

Understanding Factors Impeding HIV Screening in Central Morocco: A Descriptive Approach

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ABSTRACT

Background: Acquired Immunodeficiency Syndrome (AIDS) is a major public health issue in Morocco. Despite the obvious benefits of Human Immunodeficiency Virus (HIV) testing for the prevention and early management of infection, unfortunately, it faces a lack of public interest. The present study aims to describe the factors that hinder the performance of HIV tests in the province of Safi, Morocco.

Methods: This descriptive analysis study was conducted using a questionnaire developed with Good internal consistency for dichotomous questions (Cronbach's $\alpha = 0.855 \pm 0.243$) and multiple-choice and multiple-response questions (Cronbach's $\alpha = 0.893 \pm 0.364$) and sent to 100 health center consultants.

Results: This research showed that the reluctance to perform HIV tests in Safi province is widespread, as the majority (Proportion; 0.94, 95% CI; 0.874-0.978, p-value < .001) of study participants do not get tested for HIV and most of them are not suggested to take it (Proportion; 0.84, 95% CI; 0.753-0.906, p-value < .001). Through these findings, we were able to identify several factors that hinder the performance of HIV testing in the study area, namely stigma and discrimination, cultural and religious beliefs, fear of disclosing HIV status, general fear and anxiety related to testing, lack of knowledge, and low perceived risk of HIV infection.

Conclusion: Based on this research, we developed recommendations for healthcare workers and patients, to promote acceptance and encouragement of HIV testing and restore patient confidence in the healthcare system.

Keywords: HIV, factors, AIDS, screening, Central Morocco.

INTRODUCTION

During the twentieth century, the emergence of a new viral disease profoundly disrupted the field of virology and health; This virus, later named the Human Immunodeficiency Virus (HIV), can cause major alterations in the immune system, leading to a progressive destruction of its components, in the absence of effective treatment, this disease progresses to acquired immunodeficiency syndrome (AIDS), a terminal and fatal stage characterized by the appearance of opportunistic infections and tumors (Barir, 2021). According to recent WHO figures, 39 million people live with HIV worldwide, including 25.6 million in Africa, while 63,000 people have died from HIV, and 1.3 million have been newly infected in the same year (WHO, 2023). Morocco, like many other countries, was not spared from the spread of HIV; According to the Ministry of Health and Social protection, the total cumulative number of people living with HIV reported was 19,168 at the end of September 2021, of which 64% were asymptomatic HIV, 63% of reported cases were in three regions, namely Souss-Massa, Casablanca-Settat and Marrakech-Safi; In addition, the proportion of people who know their HIV status has increased from 22% in 2011 to 82% in 2021; while much of the detailed epidemiological data focuses on national and regional levels (such as the Souss-Massa-Drâa region, which has an HIV incidence rate four times the national average), Morocco's HIV epidemic is known for its

heterogeneous geographical distribution. This means that some provinces, including Safi, may experience different patterns or intensities of the epidemic depending on local factors (MHSP, 2022).

From a public health perspective, standardizing HIV testing has important benefits; earlier diagnosis and earlier initiation of highly active antiretroviral therapy can reduce morbidity and mortality associated with infection and disease progression; despite these benefits, barriers persist in reducing the number of undiagnosed cases, which are perceived as missed opportunities to reduce HIV transmission and improve the prognosis of the disease (Gale-Rowe et al., 2013). Despite the obvious benefits of HIV testing for the prevention and early management of infection, unfortunately, it faces reluctance and hesitancy among the public (Antoine & Parfait, 2023). This is because any delay in diagnosis can lead to a variety of consequences, including an increased risk of people engaging in risky behaviors and contracting preventable opportunistic infections that could have been detected early through testing (Asrina et al., 2023). The challenge of earlier diagnosis is to improve individual morbidity and mortality while contributing to the reduction of new infections. Thus, promoting awareness of the importance of early detection is essential, not only for individual health but also for the overall prevention and management of HIV (Benyahya, 2014).

However, it is essential to recognize that several factors affect the performance of HIV testing and to support the 2030 global goal for AIDS prevention. The objective of this study is to describe the barriers hindering HIV screening performance at health centers in the province of Safi, Morocco. The conceptual framework of this study is shown in Figure 1.

