Original Article

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Microbiology Section

Willingness to Know about Human Immunodeficiency Virus Status in Healthcare Personnel and General Public at a Tertiary Healthcare Centre, North Bangalore, India: A Cross-sectional Study

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ABSTRACT

Introduction: India is a country with a high Human Immunodeficiency Virus (HIV) prevalence rate. To accomplish the target of UNAIDS 95-95-95 by 2030, individuals should know their HIV status to achieve the first 95, which means 95% of Persons Living With HIV (PLWH) worldwide should know their diagnosis, for which testing is a must.

Aim: To know the willingness for HIV infection testing among Healthcare Personnel (HCP) and the General Public (GP).

Materials and Methods: A cross-sectional study was conducted at Sapthagiri Institute of Medical Science and Research Centre, North Bangalore, Karnataka, India between June 2019 and September 2019. Convenient sampling was done which included 200 subjects (100 HCP and 100 GP). Demographic data such as name, age, sex and address were collected, followed by knowing their willingness to get tested for HIV along with the barriers for not being willing to undergo the HIV test. Tests were performed following the standard National AIDS Control Organisation (NACO) guidelines for those subjects who were willing to know their HIV status. The statistical analysis was carried out using Statistical Package for the Social Sciences (SPSS) version 20.0, and the results were expressed in the form of frequency or percentage.

Results: Among the 200 subjects who consented to participate in this study, only 39 HCPs (39%) and two GPs (2%) were willing to get tested in order to know their HIV status. Among the 41 individuals who got tested according to NACO guidelines, none tested positive for HIV. The barriers for not being willing to know their HIV status among the 61 HCPs were "it's not a necessary test" 56 (91.8%), and the remaining 5 (8.2%) stated that the test was not necessary after 50 years of age. Among the 98 GPs, the barriers were "no symptoms or health problems" as cited by 35 (35.8%), followed by "will get tested only on doctor's advice" 27 (27.6%), and other factors.

Conclusion: In this study, the willingness to know their HIV status was found to be very low, especially among GPs, and less than 50% among HCPs. The barriers for not being willing to know their HIV status raise concerns for policymakers to reformulate policies in order to achieve the United Nations Programme on HIV and AIDS (UNAIDS) target of 95-95-95 by 2030.

Keywords: Barriers for human immunodeficiency virus testing, Human immunodeficiency virus testing, Human immunodeficiency virus infection positive percentage

INTRODUCTION

In the fight against HIV, we are always progressing positively from impossible to possible by striving to fulfil the set targets both at the international and national levels. HIV testing is the first and most important step to achieve any targets. According to some studies, the proportion of people who are aware of their HIV status has risen, but the challenge of reaching those who remain undiagnosed or are at high-risk of acquiring HIV has grown. Therefore, it is very important to adopt novel testing approaches to reach undiagnosed individuals living with HIV [1]. Late diagnosis of HIV has dire consequences as it leads to delayed initiation of Antiretroviral Therapy (ART), resulting in higher morbidity and mortality [2,3], and increased HIV transmission [4,5]. To pursue targets, various HIV testing approaches must be chosen and strategically deployed.

One such target to be achieved in the near future is the United Nations (UNAIDS) 95-95-95 target by 2030, which aims to diagnose 95% of all HIV-positive people, provide ART for 95% of those diagnosed, and achieve viral suppression for 95% of those treated [6]. According to the 2017 estimation towards the previous UNAIDS target of 90-90-90 by 2020, there was a significant gap at the first 90, accounting for 75-79-81, respectively. To achieve the first target of diagnosing 95% of all HIV-positive people, HIV testing is crucial [7]. According to the Centers for Disease Control and Prevention (CDC), an estimated one-fourth of approximately one million people living with HIV do not know their status [8]. Out of one million people living with HIV, one in seven is unaware of their HIV status [9]. People who are unaware of their HIV-positive status are three times more likely to transmit the virus compared to those who are aware of their HIV status [10]. In 2006, the CDC revised recommendations for HIV testing. If the prevalence of HIV is equal to or greater than 0.1%, HIV testing should be conducted regardless of risk, meaning that everyone between the age group of 13 to 64 should get tested for HIV atleast once a year [11].

