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Nurses' Knowledge, Attitudes, and Practice Related to HIV Transmission in Northeastern China

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Abstract

The purpose of this study was to describe what nurses know about HIV/AIDS in the First Affiliated Hospital of Jiamusi University, Heilongjiang Province, China. This was a descriptive, cross-sectional study. Only 7.9% of the nurse ($n = 177$) used condoms during their first experience of sexual intercourse. Eight-six percent of the nurses had been stuck by sharps while working, and 76% of them had been splashed by patient fluids. For 12 basic HIV/AIDS questions, the mean score was 6.66. The mean score is 6.28 for 9 HIV/AIDS attitude questions. Knowledge and attitude are negatively related ($r = -0.215$, $p < 0.005$). Training in reducing the risk for occupational exposures in this sample is important. Nurses who have a better understanding of HIV/AIDS prevention are more likely to have negative attitudes toward HIV/AIDS. This study suggests the necessity of increasing HIV/AIDS education for nurses, family members, friends, and all health care providers.

INTRODUCTION

HIV/AIDS HAS BECOME a significant health issue in China.^{1–6} Officially, more than 850,000 Chinese have been diagnosed with HIV⁷; and the number of people in China estimated to be living with HIV/AIDS is currently 1 million.^{8,9} The reported number of new HIV infections rose by 17% from January to June in 2002.⁸ Unless effective prevention strategies are rapidly implemented, 10 million Chinese are estimated to become infected with HIV by the end of 2010. The general population in China knows little about the sexual practices that increase the risk of contracting HIV infection.^{1,10–13}

Studies about HIV and AIDS prevention in the general population have been rare in China and have been limited to assessing the HIV status of patients with sexually transmitted diseases and the delayed treatment of these diseases.^{12,14} An alarmingly high prevalence rate of HIV has been reported in rural eastern China.¹² The government estimated there are 3 million paid blood donors in the whole country, and most of them live in poor rural communities, and 12.5% are HIV positive. Those now living with HIV/AIDS, and its stigma, in provinces such as Hunan, Anhui, and Shanxi, facing limited access to health care services while having to endure severe discrimination.¹⁵

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The purpose of this study is to describe what nurses in the First Affiliated Hospital of Jiamusi University, Jiamusi City, Heilongjiang Province, China, know about HIV/AIDS. Heilongjiang Province in northeastern China is close to the Russian-Chinese border and has no HIV prevention programs.¹⁵ According to UNAIDS, the total number of reported HIV infections rose to more than 200,000 by mid-2002 in the Russian Federation. This is a huge increase over the 10,993 reported at the end of 1998. Russia is also one of the countries where AIDS cases are growing.⁹ Studies on the Russian-China border are rare, indicating that HIV/AIDS intervention programs are just starting or are still in the early planning stages.

Nurses in the United States work on the front lines taking care of patients with HIV/AIDS and often assume the role of educator by teaching the general population about the prevention and management of HIV/AIDS. In a developing country such as China, however, health care providers do not fully understand HIV/AIDS, and nurses are often overwhelmed and frightened by it.¹³ Also, the role of nurses has not been recognized and defined in China's HIV/AIDS prevention plan.⁹

Chinese nurses start professional training at the age of 15. After 3 years of nursing school, they start practicing nursing in local hospitals. Except in major cities such as Beijing or Shanghai, it is rare for nurses to pursue bachelor's degrees. Nursing education in China focuses on giving medications, following orders, making beds, and doing technical work. Most nursing schools are led by physicians who teach nurses to take care of diseases rather than patients.²

METHODS

Design

This is a descriptive, cross-sectional design that used surveys. Participation in this study is limited to nurses who worked in the First Affiliated Hospital of Jiamusi University, Heilongjiang, China.

Setting

The participants were nurses who work in The First Affiliated Hospital of Jiamusi University. This is a teaching hospital in the city, with 100 beds and 470 nurses, the largest hospital in the city. If a patient cannot be treated here, the patient would be directly referred to a hospital in Beijing. There are 470 nurses listed in the personnel office and an estimated over 100 patient beds in this facility.

Sample

Surveys were sent to 186 nurses and 95% ($n = 177$) returned the completed survey. Criteria for admission to the study will include: ability to sign a consent form, ability to complete study forms with little assistance, ability to read and write Mandarin, and 18 years of age.

Power analysis

At least 120 study subjects are required to achieve 80% power with α at 0.05 to detect a 30% or higher correlation between scores of knowledge and the scores of attitude toward HIV/AIDS. Therefore, the estimated sample of more than 150 nurses should be adequate.

