

Stigma and Discrimination Towards HIV in Healthcare Workers in Shenzhen, China

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Abstract

Introduction: To measure HIV-related stigma and discrimination (S&D) among health care facilities in Bao'an, Shenzhen to inform decision making regarding stigma-reduction intervention.

Methods: A cross-sectional survey was conducted using a standardized measurement tool between October 2019 and January 2020 among 1235 staff randomly sampled from 18 public and private hospitals. Data relevant to respondents' demographic information, drivers of HIV related S&D, enacted stigma, and stigma towards pregnant women living with HIV were collected for analysis.

Results: Percentage of medical staff worrying occupational exposure to HIV infection when dressing wound, drawing blood and doing delivery are 82.8%, 82.1% and 81.9%, respectively. Gender, specialty, training and hospital funding are independent factors affecting health staff's anxiety over infection. 75.2% respondents believe that people living with HIV (PLWH) should seek care exclusively from designated hospital specializing in infectious disease and more than 50% of health staff survey reported over-protective measures.

Conclusion: S&D toward PLWH as well as its drivers are widely prevalent among health care facilities. Findings of this study highlight the importance of stigma-reduction interventions to ensure equal access to health care by PLWH.

Introduction

Curbing and elimination of AIDS constitute an important part of the Health China 2030 Plan, China's national agenda for health and development. Though China has achieved significant progress in controlling the spread of AIDS domestically, HIV infection rate is still on the rise. A key barrier that prevents some infected people from getting early test and treatment is the stigma and discrimination (S&D) against people living with HIV (PLWH)[1-3].

S&D against AIDS has been around since the first case of AIDS was identified among homosexual males[1]. PLWH are often stigmatized as 'dirty' due to the fact that most commonly known transmission routes of HIV infection are commercial sex and injection drug use. Thus high-risk group like men who have sex with men (MSM), injection drug user (IDU), and sexual workers are also at high risk of being stigmatized or discriminated[4-7]. Studies suggested that compared to patients with other infectious disease like hepatitis B, victims of HIV infection are more likely to experience S&D from health care providers[8]. Severely affecting the willingness to counsel and test for HIV as well as other health care utility by high-risk population, S&D facilitates HIV spread and causes new infections[9-11]. Therefore, reduction of HIV-related S&D is now deemed as an important measure to increase HIV testing rate and treatment compliance [12, 13]. It has been a global consensus to integrate HIV related S&D reduction into health development strategy for improving the quality of life for PLWH [14, 15].

Over the last decades there has been increasing attention to the research in HIV-related S&D reduction, however, those efforts are impeded by lack of standard measurement tools of HIV related S&D by health personnel. Majority of questionnaires or scales for S&D measurement in use were self-developed and of varying reliability and validity. The heterogeneity arising from different culture background, target population as well as S&D definition makes cross-study comparison or validation difficult. To address the measurement gap, an international expert panel led by the Health Policy Project (HPP) has designed and validated a brief and standardized tool for calibration of HIV related stigma in healthcare facilities[16]. This questionnaire has undergone field test in six countries of varying culture background and the final version was recommended for applications internationally after further refinement. Then this questionnaire has been successfully measured HIV-related S&D among Healthcare Workers in Thailand[17] and Oman[18] respectively. We carry out a survey using the latest Chinese version among health care facilities in Bao'an, Shenzhen.

As the most populous and also largest district in Shenzhen with large number of immigrant workers from other parts of China, Bao'an is one of six pilot regions of China's Elimination of Mother-to-Child Transmission (EMTCT) of AIDS, hepatitis B and syphilis project[19]. All health care providers in Bao'an are committed to guarantee equal access to health care by infected mothers and their offspring. Therefore, it is essential to address and measure stigma among all levels of facility staff to take evidence-based interventions. However, baseline studies regarding HIV-related S&D measured by the questionnaire [16] in China have rarely been well-explored in recent years. To fill this measurement gap, a cross-sectional survey of the status quo of HIV-related S&D in this region will inform decision making for further intervention.

Methods

Study design and sample size calculation

A cross-sectional study of HIV-related stigma was performed among all health facilities, including both public and private ones, in Bao'an, Shenzhen. Medical and non-medical staff included in the study and staff who are not first-line workers without any contact with PLWH were excluded [17, 20]. The survey was performed anonymously and independently among respondents who fill in the questionnaire in digital format using a mobile phone APP. Within in each facility there were two survey coordinators appointed in charge of organization and quality control of the survey after receiving training from the project staff. Database of the response was developed for data structuring and identifying invalid response or outliers.