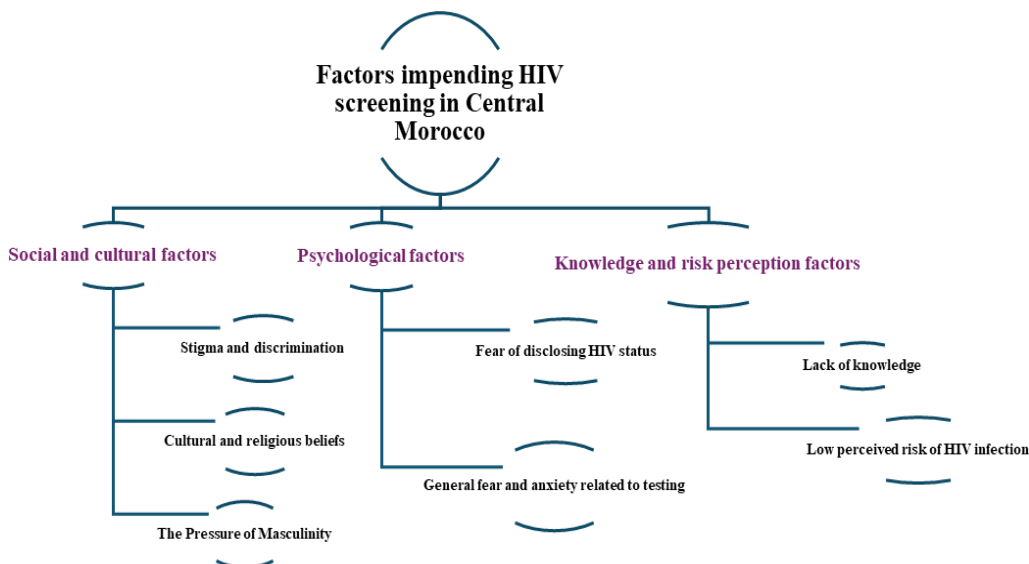


Figure 1: Conceptual framework of factors hindering HIV screening in Central Morocco.

MATERIALS AND METHODS

Type and area of study

This is a descriptive analysis study, conducted between January 2024 and June 2024 which aims to describe the factors preventing HIV testing. To ensure greater variety in the data collected, we opted for several sites to conduct our study, including the second-level urban health center Sebt Gzoula and a few first-level health centers located in urban settings such as Biada, Sidi Ouassel, and Medina.

Target population and sample

A total of 100 participants were recruited using convenience sampling among individuals attending the health center during the data collection period. Although the sampling was not random, it aimed to capture a representative cross-section of individuals accessing primary healthcare services during regular clinic hours. This pragmatic approach was chosen due to resource constraints and the need for in-person administration of the questionnaire.

Inclusion criteria

In this study, the participants are all consultants to the study area, who agreed to take part in the research. This includes any patient over the age of 18, especially those with a sexually transmitted infection (STI) or tuberculosis, any pregnant woman, partners of people living with HIV, or anyone who may be infected with this disease.

Exclusion criteria

In our research, we excluded from this study those who refused to participate or were under 18 years of age, as well as all HIV-positive people.

Data collection methods and analysis

The questionnaire was designed in French, the official language of healthcare documentation in Morocco, and was based on previous literature and validated tools assessing barriers to healthcare service utilization. The first version of the questionnaire was reviewed by a panel of three public health experts and two practicing nurses to determine content validity and cultural appropriateness. A pilot test was conducted with 10 individuals from a neighboring health center not included in the final sample. Feedback from this pilot phase allowed for the refinement of question wording, clarity, and logical flow. The final version demonstrated good internal consistency based on 20 participants, which included 9 dichotomous questions (Cronbach's $\alpha = 0.855 \pm 0.243$) and 10 multiple-choice and multiple-response questions (Cronbach's $\alpha = 0.893 \pm 0.364$) to allow for a diverse and thorough collection of participants' responses and ensure a high degree of validity of this instrument (Zahreen Mohd Arof et al., 2018). Additionally, Figures 2 and 3 present heatmaps, which serve as visual representations of correlation matrices. The data collected from this study are analyzed using descriptive statistics, binomial, and multinomial tests. The results are analyzed using Jamovi software 2.3.28 and Microsoft Office Excel 2016, which allows the data to be presented in tables.

