

# Sexually Transmitted Infections and Health Literacy: A Community-Based Preventive Program

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## Abstract

**Background:** Sexually transmitted infections (STIs) are a public health problem with a high risk of morbidity and community transmissibility. Evidence points to their continuous increase. This study describes the design, development, and implementation of a community-based STI prevention program for community healthcare users.

**Methods:** Based on the Health Planning Process design method, a structured, community-based intervention program on STI counseling and detection was conducted in a primary health care unit in Lisbon. Two data collection instruments were applied in the diagnosis of the situation, namely the Health Literacy Survey Portugal (ILS-PT) and the STD Attitude Scale, to 47 patients who attended the health consultation on STI counseling and detection in a primary care unit in Lisbon. Two interventions were implemented, the health education session and the provision of an educational poster. In the evaluation of the project, the acceptance and satisfaction of the patients with the implemented interventions were considered as outcome indicators. A descriptive statistical analysis of the data was performed.

**Results:** The participants shows considerably low levels of health literacy and high-risk behaviors for acquiring STIs. After an intervention, a high percentage of the participants point out the project as exciting and valuable and reveal having acquired knowledge that allowed them to improve their health. Furthermore, the patients were very satisfied with the implemented health education session and the educational poster.

**Conclusion:** This project revealed the urgent and important need to implement community intervention projects to prevent STIs and promote health literacy among the most vulnerable groups.

## Keywords

community health, health literacy, sexually transmitted infections, communicable diseases, health promotion

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## Introduction

Sexually transmitted infections (STIs) remain relevant for public health due to their transmissibility and morbidity. Often asymptomatic, they go unnoticed and consequently untreated, contributing to the continued spread and increasing the chances of serious sequelae such as infertility or fetal malformations in case of pregnancy.<sup>1</sup> Despite the pandemic in which there was a demand for social isolation, new data show that STIs have not slowed down during this period. During the SARS-CoV-2 pandemic, the problem was aggravated by the lack of availability of community responses. Between March and August 2020, testing for HIV and other STIs declined by more than 50% in 34 European countries, including Portugal.<sup>2</sup>

Health literacy (HL) is the ability of individuals to obtain, process, and understand information and access the services needed to make appropriate health decisions,<sup>3</sup> it is

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essential for STIs prevention. High levels of health literacy are associated with gains in health, specifically in the case of STIs in the use of barrier methods, recognition of signs and symptoms, prevention of infection transmission, and treatment adherence.<sup>4</sup>

On the other hand, community intervention programs, specifically in developed countries, are increasingly proving their effectiveness, and evidence shows that they have improved the accessibility of health services and reduced inequalities by meeting the health needs of the population.<sup>5,6</sup>

Community intervention programs are conceptualized as working in collaboration and partnership with communities to address local concerns or hopes for improvement.<sup>7</sup> The implementation of health literacy interventions has been highlighted as an important strategy in STI's prevention.

Recent studies show that health literacy interventions to prevent STIs promote better program adherence and confidence<sup>8</sup> and improve knowledge, attitudes and self-efficacy to management risk behavior.<sup>7,9</sup>

This study aimed to: (i) describe the development and implementation of a community-based preventive program for the prevention of STIs and promotion of HL for patients using an STI counseling and detection consultation in a primary health care unit in the Lisbon Metropolitan Area (LMA); (ii) describe and characterize the interventions implemented for the patients using in STI's counseling and detection consultation, namely the health education session and the provision of the educational poster, within the program.

## Methods

### Program Overview

The community-based project was designed and implemented according to the Health Planning Process,<sup>10</sup> structured in the following stages: (a) formulation of a diagnosis of the situation, (b) definition of priorities, (c) setting goals, (d) selection of strategies, (e) operational preparation, and (f) evaluation, beginning on 1 October 2021 and ending on 28 February 2022.

**Diagnosis of the situation.** The situation was diagnosed with identifying the community's needs, in the case of this project, constituted by patients attending a free and open access community consultation for counseling and detection STI's, in a primary health care unit in the LMA.