In India, although the prevalence of HIV accounts for 0.26%, only the target group is being tested for HIV [12]. Symptoms alone cannot be relied upon to determine whether someone has an HIV infection; testing is the only efficient and effective way to identify individuals with HIV. Knowing one's positive status not only helps

in early diagnosis and treatment but also reduces transmission. It enables individuals who are HIV-negative to become aware of preventive measures and adopt them. Therefore, the World Health Organisation (WHO) declared "Know Your Status" as the theme for the 2018 World AIDS Day to raise awareness and motivate people to know their HIV status [13].

Taking into consideration the aforementioned studies, this research aims to explore the attitudes of both HCP and the GP towards HIV testing. This will help us understand the probability of achieving the UNAIDS set targets for HIV 95-95-95 by 2030 and guide policymakers in reframing policies if necessary to attain the set targets. The study aims to know the willingness for HIV infection testing among HCP and the GP. The primary objective was to determine the percentage of subjects willing to know their HIV status in the study groups, while the secondary objective was to estimate the percentage of HIV-positive individuals among the tested subjects in the study groups and identify the barriers for not being willing to know their HIV status in the study groups.

MATERIALS AND METHODS

A cross-sectional study was conducted at Sapthagiri Institute of Medical Science and Research Centre, a tertiary healthcare centre in North Bangalore, Karnataka, India, between June 2019 and September 2019. The study included HCP working in the Medical College Hospital (doctors, nurses, and support staff) as well as the GP who accompanied patients to the hospital. Ethical clearance was obtained from the Ethical Committee of the tertiary healthcare center, with approval number IEC NO: SIMS & RC/IECC/01/2019.

Inclusion criteria: Any category of healthcare worker willing to participate in the study who did not know their HIV status. GP aged >18 years who were willing to participate in the study and did not know their HIV status were included in the study.

Exclusion criteria: All subjects who knew their HIV status and those who did not consent to participate in the study were excluded from the study.

Sample size: Convenient sampling was done which included 200 subjects (100 subjects from health care personnel and 100 subjects from GP).

In this study, convenient sampling is done keeping the prevalence as 50%

p=50%

$n=4\ pq/d^2$

$n=4\times50\times50/(10)^2$

n=100

Data collection method: Demographic details such as name, age, sex, and address were collected from the subjects who met the inclusion criteria. Their willingness to get tested for HIV was then assessed. If they were not willing, the reasons for refusal were noted as barriers to testing and documented accordingly. HIV testing was performed following the standard NACO guidelines for those subjects who were willing to know their HIV status [14].

Pre-test and post-test counseling were conducted, and informed consent was obtained. Confidentiality was maintained throughout the study.

As per the NACO guidelines, all subjects who were willing to know their HIV status were asked to sign the consent form and undergo HIV testing using the test kits supplied by NACO free of cost. A subject was considered positive for HIV when all three rapid test kits (First kit: Comb Aids-Arkary Healthcare Private Limited, Second kit: Meri Screen-Meri Diagnostic Private Limited, and Third kit: Signal-Arkary Healthcare Private Limited) showed positive results. A subject was considered negative when the first test kit (Comb Aids-Arkary Healthcare Private Limited) showed a negative result.

STATISTICAL ANALYSIS

The data was entered into Microsoft Excel, and the analysis of the data was carried out using SPSS version 20. The results were expressed in the form of frequency and percentage.

RESULTS

The study group included a total of 200 subjects, with 100 subjects from the HCP group and 100 subjects from the GP group. Among them, 93 (46.5%) were male subjects, and 107 (53.5%) were female subjects.

In this study, out of the 200 subjects, only 41 (20.5%) subjects were willing to know their HIV status, while 159 (79.5%) subjects were not willing to know their HIV status. Among the HCP group, 39 (39%) subjects were willing to know their HIV status, whereas among the GP group, only 2 (2%) subjects were willing to know their HIV status [Table/Fig-1].

	Total number of subjects participated in the study	Total number of subjects willing to know their HIV status	Total number of subjects not willing to know their HIV status
Healthcare Personnel (HCP)	100 (100%)	39 (39%)	61 (61%)
General Public (GP)	100 (100%)	2 (2%)	98 (98%)
Total	200 (100%)	41 (20.5%)	159 (79.5%)

[Table/Fig-1]: Willingness among the subjects to know their HIV status in the study group.