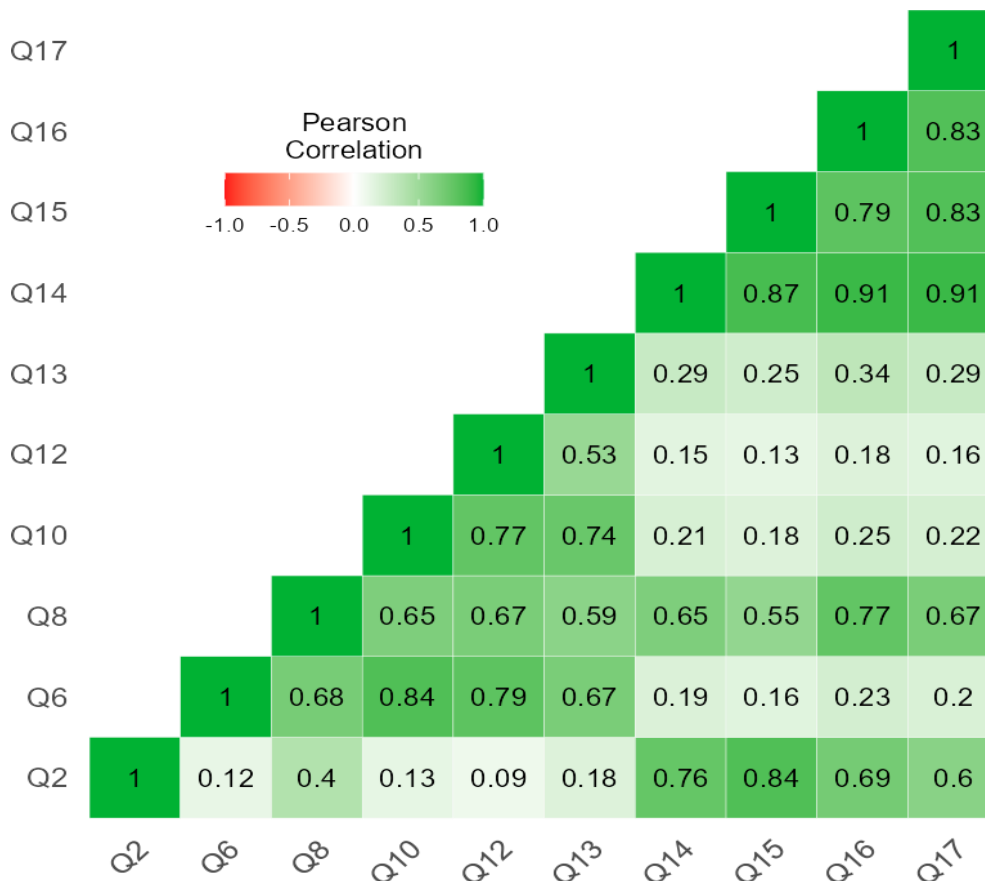


Figure 2: Correlation Heatmap of multiple-choice and multiple-answer questions.