The sampling methodology of this survey is from the research conducted in Thailand by Kriengkrai[17, 21]. Sample size drawn from each hospital was estimated according to the following formula. For health facilities with a staff size no less than 500, the calculation method is as following steps:

$$N1 = (\mu_{\alpha/2})^2 p (1 - p) \quad \square$$

$$N2 = N1 * ES = N1 * 2 \quad \square$$

$$N3=N2/ERR \quad \square$$

Where P stands for the expected prevalence of HIV related S&D. This estimated value was based on trial survey in one hospital, which reported that 89.9% incidence of S&D. μ denotes Z-score, and was set to a 95% confidence limit. ES stands for Effect size and it is set to be 2. ERR symbols effective response rate which was assumed to be 90%. For health facility with staff size less than 500, we adjusted the first calculation with the following formula to estimate the sample size \square

$$N= N1/ (1+ (N1/ TS))$$

Here the TS is short for Total staff in each hospital. The second and third steps are the same as above. Finally, the overall sample size is calculated to be 1235, among whom 995 are of medical background and 237 non-medical background.

Measures

The raw questionnaire designed by HPP measures health staff's background information, their infection concerns when caring for PLWH, observed S&D in health facility environment, institutional policy regarding S&D as well as health workers' opinions about PLWH[22]. Additionally, we added a new item "Should PLWH only seek care from these special hospitals?" in the opinion domain, as within China there were designated hospitals specializing in infectious diseases where infected patients could be referred to. There is also an additional module dedicated to maternal health workers using condensed version of the measurement aiming at informing the prevention of mother-to child transmission (PMTCT)[16, 23]. The questionnaire consisted of 32 questions and was translated by linguistic experts into Chinese with its English version attached as Additional file. The cross-sectional survey was field tested in 18 hospitals between October 2019 and January 2020 among 1235 respondents were randomly selected from these health facilities by means of a random number table.

Data analysis

Data analysis was conducted in statistical software SPSS 20.0 (IBM Corporation, Armonk, New York). Descriptive statistical analysis was employed for demographic data of survey participants and questionnaire items. Chi-square test and Fisher's exact probability test were used for categorical variables. Binary logistical analysis was performed to investigate the risk factors of HIV-related stigma. $P<0.05$ is defined as being statically significant in this study. Data visualization was completed by GraphPad Prism 5.

Results

Demographic data

1235 respondents in all have successfully submitted their survey data. After data triangulation 1143 records (92.6%) were deemed as valid. Demographic information of respondents is shown in table 1.

72.9% respondents are female and medical staff account for 83.4%. Mean age of the participants is 34.8 and 84.95% of them fall between the age range of 18-49. 61.2% of respondents were married and 55.8% are working in governmental hospitals. Most of the medical staff surveyed have bachelor degree (37%) or college degree (49%) while non-medical staff's education background is predominantly high school or below. 44.4% of the survey participants have been working in hospital for 1 to 5 years. 85.9% have reported that they have received occupational exposure prophylaxis training and 74.8% trained on informed consent and privacy protection for PLWH. However, the percentage of taking training on S&D prevention towards PLWH and high risk groups are relative low (respectively 44.1% and 36.5%).

Infection concern and its manifestation

Participants were surveyed about their infection concern when caring for PLWH (including the practice of touching clothing, dressing wound, drawing blood, taking temperature and delivery)[16]. When the response variable was encoded as 0 and 1 indicating no worry and worried, results suggested that less people were worried when touching PLWH's clothing (22.0%) and taking their temperature (48.4%) while being more anxious when dressing wound and drawing blood (respectively 82.8% and 82.1%; Table 2.A). If we define people who were worried during at least any one of the aforementioned practice as a worried staff, then overall percentage of infection concern was 83.35%. When infection concern was compared between doctors and nurses (Figure 1), the outcome indicated that nurses were more worried of occupation exposure than doctors (89.8% versus 79.1%, $R < 0.001$). The fear of being infected by health facility staff can be manifested in several ways. 21.3% of respondents admitted that they would avoid physical contact with PLWH while more than half people would wear double gloves or keep wearing gloves for all the time, or adopt special measures that they wouldn't use for other patients (Table 3. A).

Institutional policy and observed S&D among health facilities.

