

**Title: Knowledge of, attitudes toward, and willingness to care for female sex workers:  
differences between general and mental health nursing student**

**Abstract**

*Background:* It is not common in most nursing education programmes to teach students how to care for sex workers. Little is known about whether nursing students are prepared to care for sex workers upon graduation.

*Objectives:* This study aims to explore and compare students in the general and mental health nursing programmes in Hong Kong in terms of their knowledge of, support for the human rights of sex workers; attitudes towards, and willingness to care for sex workers. This study also aims to explore the factors associated with attitudes towards and willingness to care for sex workers among all nursing students, general nursing students, and mental health nursing students.

*Methods:* A cross-sectional study. Undergraduate nursing students were invited to participate in an online survey in 2019.

*Results:* A total of 317 students completed the questionnaire. The students had little knowledge of sex workers, and their attitudes were polarized. Their attitudes towards sex workers and their support for the human rights of sex workers were significantly associated

with their willingness to care for sex workers. A perceived need for education relating to caring for sex workers was positively associated with attitudes towards sex workers and a willingness to care for them. Final year students had a more positive attitude towards sex workers than first-year students.

*Conclusion:* The study may contribute to the development of a nursing curriculum for the promotion of non-judgmental care for sex workers or disadvantaged client groups.

**Keywords:** knowledge; attitudes; willingness to care; sex workers; nursing students.

## **Background**

The World Health Organization defines sex workers as “women, men and transgendered people who receive money or goods in exchange for sexual services, and who consciously define those activities as income generating even if they do not consider sex work as their occupation” (p.2) (Overs, 2002). Globally, sex workers face severe stigmatization and human rights violations in society. Numerous studies have suggested that there are significant disparities in health and healthcare services between sex workers and the general population (Leung KM, 2013; Ross, Crisp, Månsson, & Hawkes, 2012; H. T. Wong, Lee, & Chan, 2015). Generalized social stigma leads to discriminatory attitudes and behaviours by healthcare providers. A systematic review of studies on the barriers to accessing health services indicated that sex workers have experienced or anticipate experiencing discrimination and negative reactions from healthcare providers in healthcare settings (Ma, Chan, & Loke, 2017). The poor attitudes of healthcare providers, their humiliating treatment, the receipt of unequal treatment, longer waiting times, breaches of confidentiality, mandatory testing for HIV, and even sexual harassment have deterred sex workers from seeking health care and led to unmet health needs.

Despite extensive research on the experiences of sex workers in seeking health services, there have been only a few studies on the attitudes of healthcare providers on caring for sex workers. These revealed a diverse range of attitudes among healthcare providers towards marginalized populations (Chan & Reidpath, 2007; Jayanna et al., 2010; Melby, Boore, & Murray, 1992; Nakagawa & Akpinar-Elci, 2014; Phrasisombath, Thomsen, Hagberg, Sychareun, & Faxelid, 2012). Some health professionals blamed sex workers for the spread of HIV and insisted that HIV testing should be mandatory (Jayanna et al., 2010). Others viewed sex workers as victims who deserved sympathy (Nakagawa & Akpinar-Elci, 2014). Due to a lack of information in the current literature, there is a need to explore the attitudes of health care providers toward sex workers.

Because attitudes could influence the behaviours of people (Ajzen & Fishbein, 2005), it is essential to understand what factors affect the attitudes of healthcare providers toward sex workers if non-judgmental care is to be provided to sex workers. A study has shown that healthcare providers who were male and older (Phrasisombath et al., 2012) or who had a religious affiliation (Nakagawa & Akpinar-Elci, 2014) were more likely to hold negative attitudes toward sex workers. A study reported an association between a lack of knowledge and job-related training about sex workers and the holding of negative attitudes towards them by healthcare providers (Phrasisombath et al., 2012). Studies examining the

association between the clinical experience of healthcare providers in providing HIV/STI services and their attitudes toward sex workers were inconclusive (Jayanna et al., 2010; Phrasisombath et al., 2012). All of these studies recommended that healthcare professionals be provided with education and training to care for sex workers (Jayanna et al., 2010; Melby et al., 1992; Nakagawa & Akpinar-Elci, 2014; Phrasisombath et al., 2012).

