NURSES' ATTITUDES TOWARDS CO-WORKERS INFECTED WITH HIV OR HEPATITIS B OR C IN VIETNAM

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Abstract. Stigma and discrimination experienced by nurses infected with human immunodeficiency virus (HIV), hepatitis B virus (HBV), or hepatitis C virus (HCV) potentially undermine their positions. The aim of this study was to determine the factors associated with nurses' attitudes towards accepting co-workers with HIV, HBV, or HCV. The study design was descriptive and cross-sectional. Four hundred Vietnamese nurses participated in this study using stratified random sampling at two public hospitals in Hanoi, Vietnam. A self-administrated questionnaire was used to obtain data. Descriptive statistics and multivariable logistic regression was performed to analyze data. Nine percent of nurses had experienced a needle-stick or sharps injury (NSI) from a patient infected with HIV, and 15.8% of respondents reported having a previous NSI from a patient infected with HBV or HCV. Some nurses reported that they could not accept contact between patients and nurses infected with HIV (25.2%) and HBV or HCV (12.7%). Older age and a belief that colleagues should disclose their infection status were associated with positive attitudes towards HIV-, HBV-, or HCV-positive colleagues. Fear of transmission was associated with negative attitudes towards HIV-positive co-workers. Infected employees disclosure of their status may help their colleagues to be more accepting by providing appropriate workplace adjustments for infected employees. HIV is generally a more stigmatized infection, and therefore attitudes towards HIV-positive co-workers might be affected by fear of transmission. Providing education to recognize infectious risk may be effective in improving nurses' attitudes in Vietnam, as elsewhere.

Keywords: discrimination, hepatitis B, hepatitis C, HIV, occupational health, stigma, Vietnam

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INTRODUCTION

Stigma and discrimination experienced by nurses infected with human immunodeficiency virus (HIV), hepatitis B virus (HBV), or hepatitis C virus (HCV) potentially undermine their positions through negative attitudes, unethical behavior, and inappropriate disclosure of their health status (ILO, 2005). In Vietnam, the estimated prevalence of HIV is approximately 0.5% of adults aged 15-to-49 years (UNAIDS, 2014). The prevalence of HBV in the general population is 12.0%, whereas the prevalence of HCV is just 2.0% (Gish *et al*, 2012). The Vietnamese government is aiming to eliminate stigma and discrimination against these diseases in the workplace through the implementation of strategies, such as prohibiting organizations from dismissing employees on the basis of their HIV-positive status (Ministry of Justice, 2006). At the present time, however, there are no specific regulations on how to manage healthcare workers infected with HIV, HBV, or HCV.

Workplace adjustments for healthcare workers infected with blood-borne pathogens are important in health services for the prevention and control of occupational risks. For example, confidentially changing duties for nurses infected with HIV, HBV, or HCV will reduce the risk of transmission to patients. With the development of effective treatment, HCV can often be cured (Lawitz *et al*, 2014), while HIV and HBV can be managed; often to the point of undetectable viral loads (Marcellin *et al*, 2013). Consequently, nurses infected with HIV, HBV, or HCV may be allowed to perform clinical procedures if a sustained virological response is documented (Henderson *et al*, 2010; Public Health England, 2014). By contrast, nurses who do not achieve viral clearance should abstain from performing high-risk procedures because of the increased risk of provider-to-patient transmission of blood-borne pathogens (Perry *et al*, 2006).

Previous studies have identified negative attitudes towards patients with HIV, HBV, or HCV in healthcare workers (Frazer *et al*, 2011; Pham *et al*, 2012; Ha *et al*, 2013; Wada *et al*, 2016), but data on attitudes towards colleagues infected with HIV, HBV, or HCV are limited. Promoting acceptance towards infected co-workers is needed to create a safe and supportive working environment in health services. Similarly, employers should protect the rights of all healthcare workers through providing a work environment free of stigma and discrimination, reducing the risk of transmission, and continuing to employ infected workers while they are medically fit. The present study was carried out with Vietnamese nurses to determine the factors associated with attitudes towards their co-workers infected with HIV, HBV, or HCV for what is believed to be the first time.

