

ORIGINAL RESEARCH ARTICLE

Sexual health literacy and mental health in the context of language barriers: A case study of sub-Saharan African migrant women in Spain

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Abstract

Mastery of the host country language is crucial for migrants to access health services and improve their mental health. This cross-sectional study aimed to investigate the impact of Spanish language proficiency on health literacy and mental health of sub-Saharan African migrant women in Spain. Using online, stratified sampling, 384 women aged 15 to 49 were recruited through social media platforms such as Facebook and Telegram. The research instruments included the CEFR (language proficiency), Masoumi et al. Sexual Health Literacy Questionnaire, and DASS-21 (mental health) questionnaires, which were translated into four languages (Spanish, French, Portuguese, and Swahili). The data were analyzed using structural equation modeling. The findings showed that Spanish proficiency had a positive and significant effect on sexual health literacy and mental health, and sexual health literacy played a mediating role in this relationship. The results suggest that language training programs can improve the mental health of this population by strengthening health literacy. (*Afr J Reprod Health* 2025; 29 [12s]: 26-35).

Keywords: Spanish Language Proficiency, Sexual Health Literacy, Mental Health

Résumé

La maîtrise de la langue du pays d'accueil est cruciale pour que les migrants puissent accéder aux services de santé et améliorer leur santé mentale. Cette étude transversale visait à examiner l'impact de la compétence en espagnol sur la littératie en santé et la santé mentale des femmes migrantes originaires d'Afrique subsaharienne en Espagne. En utilisant un échantillonnage en ligne stratifié, 384 femmes âgées de 15 à 49 ans ont été recrutées via des plateformes de médias sociaux telles que Facebook et Telegram. Les instruments de recherche comprenaient les questionnaires CEFR (pour la compétence linguistique), le Questionnaire de littératie en santé sexuelle de Masoumi et al. (2021), et le DASS-21 (pour la santé mentale), qui ont été traduits en quatre langues (espagnol, français, portugais et swahili). Les données ont été analysées à l'aide de la modélisation par équations structurelles (LISREL). Les résultats ont montré que la compétence en espagnol avait un effet positif et significatif sur la littératie en santé sexuelle et la santé mentale, et que la littératie en santé sexuelle jouait un rôle médiateur dans cette relation. Les résultats suggèrent que les programmes de formation linguistique peuvent améliorer la santé mentale de cette population en renforçant la littératie en santé. (*Afr J Reprod Health* 2025; 29 [12s]: 26-36).

Mots-clés: Maîtrise de la langue espagnole, Alphabétisation en santé sexuelle, Santé mentale

Introduction

According to the United Nations, the number of international migrants has increased from 153 million in 1990 to 272 million in 2019, and today represents 3.5% of the world's population, of whom 10.6% are refugees, while hundreds of millions are displaced within countries¹. Women make up 48% of the world's migrant population. However, in both Europe and North America, women are more likely to migrate than men, at 51.6% and 51.8%, respectively. Migrant women are a vulnerable

population and face particular challenges related to sexual and reproductive health and rights (SRHR)². Spain, with an estimated 13.01% of its population (5.2 million people) being of immigrant origin, continues to see a steady influx of immigrants³. The prevalence of mental disorders and the lifetime suicide rate in immigrant women are significantly higher than in Spanish-born women, as well as immigrant women having lower quality of life and self-esteem, regardless of their socioeconomic or legal status⁴. Also, among immigrants, women suffer more from mental, sexual and reproductive

health problems than their male counterparts, which makes them more likely to interact with healthcare professionals. They are also more exposed to gender-based violence during their migration process⁵. In particular, migrant mothers of African descent (MMAO) face multiple situations of vulnerability during displacement and after arrival in their destination, including migration and motherhood stressors. Several studies have shown a high prevalence of anxiety, depression, psychosomatic disorders, or post-traumatic stress disorder among these women in host communities⁶.