The Joint United Nations Programme on HIV/AIDS (UNAIDS), the World Health Organization (WHO), and sex workers' advocacy groups have emphasized the importance of showing respect for the human rights of sex workers and promoting zero discrimination in healthcare settings (UNAIDS, 2017). However, no study has explored the extent to which healthcare providers support the human rights of sex workers, such as the right to the maintenance of health, the right to access health care, and the right to non-discriminatory and equal treatment.

As the largest group of frontline healthcare providers, nurses are usually the first point of contact for clients and have more interactions with patients than other health professionals. Preparing nursing students with cultural competencies is of great importance since this will affect the care that they will provide in their practice, which inevitably influences the health status and access to health care of sex workers. In Hong Kong, the University Grants Committee (UGC)-funded universities and self-financing universities

are providing five-year baccalaureate curriculum in nursing (Dyson & McAllister, 2019).

The baccalaureate curriculum is designed to prepare the students for registration as a registered nurse (RN) with the Nursing council of Hong Kong, and the graduates from the programme could work at various health care settings. Since 2002, to meet the mental health needs of the population, some universities introduced the mental health nursing programme into their nursing education. Graduates from the mental health programmes could work at different mental health settings, such as psychiatric hospitals, psychiatric units of general hospitals, and various rehabilitation sectors. Given the differences in their curricula and clinical experiences, it is reasonable to expect that general nursing students and mental health nursing students may differ in their knowledge, attitudes, and willingness to care for sex workers.

The aim of this study was to examine differences between general and mental health nursing students in their: i) knowledge of sex workers; ii) attitudes towards sex workers; iii) support for the human rights of sex workers; and iv) willingness to care for sex workers in their future practice. The study also examined (v) the factors associated with attitudes towards and willingness to care for sex workers among all nursing students, general nursing students, and mental health nursing students.

## **Study Method**

This was a cross-sectional survey.

### ***Participants and Setting***

The target participants were undergraduate students enrolled in two Bachelor of Science Honours Degree in Nursing programmes (General Nursing and Mental Health Nursing) at one of the three major universities in Hong Kong. This university has the largest number of nursing students in Hong Kong. There were a total of 850 general nursing students and 350 mental health nursing students in the undergraduate programme. All students were aged 18 or above, studying full time, and almost all possessed a smartphone.

### ***Data collection procedure***

Permission was obtained from the two programme leaders. Students were recruited during the regular full class meeting with programme leaders held at the beginning of each semester. The non-teaching researcher (a PhD student) from the School of Nursing explained the aim of the study.

Students were invited to take part in the survey by using the university's 'MySurvey' platform. A Quick Response code (QR code) was created for the 'MySurvey', and shown to the students using a PowerPoint slide. The students were instructed to access 'MySurvey'

after scanning the QR code with their smartphones. Students who scanned the provided QR code and submitted the survey were considered to have given their consent to participate in the study. Via a mass email, the programme leaders also helped to remind students to take part in the study.

Participation of the study was voluntary, and students were assured of the confidentiality of their responses. Only numerical identifiers were used to indicate the participants. No academic or monetary incentives were offered. The students were also given assurances that they could refuse to participate or drop out from the study at any time without any impact on their grades. The students were told that the online survey would take them approximately 15-20 minutes to complete.

### ***Measurements***

The preliminary questionnaire was developed based on an extensive literature review and validated by experts. It is comprised of six sections: 1) the socio-demographic information of the students; 2) their knowledge of sex workers; 3) the Attitudes toward Prostitutes and Prostitution Scale; 4) the nursing students' attitudes towards sex workers; 5) their support for the human rights of sex workers; 6) their willingness to care for sex workers in their



future practice, 7) their cultural competence in caring for sex workers; 8) their educational needs in caring for sex workers.

Section 1 of the questionnaire solicited the socio-demographic information of the students, including their age, gender, birthplace, religion, years of study, and programme of study.

Section 2 contained seven questions developed by the researchers of this study to explore the students' knowledge of prostitution law, whether they had ever attended a related lecture or seminar, their perceived level of knowledge of sex workers, and their educational needs in caring for sex workers. The response formats used in this section varied. For example, four dichotomous items related to their personal contact with sex workers and perceived need to learn about sex workers were answered in by a yes/no response. The hours of sex-work related education and self-rated knowledge about caring for sex workers were measured on a 3-point Likert-type scale. The knowledge of prostitution law was asked with multiple possible answers provided.