Instrument

The study's survey was developed from three instruments: (1) the Knowledge and Attitude Survey,¹⁶ (2) the HIV Knowledge Assessment,¹⁰ and (3) the HIV Attitude Questionnaire.¹⁷

The Knowledge and Attitude Survey, which was used in China by the State Family Planning Commission in 2002, is the product of the Centers for Disease Control's (CDC's) Public Health Practices Program Office. The survey has proved to be a reliable instrument for collecting demographic data, general knowledge and attitudes about HIV and AIDS.

The knowledge and attitude survey—The first three sections of the survey were used in a study conducted by the State Family Planning Commission in the Republic of China, which has not yet been published.¹⁸ The survey includes the demographic data, general knowledge and attitude toward HIV/AIDS. The Chinese version of the questionnaire was used in Hunan, China. The validity and reliability were confirmed from the CDC as ($\alpha = 0.73$), Public Health Practices Program Office.¹⁸

HIV knowledge assessment—The second portion of the instrument focuses on HIV transmission, contagion, and epidemiology of HIV and AIDS. This established questionnaire validity and reliability ($\alpha = 0.70$) was tested in Shandong, China.¹⁰

HIV attitude questionnaire—The third portion of the instrument evaluates the attitudes of the medical personnel toward HIV/AIDS.^{17,19,20} This section of the survey has not been used in China, therefore the reliability was tested and a Cronbach α of 0.70 achieved.

DATA ANALYSIS

Statistic Package in Social Sciences (SPSS, SPSS, Inc., Chicago, IL) Version 11 was used to analyze the correlation and descriptive statistics of this study (SPSS Inc., Chicago, IL). Statistical analysis of the data was done at the University of California, San Francisco.

RESULT

Characteristics of the sample

The mean age of the study's participants ($n = 177$) was 37.42 years (standard deviation [SD] 8.66 years); the mean for years-working-as-nurses was 16.63 (SD 8.61 years). Only two percent of the participants were men. Seventeen percent of the nurses held higher positions such as charge nurse or nursing supervisor. More than three quarters (77.5%) finished either 2- or 4-year university programs. On average, nurses earn 7,476 yen per year (SD 3,368 yen). Most were married (81.9%). Only 7.9% used condoms during their first experience of sexual intercourse. Currently, 19.2% of the samples are using condoms as their contraceptive device. Five percent of the nurses lived without tap water, approximately half (47.3%) lived without any kind of bathing facility in the home, and approximately one tenth of them did not have family toilets in their homes (9.4%).

Eighty-six percent of the nurses had been stuck by sharps while working, and 76% of them had been splashed by patient fluids. More than three fourths of the nurses and their spouses (77.8% and 78.8%) lived in their home-towns last year. The nurses preferred to watch television and read newspapers and magazines in their leisure time. Few people listened to the radio, went to movies, watched videos, or used the Internet in their spare time.

Knowledge of HIV/AIDS prevention

All nurses had heard of AIDS, but 7.4% did not know what causes AIDS. Most knew that a blood test can detect the HIV virus (98.9%) and that HIV can be transmitted (97.1%). But participants were not very sure how HIV/AIDS can be transmitted. See Table 1. Although most of the nurses knew that HIV/AIDS is preventable (96.6%), methods of prevention need to be reinforced (Table 2).

Nurses in China learned about HIV and AIDS mostly from talking to experts (60.2%), reading books or newspapers (59.6%), and watching television programs (88.9%). They expressed a desire to learn the latest information about AIDS from continuing education courses (73.5%), books and newspapers (55.9%), and watching educational video programs (77.1%). Nurses were aware of gonorrhea (62.8%), syphilis (51.9%), condyloma accuminatum (69.9%), and hepatitis B (62.8%) but few knew of genital herpes (34.0%), chancres (14.1%), and lymphogranulom venereum (9.6%). Almost three quarters of these nurses expressed a need to reeducate themselves about sexually transmitted infections (STIs), HIV, and AIDS (73.4%).

The level of AIDS and HIV knowledge among the study's participants was fair. For the 12 basic HIV and AIDS questions, the mean score was 6.66. Nurses in this study were prone to have a positive attitude toward people living with HIV and AIDS. The mean score is 6.28 for the basic HIV and AIDS attitude scale. Knowledge and attitude are negatively related ($r = -0.215$, $p < 0.005$).

Related attitudes and behaviors

Half of the participants worried about getting AIDS (50.3%) but did not think that their spouses were at risk (59.8%). The participants stated that if they were diagnosed with HIV, 45% of them would call an AIDS information hot line, 78% would seek a thorough physical examination, but only 49% would avoid sexual intercourse, and 5% would not tell anyone and would isolate themselves. These study participants preferred to discuss HIV/AIDS issues with their colleagues (Table 3).

Nurses in China agreed that school authorities should begin teaching sex education and HIV/AIDS prevention as early as middle school. Also, the nurses suggested that condoms should be available to the younger generation before marriage, although more than half of the nurses still do not endorse premarital sex.