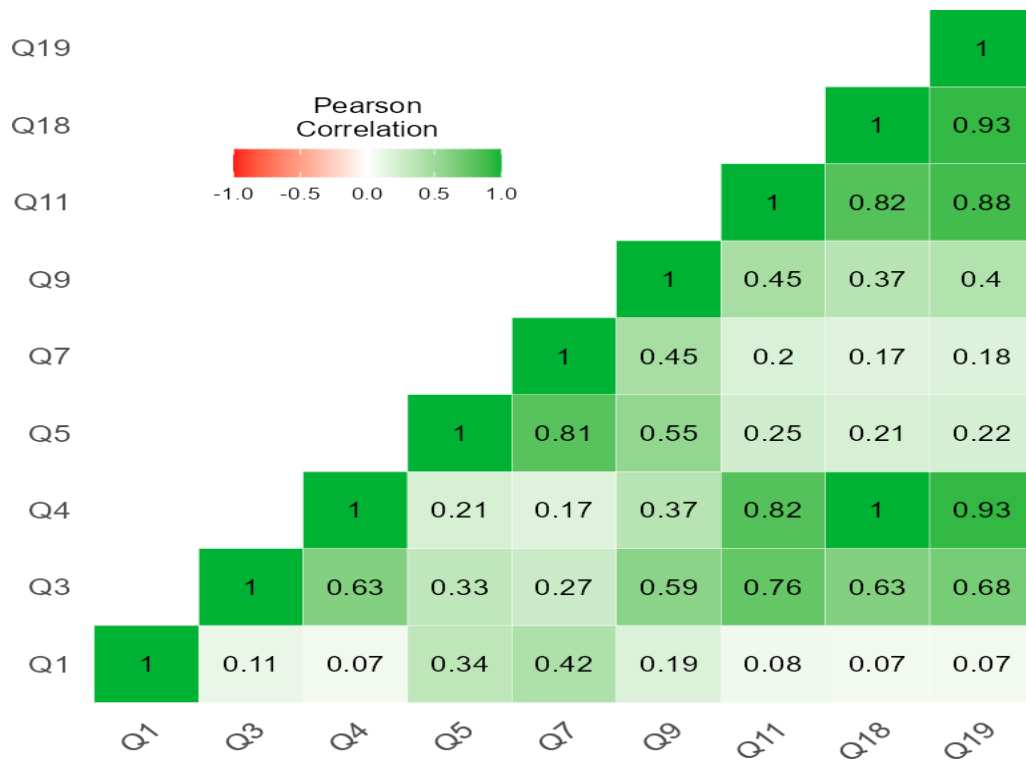


Figure 3: Correlation Heatmap of dichotomous questions.

RESULTS

Table 1: Socio-demographic characteristics of the study population

Variables/ Criteria	Frequency = % (n=100)
Age	
18-30	44
31-43	27
44-56	12
≥ 57	17
Gender	
Male	35
Female	65
Marital status	
Divorced and widow	7
Married	63
Single	30

Level of education	
Academic	11
Secondary	17
Primary	28
Illiterate	44
Place of residence	
Urban	70
Rural	30

Key: %: Percentage, n: Number of participants.

The study targeted a sample of 100 consultants at the level of the previously mentioned centers. An analysis of the results was carried out with 100 surveys, representing a response rate of 100%. Consultants are predominantly female, accounting for 65% of the sample, while males make up only 35%, in other words, this means that for every 5 males, there are 13 females. The most represented age group is 18-30 years old, representing 44% of the group. A large majority of consultants are married (63%). Notably, 44% of them are illiterate. In addition, 70% of consultants live in urban areas, while 30% reside in rural areas. (Table 1)

Table 2: Survey (dichotomous questions) of factors hindering HIV testing in the study area among health professionals in Safi (n=100)

Questions / Answers	Frequency (%) (n=100)	P value	Proportion	95% CI for Proportion	
				Lower	Upper
Have you ever heard about HIV/AIDS?		< .001			
Yes	94 (94)		0.940	0.874	0.978
No	6 (6)		0.060	0.022	0.126
Have you ever received a suggestion to get screened at a health center?					
Yes	16 (16)		0.160	0.094	0.247
No	84 (84)		0.840	0.753	0.906
Have you ever been tested for HIV?		0.007			
Yes	7 (7)		0.070	0.029	0.139
No	93 (93)		0.930	0.861	0.971
Are you concerned that your HIV status will be disclosed without your consent during a test?					
Yes	64 (64)		0.640	0.538	0.734

No	37 (37)		0.037	0.266	0.462
Do you think fear of a positive test result might deter you from getting tested for HIV?		< .001			
Yes	73 (73)		0.730	0.632	0.814
No	27 (27)		0.270	0.186	0.368
Do you have any knowledge about HIV infection (mode of transmission, symptoms, prevention, etc.)?		0.004			
Yes	35 (35)		0.350	0.257	0.452
No	65 (65)		0.650	0.548	0.743
Have you ever attended an educational session about HIV?		< .001			
Yes	10 (10)		0.100	0.049	0.176
No	90 (90)		0.900	0.824	0.951
(Question for male) : Do you feel any masculinity pressures that might influence your behavior regarding HIV testing? (For example, the need to appear "strong" or "invulnerable")					
Yes	7 (20)		0.200	0.084	0.369
No	28 (80)		0.800	0.631	0.916
(Question for females): Do you think the pressures of masculinity influence men's reluctance towards the test they feel? (For example, the need to appear "strong" or "invulnerable")					
Yes	8 (12)		0.123	0.055	0.228
No	57 (88)		0.877	0.772	0.945

Key; %: Percentage, CI: confidence interval, n: Number of participants. Statistical significance was determined using the binomial test. Results were considered statistically significant at $p \leq 0.05$, highly significant at $p \leq 0.01$, and very highly significant at $p \leq 0.001$.