Section 3 consisted of the 29-item Attitudes toward Prostitutes and Prostitution Scale (Levin & Peled, 2011) . The scale contains two subscales on prostitutes: as normative / deviant (8 items), and as choosing / victimized (6 items). Two subscales on prostitution:

as normative / deviant (8 items), and as choice / victimization (7 items). The items are measured on a 5-point Likert-type scale (1 = strongly disagree, 5 = strongly agree). Agreement with each statement indicates a belief in deviance / victimization. Disagreement with each statement suggests a normative view of sex workers, with sex work regarded as a choice. The Cronbach's alpha reliability of the four subscales ranged from 0.81 to 0.88, and was 0.81 for the overall scale. Permission to use this scale was obtained from the authors.

Section 4 was the scale measuring the nursing students' attitudes toward sex workers, which was adopted from a scale developed by Melby V et al. (1992) to determine nurses' attitudes towards prostitutes (Melby et al., 1992). A 5-point Likert-type scale was used, with 1 = strongly disagree, and 5 = strongly agree. The scale on nursing students' attitudes was comprised of eight items on attitude, with three related to morals, two to control, and three to sympathy. Negative items (Items 2 to 7) were reversely coded, with higher scores representing positive attitudes, and lower scores representing negative attitudes toward sex workers. The psychometric properties of the scale were not reported in the literature. Permission to use this scale was obtained from the authors.

Section 5 assessed levels of support for the human rights of sex workers. The nine items in this section were developed based on notions concerning women's sexual and

reproductive health and rights as laid out by the United Nations' Office of the High Commissioner for Human Rights (UN Office of the High Commissioner for Human Rights (OHCHR), 2014). Responses were measured on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The total score of the scale ranged from 9 to 45 points, with a higher score indicating more support for the human rights of sex workers.

Section 6 focused on the students' willingness to care for sex workers. The scale was developed based on previous studies assessing the willingness of nursing students to treat people living with HIV/AIDS in Hong Kong (Yiu, Mak, Ho, & Chui, 2010). It contains three items: (1) If I am allowed to choose, I would not choose to serve patients who are sex workers; (2) I would refuse to care for patients who are sex workers; (3) I am willing to take care of patients who are sex workers. Responses to each item ranged from 1 (strongly disagree) to 5 (strongly agree). Items one and two were reversely scored, with a higher score representing a greater willingness to care for sex workers. The Cronbach's alpha was reported to be 0.81 in the pre-intervention phase and 0.80 in the follow-up phase of the previous study(Yiu et al., 2010).

Section 7 consisted of the Cultural Competence Assessment Tool developed by Doorenbos et al. (2005) to assess the cultural competence of nursing students in caring for sex workers (Doorenbos, Schim, Benkert, & Borse, 2005). The scale consists of 25 items

that measure cultural awareness, cultural sensitivity, and cultural competence behaviours.

A 5-point Likert scale was used assess cultural awareness and sensitivity in a response set of strongly agree, agree, no opinion, disagree, and strongly disagree. Cultural competency behaviours were assessed using a 5-point Likert scale in a response set of always, often, at times, never, and not sure. The scores were summed up and transformed into a 1 to 125 scale, with a higher score representing a higher level of cultural competency in caring for sex workers. The Cronbach's alpha was reported to be 0.86 in previous studies (Doorenbos et al., 2005).

Section 8 contained only two items, developed by the research team, for assessing the educational needs of nursing students in caring for sex workers: 1) Do you think the topic of sex workers should be addressed in the undergraduate nursing curriculum? (Yes / No). 2) Which educational approach would you prefer to acquire knowledge related to caring for sex workers? (Multiple possible answers were provided).

### ***Sample size***

The ratio of 15 subjects per predictor variable was adopted to calculate the sample size (Stevens, 2012). It was estimated that the maximum number of predictors in the regression would be 20. Thus, the estimated sample size of the study was 300.

### ***Validity and reliability of the questionnaire***

#### ***Content validity***

The validity and reliability of the questionnaire were tested before the online ‘MySurvey’ study was conducted. The content validity of each item and the scales were assessed by a panel of six experts comprising two experts in women’s health, one in mental health, one in cultural sensitivity, one in nursing education and cultural sensitivity, and one in social work with sex workers.

