial constraints, list-based random sampling was not feasible. Therefore, we used quota sampling to ensure representation across key sociodemographic strata. Although we attempted to introduce some randomness into the selection of participants by randomly choosing locations and time slots, the possibility of sampling bias cannot be entirely ruled out. After data collection, poststratification weights were applied to adjust for deviations from the quota table and reduce imbalances in the sample. However, some residual sampling bias may remain, particularly with regard to sociodemographic dimensions not included in the quota design or poststratification weighting. Although the response rate in our survey was acceptable and similar to that of the last two waves of the European Health Interview Survey⁴¹, selection bias due to non-responses cannot be ruled out.

Conclusions

The instrument showed favourable measurement properties when tested on a large sample and could be used to assess the COM-HL in Portuguese-speaking African countries such as Angola. Overall, the COM-HL level of Angolan adults is low. The issue of not getting enough time during the consultation was constantly highlighted by the respondents as the most difficult aspect. Among the potential solutions, providing training to improve the communication skills of healthcare providers could be mentioned, as well as establishing mediators during patient-physician interactions. People living in rural areas, experiencing financial deprivation and having bad health status have a higher risk of low COM-HL. Therefore, policymakers must focus specifically on these groups in order to improve their COM-HL.

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Acknowledgements We wish to extend our sincere gratitude to all those who contributed to the successful completion of this study. We are particularly indebted to the fieldwork assistants, mainly Madalena V Pacheco, Geraldo MA Israel, Neusa

C Dos Santos, Laura Kambundu, Lucas Mandavela, Geraldina SB Ndalila, Manuel C Narciso, Cláudia AA Da Cruz, Weza Costa, Acácio José, António Teles, Alfredo Kanhanga and Eugenio Da Conceição, whose professionalism, dedication and support during data collection were invaluable. Their effort for ensuring the smooth execution of field activities is deeply appreciated. We also acknowledge, with thanks, the translators and interpreters, mainly João M Henriques Director of the Camões Institute-Portuguese Language Center/Budapest, Felisberto DW Chivela, and others whose linguistic expertise and cultural competence played a critical role in developing the Portuguese version of the Communicative Health Literacy questionnaire. Also, Thomas WJ Robertson and Júlia Hoffmann for their work on double-checking the text. Finally, we extend our heartfelt thanks to all participants who generously shared their time and perspectives, as well as their openness and willingness to engage, which formed the foundation of this research. The Angolan National Institute of Statistics for providing the data of the Angolan Population Census 2014. The Angolan Ministry of Health (MINSa) and the National Institute of Health Research for providing the ethical approval which was critical to carry on the research. The HLS19 instrument used in this research was developed within 'HLS19—the International Health Literacy Population Survey 2019-2021' of M-POHL. Further information about using the HLS19 instruments can be found online (<https://m-pohl.net/HLS19Instruments>).

Contributors FEAI and FV wrote the main manuscript text. FEAI, FV and EB managed and analysed data. FEAI and FV prepared all the tables and figures. EB and AR contributed to the conception of the work and supervised the research. All the authors have substantially contributed to the interpretation of the results. EB and AR reviewed the manuscript. EB is the guarantor of the manuscript.

Funding This work was supported by the Stipendium Hungaricum and the University of Debrecen, Hungary. The funders had no role in study design, data collection, data analysis, data interpretation or writing of the report.

Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, conduct, reporting or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved by the Ethics Committee of the Ministry of Health (CEMS), Angola (024/C.E.M.S/2023). Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request.

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