Regarding institutional policy for HIV-related S&D reduction, less than half of the participants (40.7%) admitted that S&D towards PLWH would cause trouble to them. Only 39.2% believed that their working environment require informed consent for HIV testing. Though a majority of people reported that their employers have provided standard procedures or protocol for decreasing infection risk, only 57.3% acknowledged the existence of guidelines for S&D reduction within their institutions (Table 2. B). Regarding secondary stigma, there are 26.2% of survey participants expressed their concern of become topic of unfriendly talk among colleagues and 16.8% worried that colleagues would avoid them for in contact with PLWH (Table 3. B). Additionally, 21.3% of respondents reported that they have observed colleagues refusing to provide care to PLWH and 65.2% respondents expressed unwillingness to work with PLWH.

Opinions toward PLWH

Figure 2 indicates the health staff's opinions about PLWH. Three quarters of the respondents insisted that PLWH should only seek care from designated hospital specializing in infectious diseases. 60.7% health facility staff believed that PLWH should not give birth. In addition, 28.8% health workers expressed

unwillingness to provide services to key populations, including MSN, IDU or sex workers. Further investigation revealed that more than half of them cited the following reasons: "They put me at higher risk for disease", "This group engages in immoral behavior" and "I have not received training to work with this group".

Additional module: Stigma towards pregnant women living with HIV

Regarding to the response to the questionnaire module targeted at maternal health staff, 81.9% respondents were worried when Assisted a woman living with HIV in delivery (Table 4.A) and 86% observed other staff using additional infection-control procedures (e.g., double gloves) with a pregnant woman living with HIV during labor and delivery because of her HIV status (Table 4.B). Surprisingly among maternal health staff, results suggested that 83.8% held the opinion that pregnant women with HIV shall inform their family members about their infection status and 90.4% considered it irresponsible if the pregnant women with HIV refuse the antenatal HIV screening. Furthermore, 68.5% thought that HIV infected women with children should not consider future conception and 15.6% believed it's justifiable to enforce contraception upon women living with HIV even against their own will (Table 4. C).

Risk factors for infection concern

Multivariate logistic regression found that gender, profession, training experience and hospital's funding source are independent factors affecting people's worry of being infected in working environment of health facilities. Female is more susceptible to the fear of HIV infection compared to male, and this finding is consistent with that of Thai research [21]. This analysis further proved that nurses are more likely to fear occupation infection risk than doctors (OR=1.89, 95% CI: 1.21-2.95). Receiving training and working in private hospital are protective factors against developing anxiety of being infected by contacting HIV patients (Table 5).

Discussion

HIV-related S&D, especially occurred within health facilities, is a recognized barrier to HIV detection, disclosure of sero-status, access to care and adherence to anti-retroviral treatment (ART) [15, 24-26]. Researches also confirmed that the quality of care is compromised for PLWH because of stigma and the quality of life of PLWH is undermined [12, 15, 27]. Effective and large-scale S&D intervention delivery is still impeded by critical challenges and it is believed that relevant and consistent scaling of S&D is the key to address the issue [28]. Hence, this study aims to explore the factors attributable to S&D of PLWH in 18 Shenzhen hospitals. It is envisaged that the findings from this study may inform the intervention of reducing HIV-related S&D in health care settings.

Worry of being infected

It's been established that worry of being infected and biased opinions are the essential drivers behind S&D behavior against PLWH [3, 8, 20, 24, 28, 29]. Like other studies, findings from this study demonstrate

that drivers of S&D are still prevalent among health facilities resulting in staff working in hospitals themselves becoming active participants in S&D targeting PLWH [11].

The proportion of health staff expressing worry about being infected when caring PLWH is higher than these reported by Shah et al [18], Nyblade et al [16] and Kriengkrai et al [17] who were using the same measurement tool with their studies among healthcare workers. More specifically, findings from our study confirmed the hypothesis that health care staff are most worried when it's likely to contact PLWH's body fluids. Such wide spread of fear is quite anxious when China's relatively low prevalence of HIV infection is taken into account, and the fact that most respondents agree there are adequate supplies and standardized protocols in health facility to reduce risk of becoming infected with HIV (Table 2. B). This extensive worry in patient care might be associated with the generally higher baseline of anxiety among medical staff in China as they are facing higher workload and challenging doctor-patient relationship. These factors may overlap with or aggregate the worry caused by infection exposure risk.