The experts were asked to rate each item using a 4-point scale: 1 = not relevant; 2 = somewhat relevant; 3 = quite relevant; and 4 = highly relevant. The content validity index (CVI) for each item (I-CVI) and the entire scale (S-CVI) were calculated. For each item, I-CVI was calculated based on the number of experts giving a rating of either 3 or 4 divided by the six experts. For each scale, the S-CVI was calculated by averaging the I-CVI for all items on that scale. Items with an I-CVI of at least 0.78 and scales with an S-CVI of at least 0.90 were deemed to meet the criteria for inclusion in the questionnaire (Polit, Beck, &

Owen, 2007; Waltz, Strickland, & Lenz, 2010). Items and scales that failed to meet the I-CVI / S-CVI criteria were removed from the questionnaire. The items were also amended according to comments and suggestions from the experts. For example, two experts edited the wording of a few items for clarity, and one added an item relating to support for the human rights of sex workers.

The results of the content validity test of the measurements are shown in Appendix 1. All of the items on the nursing students' knowledge of sex workers and prostitution law, attitudes toward sex workers, support for the human rights of sex workers, willingness to care for sex workers, and educational needs demonstrated adequate content validity, with I-CVIs ranging from 0.83-1.00, and S-CVIs of 1.00, 0.963, and 1.00, respectively. One of the items in the attitudes toward prostitutes and prostitution scale was considered inappropriate, with an I-CVI of 0.667, and was removed. The S-CVI of the scale was 0.891, and the scale was removed from the questionnaire.

The S-CVI for the cultural competence scale was 0.833, with five out of the 25 items having an I-CVI of as low as 0.17 to 0.33 and less than 0.78. Two experts on cultural sensitivity questioned the use of the cultural competence scale in the survey. They also pointed out that cultural competence has been criticized for leading to the stereotyping of cultural groups (Kleinman, 2006). They also voiced the suspicion that cultural competence

would be low among undergraduate nursing students, as experience and exposure are required to develop cultural competence. On the suggestion of all of the experts in the panel, the cultural competence scale on caring for sex workers was removed from the questionnaire.

*Pilot study: reliability of the questionnaire*

A pilot study was conducted to establish the reliability of the questionnaire. A total of 20 undergraduate nursing students were invited to complete the questionnaire in January 2019. Internal consistency was measured by Cronbach's alpha. The two-week test-retest reliability was estimated using the intra-class correlation coefficient (ICC). A Cronbach's alpha  $\alpha$  value of less than 0.50 is regarded as unacceptable, 0.50 - 0.60 as poor, 0.60 - 0.70 as acceptable; 0.70 - 0.90 as good; and over 0.90 as excellent (Nunnally & Bernstein, 1967). An ICC value of  $\leq 0.4$  is considered poor; 0.41 - 0.60 moderate; 0.61 - 0.80 good; and 0.81 - 1.00 excellent (Nunnally & Bernstein, 1967). Minor changes were made based on the participants' feedback on clarity. The individuals who were involved in the pilot study were not included as study participants in the main study.

The psychometric properties of the measurements are shown in Appendix 2. The findings indicate that the measures used in the study had acceptable internal consistency

( $\alpha=0.653$  to  $0.967$ ) and an excellent level of stability (ICC= $0.844$  to  $0.911$ ) within the two-week period.

### ***Data analysis***

Data were analyzed using the Statistical Package for Social Sciences (SPSS v. 25). The frequencies, percentages, means, standard deviations, and median were explored with descriptive statistics. An independent sample t-test was used to compare the mean values of the continuous variables, and a chi-square test was used to compare differences in the proportions of categorical variables between the general nursing students and the mental health nursing students. A stepwise multiple linear regression was conducted to identify factors associated with the attitudes and willingness of students to care for sex workers. A p-value of  $< 0.05$  was considered to be statistically significant.

### ***Ethical considerations***

Ethical approval from the Human Subjects Ethics Sub-committee of the Hong Kong Polytechnic University was obtained before data were collected. The risks from participating in this study were minimal. Those who scanned the QR code and submitted a completed questionnaire were considered to have given their implied consent to take part



in the study. If the participants felt uncomfortable with the questions, they could terminate the survey, and they were told that they could approach the research team if they had any issues related to this research. The participants were given contact information to access the psychological support and counseling services available at the Office of Counseling and Wellness of the University. They were also given the number of a crisis hotline. All of the research data were stored electronically and were accessible only to the researcher, through the use of a password.

## **Results**

A total of 450 undergraduate students were invited to take part in the study. A total of 327 students (80.0%) returned the questionnaire electronically. However, 10 questionnaires were incomplete and therefore discarded, leaving 317 questionnaires to be analyzed and included in this study.