Overall, one billion people worldwide suffer from mental health disorders⁷. In contrast to North American research, several studies in Europe have shown that rates of common mental disorders (CMD) are higher among immigrants compared to the native population. This pattern has been observed in countries such as Germany (Polish and Vietnamese immigrants), the Netherlands and Belgium (immigrants from Muslim countries), Sweden, Norway and Austria (Eastern European immigrants). Studies in the UK have also shown a higher prevalence of CMD among Irish and Pakistani men and Indian and Pakistani women. Similarly, in Spain (Latin American immigrants), Israel (former Soviet Union immigrants), China (rural-urban migrant workers), and Australia, immigrants have reported poorer mental health than the native population⁸. The results of various studies indicate that one of the factors affecting the improvement of immigrants' mental health is mastery of the official language of the host country⁹.¹⁰ Proficiency in the official language of the host country is a key factor in accessing health services, communicating with health care providers, and utilizing mental health services for migrants and refugees. Lack of language support or culturally appropriate services can hinder timely mental health diagnosis and/or utilization of mental health services¹¹.

Another issue closely related to limited proficiency in the official language of the host country and general language barriers is having patients with low health literacy, with the elderly, immigrants, and low-income individuals being more at risk¹²⁻¹⁴. This makes access to health care more difficult and increases negative health outcomes¹⁴, and low health literacy has been

associated with poorer health outcomes, including increased mortality^{15, 16}. Research also shows that poor health literacy is a stronger predictor of an individual's health than age, income, employment status, education level, and race¹⁷. Spain, with 50.8%, showed a high rate of citizens with inadequate health literacy¹⁸. Health literacy is a dynamic concept with various dimensions. One of these dimensions is sexual and reproductive health literacy, which is defined as follows: a set of knowledge, attitudes, beliefs, motivations, and personal abilities to access, understand, evaluate, and use information related to sexual and reproductive health in daily life, aimed at negotiating, judging, and making decisions regarding sexual healthcare, health promotion, relationships, and well-being¹⁹.

Sexual health has potential impacts on individual, interpersonal, family, and social health. Possessing an optimal level of sexual health literacy leads to the improvement of an individual's skills in analysis, judgment, decision-making, changing high-risk sexual behaviors, empowering individuals to provide, maintain, and promote sexual health, enhancing the ability to assess sexual health-related risks, delaying the first sexual experience, choosing lower-risk sexual partners, engaging in safe sexual practices, reducing unwanted pregnancies, decreasing the risk of sexually transmitted infections, improving couples' sexual interactions, and ultimately enhancing family and social health²⁰. Studies show that language and culture play a pivotal role in the development of health literacy, especially in immigrant communities²¹⁻²³. Also, achieving the third Sustainable Development Goal (SDG) - "Ensure and promote healthy lives for all at all ages" - depends on citizens' health literacy and knowledge²⁴. Identifying and promoting health literacy can be one of the best solutions to increase mental health, which plays an important role in healthy social life²⁵⁻²⁸.

Given the increasing population of African immigrants in Spain and the challenges associated with their socio-cultural integration, it is essential to examine the role of Spanish language proficiency as a key factor in promoting health literacy (particularly sexual health literacy) and the mental health of this group. Previous studies have shown

that language barriers not only limit access to health information and services, specifically in sensitive areas such as sexual health, but also negatively impact immigrants' mental health by increasing stress levels and reducing self-efficacy. However, little research has specifically examined this relationship among sub-Saharan African migrant women, who are at increased risk of health problems due to their gender and migration status. By focusing specifically on sexual health literacy and filling this research gap, this study will not only provide a deeper understanding of the impact of language on these critical health dimensions but also provide a scientific basis for designing targeted interventions, such as educational programs that simultaneously address language and sexual health, to improve this group's quality of life. The findings of this study are important for policymakers, healthcare providers, and social planners, as they highlight the need to integrate language education programs with health promotion strategies, with a special emphasis on sexual and mental health needs, within migrant communities.

Methods

Study design

This study used a cross-sectional research design with a quantitative descriptive-analytic approach to examine the impact of Spanish language proficiency on sexual health literacy and mental health among sub-Saharan African immigrant women in Spain.

Statistical population

The population included all migrant women born in sub-Saharan Africa and residing in Spain. According to official data, the number of sub-Saharan migrants in Spain is estimated at 650,000, of whom approximately half are women. Inclusion criteria included: (1) women who self-identified as female and born in sub-Saharan Africa, (2) at least 6 months of residence in Spain, and (3) age between 15 and 49 years. The age range of 15 to 49 years was chosen to cover the reproductive age group relevant to the study objectives. Participants with more than 20% missing data were excluded.