Among the subjects who were willing to know their HIV status, the majority of them fell into the age group of 31-40 years, accounting for 20 (48.8%) individuals in this study [Table/Fig-2].

Age group (in years)	N=41 (Number of subjects willing to know their HIV status)
21-30	15 (36.6%)
31-40	20 (48.8%)
41-50	6 (14.6%)
51 and above	0
Total	41 (100%)

[Table/Fig-2]: Age distribution among the subjects willing to know their HIV status.

In this study, females were more willing to know their HIV status, with 22 (53.7%) of them expressing willingness, compared to males with 19 (46.3%) [Table/Fig-3].

Sex	N=41 (number of subjects willing to know their HIV status)
Male	19 (46.3%)
Female	22 (53.7%)
Total	41 (100%)

[Table/Fig-3]: Gender distribution among the subjects willing to know their HIV status.

In this study, unmarried individuals were more willing to know their HIV status, with 24 (58.5%) expressing willingness, compared to married individuals with 17 (41.5%) [Table/Fig-4].

Marital status	N=41 (number of subjects willing to know their HIV status)
Married	17 (41.5%)
Unmarried	24 (58.5%)
Total	41 (100%)

[Table/Fig-4]: Marital status among the subjects willing to know their HIV status.

In this study, out of the 41 subjects who got tested for HIV, none of them tested positive for HIV infection at that point in time, taking into consideration the probability of the window period in HIV infection [Table/Fig-5].

In this study, out of the 61 HCP who were unwilling to get tested for HIV, 56 (91.8%) stated that they would get tested when necessary,

	Total number of subjects who got tested for HIV	Total number of subjects who were positive for HIV test	Total number of subjects who were negative for HIV test
Healthcare Personnel (HCP)	39 (100%)	0	39 (100%)
General Public (GP)	2 (100%)	0	2 (100%)
Total	41 (100%)	0	41 (100%)

[Table/Fig-5]: HIV positive status among the tested subjects.

while 5 (8.2%) individuals, all belonging to the age group >50 years, stated that it is not necessary to get tested for their age group [Table/Fig-6].

Barriers by Healthcare Personnel (HCP)	Number (N=61)
Will get tested when necessary	56 (91.8%)
Not necessary to get tested at my age (>50 years)	05 (8.2%)

[Table/Fig-6]: Barriers for not willing to get the HIV test done among Healthcare Personnel (HCP).

In this study, out of the 98 GP who were unwilling to get tested for HIV, the majority, 35 (35.8%), stated that they do not have any health problems or symptoms of HIV. This was followed by 27 (27.6%) individuals who mentioned that they would get tested only when indicated by a doctor [Table/Fig-7].

Barriers by General Public (GP)	Number (N=98)
No health problems/symptoms of HIV	35 (35.8%)
Will get tested only when indicated by doctor	27 (27.6%)
Not exposed to risk factors (blood transfusion/sexual activity)	20 (20.4%)
Unaware of disease or test	13 (13.2%)
Not necessary to get tested at my age (>50 years)	03 (3%)

[Table/Fig-7]: Barriers for not willing to get the HIV test done among General Public (GP).

DISCUSSION

The HIV is an age-old disease with stigma associated with testing. Efforts are being made to increase the uptake of free HIV testing in the community. Although there is a lot of literature and data available on HIV, studies assessing the percentage of willingness for free HIV testing and the reasons for not being willing are limited in number. The information gathered from the present study will shed light on the gaps that need to be filled to achieve the set targets by UNAIDS 95-95-95 by 2030, where getting tested for HIV is the first step to reach the first 95%.