### ***Demographic characteristics of the participants***

Of the 317 participants, 141 were studying in the general nursing programme, and 176 in the mental health nursing programme, comprising 16.6% of the students in the general programme and 50.3% of those in the mental health programme in the School.

Table 1 shows the demographics of the participants. The students had a mean age of 20.64 (SD=1.88), 76.0% were females, 85.5% were born in Hong Kong, and 24.6% had a religious affiliation. The distribution of students studying in years one to five was 85 (26.8%), 77 (24.3%), 51 (16.1%), 44 (13.9%), and 60 (18.9%), respectively. Since more year-one students in the mental health nursing programme and more year-five students in the general nursing programme took part in the study, there were significant differences in the mean age of the students, with students in the general programme being slightly older than those in the mental health programme.

***Knowledge and educational needs of the participants in relation to caring for sex workers***

Table 2 shows the knowledge and educational needs of students in relation to caring for sex workers. Only a small percentage (3.8%) of students actually knew anyone who was a sex worker, and 22.7% claimed that they could recognize people who might be sex workers. Only one-quarter (25.2%) knew that prostitution was not illegal according to Hong Kong's prostitution law.

When students were asked about their education in relation to caring for sex workers, only 14.5% said that they had ever attended lectures, courses, or community

forums about sex workers, and 85.5% reported that they had never received sex work-related training. Only a few students (3.2%) expressed the belief that they have a good knowledge of how to care for sex workers. The majority perceived a need for related knowledge on caring for sex workers (82.0%) and said that such content should be included in the nursing curriculum (75.4%). Most said that they would prefer to receive such training in workshops / seminars (53.9%) and in lectures (47.9%). However, 5.7% of the participants were not interested in receiving such training. There was a statistically significant difference between the students in the two programmes in their preference in educational approach, with the students in the general nursing programme preferring workshops / seminars ( $X^2=4.852$ ,  $p=.028$ ) and volunteer training offered by non-governmental organizations ( $X^2=4.351$ ,  $p=.037$ ).

### ***Attitudes toward sex workers***

Table 3 presents the attitudes of students towards sex workers. Polarization was observed in the students' attitudes toward prostitution. Nearly one third (27.8%) of the participants called for prostitution to be legalized, while one third (28.1%) opposed legalization. Almost one third (31.2%) expressed the view that prostitution was immoral, while one third (27.8%) disagreed with this statement (had a positive attitude).

Of the students, 70.7% believed that sex workers should undergo compulsory medical tests, and 68.5% thought that they should be routinely tested for HIV / sexually transmitted diseases (STDs). A majority (68.5%) also expressed sympathy for sex workers who had contacted HIV/STDs through sex work (68.5%), and 62.5% agreed that sex workers should be given free condoms.

A chi-square test and an independent sample t-test were conducted to examine the differences between the two groups in their attitudes toward sex workers (Table 3). A statistically significant difference was found between the two groups of students in their attitude that 'sex workers who become infected with HIV/STDs deserve no sympathy', in that students in the general nursing programme were more sympathetic, while those in the mental health programme were more neutral ( $X^2=9.217$ ,  $p=0.01$ ). There were no statistically significant differences between the two groups in their overall mean score on attitudes toward sex workers ( $t=0.669$ ,  $p=0.504$ ).

### ***Support for the human rights of sex workers***

Table 4 presents the students' support for the human rights of sex workers. Over 80% of the students in both programmes expressed support for the human rights of sex workers, including for their right to quality of life, health and safety, and equal treatment. A chi-

square test and independent t-test were used to assess the differences between the two groups on this issue.

The students in the general nursing programme were more supportive of the right of sex workers to nondiscrimination and equal treatment (item 1), to marry and start a family (item 4), to privacy of their personal information (item 5), to have access to the highest attainable standard of health (item 7), to benefit from health-related progress in the sciences, such as in areas related to the prevention of harm (item 8), and to have access to the basic necessities to ensure an adequate standard of living (item 9) ( $X^2$  test, all  $p < 0.05$ ). The results showed that students in the general nursing programme were more supportive of the human rights of sex workers than students in the mental health programme ( $t = 2.817$ ,  $p = 0.005$ ).