Sampling and recruitment of participants

Using Cochran's formula for a finite population ($N = 325,000$), with a 95% confidence level ($Z = 1.96$) and a 5% margin of error ($e = 0.05$), the minimum sample size was determined to be 384. To compensate for possible non-response, 430 questionnaires were distributed, of which 405 were completed and 21 were excluded due to incomplete data, so the final sample was 384. Participants were recruited through well-known platforms of African diaspora communities in Spain, including: (1) Facebook groups ("Expat in Spain", "International peoples in Spain", "Alcemos la Voz Africa", and "Afro Madrid"), (2) Instagram pages ("Casadenali" and "Al-cemos_la_voz_africanos"), (3) LinkedIn groups (Accem ONG and CEAR (Comision Espanola de Ayuda Refugiado)), and (4) snowball sampling through African community networks. These platforms are well-known spaces for the gathering of sub-Saharan African diaspora populations in Spain. For snowball sampling, initial participants (seeds) were selected from active and influential members of digital platforms, such as Facebook group administrators or active users in Telegram channels and online communities, representing women from different regions of Sub-Saharan Africa (West, East, and Southern Africa). These seeds shared the questionnaire link with eligible peers via private messages or group posts on platforms such as WhatsApp, LinkedIn, or Facebook. To ensure diversity, seeds were selected from different countries (e.g., Nigeria, Kenya, South Africa) and with different ages and lengths of residence. Each participant was advised to introduce a maximum of three eligible peers to avoid over-reliance on specific networks.

Measuring tools

The data collection tools consisted of three standardized questionnaires: (1) the Spanish Language Proficiency Questionnaire (self-assessment based on the Common European Framework of Reference for Languages, CEFR)²⁹, consisting of closed-ended Likert-like items (from A1 to C2) in which participants self-rated their abilities across four core skills (listening, reading, speaking, writing); example: "In everyday Spanish

conversations, to what extent can you speak without the help of a dictionary?" (Options: A1 = absolute beginner to C2 = proficient); (2) Masoumi *et al.*'s Sexual Health Literacy Questionnaire¹³, which originally comprises 40 items but was simplified in this study into two main dimensions: (a) access and understanding of sexual information and (b) application and evaluation of sexual information, with multiple-choice items (4 options); example: "How easy is it for you to obtain information about preventing unwanted pregnancy from various sources?" (options: very difficult = 1 to very easy = 4); and (3) the Mental Health Questionnaire (DASS-21)³⁰, comprising 21 items on a 4-point Likert scale (0 = did not apply to me at all to 3 = applied to me very much) divided into four subscales: physical symptoms (items 1–7), anxiety symptoms (items 8–14), social functioning impairment (items 15–21), and depression (items 22–28); example: "In the past week, I felt that life was meaningless" (0–3). The research questionnaires were initially designed in English and systematically translated into four key languages: (1) Spanish (the language of the host country), (2) French (the official language of 21 African countries including Senegal and Cameroon), (3) Portuguese (the official language in Angola and Mozambique), and (4) Swahili (the common language of East Africa). This selection was based on three criteria: (a) official status in the health care systems of the countries of origin, (b) educational use in schools/universities, and (c) widespread understanding among multi-ethnic populations. The quality assurance protocol included: (1) back-translation by native speakers, (2) initial testing with 20 participants for each language group, and (3) final review by a panel of five bilingual experts (linguists and health professionals with experience in the African region). Finally, the questionnaires were distributed according to the participants' preference: Spanish (75%), French (16%), Portuguese (6%), and Swahili (3%). The validity of the questionnaire was confirmed by five experts in Spanish and psychology, and internal reliability was excellent for all scales: Spanish language proficiency ($\alpha = 0.85$), sexual health literacy ($\alpha = 0.86$), and mental health ($\alpha = 0.83$), all of which exceeded the threshold of 0.70.

Data collection

Data collection was conducted online from February to May 2025 and focused on migrant women from sub-Saharan Africa. Participants accessed the questionnaires through secure links shared in Facebook groups, Telegram channels, online communities (InterNations and Expatica), and chain referrals. The self-administered questionnaire took approximately 30 minutes to complete. Responses were collected anonymously using Google Forms, a simple and accessible online survey platform. Questionnaire links were shared via private messages and group posts on Facebook, Telegram, WhatsApp, and online communities. IP address verification was used to prevent duplicate responses. Follow-up reminders were sent to non-respondents after one week via WhatsApp messages or group notifications on Facebook and Telegram. To support the chain sampling process, initial participants received a standardized invitation message explaining the purpose of the study and the eligibility criteria (being female, born in sub-Saharan Africa, and residing in Spain). This ensured consistency in the introduction of the study. To reduce potential bias in chain sampling, participant recruitment was monitored to ensure representation from different regions of sub-Saharan Africa (West, East, and Southern Africa), such that no network accounted for more than 30% of the final sample.