In terms of HIV testing knowledge and practices, 94% of consultants know about HIV. The main sources of information on HIV/AIDS were family, friends, and the media, cited by 95% of the consultants, followed by health professionals with 53%. In addition, 84% of patients are not advised to take an HIV test during their visit to the Basic Health Care Facilities. In addition, a high proportion of patients, 80%, do not get tested for HIV. (Table 2, 3)

Table 3: Survey (multiple choice and multiple answer questions) of factors hindering HIV testing in the study area among health professionals in Safi

Questions / Answers	Frequency (%) (n=100)	χ^2	P value	Proportion	95% CI for Proportion	
					Lower	Upper
Where did you hear about HIV/AIDS? *		13.950	< .001			
Media (TV, radio, internet)	94 (39)			0.390	0.328	0.455
Family or Friends	94 (39)			0.390	0.328	0.455
Healthcare professionals	53 (22)			0.220	0.169	0.278
Awareness campaigns	0 (0)			0	0	0
Other	0 (0)			0	0	0
How would you describe your overall level of comfort and confidence in HIV testing processes?		40.960				
Very comfortable and confident	18 (18)			0.180	0.110	0.269
Rather comfortable and confident	0 (0)			0	0	0
Neither comfortable nor unconfident	82 (82)			0.820	0.731	0.890
Rather uncomfortable and not very confident	0 (0)			0	0	0
How well do you feel able to cope with the result of an HIV test, if it is positive?		57.760				
Very capable	14 (14)			0.140	0.079	0.224
Moderately capable	70 (70)			0.650	0.548	0.743
Not capable at all	16 (16)			0.210	0.135	0.303
How would you describe your level of knowledge about the screening methods available?		84.080				
Very high	6 (6)			0.060	0.022	0.126
Medium	18 (18)			0.180	0.110	0.269
Poor	76 (76)			0.760	0.664	0.840
To what extent do you feel concerned about the risk of contracting HIV?		57.760				
Very concerned	0 (0)					

Moderately concerned	12 (12)			0.120	0.064	0.200
Not at all concerned	88 (88)			0.880	0.800	0.936
Do you think it is necessary to get tested for HIV regularly, even if you do not have any apparent risk behaviors?		11.560				
Yes, I think it's important for everyone	33 (33)			0.330	0.239	0.431
I'm not sure	0 (0)			0	0	0
No, I don't see the point if I'm not at risk	67 (67)			0.670	0.569	0.761
Are there any stigmas or prejudices associated with HIV in your social or cultural environment?		116.480				
Yes, definitely	84 (84)			0.840	0.753	0.906
Yes, but in a limited way	12 (12)			0.120	0.064	0.200
No, not at all	4 (4)			0.040	0.011	0.099
Do you think stigma and discrimination can deter individuals from getting tested for HIV?		134.540				
Yes	88 (88)			0.880	0.800	0.936
Partly	5 (5)			0.050	0.016	0.113
No	7 (7)			0.070	0.029	0.139
Are there any beliefs or taboos associated with this disease?		96.380				
Yes	79 (79)			0.790	0.697	0.865
No	17 (17)			0.170	0.102	0.258
Unsure	4 (4)			0.040	0.011	0.099
If you have any doubts about HIV, who should you turn to first for advice or information?		49.000				
Healthcare professional	85 (85)			0.850	0.765	0.914
Family and friends	15 (15)			0.150	0.086	0.235
Other	0 (0)			0	0	0

Key; %: Percentage, CI: Confidence interval, *: Multiple answer question, χ^2 : Chi-Square, n: Number of participants. Statistical significance was determined using the multinomial test. Results were considered statistically significant at $p \leq 0.05$, highly significant at $p \leq 0.01$, and very highly significant at $p \leq 0.001$.