MATERIALS AND METHODS

Design, settings, and participants

A cross sectional study was undertaken in two public hospitals in Hanoi, Vietnam, which regularly provide care for patients infected with HIV, HBV, or HCV. Participants were recruited from nurses who were working at the hospitals as either certificated nurses, junior nurses, or nurses (approximately 500 individuals from hospital A and 300 from hospital B, respectively). Stratified random sampling was employed, and recruitment efforts ceased after 400 completed questionnaires were returned (250 individuals from hospital A and 150 from hospital B, respectively).

Questionnaire

The questionnaire was modified from a similar study undertaken in Japan (Ishimaru *et al*, 2016a, b), and translated using standard procedures for cross-cultural research (Harkness and Schoua-Glusberg, 1998; Behling and Law, 2000). The questionnaire contained sections on demographics (age, sex, marital status and nurse category); previous experience of HIV, HBV, or HCV (providing care and needlestick or sharps injury); and attitudes towards co-workers infected with HIV, HBV, or HCV. All items regarding "HIV" or "HBV or HCV" were assessed in a separate question.

The statement assessing attitudes towards co-workers infected with HIV, HBV, or HCV was as follows: "I think nurses infected with HIV, HBV, or HCV should disclose their infectious status to reduce the risk of transmission in the workplace" (referred to as 'disclosure requirements'); "I would be afraid about possibly contracting the infection from nurses infected with HIV, HBV, or HCV" (referred to as 'fear of transmission'); "I would have a biased view that nurses infected with HIV, HBV, or HCV might be a homosexual, have sexual relations with multiple partners, or be a drug user" (referred to as 'prejudicial views'). Whether a respondent accepted their colleagues (referred to as an 'accepting attitude') was the dependent variable assessed using their response to the following statement as: "I think nurses infected with HIV, HBV, or HCV can have contact with patients if their viral level is low or they don't perform high risk procedures." Each statement used a four-point Likert scale (Agree, Somewhat Agree, Somewhat Disagree and Disagree).

Statistical analysis

Multivariable logistic regression was used to investigate factors associated with accepting attitudes of nurses towards co-workers infected with HIV, HBV, or HCV. For the analysis, the dependent variable, Accepting attitudes, was reclassified into two levels (1 = Agree/Somewhat Agree, and 2 = Disagree/ Somewhat Disagree). Following univariate analysis, variables with $p \leq 0.05$ were included in multivariable models. Zhang's formula was used to adjust the results for common outcomes (Zhang and Kai, 1998). Statistical significance was set at a level of $p \leq 0.05$, and SPSS® (version 17.0; SPSS, Chicago, IL) was used for all analyses.

Ethical considerations

This study was approved by the Hanoi School of Public Health Institutional Review Board (Ref No. 016-004/ DD-YTCC). Both written and oral consent were obtained from each nurse prior to completing a questionnaire.

RESULTS

Demographic details of the study participants are described in Table 1. Of the 400 respondents, 47.2% were aged 30-39 years. The majority were female (86.0%), married (80.5%), and certificated nurses (70.8%). When asked about professional experience, 46.8% of respondents stated they had cared for patients infected with HIV, and 71.0% for patients infected with HBV or HCV, within the past 12 months. Nine percent of respondents reported having a previous needle-stick or sharps injury from a patient infected with HIV, and 15.8% of respondents reported having a previous needle-stick or sharps injury from a patient infected with HBV or HCV.

Table 2 describes the frequency of nurses' attitudes towards co-workers infected with HIV, HBV, or HCV. The majority (73.5%) of respondents agreed that HIV-, HBV-, or HCV-positive nurses

Table 1
Demographic characteristics (*N*=400).