### ***Willingness to care for sex workers***

Table 5 presents the willingness of students to care for sex workers. The majority of the students responded positively, with 72.6% of them stating that they would choose to provide care to sex workers, 77.6% that they would care for sex workers, and 67.5% that they would be willing to care for them. However, 6.6% would not provide care to sex workers if they were allowed to choose, and 3.5% would refuse to care for them. A chi-

square test and independent t-test analysis indicated that there were no statistically significant differences between the students in the general and mental health nursing programmes in their willingness to care for sex workers (all  $p>0.05$ ).

### ***Factors associated with attitudes toward sex workers***

A linear regression analysis was conducted to identify the predictors of the students' attitudes towards sex workers (Table 6). The analysis was first conducted of the students in the study as a whole, and then separately of students in the general nursing and mental health nursing programmes.

The following variables were entered into the analysis: age, gender, religion, birthplace, year of study, programme, district of residence, interpersonal contact with sex workers, ability to recognize a person as a sex worker, knowledge of prostitution law in Hong Kong, had received training related to sex workers, self-rated knowledge about caring for sex workers, perceived a need to have knowledge about caring for sex workers, perceived a need to address in the nursing curriculum issues relating to sex workers, expressed support for the human rights of sex workers, and a willingness to care for sex workers. Six negative statements (items 2 to 7) were reverse-scored to compute the total score for attitudes.

The results showed that nursing students who were willing to care for sex workers, perceived the need to have knowledge relating to the care of sex workers, and who were in year five (the final year) of the programme had more positive attitudes toward sex workers. The three variables explained 7.7% of the variance in attitudes toward sex workers among all the nursing students.

The factors associated with positive attitudes toward sex workers among students in the general nursing programme were self-rated good knowledge related to sex workers, a willingness to care, and a perception of the need for related knowledge. The three variables explained 19.9% of the variance in attitudes toward sex workers among students in the general nursing programme. The factors associated with a positive attitude on the part of students in the mental health nursing programme were a perception of the need to have related knowledge and being in one's final year of study. The two variables explained 4.8% of the variance in attitudes toward sex workers among students in the mental health nursing programme.

#### ***Factors associated with the willingness of students to care for sex workers***

A linear regression analysis was conducted to identify the predictors of the nursing students' willingness to care for sex workers. Separate analyses were conducted for students in the

general nursing and mental health nursing programmes (Table 7). The following variables were entered into the analysis: age, gender, religion, birthplace, year of study, programme, district of residence, interpersonal contact with sex workers, the ability to recognize a person as a sex worker, knowledge of prostitution law in Hong Kong, the receipt of training related to sex workers, self-rated knowledge about caring for sex workers, the perception of a need to have knowledge about caring for sex workers, the expression of a need to address sex workers in the nursing curriculum, attitudes toward sex workers, and support for the human rights of sex workers. Two negative statements (item 1 and item 2) were reverse-scored to compute the total score on willingness.

The results showed that predictors of the willingness of nursing students to care for sex workers in their future career were the expression of a need to have knowledge about caring for sex workers, the ability to recognize a person as a sex worker, the holding of positive attitudes toward sex workers, and the expression of support for the human rights of sex workers. The four variables explained 36.2% of the variance among all nursing students in the willingness to care for sex workers.

The factors associated with a willingness among students in the general nursing programme to care for sex workers were the expression of a need to have knowledge about caring for sex workers, the ability to recognize a person as sex worker, the holding of



positive attitudes toward sex workers, and the expression of support for the human rights of sex workers. The four variables explained 36.1% of the variance among students in the general nursing programme in the willingness to care for sex workers.

The factors associated with a willingness of students in the mental health nursing programme to care for sex workers were a religious affiliation, a perception of the need to have knowledge about caring for sex workers, correct knowledge of the prostitution law in Hong Kong, and support for the human rights of sex workers. The four variables explained 39.9% of the variance among students in the mental health nursing programme in the willingness to care for sex workers.

## **Discussion**

This is the first study to explore and compare the knowledge, attitudes, and willingness to care for sex workers of nursing students studying in general and mental health nursing programmes in Hong Kong, and the factors associated with these attitudes and willingness.

It was encouraging to find that the majority of students had a positive attitude, expressed support for the human rights of sex workers, and were willing to care for them, although they were lacking in related knowledge.