DISCUSSION

Social and cultural factors

The current study reveals that 84% of participants acknowledge the existence of HIV-related stigma and prejudice, which influences their decision to get tested. This is consistent with a study by (Saka et al., 2017), which showed that stigma reduces the use of HIV testing for fear of discrimination in the event of a positive results. It remains the main obstacle to the effectiveness of the response to the epidemic in all regions of the world (Guinan et al., 2022). As a result, the reduction of stigma and discrimination in many settings remains essential to enable new opportunities for HIV testing (WHO, 2003). The role of religious beliefs in the acceptance of HIV testing remains unclear. There are two opposing perspectives: some believe that religious beliefs increase the spread of HIV and stigmatization of those with HIV, while others believe that they can help reduce the spread of the disease and encourage testing and treatment. Religion can play a positive role in HIV treatment; in addition, the collaboration between religion and medicine is better to fight the disease (Trinitapoli & Weinreb, 2012). However, our results indicate that 79% of respondents believe that religious beliefs do not harm the perception of HIV. Likewise, negative religious perceptions, such as the idea that illness is a punishment from God, and the guilt and shame associated with participating in activities and behaviors that are considered sinful, can exacerbate the situation (Chollier et al., 2016).

Masculinity norms frequently discourage men from openly seeking health care, especially for HIV; they prefer to avoid public institutions, consult doctors as a last resort, and avoid showing their problems or asking for help, especially those in high social positions (Berner-Rodoreda et al., 2021). However, these conclusions are contradictory to our findings: only 20% of males and 12% of females believe that masculinity pressures influence HIV test use. In the same line, masculinity is embedded in gender norms at the societal level and is enforced by social institutions and social networks (Connell, R., 1998). Moreover, traditional masculinity norms can lead men to engage in risky health behaviors, particularly in HIV prevention and control. For example, they may avoid preventive practices such as condom use or regular testing (Talom & Bushee, 2014).

Psychological factors

Disclosure is considered an ongoing social and psychological process of sharing crucial health and personal life information with others, this can be stressful due to the fear of resentment that the person may experience as a result; Moreover, the person disclosing their status has no guarantee of acceptance, understanding, or even response from the recipient (Adeoye-Agboola et al., 2016). A study conducted in the United Kingdom (UK) showed that anxiety about HIV disclosure is likely to be widespread, with persistent fear of disclosure and intense anxiety having a significant impact on HIV testing participation (Prost et al., 2007). This is in line with the results of our study, as the majority of respondents (63%) express concern that their HIV status will be disclosed without their consent. Indeed, the fear of getting tested for HIV often leads individuals to avoid facing reality (Gruénais & Ouattara, 2008). This observation is supported by the results of this study, where a significant majority (73%) of respondents agree that fear of testing positive may be a deterrent to testing. Besides, all these opinions are confirmed by Lorenc et al., who have expressed that maintaining uncertainty about one's status may be easier than dealing with the results of a test, due to the fear of a positive result (Lorenc et al., 2011). In addition, the fear of a positive HIV test result was considered the most significant obstacle; In fact, people who are infected or perceive themselves to be infected with HIV tend to give up testing for fear of hastening their death or suffering social repercussions; This feeling is due to the perceived consequences of a positive outcome, including stigma, separation, discord within the household, denial of marital rights, treatment failure, and being accused of bringing HIV into the home (Nannozi et al., 2017).

Knowledge and Risk Perception Factors

Lack of knowledge is seen as a significant barrier for patients (Deblonde et al., 2010). Our results indicate that 90% of participants have not yet benefited from an HIV education session, and only 35% report that they have heard of HIV infection. In addition, 76% of participants have a low level of knowledge about HIV testing methods, which appears to be a factor that prevents them from participating in testing. Moreover, the lack of understanding of the health system and the concept of routine HIV testing is another major factor that prevents