Two data collection instruments were used: the *ILS-PT*, translated and validated for the Portuguese context,<sup>11</sup> which assesses the literacy level of a given population, and the *STD Attitude Scale*,<sup>12</sup> which assesses individuals' attitudes toward STIs, in the version translated and validated for the Portuguese population.<sup>13</sup>

A non-probabilistic sample comprised participants who met the following eligibility criteria: (i) being over 18 years of age; (ii) attending the STIs counseling consultation; in the data collection period between 1 and 31 October 2021; and (iii) having freely agreed to participate in the project.

In order to complement this stage, an instrument was applied to characterize the participants considering the socio-demographic, economic and health status aspects, as well as the resources used to obtain health information, based on the National Health Survey conducted in 2014 in Portugal.<sup>14</sup>

**Definition of priorities.** Nursing diagnoses were developed based on the International Classification for Nursing Practice<sup>15</sup> to determine priorities (see Supplemental Material I).

Subsequently, the nursing diagnoses were prioritized by a team of experts in community nursing. Their prioritization took into account the criteria of problem magnitude, problem severity, solution effectiveness, and intervention feasibility, according to the Hanlon method.<sup>16</sup> The following were considered priorities: "*Problematic Sexual Behaviour*" and "*Committed Decision Making Process*".

**Setting goals.** Using Pender et al's Health Promotion Model<sup>17</sup> and the Sustainable Development Goals<sup>18</sup> proposed to be achieved by 2030, the main goal to be completed was considered to be: "Contribute to the promotion of health literacy in STIs prevention in an STIs counseling and detection consultation in the LMA". At this stage, specific and operational goals and indicators were identified and are described in Supplemental Material II.

**Selection of strategies.** The selection of strategies was performed considering the steps described above, as well as the particularities of the intervention context, the sample characteristics, the existing resources, possible obstacles, and how to overcome them.

In this project, we used the techniques of Health Education,<sup>19</sup> Health Communication through Information<sup>20,21</sup> and Communication Technology (ICT), Health Marketing and Partnership Building,<sup>21,22</sup> whose detailed description can be found in Supplemental Material III.

**Operational preparation.** A series of interventions were planned and carried out, focusing on their self-sustainability and optimization of resources. The limitations resulting from the SARS-CoV-2 pandemic were also taken into account. The interventions targeting the patients who used the consultation consisted of a face-to-face health education session and a exposition educational poster.

The health education session was entitled "*InSIsT on protecting yourself*" and the main theme was health

promotion through the prevention of risk behaviors associated with STIs. Nine patients participated in the session, who demonstrated their willingness to attend this session. The session lasted 45 min and took place in the STI consultation room of the primary health care unit. Detailed information about the session can be found in Supplemental Material IV.

The educational poster entitled “How to prevent STIs” was aimed at patients using the STI consultation and counseling and was strategically placed in a waiting room where HIV rapid test results are known. It provided information relevant to STI prevention accompanied by QR Codes that directed to institutional websites where users could deepen their knowledge. In the process of developing the poster, a partnership was established with 2 students from the master’s degree in Science Communication at the New University of Lisbon. The partnership consisted of the collaboration process with a partner that allows the project advantage, after the first contact presenting the project and the aim of the partnership the collaboration agreed in making the material more appellative and appropriate for patients.

**Evaluation.** The project was evaluated using results and activity indicators,<sup>11</sup> and participants’ satisfaction with the activities carried out was also assessed.

### Statistical Analysis

We used simple descriptive statistical analysis based on proportions, and data processing was performed using the IBM SPSS Statistics (V 25) program.<sup>23</sup>

The assessment instruments IST-HLS and the DTS Attitude Scale were used in the diagnosis of the situation, both adapted and validated, in previous studies for the Portuguese population.<sup>11,13</sup> In the case of the IST-HLS instrument in the Portuguese population, a reliability of .96 was found through Cronbach’s Alpha.<sup>11</sup> Meanwhile, in the application of the STD Attitude Scale by its original authors, the reliability value obtained was .73.<sup>12</sup>