In the present study, the percentage of subjects who volunteered for HIV testing was slightly better compared to other similar studies [15,16], considering the overall percentage. Out of 200 study subjects, 41 (20.5%) opted for HIV testing. However, when considering GPs and HCPs separately, the percentages did not meet expectations. For GPs, the percentage was the lowest, with less than 5% (only two GPs) volunteering to get the free HIV test out of 100 GPs. Among the 100 HCPs, less than 50% (39 HCPs) volunteered for HIV testing, despite being well aware of HIV and the potential risks of acquiring it as an HCP. Similarly, in a study conducted by Ma W et al., among adults in Guizhou province in China, only 42 (3.7%) participants volunteered for HIV testing out of 1012 (100%) participants [15]. Additionally, in a population-based study conducted by Fylkesnes K et al., in urban and rural areas of Zambia, only 174 (3.6%) subjects responded to the services offered for free HIV testing out of 4812 (100%) subjects [16].

In the present study, 61 HCPs who were well aware of HIV/AIDS chose not to get tested. Among the 98 GPs who opted not to get tested, only 13 (13.2%) GPs were unaware of HIV disease or testing, while the remaining 85 (86.8%) GPs were aware but still chose not to get tested. This shows that in the present study, knowledge about HIV was not directly proportional to the willingness to get tested. This finding contradicts the results of a population-based study conducted by Meundi AD et al., in Karnataka, India, where they concluded that higher HIV knowledge was significantly associated with willingness to get tested for HIV [17]. Additionally, a study conducted by Abokyi LV et al., in Ghana among community members found that 98.5% of individuals with knowledge about HIV indicated their willingness for HIV testing [18].

In this study, out of the 41 subjects who were willing to know their HIV status, the majority belonged to the age group of 31-40 years, accounting for 20 (48.8%) individuals. Females, with a count of 22 (53.7%), were more willing than males. This finding aligns with the study conducted by Abokyi LV et al., in Ghana among community members, where the highest number of respondents fell within the age group of 30-40 years, and female respondents predominated [18].

Contrary to the findings of the study by Abokyi LV et al., in Ghana, in this study, unmarried individuals 24 (58.5%) were more willing than married individuals. In the Ghana study, a majority of the respondents who were willing to undergo HIV testing were married (76.5%) [18]. In this study, out of the 200 subjects, 41 (20.5%) were willing and got tested for HIV. None of the tested individuals were found to be positive for HIV infection at that point in time, but it is essential to consider the window period.

In this study, the maximum percentage of HCPs 56 (91.8%) stated that the reason for not getting tested was that they would get tested when necessary. Among GPs, the highest percentage 35 (35.8%) said that the absence of symptoms or health-related problems was one of the reasons for their unwillingness. A point of concern is the 5 (8.2%) HCPs and 3 (3%) GPs who belonged to the age group >50 years, stated that HIV testing is not required for their age group. This finding was similar to the study conducted by Youssef E et al., which involved people aged >50 years who did not perceive themselves to be at risk for HIV [19]. It is important to understand that relationship transitions are increasingly common in the older age group, as highlighted in a review study by Sherman C et al., [20]. Additionally, lower condom usage is common in the older age group, according to a study by Reece M et al., and physiological changes such as vaginal dryness are common in the older age group, as noted in a study by Durvasula R [21,22]. Considering all of these studies, it is important to note that age is not a barrier for HIV, and clinicians should proactively consider this age group for HIV testing.

In this study, none of the subjects stated stigma or lack of confidentiality or inherent fear of positive result as one of the barrier as it is stated in a study done by Yuan L et al., among general residents in urban area of northeast China [23]; and also in a study done by Abokyi LV et al., at Ghana where 27 (16.6%) stated lack of confidentiality and 24 (14.7%) stated stigma as the reason for not willing to get tested [18].

An important point to note in the present study is that all the subjects who were willing to know their HIV status actually got tested. The reasons for HCPs not getting tested for HIV were known, as there are very few or no similar studies involving HCPs as subjects. The reasons quoted by subjects aged 50 years or older, among both HCPs and GPs, should raise alarm among policymakers.

Limitation(s)

The main limitation of this study was the small sample size. Additionally, it was not a community-based study, and not many similar studies are available.

CONCLUSION(S)

In this study, the percentage of willingness for HIV testing was less than 50% among HCP and even lower among the GP. Among those who were tested, none tested positive for HIV infection. This study highlights various barriers for not willing to get HIV test done, with the age group over 50 years being a significant one. This

finding emphasises the importance of proactively considering HIV testing for individuals over the age of 50, as they also fall within the risk group.

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