Variable	No.	(%)
Age (years)		
20-29	111	(27.8)
30-39	189	(47.2)
≥40	100	(25.0)
Sex		
Male	56	(14.0)
Female	344	(86.0)
Marital status		
Married	322	(80.5)
Single	68	(17.0)
Divorced//widowed	10	(2.5)
Nurse category		
Certificated nurse (2 years course)	283	(70.8)
Junior nurse (3 years course)	44	(11.0)
Nurse (4 years course)	73	(18.2)
Prior experience in caring for patients infected with HIV or HBV/HCV within 1 year		
HIV	187	(46.8)
HBV/HCV	284	(71.0)
Experience of needlestick or sharps injury from patients infected with HIV or HBV/HCV (ever)		
HIV	36	(9.0)
HBV/HCV	63	(15.8)

HIV, human immunodeficiency virus; HBV, hepatitis B virus, HCV, hepatitis C virus.

should disclose their status. Just under half (46.3%) of respondents were not concerned about the risk of transmission from HIV-positive colleagues; whereas, 65.8% were not concerned about transmission from HBV- or HCV-positive colleagues. Some respondents stated they would not accept HIV-, HBV-, or HCV-positive colleagues having professional contact with patients, with 15.5% disagreeing and 9.7% somewhat disagreeing that HIV-positive colleagues could have contact with patients, and 9.0% disagreeing and 3.7% somewhat disagreeing that HBV- or HCV-positive colleagues could have contact with patients.

The results of multivariate statistical analysis are described in Table 3. Factors associated with an accepting attitude towards HIV-positive colleagues were nurses aged 40 years and over [Odds ratio (OR) =1.85; 95% Confidence Interval (CI): 1.15-2.58], and those who agreed infection status should be disclosed (OR=2.03; 95%CI: 1.28-2.75). These factors were also associated with an accepting attitude towards HBV- or HCV-positive colleagues; nurses aged ≥40 years were 2.5 times more likely to accept their colleagues (95%CI: 1.14-4.39), and those who agreed that infected colleagues should be required to disclose their status were 3.02 times more likely to accept their colleagues (95%CI: 1.63-4.70).

Respondents who agreed or somewhat agreed they were concerned about

Table 2
Attitudes of nurses towards co-workers infected with HIV, HBV or HCV (*N*=400).

	HIV No. (%)	HBV/HCV No. (%)
Co-workers infected with HIV or HBV/HCV should disclose their infectious status in the workplace (Disclosure requirements)		
Disagree	37 (9.3)	33 (8.2)
Somewhat disagree	17 (4.2)	19 (4.8)
Somewhat agree	52 (13.0)	54 (13.5)
Agree	294 (73.5)	294 (73.5)
I fear contamination from co-workers infected with HIV or HBV/HCV (Fear of contagion)		
Disagree	185 (46.3)	263 (65.8)
Somewhat disagree	58 (14.5)	46 (11.5)
Somewhat agree	93 (23.2)	54 (13.5)
Agree	64 (16.0)	37 (9.2)
Co-workers infected with HIV or HBV/HCV are homosexual, injecting drug users or sex workers (Prejudicial views)		
Disagree	233 (58.2)	283 (70.8)
Somewhat disagree	61 (15.2)	45 (11.2)
Somewhat agree	71 (17.8)	37 (9.2)
Agree	35 (8.8)	35 (8.8)
Co-workers infected with HIV or HBV/HCV can contact to patients if their viral levels is low or they does not perform high risk procedures (Accepting attitude)		
Disagree	62 (15.5)	36 (9.0)
Somewhat disagree	39 (9.7)	15 (3.7)
Somewhat agree	91 (22.8)	66 (16.5)
Agree	208 (52.0)	283 (70.8)

HIV, human immunodeficiency virus; HBV, hepatitis B virus; HCV, hepatitis C virus.

the risk of transmission from HIV-positive colleagues were less likely to accept them (OR=0.47; 95%CI: 0.25-0.84 and OR=0.56; 95%CI: 0.32-0.93, respectively), compared with those who disagreed with this statement. Additionally, those who only somewhat disagreed with the statement were also less likely to accept their HIV-positive colleagues (OR=0.45; 95%CI: 0.24-0.81).

DISCUSSION

In the current study we found that some nurses did not accept professional contact between HIV, HBV, or HCV-positive colleagues. Older age and the belief that colleagues should disclose their infection status positively influenced nurses' attitude towards co-workers infected with HIV, HBV, or HCV, while fear of transmission negatively influenced acceptance of HIV-positive colleagues. Healthcare workers could feel uncomfortable working with infected colleagues.