Half of the nurses (49.4%) reported that they avoided contact with HIV-positive patients, however, more than half of these nurses sympathized with and had concerns about these patients (64.1% and 54.1%, respectively).

Seventy-six percent of the participants have used condoms, however, most still feel embarrassed about buying them (72.3%). Nurses expressed different attitudes toward condom use and common high-risk behaviors known in their community (Table 4). Few participants smoked (7.2%), but more than half drank alcohol (64.4%). Thirty-nine percent of them began drinking before the age of 21.

DISCUSSION

In Heilongjiang, Jaimusi City, nurses are not well informed about HIV/AIDS and there are a lot of misunderstandings about HIV/AIDS transmission methods. This occurs undoubtedly because HIV/AIDS is seldom discussed in the classroom, workplace, or public arena. Fortunately, under international society pressure, Chinese government has started to focus on HIV/AIDS issues in recent years in the central provinces.^{15,16,21}

The numbers of HIV risk exposure scores were from 0 to 2 (needle sticks and splashed by body fluids), with the resulting $M = 1.64$, $SD = 0.596$. This exposure score was then correlated with nurses knowledge of HIV/AIDS and no significant relationship was found. This implies that if nurses' had been stuck with needles or were splashed by patients' body fluids, they did not recognize the danger of transmitting diseases. Eighty-six percent of the sample had been stuck by needles, however, nurses show little concern about the risk of

HIV/AIDS. Perhaps they are not aware they are at risk of contracting HIV/AIDS or they do not recognize that the relationship between HIV/AIDS knowledge and actual practice is relevant. This report is similar to another study of nursing students in China.²²

Knowledge about HIV/AIDS can engender a negative attitude toward HIV/AIDS patients. Nurses who have a better though still incomplete understanding of HIV/AIDS prevention are more likely to have negative attitudes toward HIV/AIDS. Early in the epidemic, studies in the United States reported that nurses who were educated about HIV/AIDS, working in hospitals with a high prevalence of the disease, were less willing to take care of AIDS patients.^{23,24} The results of the current study match those of previous studies. In China, nurses who know that there are few AIDS medications available and no safeguards to protect patient privacy might not want to deal with this sensitive issue. Also, nurses fear for their personal safety and their family members' health.

This study suggests the necessity of increasing HIV/AIDS education for nurses, family members, friends, and all health care providers.²⁵ Education of nurses in HIV/AIDS prevention is crucial in China. Training in reducing the risk for occupational exposures in this sample is important. A public education campaign province-wide for health care professionals and the public could decrease anxiety about the disease and increase the awareness of transmission methods and risk behaviors.

This study was based on a sample of nurses in a single hospital in Jiamusi City, Heilongjiang, China, which limits the generalizability of the result. Regardless, these findings raise serious concerns about nurses' knowledge and attitudes in providing care to AIDS patients in China and in protecting themselves for HIV exposure. Educating the general population about HIV/AIDS and how it is transmitted may fall to these front line nurses, yet they themselves need education and support before this will be possible.

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Table 1

Transmission Methods of HIV/AIDS

<i>Variable</i>	<i>n</i>	<i>Percentage of correct answer</i>
Blood transfusion	166	Yes (94.9%)
Sharing needles	154	Yes (88%)
Sexual intercourse	169	Yes (96.6%)
Maternal transmission	160	Yes (91.4%)
Contact with HIV-positive person	148	No (84.6%)
Handling belongings of HIV-positive person	153	No (87.4%)
Insect bites	140	No (79%)

Table 2

HIV/AIDS Prevention

<i>Variables</i>	<i>Answer</i>	<i>n (%)</i>
One partner only	Yes	124 (72.1%)
	No	48 (27.9%)
Using condom	Yes	108 (62.8%)
	No	63 (37.2%)
No blood transfusion	Yes	145 (84.3%)
	No	27 (15.7%)
Do not reuse needles	Yes	164 (95.3%)
	No	8 (4.7%)

Table 3

Persons with Whom Nurses Discussed HIV/AIDS Issues

<i>Members</i>	<i>n (%)</i>
Colleagues	116 (70.7%)
Medical personnel	56 (34.1%)
Spouse	43 (26.2%)
Friends in same gender	39 (23.8%)
Classmates	16 (9%)
Other family members	13 (7.9%)
Friends of different gender	5 (3%)

Table 4

Nurses' Attitudes Toward Condom Use

<i>Items</i>	<i>n = Yes (%)</i>
Correct use of condoms can prevent pregnancy.	123 (75.9%)
Correct use of condoms can prevent HIV/AIDS.	118 (73.3%)
Correct use of condoms can prevent sexually transmitted infections.	117 (72.2%)
It is less comfortable to use condoms.	95 (58.6%)
It is not safe to rely on condoms for contraception.	85 (52.5%)
Condoms are too expensive to use frequently.	78 (48.1%)