On the other hand, a research in China [30] demonstrates that stigma toward PLWH is associated with HIV prevalence. They illustrated that less HIV stigma is reported in countries with relatively higher HIV prevalence and suggested more resources (e.g., funds) in promotion of laws and policies as well as education against HIV stigma were implemented in these countries. Another similar studies also found that high levels of fear of contagion among health workers is related to a lack of understanding about HIV and HIV transmission, and how to protect oneself in the workplace through universal precautions [20, 31-34]. Therefore, future intervention programs addressing HIV stigma drivers should focus on educating people about HIV and HIV transmission, especially among countries or regions with low HIV prevalence.

Risk factors of fearing HIV infection

Results from the logistical regression suggests that nurses are more concerned of occupation infection risk than doctors. This finding is also confirmed in Samir Shah's study[18]. It can be partially explained that nurses usually spend more time with patients and have more hands-on practice in terms of patient care compared to other medical professions. From another perspective, since doctors in our survey have higher education than nurses, doctors may be better equipped with the knowledge about HIV infection control than nurses which in turn result in less fear. For instance, a study from Italy indicated among nurses with good knowledge about HIV, only 2% refused to care for patients based on their HIV status[35]. Oppositely, a study in Jordan found that 84% of nurses with less understanding of HIV refused to provide care to PLWH[36]. Thus more attention should be directed to addressing the worry or fear among nurses in S&D reduction program via knowledge building and training concerning HIV infection control.

Analysis of influencing factors showed that receiving training in reducing S&D is less anxious than these untrained. This further indicates that there is a large room for improvement in reducing discrimination in the following train-based interventions. Since public health interventions are often complex and this makes intervention challenging, stigma reduction activities in hospitals, mainly based on the training on HIV-related knowledge and behavior [15, 19, 20]. Research in Nyblade's had improved significantly effect to reduce HIV-related S&D among hospital workers through the intervention of staff training on HIV

transmission, prevention, and appropriate infection control. Especially combined fear-based and enacted stigma, they reported more reductions than fear-based stigma alone in intervention groups [3, 20]. Another two studies conducted in China [37, 38] also demonstrated that staff training will significantly decrease HIV-related stigma.

It's interesting to know that working in private hospital are also protective factors against worrying being infected with HIV. The possible reason is speculated to be as follows: firstly, in order to compete with public hospitals, private hospitals pay more attention to patient care; Secondly, due to relatively limited medical and human resources, private hospitals have less opportunities to contact HIV-positive people and worry of being infected HIV in actual operation is relatively rare. Quite few studies can be found in this domain and further investigations are needed to shed light on this discrepancy between public and private hospitals.

Biased opinions against PLWH

Among the biased opinions against PLWH, health staff are less likely to stigmatize PLWH morally but more likely to be biased against them from a professional perspective [3, 39, 40]. PLWH is usually associated with the MSM, IDU and sexual workers, thus the general held the deep-rooted prejudice that HIV/AIDS is a punishment for their bad behavior [4, 7]. A qualitative study conducted by Kriengkrai among Thai general population found that 38.2% would be ashamed of having a PLWH family member and 69.2% agreed that PLWH lose respect or standing [21]. Nevertheless, health workers would be pay more attentions to the HIV prevention [3, 18, 20]. In this study we found only a small percentage label HIV infection as irresponsible or shameful, while 75.2% respondents believed that PLWH should seek care exclusively from specialized hospitals for Infectious diseases. Fear of being infected and misconceptions about HIV is the primary reason to delay or avoid provide services to PLWH among health staff [20, 30, 41]. Undoubtedly, these specialized hospitals are more qualified in treating HIV and its coinfections. However, besides AIDS, the PLWH also need other basic medical services such as maternal health care.

Therefore, improving the awareness of treating PLWH equally would be fundamentally eliminated S&D among health facilities. No matter what are the roots of such high level of biased opinions against PLWH (Figure 2), the finding highlights the urgency of action-taking.

Enacted stigma

Despite the prevalent worry of being infected, not all infection concern of health staff is translated into enacted stigma since the percentage of taking extra precautions during patient care is less than that of being worried. Despite the fact that general physical contact does not spread HIV, more than half of the staff still wore double gloves or used other special protection when providing care or services for PLWH (Table 3.A). These indicate that excessive or inappropriate protection is still common among medical staff. Such typical intentional distancing with PLWH will only deepen PLWH's sense of inferiority and make them afraid of seeing doctors [3, 20]. Fear of acquiring HIV and misconceptions about HIV transmission when caring for PLWH leads healthcare workers to take unnecessary, often stigmatizing

actions. Also it may be accounted for by the policy made by health facility managers for preventing hospital infection. A hospital's excessive emphasis on avoiding hospital infection leads staff in hospital to take unnecessary measures. It's easy to develop an overprotective subconscious when 85.9% received HIV related occupational exposure risk while much less people have trained on S&D reduction within our study. Therefore, besides providing health workers with complete information about how HIV is and is not transmitted and how practicing universal precautions to relieve their fears, we should also seek a balance between preventing infection and reducing S&D [3, 20, 34].