Data analysis

The initial analysis was conducted using structural equation modeling (SEM) with LISREL software (version 8.72) to test the hypothesized paths: Spanish language proficiency as a predictor of sexual health literacy, which in turn influences health mental among sub-Saharan African migrant women. SEM was chosen because of its ability to handle latent variables and simultaneously test mediating effects. Model fit was assessed using indices such as chi-square (χ^2), comparative fit index (CFI), incremental fit index (IFI), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), and root mean square error of approximation (RMSEA < 0.08). Demographic characteristics were included in descriptive

analyses but were excluded from structural equation modeling to maintain model simplicity, which is consistent with methodological recommendations for multivariate analysis.

Ethical considerations

This study adhered to the principles of the Declaration of Helsinki to ensure ethical conduct and protect sub-Saharan African migrant women, as a vulnerable population, during online data collection. Due to the low-risk, anonymous, and online nature of the study, which involved self-administered questionnaires without direct intervention or collection of identifiable data, formal ethics committee approval was not required, which is consistent with the Helsinki provisions for exempt studies. Key Helsinki principles applied included informed consent, confidentiality, harm minimization, non-coercion, and respect for vulnerable participants. Before accessing the questionnaire, participants received digital informed consent forms in Spanish, French, Portuguese, and Swahili. These forms clearly explained the purpose of the study, the sensitive nature of SRHR topics, the right to withdraw at any

time without consequence, and assurance of anonymity; participants had to confirm their consent to continue. To ensure confidentiality, no identifying information (such as name or email address) was collected and responses were stored securely on Google Forms servers. IP address verification was used solely to prevent duplicate responses and not for identification. To minimize harm, given the potential for psychological distress arising from SRHR issues among migrant women, contact information for free counseling services (such as health helplines in Spain) was provided at the end of the questionnaire. Participation was voluntary and no financial or non-financial incentives were offered to avoid coercion. The data will be used only for the purposes of this study and will be securely deleted after analysis, which respects the rights and dignity of the participants.

Results

The following table summarizes the key demographic and socioeconomic characteristics of the 384 sub-Saharan African immigrant women who participated in this study. Table 1

Table 1: Demographic characteristics of sub-Saharan African immigrant women in Spain (n=384)

Characteristic	Categories	Number (n)	Percentage (%)
Country of Origin	Nigeria	146	38
	Senegal	104	27
	Ghana	61	16
	Cameroon	35	9
	Other Sub-Saharan African Countries	38	10
Marital Status	Married	211	55
	Single	115	30
	Divorced or widowed	58	15
Parental Status	Has at least one child	223	58
	Has no children	161	42
Educational Level	High school diploma or less	165	43
	Technical-vocational training	127	33
	University degree	92	24
Length of Residence in Spain	Less than 5 years	146	38
	5 to 10 years	127	33
	More than 10 years	111	29
Spanish Language Proficiency	Beginner (A1-A2)	123	32
	Intermediate (B1-B2)	184	48
	Advanced (C1-C2)	77	20
Language Barrier Affects Healthcare Access	Yes	269	70
	No	115	30

Table 2: Covariance matrix of the constructs present in the structural model of the research

Variables	Fluency in Spanish	Health literacy	Mental health
Fluency in Spanish	1		
Sexual Health literacy	**0.61	1	
Mental health	**0.58	*0.45	1