### ***Inadequate knowledge about sex workers***

The findings from the study showed that nursing students had little or inaccurate knowledge about prostitutes and prostitution law in Hong Kong. Similar results were reported on medical students' knowledge of sex workers (Nakagawa & Akpinar-Elci, 2014). The stigma associated with sex work and the legal constraints on prostitution have compelled sex workers to hide, causing them to become invisible, ignored, and forgotten in society (Decker et al., 2015; W. C. Wong, Holroyd, & Bingham, 2011).

The coverage of sex workers in the nursing curriculum is considered inadequate, as the students reported having not received related information from their nursing curriculum. The nursing schools, as a microcosm of society, appear to have avoided a topic that is commonly regarded as controversial. Similar findings have also been reported on nursing students' understanding of other marginalized and vulnerable populations, such as the lesbian, gay, bisexual, and transgender (LGBT) community, drug abusers, and victims of domestic violence (Cornelius & Carrick, 2015; Doran & Hutchinson, 2017; Vargas Vilela, Ventura, & Silva, 2010). Also, studies have shown that nursing students are generally given little chance in their studies to talk about topics related to sexuality, beyond discussions about sexual and reproductive health problems (Aaberg, 2016; Carabez et al., 2015). The inadequate knowledge and training in the nursing curriculum might raise concerns about

the competence of nursing students in caring for sex workers after graduation. Thus, introducing sensitive topics about disadvantaged and marginalized populations in the nursing curriculum, such as sex workers, may help to promote an understanding of marginalized and vulnerable patients and result in more sensitive care.

### ***Polarized attitudes towards sex workers***

In line with the literature, the nursing students, as members of society, expressed polarized views towards sex workers (Lai, Leung, Siu, & Thadani, 2015; Ma, Chan, & Loke, 2018).

Although there has been a progressive shift in public attitudes towards sexuality and sexual behaviours in recent years (Loper, Lau, & Lau, 2014; Yip et al., 2013), some of the participants still held stereotyped and prejudicial attitudes towards sex workers, reflecting the social norms and moral values of society.

In Hong Kong, both traditional Confucianism and western Christianity have had a deep impact on the construction of norms and attitudes towards sexuality (Chiu, 2006; Kwok & Wu, 2015). In the Confucian philosophy, it is considered proper for women to be less sexually aggressive than men (Gao et al., 2012). In Christianity, only sex within marriage is approved, while extramarital sex is condemned (Chiu, 2006). In addition, in Hong Kong the law states that ‘a person who in a public place or in view of the public

solicits for any immoral purpose' shall be guilty of an offense (Hong Kong Crime Ordinance, 1990). Therefore, it is not surprising that sex work was viewed by participants in this study as immoral and unethical.

It is worth noting that approximately 70% of the students agreed that sex workers should undergo compulsory medical tests and be routinely tested for HIV/AIDS. This finding is consistent with that from a study of nurses in Northern Ireland, who held strong views on the control and regulation of sex workers (Melby et al., 1992). Such prejudice or fear against sex workers may reinforce the already stigmatized belief that sex workers are 'vectors of disease' (Schaffauser, 2010). The control and regulation of sex workers may violate the human right to have control over one's health and medical screening (Bekker et al., 2015; Decker et al., 2015). There is also no evidence that mandatory or compulsory testing would contribute to public health (Bekker et al., 2015; Decker et al., 2015). The World Health Organization (WHO) has recommended that voluntary HIV testing and counselling be offered to sex workers at least annually, whenever they request it (World Health Organization, 2013). It is essential to raise the awareness of students that they may hold stereotypes about sex workers and that sex workers have the right to decide on their own screening or treatment.

### ***Support for the human rights of sex workers***

It is comforting to know that the majority of the nursing students expressed respect for the human rights of sex workers, particularly of their right to quality of life and equal access to health and healthcare services. Their support for the human rights of sex workers may be partially attributed to their knowledge of the nursing code of professional conduct. The code provides guidance on professional conduct and ethics in nursing. It clearly states that nurses must respect the dignity, values, and beliefs of patients, and provide them with equal treatment regardless of the patients' background. Nurses are also required to safeguard the confidentiality and privacy of their patients (The Nursing Council of Hong Kong, 2015). Pro-prostitution feminists and activists with non-governmental organizations in Hong Kong have also put tremendous effort into public education, and have called for the decriminalization of prostitution (Lim, 2008). Their advocacy activities may have increased the public's awareness of the human rights of sex workers.