S&D challenging EMTCT

The responses from maternal health workers are quite alarming as it mirrors the deeply rooted stigma against women of child-bearing age infected with HIV. A large proportion of maternal health workers support neither the reproductive rights nor the privacy of pregnant women living with HIV. As vertical transmission of HIV from mother to baby is another main transmission route following sex behavior, S&D against pregnancy complicated with HIV infection will cause significant barrier to equal and adequate access to maternal care, furthering aggravating the mother-baby transmission[19, 23, 42]. The detrimental effect of S&D will even manifest itself in the offspring's mental health as suggested by previous studies. Evidences from the survey highlight the importance of training tailored to maternal health staff as a way of intervention.

Limitations of this study

Since the study population is from the Shenzhen city, a young and wealthy Special Economic Zone in china, it may not be representative of the underdeveloped regions in China. The relatively larger percentage of young and well-educated respondents with adequate training in the study population may also underestimate the percentage of enacted S&D toward PLWH. Another potential limitation of the study is the questionnaire items on training which are inadequate. More information regarding training such as the frequency and how the training is delivered should be surveyed to better illustrate its role in S&D reduction.

Conclusion

This study demonstrated that a significant portion of people working in hospital experience worry when it's likely to contact PLWH's body fluids during patient care despite institutional protection in place. The most susceptible group in anxiety are nurses, people working in public hospital and those never received training. The deeply rooted bias against pregnant women living with HIV among maternal health workers is still prevalent. Enacted stigma mainly takes the form of taking extra precautions measures.

The findings highlight the urgency of reducing S&D toward PLWH among health care settings. Equitable access to and utility of health care by PLWH should be advocated and emphasized via institutional policy and rules. Individualized and effective training provided for the key population identified should be designed, implemented and assessed to eradicate fears and biased opinions toward PLWH.

Abbreviations

S&D: stigma and discrimination; PLWH: people living with HIV; PMTCT: prevention of mother to child transmission; EMTCT: Elimination of Mother to Child Transmission; HIV: human immunodeficiency virus; AIDS: Acquired Immune Deficiency Syndrome; UNAIDS: Joint United Nations Programme on HIV/AIDS; HPP: Health Policy Program; APP: Application; OR: odds ratio. MSM: men who have sex with men; IDU: injection drug user; ART: anti-retroviral treatment.

Declarations

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Availability of data and materials

The datasets collected and/or analyzed during the current study are available from the corresponding author on reasonable request.

Authors' contributions

W W and N Z contributed equally to this work. They oversaw the design and implementation of the survey and the writing of the article and the statistical analysis and the data management. J W participated in the writing of the introduction and method sections. X C participated in organizing on-site investigation. Y L participated in the writing of the method and Discussion sections. All authors contributed to the preparation of the article and approved the final draft. The corresponding author had full access to all data in the study and final responsibility for preparing and submitting results for publication.

Competing interests

The authors declare that they have no competing interests.

Consent for publication

Not applicable.

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Tables

Table 1. Demographic details of the respondents

Variables	Total number of respondents n=1143	Doctors¹ n = 502	Nurses¹ n = 451	Non-clinical n = 190
Gender (%)²				
Male	310 (27.1)	223 (19.5)	14 (1.2)	73 (6.4)
Female	833 (72.9)	279 (24.4)	437 (38.3)	117 (10.2)
Average age (year) (Mean ± SD)	34.87±11.52	38.81 ± 11.49	28.96 ± 7.34	38.46 ± 13.62
Hospital (%)				
Governmental	638(55.8)	294 (25.7)	254 (22.2)	90 (7.9)
Private	505 (44.2)	208 (18.2)	197 (17.2)	100 (8.7)
Marital status (%)				
Married	700 (61.2)	360 (31.5)	214 (18.7)	126 (11.0)
Unmarried	407 (35.6)	121 (10.6)	227 (19.8)	59 (5.2)
others	36 (3.1)	21 (1.8)	10 (0.9)	5 (0.4)
Education (%)				
High school or others	163 (14.3)	10 (0.9)	31 (2.7)	122 (10.7)
Diploma	423 (37.0)	139 (12.1)	230 (20.1)	55 (4.8)
Bachelor	467 (40.9)	264 (23.1)	189 (16.4)	16 (1.4)
Master or higher	90 (7.9)	89 (7.8)	1 (0.1)	0
Professional title rank (%)				
None	231 (20.2)	36 (3.1)	45 (3.9)	150 (13.2)
Primary	477 (41.7)	163 (14.3)	281 (24.6)	33 (2.8)
Intermediate	293 (25.6)	177 (15.5)	109 (9.5)	7 (0.6)
Senior	142 (12.4)	126 (11)	16 (1.4)	0
Working years (%)				
1-5	507 (44.4)	130 (11.4)	225 (19.7)	152 (13.3)
6-10	241 (21.1)	98 (8.6)	115 (10.1)	28 (2.4)
11-20	201 (17.6)	124 (10.8)	71 (6.3)	6 (0.5)