This finding is consistent with previous studies (Buskin *et al*, 2002; Reis *et al*, 2005; Sadoh *et al*, 2009; Frazer *et al*, 2011; Ishimaru *et al*, 2016b; for example, a study in China where 43% of healthcare workers were unwilling to sit or work with co-workers infected with HIV (Buskin *et al*,

Table 3
Factors associated with accepting attitudes towards co-workers infected with HIV, HBV or HCV.

	HIV				HBV/HCV			
	Univariate		Adjusted		Univariate		Adjusted	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Age (years)								
20-29	1.00	-	1.00	-	1.00	-	1.00	-
30-39	0.90	(0.59-1.31)	0.87	(0.56-1.28)	1.03	(0.57-1.77)	1.05	(0.57-1.83)
≥40	1.94	(1.25-2.64)	1.85	(1.15-2.58)	2.30	(1.06-4.10)	2.49	(1.14-4.39)
Co-workers infected with HIV or HBV/HCV should disclose their infectious status in the workplace (Disclosure requirements)								
Disagree	1.00	-	1.00	-	1.00	-	1.00	-
Somewhat disagree	1.70	(0.67-2.90)	2.01	(0.82-3.18)	1.18	(0.38-3.03)	1.34	(0.41-3.38)
Somewhat agree	1.83	(1.00-2.72)	2.05	(1.13-2.95)	2.10	(0.88-4.02)	2.18	(0.90-4.19)
Agree	1.66	(1.04-2.36)	2.03	(1.28-2.75)	2.95	(1.62-4.57)	3.02	(1.63-4.70)
I fear contamination from co-workers infected with HIV or HBV/HCV (Fear of contagion)								
Disagree	1.00	-	1.00	-	1.00	-		
Somewhat disagree	0.44	(0.24-0.77)	0.45	(0.24-0.81)	0.82	(0.36-1.73)		
Somewhat agree	0.56	(0.33-0.90)	0.56	(0.32-0.93)	1.13	(0.49-2.33)		
Agree	0.53	(0.30-0.91)	0.47	(0.25-0.84)	0.93	(0.37-2.11)		
Prior experience in caring for patients infected with HIV or HBV/HCV within 1 year								
No	1.00	-			1.00	-	1.00	-
Yes	1.32	(0.95-1.75)			1.68	(1.02-2.62)	1.66	(0.98-2.63)
Experience of needlestick or sharps injury from patients infected with HIV or HBV/HCV								
No	1.00	-	1.00	-	1.00	-		
Yes	2.29	(1.15-3.25)	2.09	(0.97-3.14)	0.76	(0.38-1.45)		

OR, odds ratio; CI, confidence interval; HIV, human immunodeficiency virus; HBV, hepatitis B virus; HCV, hepatitis C virus.

2002). Another study in Japan suggested that 16% of nurses believed colleagues infected with HBV or HCV should not provide patient care, even if the risk of provider-to-patient transmission was low (Ishimaru *et al*, 2016b). In Vietnam, prostitutes and drug addicts are still considered as "social evils" and HIV-positive people are often stigmatized by society (Pham *et al*, 2012).

Some nurses may not accept infected colleagues because of the fear of stigma from family members or friends through working with infected colleagues (Ha *et al*, 2013). Efforts are needed to reduce the stigma surrounding an infectious status, which will hopefully improve nurses' willingness to work with infected colleagues. Building a positive organizational climate, which supports healthcare professionals, represents an important step in this regard (Smith *et al*, 2009).

Older nurses in our Vietnamese study were more accepting towards colleagues infected with HIV, HBV, or HCV. A similar finding was observed in previous studies focusing on attitudes of healthcare workers towards patients; older workers had more positive attitudes towards patients infected with HIV in Iran (Aghamolaei *et al*, 2009) and HCV in Ireland (Frazer *et al*, 2011) compared with younger healthcare workers.

In contrast, different results have been observed in Australia (Richmond *et al*, 2007) and Japan (Wada *et al*, 2016), where younger healthcare workers had more positive attitudes when caring for patients infected with HBV or HCV. As HIV, HBV, and HCV become more prevalent in Vietnam, this will increase contact and positive experiences with people who are infected, particularly in those who are older, potentially influencing positive attitudes towards people with these diseases (Ekstrand *et al*, 2013).