In the specific case of our project, the internal consistency of the 2 instruments was assessed for the participants of the study, and a Cronbach’s Alpha of .94 was obtained for the ILS-Pt and 0.79 for the STD Attitude Scale, values considered acceptable.<sup>24</sup>

### Results

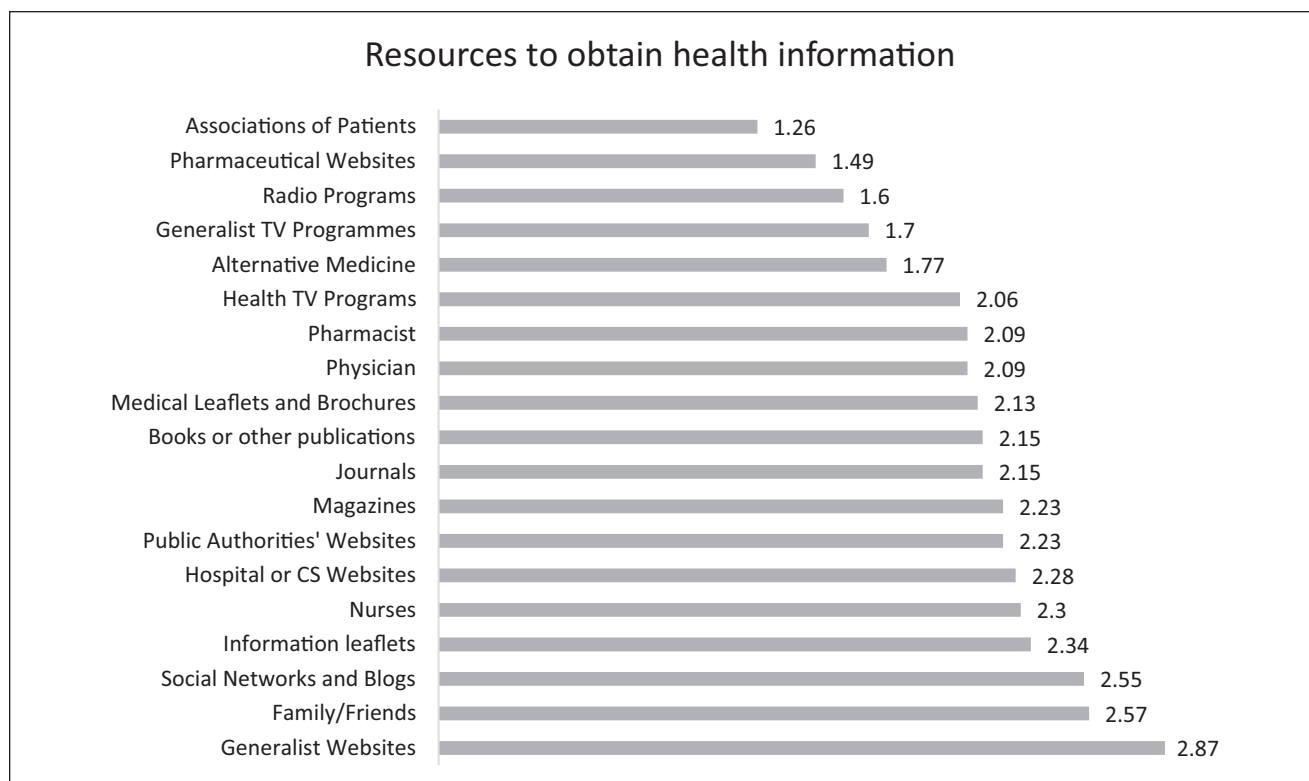
The findings of the present research, considering the objectives of the same, reflect the information referring to the 47 patients who agreed to participate in the study.