**Significant at the 1 percent error level, *Significant at the 5 percent error level

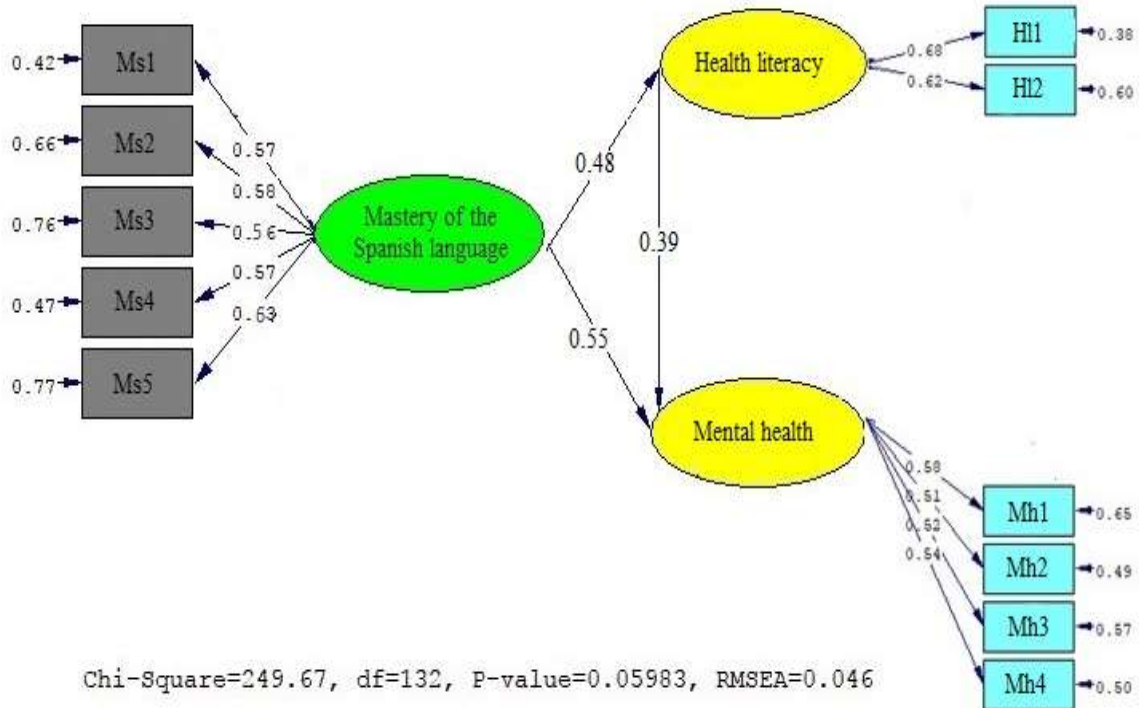


Figure 1: Structural model of research in standard estimation mode

In order to evaluate and analyze the structural relationships between the latent and measured variables present in the structural model of the research, the statistical method of structural equation modeling (SEM) was used. The structural and theoretical model of the research was presented using the statistical software LISREL (LISREL) based on the data observed among the statistical sample under study. The fitting and estimation of the parameters in the structural model of the research was carried out using the maximum likelihood (ML) method. In a structural model, the analysis of structural relationships between the structures present in the model is carried out based on the covariance matrix. Therefore, in the first step, the covariance matrix is calculated, the results

of which are given in Table 2. As can be seen, the covariance between the structures present in the structural model of the research is significant.

The structural and conceptual model of the research is fitted in the LISREL software environment in the standard estimation mode (factor loading and standard path coefficient) and the test of significance of the paths (T-test) are shown in Figures (1) and (2), respectively.

In Figure (1), which shows the fit of the structural model of the research in the standard estimation mode, it is observed that the factor loading of all observed variables in each construct is greater than 0.5, and also the standardized path effect coefficients show that the direct effect of the Spanish language proficiency variable on mental