≥ 21	194 (17.0)	150 (13.2)	40 (3.5)	4 (0.3)
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¹Clinical staff includes those who are medically trained like doctors, nurses, where we divided clinicians and nurses in different positions into doctors and nurses and non-clinical staff includes those who were not like receptionists, cleaning staff, ward attendants.

²The percentage is calculated by the ratio of the variable to the total of 1143.

Table 2. Stigma drivers, percentages			
A. Worry related to contracting HIV when providing services to people living with HIV			
Level of worry when conducting the following activities¹	Worried	Not worried	
Took the temperature of a patient living with HIV (n=927)	22.0	88.0	
Touched the clothing of a patient living with HIV (n=964)	48.4	51.6	
Dressed the wounds of a patient living with HIV (n=897)	82.8	17.2	
Drew blood from a patient living with HIV (n=881)	82.1	17.9	
B. Health facility policies and work environment			
Level of agreement with the following statements(n=1143)²	Agree	Disagree	Don't know
I would never test a patient for HIV without the patient's informed consent	39.2	32.4	28.4
I will get in trouble at work if I discriminate against patients living with HIV	40.7	22.6	36.7
There are adequate supplies in my health facility that reduce my risk of becoming infected with HIV	79	3.8	17.2
There are standardized procedures/protocols in my health facility that reduce my risk of becoming infected with HIV	83.6	2.1	14.3
My health facility has written guidelines to protect patients living with HIV from discrimination	57.3	9.2	33.5

1 Response categories: a not worried, a little worried, worried, very worried.

2 (n=1143) applies to each category, unless otherwise noted.

2 Response categories: strongly agree, agree, disagree, strongly disagree, and don't know.

Table 3. Enacted stigma, percentages			
A. Infection precaution measures (n=1143)			
Typically use any of the following measures when providing general services to a patient living with HIV	Yes	No	Not applicable
Avoid physical contact	21.3	55.8	22.9
Wear double gloves	53.0	28.9	18.1
Wear gloves during all aspects of the patient's care	57.7	24.9	17.4
Use any special measures that you do not use with other patients	63.4	17.4	19.2
B. Experiences with secondary stigma			
How worried are you about (n=447)¹:	Worried	Not worried	
People talking badly about you because you care for patients living with HIV	26.2	73.8	
Friends and family avoiding you because you care for patients living with HIV	23.9	76.1	
Colleagues avoiding you because of your work caring for patients living with HIV	16.8	83.2	

¹Response categories: not worried, a little worried, worried, very worried.

Table 4. stigma towards pregnant women living with HIV among facility staff who care for pregnant women (n=302)¹		
A. Fear, percentages		
Level of worry when conducting the following activities²	Worried	Not worried
Assisted a woman living with HIV in labor and delivery (n=182)	81.9	18.1
B. Observed, percentages		
In the past 12 months, how often have you observed other healthcare provider³	Never	One or more times
Performing an HIV test on a pregnant woman without her informed consent.	93	7
Neglecting a woman living with HIV during labor and delivery because of her HIV status	97.7	2.3
Using additional infection-control procedures (e.g., double gloves) with a pregnant woman living with HIV during labor and delivery because of her HIV status.	2	86
Disclosing the status of a pregnant woman living with HIV to others without her consent.	98.3	1.7
Making HIV treatment for a woman living with HIV conditional on her use of family planning methods.	74.2	25.8
C. Opinions, percentages		
Opinions about pregnant women living with HIV⁴	Agree	Disagree
If a pregnant woman is HIV positive, her family has a right to know.	83.8	16.2
Pregnant women who refuse HIV testing are irresponsible.	90.4	9.6
Women living with HIV should not get pregnant if they already have children.	68.5	31.5
It can be appropriate to sterilize a woman living with HIV, even if this is not her choice.	15.6	84.4

1 (n=302) applies to each category, unless otherwise noted.