Table 1 describes the participants’ demographic, socioeconomic, and health-related characteristics. Most participants were male (89.9%), aged between 18 and 35 years old (87.3%), single (68.1%), with secondary education (51.1%), and working as specialists in intellectual and scientific

**Table 1.** Participants’ Demographic, Socioeconomic, and Health-Related Characteristics (N=47).

	N	%
Age categories (years)		
18-23	16	34.1
24-29	8	17.0
30-35	17	36.2
36-41	3	6.4
42-47	1	2.1
48-53	1	2.1
54-59	1	2.1
Sex		
Male	38	80.9
Female	9	19.1
Nationality		
Portuguese	43	91.5
Other	4	8.5
Marital status		
Single	32	68.1
Registered partnership	5	10.6
Married	1	2.1
Separated/Divorced	7	14.9
Widowed	2	4.3
Educational Level		
Low Secondary Education	3	6.4
High Secondary Education	24	51.1
Higher Education	20	42.5
Profession		
Group 0—Professions in the Armed Forces	0	0.0
Group 1—Representatives of the legislative power and of executive bodies, directors and executive managers	1	3.0
Group 2—Intellectual and scientific activity specialists	12	36.4
Group 3—Technicians and associate professionals	4	12.1
Group 4—Administrative staff	1	3.0
Group 5—Personal, protective and security services workers and salespeople	8	24.3
Group 6—Farmers and skilled agricultural, fishing and forestry workers	1	3.0
Group 7—Skilled industrial, construction and crafts workers	1	3.0
Group 8—plant and machine operators and assemblers	5	15.2
Group 9—Unskilled workers	0	0.0
(*Portuguese Classification of Occupations 2010 from the National Institute of Statistics)		
Household (number of people)	17	36.2
1	29	61.7
2-4	1	2.1
>4		
Monthly Family Income	24	51.1
501€-1000€	18	38.3
1001€-1500€	3	6.4
1501€-2000€	2	4.3
Self-perceived health status		
Excellent	4	8.5
Very Good	18	38.3
Good	12	25.5
Fair	6	12.8
Bad	3	6.4

\*Profession Classification.



**Figure 1.** Resources used by the individuals of the sample (N=47) to obtain information about health (%).

activities (36.4%). Most participants had a household consisting of 2 to 4 people whose monthly family income ranged between 501€ and 1000€ (51.1%).

Respondents also revealed that most of them found out about the existence of the consultation through a friend in a non-formalized, word-of-mouth type of disclosure. A health professional referred only 10.6%. Participants also considered their health good or excellent (63.8%). It should also be noted that although 85.1% of the model thought they had no difficulty finding health information, they had trouble identifying the most credible (66.0%) (see Supplemental Material V).

Concerning the sources most used by participants to obtain health information (Figure 1), the 3 most used were all informal means, none linked to health, with generalist websites in first place, followed by family/friends, and finally social networks and blogs. The least used were radio programs, pharmaceutical or insurance company websites, and lastly, patient association.

### Needs Identified From the Situation Diagnosis

From the application of the data collection instruments was possible to conclude that 53.2% of the sample presented

high-risk attitudes toward STIs, which means that most participants present attitudes related to beliefs, feelings and intentions to act that are conducive to high-risk behaviors for the acquisition of ITS.<sup>12</sup>

In turn, about 32.0% presented a problematic literacy level (see Supplemental Material VI).

### Program Acceptance and Satisfactory

The project was evaluated for acceptance and satisfaction after the interventions. The face-to-face health education session, which was evaluated by 9 participants, exceeded all the proposed objectives, with 100.0% of the intervening users identifying 3 means to prevent STIs, 88.9% agreeing with the need to notify the STI chains of transmission, and, in general, 89.0% of those present considered the topics approached interesting and relevant.

Regarding the educational poster, which was evaluated by 38 patients of the consultation, it was possible to observe, by reading and exploring the respective QR Codes, that 73.6% of the users considered that they had acquired new knowledge that allowed them to prevent an STI (the complete evaluation can be found in Supplemental Material VII).



## Discussion

The present research explores the development and implementation of a community-based program focusing on STIs prevention among users of health counseling services.