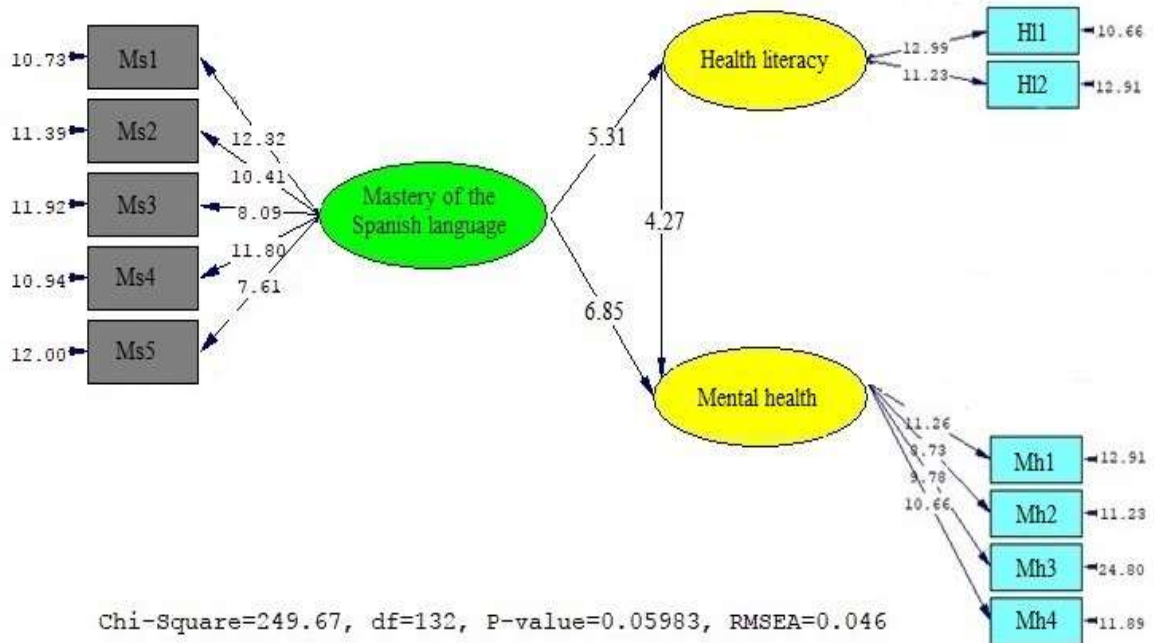


Figure 2: Structural model of research in T-test mode

health and sexual health literacy is 0.55 and 0.48, respectively, and the direct effect of the mental health variable on health literacy is 0.39.

In Figure (2), which shows the fit of the structural model of the research in the T-test mode, it is observed that the values of the t-statistics related to all factor loadings are greater than the critical value of 1.96 ($1.96 < t$), meaning that in each of the structures the values of the factor loadings are significant at the 5 percent error level and none of the indicators (components) will be removed from the structural model. The estimation of the t-statistic values shows that the t-statistic values by the software are not between the two critical values of 1.96 and -1.96 ($1.96 < t$ or $1.96 > -t$), meaning that the expected relationships between the variables in the presented structural model are significant at the 5 percent error level.

Structural and Theoretical Model of Research There is no single criterion by which a researcher can decide whether a theoretical model is acceptable or not. The issue of structural model fit in inferential statistics is very diverse and complex, and there are a large number of fit indices,

and there is no general agreement even about an optimal test, as a result of which researchers have presented different indices in different articles. The most important fit indices for measuring the suitability of the structural and conceptual model fit, as well as the approximate acceptable range of each of the indices, are listed in Table (3). As can be seen, the goodness-of-fit indices obtained by the LISREL software for measuring the suitability of the structural model are in the approximate acceptable range, meaning that the data observed in the statistical sample under study largely conform to the structural model of the research. In other words, the values of the goodness-of-fit indices obtained indicate the appropriate fit of the structural model of the study. Overall, the presented structural model is an appropriate model and has the ability to explain the structural relationships between the variables present in the presented model.

Based on the estimated parameters in the fitted conceptual model and using the structural equation modeling in the fitted model, the research hypotheses are tested. For each path in the fitted structural model, the obtained value for the

Table 3: Estimation of fitness indices to measure the suitability of the research structural model

Index	Approximate acceptance range	Estimated amount
Chi-squared over degrees of freedom (CMIN/DF)	Less than 3	1.68
Root Mean Square Error of Estimate (RMSEA)	Less than 0.08	0.043
Comparative Fit Index (CFI)	0.8 to 1	0.96
Incremental Fit Index (IFI)	0.8 to 1	0.95
Goodness of Fit Index (GFI)	0.8 to 1	0.92
Modified goodness-of-fit index (AGFI)	0.8 to 1	0.89

Table 4: Results of parameter estimation in structural equation modeling to test research hypotheses

Path	Direct impact	t	Indirect impact
The impact of Spanish language proficiency on sexual health literacy	0.55	6.85	-
The impact of sexual health literacy on mental health	0.39	4.27	-
The impact of Spanish language proficiency on mental health	0.48	5.31	0.69

t-statistic is compared with the critical values of 1.96 and -1.96. If the values calculated by the software are between the two numbers mentioned, the desired path is not significant at the 5% error level (95% confidence level), otherwise the desired path is significant at the 5% error level (95% confidence level). The results of parameter estimation in structural equation modeling based on Figures (1) and (2) are given in Table (4).