Our study suggested that voluntary disclosure of HIV, HBV, or HCV infection status in the workplace would positively affect attitudes of co-workers. People infected with HIV, HBV, or HCV often prefer to keep their infection status private in the workplace for fear of rejection from co-workers and loss of employment (Dray-Spira *et al*, 2008; Sgorbini *et al*, 2009). This reticent behavior may negatively affect attitudes of colleagues, making them less likely to accept HIV-, HBV-, or HCV-positive colleagues.

For the management of nosocomial infections, disclosure of infection status is important to provide appropriate workplace adjustments for infected workers (Henderson *et al*, 2010). Mandatory testing is not required, but voluntary testing is encouraged for healthcare workers (Rose, 1999; Leipziger, 2010). Confidentiality and rights as employees need to be upheld to encourage disclosure of infection status (Ishimaru *et al*, 2016c).

Fear of HIV transmission may affect attitudes towards infected co-workers. Our study indicated that fear of transmission was negatively associated with accepting attitudes towards HIV-positive co-workers, but not those infected with HBV or HCV. Regardless of the actual risk of nosocomial transmission (Beltrami *et al*, 2000), fear of HIV transmission is often higher than HBV and HCV infection (Hu *et al*, 2004). Extreme precautions, such as excessive use of gloves, are sometimes observed with HIV patient care activities (Manganye *et al*, 2013).

HIV is more stigmatized compared with HBV and HCV, and therefore attitudes towards HIV-infected peoples might be affected by fear of transmission.

The risk of transmission through clinical procedures is extremely low when an HIV-positive worker receives suppressive oral antiviral therapy (Bell *et al*, 1992). Providing education for healthcare workers to recognize effectiveness of universal precautions and actual infectious risk may be effective to improve their attitudes towards infected colleagues and foster an overall positive workplace climate (Smith *et al*, 2011).

Prior experience of needle-stick or sharps injury from patients may have some impact on nurses' attitudes towards infected co-workers. In the current study, respondents with experience of needle-stick or sharps injury from HIV-positive patients had a tendency toward significance to be associated with accepting towards HIV-positive colleagues, but not in HBV or HCV. Conversely, a previous study by the same authors (Ishimaru *et al*, 2016b) showed nurses being accepting towards a co-worker infected with HBV or HCV was positively associated with accidental or personal exposure from patients infected with HBV or HCV.

Experience of exposure to blood-borne infections generally affects reluctance to care for infected patients because of the increased perceived risk of infection (Richmond *et al*, 2007; Canini *et al*, 2008). The experience; however, might promote nurses to accept professional contact between patients and infected co-workers, because nurses may be willing to continue their occupations after acquiring the infection. Further research focusing on cultural and historical contexts is needed to clarify the reason for different results between HIV, HBV, and HCV in these countries.

This study had some potential limitations inherent to any cross sectional study in that casual relationships could not be identified due to the study design. As a relatively small population was sampled from two hospitals, findings cannot be generalized to all Vietnamese nurses or to other countries. Furthermore, HBV, and HCV were combined and assessed in the same questions, and attitudes towards these infections (individually) may be different (Hopwood *et al*, 2012). Nevertheless, this study described one of the first investigations of attitudes towards co-workers infected with HIV, HBV, or HCV ever conducted in Vietnam.

In conclusion, this study suggested that a considerable proportion of Vietnamese nurses would not accept professional contact between patients and HIV, HBV, or HCV-positive co-workers. To improve attitudes towards colleagues infected with these diseases, employees' disclosure of infection status could be encouraged by ensuring the confidentiality of information and upholding their rights as employees and providing appropriate workplace adjustments for infected employees. As HIV is more stigmatized when compared with HBV and HCV infections, attitudes towards HIV-positive co-workers might be affected by fear of transmission, and efforts are needed to reduce the stigma surrounding HIV. Providing education for healthcare workers to recognize infectious risk may be effective to improve attitudes towards accepting infected co-workers.

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