The intervention aimed at STIs prevention is particularly relevant in this group, since it is largely made up of young adults—a population with increased vulnerability to acquiring STIs.<sup>25,26</sup>

This group is a priority one, associated with risk factors of alcohol and drug consumption, and is statistically more likely to demonstrate risky sexual behavior.<sup>27</sup>

The findings from the situation diagnosis suggest that even though only a third of the participants have a problematic level of health literacy, the majority have higher risk attitudes toward STIs. In this line of thought, recent studies point out that there are erroneous beliefs by young people regarding the prevention of the spread of STIs.<sup>28,29</sup> Another important finding of our study was that for most of the participants the Internet is the main source of health information, mainly on generalist websites, social networks, and blogs.

Therefore, the appropriateness of the strategies used for this population was essential and a predictor of the project's success in achieving health improvements.

The use of digital technologies is increasingly widespread, especially in younger and more educated individuals, often becoming the method of choice to search for health information, whether through mobile applications, the internet, or computer systems, among others.<sup>30</sup> This project points precisely in that direction.

Specifically, in this sample, more than 90% used the internet and the computer daily, which is why we considered that these could be powerful resources in this community project. In particular, the use of QR Codes proved to be quite pertinent as a vehicle for transmitting information, as it allowed guiding users to websites recognized as valuable and trustworthy while maintaining the autonomy, anonymity, and privacy of the users, also reiterating its relevance in terms of economic eligibility and self-sustainability. Users were satisfied with its use and considered that it allowed them to acquire new knowledge in STI prevention.

Thus, the use of ICT, especially the Internet, are resources that should be encouraged and instilled in health professionals when planning their community intervention projects.<sup>30</sup>

Hence, the use of information and communication technologies should not be ignored as a resource for health promotion programs at the community level. Particularly in the case of STIs, this is often a complex subject to address, both for professionals and users, due to its very intimate nature<sup>31</sup> for which the use of ICTs becomes even more critical, as they can be a fundamental link in obtaining gains in health privately and confidentially.

However, it is acknowledged that this intervention has limitations related to the users' a priori technological knowledge. Thus the need to know the particularities of the population where intervention is intended and make a detailed diagnosis of the situation is reinforced. Otherwise, the intervention will not achieve the proposed objectives.

The establishment of partnerships with master's students in science communication was essential to enrich the project and optimize health gains, especially in terms of digital marketing strategies in health 16 to 18. This partnership proved essential in the preparation of posters, as well as in the dissemination of the health education session - the attractiveness of the information displayed was strongly enhanced, allowing it to be more appealing and ultimately attract the attention of a more significant number of users.<sup>32</sup>

The health planning methodology is another essential aspect of the project and allowed the exploration of the local level reality in its multiple facets. At the economic level—a crucial element of health, health planning allowed the efficient distribution of resources and the appropriate use of the selected intervention strategies. In turn, at the social level—the planning of the community project always corresponded to the reality encountered, but also looked to the future in an attempt to ensure that it could continue to have a relevant impact even after the end of the project.<sup>27</sup>

Whether through its adequacy to future resources, or also through the manifestation of health gains, the contribution to health promotion was sought to be evident and properly grounded in the promotion of HL.

We believe that our study may contribute to future research on the increase of HL in STIs, both because of the methodology used, based on Health Planning, and because of the intervention based on a strong health education component.

We considered that our project presented some limitations. The small sample of patients using the counseling consultation, mostly men, is such that results may reflect health literacy, such as attitudes toward STIs, as well as satisfaction with the implemented interventions of only these particular patients and not be representative of the generality of patients in general. A larger number of participants would have allowed for greater robustness and reliability of the data obtained.

It is also worth mentioning that the SARS-COV-2 pandemic limited more face-to-face activities, such as more health education sessions, which could have involved more participants.

## Conclusion

We have established that our community-based STI prevention program, which was outlined and implemented, is very

important in structuring primary health care in that it was grounded in a primary prevention and health promotion aspect. The health planning methodology was essential to achieve health gains in health literacy promotion. We always tried to understand the limitations and possibilities offered by this vulnerable population, and we believe that the strategies presented and used were the most efficient and equitable means to intervene in the needs of this specific community.

### Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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### Ethical Statement

The project was approved by the health center grouping ethics committee (3808/CES/2021) and followed the ethical principles laid down in the Declaration of Helsinki.

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### Supplemental Material

Supplemental material for this article is available online.

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