HIV testing (Deblonde et al., 2010). In addition, the lack of knowledge of the health care system and the concept of routine HIV testing is an additional factor in the obstruction of HIV testing, others had never been tested for HIV/AIDS because of their false beliefs about the infection; In addition, the existence of widespread beliefs in myths that often contradict and undermine prevention efforts (Seid & Ahmed, 2020). According to the results of our study on the risk of acquiring HIV, it appears that 88% of people do not show any significant concern about this risk, which is consistent with the results of the study conducted in 2013 by (Sison et al., 2013). One of the main barriers to HIV testing is a lack of awareness of risk, often linked to difficulty in patients correctly assessing their level of risk. Health professionals have observed that their patients frequently justify their choice not to be tested by saying, "I have done nothing wrong" (Moreno et al., 2013). In addition, interviews with general practitioners, infectious disease specialists, and internal medicine residents revealed that the perception of minimal risk in patients was a significant challenge for HIV testing. As a result, patients who feel they are at low risk of HIV infection are less likely to be tested for HIV (Sison et al., 2013).

Strengths and limitations of the study

This study presents several notable strengths. First, it addresses a highly relevant issue, and the significance of the results underlines its importance. It also benefits from the expertise of multiple researchers experienced in scientific and public health research. Moreover, the study was conducted under high-quality supervision, ensuring a rigorous methodological approach. Ethical values were thoroughly respected throughout the process, with particular attention to maintaining participants' anonymity and confidentiality. This ethical consideration fostered an environment of trust, promoting open and effective communication with respondents. However, despite these strengths, the study does have certain limitations. A major challenge encountered was the scarcity of national and international literature and prior research on topics closely related to this study, which limited the comparative and analytical scope. Additionally, some individuals from the target population declined to respond to the questionnaire, which may have affected the comprehensiveness and representativeness of the collected data.

Implications

In light of the results of the present study and to reduce HIV testing hesitancy and increase testing rates within the population, several recommendations emerge from the discussion and participant feedback. Firstly, it is essential to train health professionals to recognize and address HIV-related stigma and prejudice, thereby fostering a more inclusive and respectful care environment. Additionally, awareness campaigns should be launched to combat stigma and discrimination associated with HIV, encouraging individuals to undergo regular testing without fear of judgment. Regular training sessions on HIV/AIDS, early detection, and effective counseling are also recommended to enable healthcare providers to manage and communicate test results with professionalism and empathy. Moreover, dedicating fixed sessions for the performance of screening tests can help mitigate issues related to workload and time constraints. Counseling sessions should be organized for the general population to help them better understand the screening process, manage their fears, and reinforce the confidentiality of the results. Sharing testimonials from individuals who have had positive experiences with HIV testing and treatment can also serve as a powerful motivator. Finally, it is important to promote regular HIV testing as a responsible and proactive.

In summary of the discussion, this study revealed that a considerable number of respondents were concerned about the involuntary disclosure of their HIV status. This concern is consistent with findings from other regions of Morocco and the broader MENA region, where stigma and fear of social repercussions remain key barriers to testing. Participants also commonly expressed anxiety about undergoing testing and the possibility of receiving a positive result that reflects global trends. These perceptions may have been influenced by social desirability bias, particularly given the sensitive cultural context, potentially leading individuals to underreport or exaggerate their fears. Overall, these findings underscore the need for cautious interpretation and call for targeted interventions that safeguard confidentiality and address the emotional and psychological challenges associated with HIV testing.

CONCLUSION

Testing plays an important role in controlling the spread of HIV. However, it faces several obstacles that prevent its realization and the fulfillment of its role. The present study attempted to address this problem at the level of a few health centers in the province of Safi. Indeed, the study carried out has highlighted the various factors underlying this problem. In addition, the purpose of our project is to encourage responsible agencies to raise awareness of the importance and benefits of HIV testing, as well as to find solutions to facilitate its implementation by health professionals. In addition, more research is required in another area, especially with high incidence. Moreover, Future studies could include qualitative interviews to gain deeper insights into individuals' perceptions and fears, or rural outreach programs to identify barriers in underserved areas. It is also essential to address stigma at a structural level, not only through interpersonal awareness but by promoting systemic changes in policy, healthcare delivery, and confidentiality protections.

Ethical Approval: The Ethics Committee of the Higher Institute of Nursing and Technical Health Occupations of Safi issued approval Number 218/24. Approval on 02/04/2024.

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