It is observed that Spanish language proficiency has a positive and significant direct effect on mental health and sexual health literacy ($t > 1.96$), and sexual health literacy has a positive and significant direct effect on mental health ($t > 1.96$). Also, considering the significant effect of Spanish language proficiency on sexual health literacy and the positive effect of sexual health literacy on mental health, it is concluded that Spanish language proficiency has a positive and significant indirect effect on mental health through its positive effect on sexual health literacy. Therefore, sexual health literacy plays a mediating role in the relationship between Spanish language proficiency and mental health. Therefore, it is concluded that with increasing Spanish language proficiency, mental health and sexual health literacy significantly increase, and also with increasing Spanish language proficiency, mental health increases indirectly through increasing health literacy.

Discussion

The findings of this study showed that Spanish language proficiency has a positive and significant effect on mental health, with sexual health literacy mediating the effect among African immigrant women in Spain. In justification of this finding, it can be said that better language proficiency leads to access to health information, understanding medical guidelines, and effective communication with health care providers, wider social networks, and greater social support, leading to a greater sense of belonging and a more integrated identity, which in turn improves sexual health literacy and ultimately improves mental health. Overall, these findings emphasize the importance of cultural-linguistic programming alongside health interventions for immigrant communities and demonstrate that investing in language training can have broad impacts on the overall health of the immigrant community, beyond everyday communication.

The findings of this study showed that Spanish language proficiency has a positive and significant effect on improving health literacy among African immigrant women in Spain. This is consistent with the findings of other researchers²¹⁻²³. In justification of this finding, it can be said that better language proficiency allows

for the use of broader information sources (including health brochures, medical websites, and educational programs) and better treatment communication for patients, better self-efficacy, and increased self-confidence, and as a result, individuals' sexual health literacy improves.

Also, the findings of this study show that Spanish language proficiency has a positive and significant effect on the mental health of African immigrant women in Spain. This is consistent with the findings of other studies⁹⁻¹¹. To explain this relationship, it can be said that language proficiency allows for the creation of wider social networks and the receipt of emotional support, access to mental health services, increased self-efficacy and reduced perceived discrimination, and as a result, individuals' mental health improves.

The findings of the present study indicate that sexual health literacy has a positive and significant impact on the mental health of African migrant women in Spain. These results are consistent with the evidence in the research literature²⁵⁻²⁸. In justification of this finding, it can be said that higher sexual health literacy allows migrant women to better understand their health conditions and make more informed decisions. This leads to a reduction in anxiety caused by uncertainty about one's health status. Also, people with higher health literacy have more effective access to health services, which leads to preventive behaviors, timely diagnosis of health problems, and optimal use of resources and reduction of unnecessary costs, resulting in better mental health.

Study strengths and limitations

The strengths of the study include the following: This research is one of the few quantitative studies that examines the mediating role of sexual health literacy in the relationship between language proficiency and the mental health of Sub-Saharan African immigrant women. The use of meticulously validated multilingual questionnaires (Spanish, French, Portuguese, Swahili), the selection of a large and diverse sample of 384 participants, and the use of a controlled mixed sampling method are positive features of this research. Furthermore, structural equation modeling was used to analyze the complex pathways. Adherence to full ethical

principles, obtaining multilingual informed consent, and providing supportive resources are also considered strengths. The limitations of the study are: the cross-sectional design, which limits causal inference; the use of a non-random sampling method, which reduces the generalizability of the findings; reliance on self-reported data, which carries the potential for bias; the simplification of the sexual health literacy questionnaire tool, which may have reduced the conceptual depth of the topic; and the lack of control for confounding variables such as education level and cultural stress. For future research, it is suggested that longitudinal studies, random sampling methods, the use of objective measurement tools, and the investigation of mediating or moderating variables be incorporated into the research.

Conclusion

The findings of this research clearly show that sexual health literacy has a positive impact on the mental health of African immigrant women in Spain. This link is strengthened by the mediating role of Spanish language proficiency, a point that aligns with previous research in the field of migration. Enhancing sexual health literacy is not only an effective step towards improving the mental health status of this vulnerable group but also helps reduce health-related inequalities. To operationalize these objectives, policymakers and healthcare providers are recommended to: 1) Design culturally-appropriate educational programs to increase health literacy, 2) Expand translation and language support services in healthcare centers, and 3) Implement community-based interventions to strengthen the support networks for these women. Implementing such measures can enhance the quality of life for African immigrant women and contribute to their better integration into Spanish society.

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