2 Response categories: a not worried, a little worried, worried, very worried, not applicable.

3 Response categories: never, once or twice, several times, and most of the time.

4 Response categories: strongly agree, agree, disagree, and strongly disagree.

Table 5. Analysis of influencing factors for worry between doctors and nurses				
Influence factors (n=880)		Worried (%)	OR (95% CI)	P value ^a
Gender	Male	75.69		
	Female	87.16	1.75 (1.12-2.75)	0.015
Hospital	Governmental	87.28		
	Private	80.37	0.55 (0.38-0.80)	0.002
Profession	Doctors	79.06		
	Nurses	89.79	1.89 (1.21-2.95)	0.005
Training	Yes	83.35		
	No	95.65	5.08 (1.56-16.55)	0.007

Abbreviations: CI, confidence interval; OR, odds ratio.

a: P value was calculated using Binary Logistic Regression test with SPSS version 20.0 statistical software.

Figures

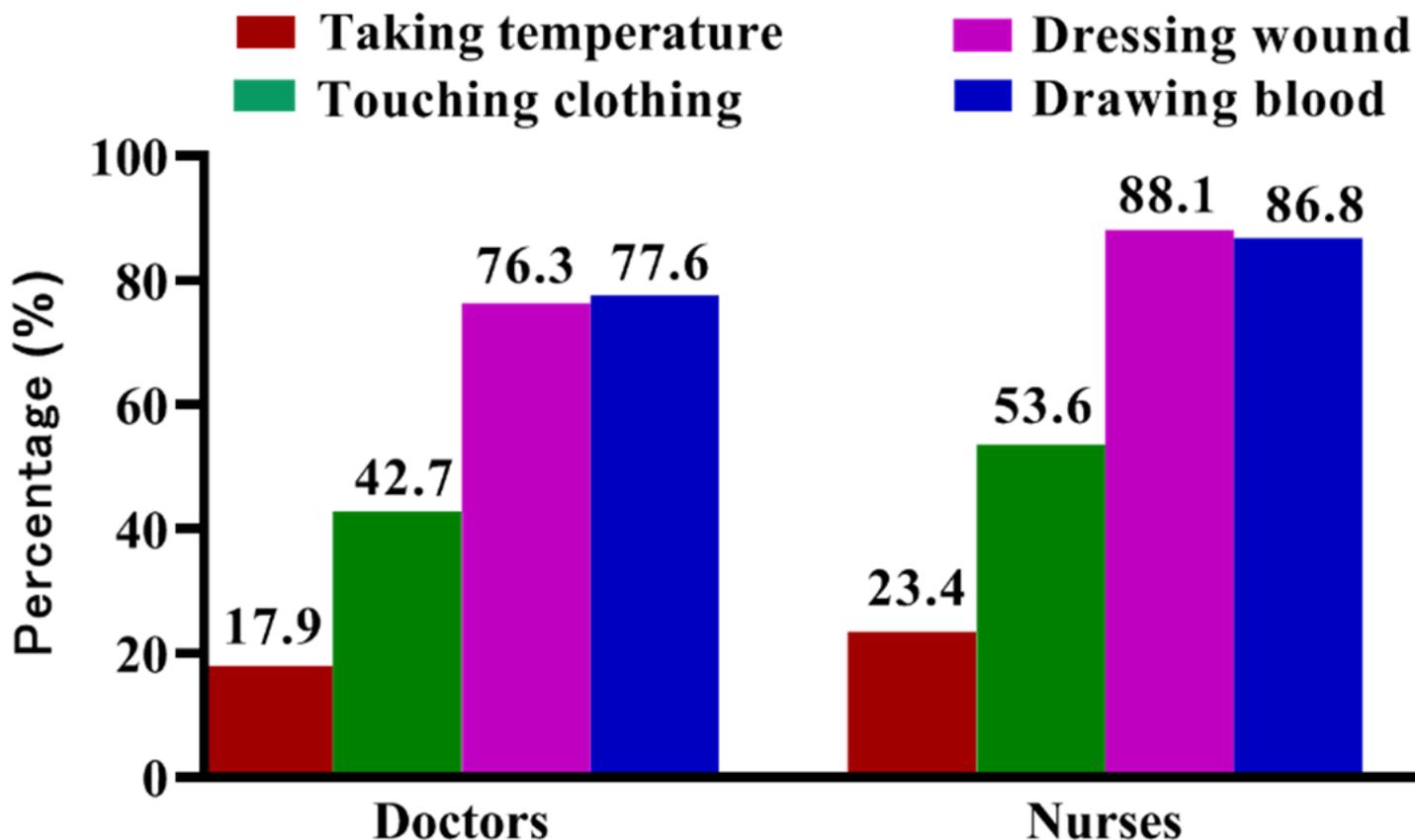


Figure 1

Comparison of concerns about being infected with HIV between doctors and nurses in different scenarios.

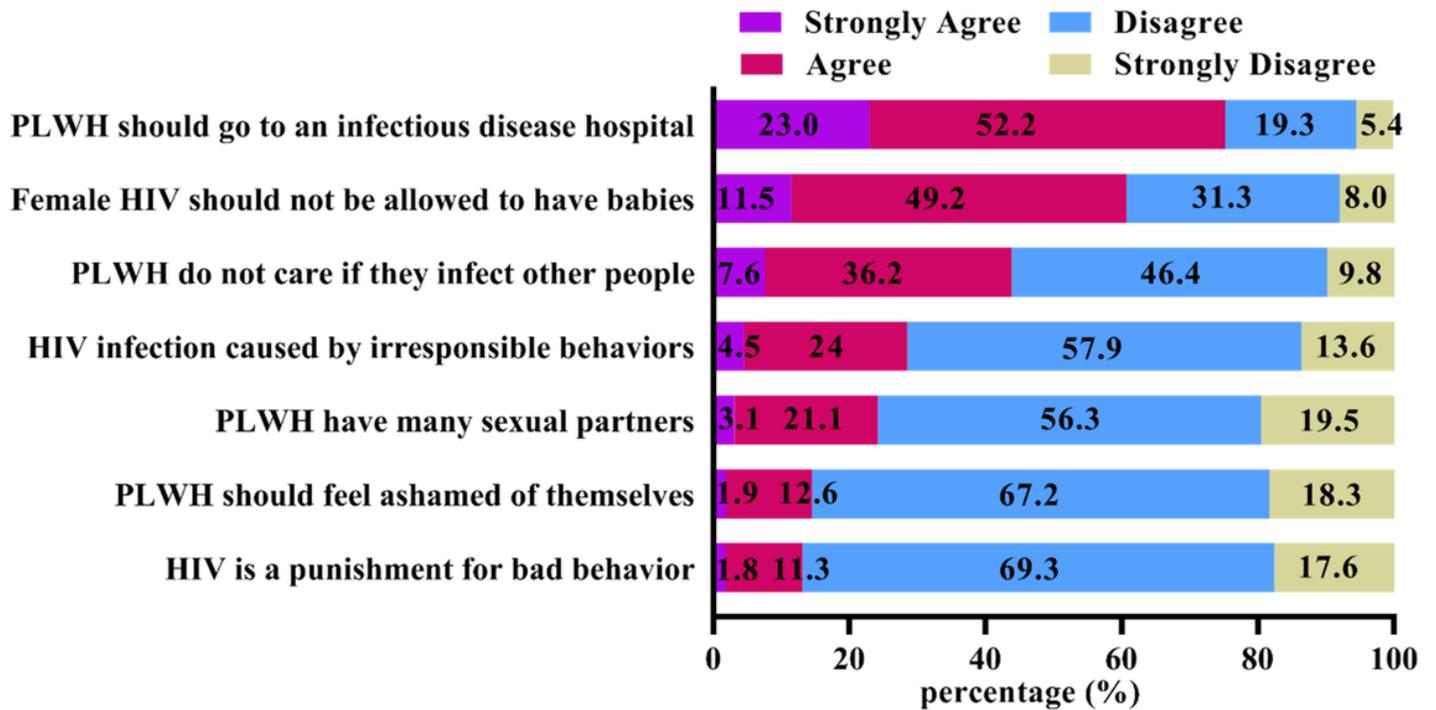


Figure 2

Opinions about PLWH (People Living with HIV, n=1143).

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Additionalfile1HealthworkerQuestionare.pdf](#)
- [Additionalfile2RawdateofHIVRelatedSD.xlsx](#)