### ***Willingness to care for sex workers***

The majority of the nursing students in this study were willing to care for sex workers. The finding is similar to that reported in a study of medical students, in which the majority indicated that they were willing to care for clients regardless of background, including

those who were sex workers (Nakagawa & Akpinar-Elci, 2014). This demonstrated the potential of these students to provide equal care for all patients in their future practice, and thereby uphold the code of professional ethics.

However, the evidence also indicated that personal values, along with societal and organizational values, may have an impact on how health workers behave (Horton, Tschudin, & Forget, 2007). It is also possible that deeply rooted negative feelings about sex work may surface when these professionals come in contact with these clients, so that they fail to safeguard the equal rights of sex workers to healthcare services, creating a dissonance between their prejudicial attitudes towards marginalized populations and the expectations of a professional nurse (Pickles, de Lacey, & King, 2017).

It is therefore essential that nursing educators emphasize the professional code of conduct of nurses, and nurture in their students a sense of self-awareness and a habit of reflecting on their possible prejudicial and judgmental attitudes towards sex workers and other marginalized populations. The possible association between personal bias and the intended / unintended mistreatment of disadvantaged populations should also be discussed.

***Correlating factors on attitudes towards and a willingness to care for sex workers***

The findings from the study suggest a significant association between the nursing students' attitudes towards sex workers and their willingness to care for them. The finding of a positive association between the attitude of healthcare providers towards a stigmatized population and their willingness to care for members of that population is consistent and supported by evidence (Hou et al., 2006; Suominen et al., 2010; Yen et al., 2007).

The results of this study revealed an association between the nursing students' perception of a need for related knowledge and their attitudes towards and willingness to care for sex workers. Those who did not see the need for such information had negative attitudes and were unwilling to care for sex workers. This finding may be explained by the selective exposure theory (Hart et al., 2009). People who hold negative attitudes are likely to defend their attitudes, beliefs, and behaviours by avoiding information that challenges their beliefs (Festinger, 1962; Hart et al., 2009; Sweeny, Melnyk, Miller, & Shepperd, 2010). The students who had negative attitudes towards sex workers may be resistant to changing their prejudice through learning about this population group. This personal bias will undoubtedly influence their future practice and service to these clients. How best to motivate these students to participate in related interventions / educational programmes will be a challenge.

The results of the study also showed that year-five students had more positive attitudes towards sex workers than year-one students. One possible explanation for this is simply that students in their fifth year in university are more mature than freshmen. Final-year students may be more knowledgeable about sexual health and the professional code of ethics of nurses than first-year students. Also, the subjects 'Ethics and Legal Aspects in Health Care' and 'Sexual and Reproductive Nursing Care' are taught in year-three of the two programmes. Another possible explanation is that students in their final year of study have had more clinical placements in various clinical settings and have had opportunities to work with diverse populations. A study had also found that final-year nursing students had more positive attitudes towards older people as compared to first-year nursing students (Lambrinou, Sourtzi, Kalokerinou, & Lemonidou, 2009). It is possible that final-year students have a higher level of competency and are better prepared to deal with differences than first-year students. Future studies are recommended to explore how subjects in the nursing curriculum help to prepare nursing graduates with the competence to provide care to marginalized populations.

An interesting finding was that being able to recognize sex workers in daily life was associated with a willingness to care for them. Those who were able to identify sex workers in public places were likely to have been able to do so through the clothes that sex



workers wear, the way that they talk, or other identifiers. This may reflect an awareness and some understanding of the sex trade and the sex workers. This contrasted with the finding that health care providers were likely to show negative attitudes and an unwillingness to care for clients if they could identify sex workers among HIV/STD patients (Phrasisombath et al., 2012). In healthcare settings, healthcare providers may suspect that a client is a sex worker if that client has a sexually transmitted disease or a history of contracting such diseases. Healthcare professionals may be more likely to make moral judgements about sex workers with sexually transmitted diseases as people who practise irresponsible behaviours (Hood & Friedman, 2011).

The results from this study show that there was no statistically significant difference between students in the general nursing and mental health nursing programmes in their attitudes and willingness to care for sex workers. However, there was a clear difference between the two groups in their support for the human rights of sex workers. Surprisingly, there was a statistical significance between general nursing students and mental health nursing students on their support for the human rights of sex workers. Mental health nursing students scored lower on their support for the human rights of sex workers as compared to general nursing students. While students in mental health indicated that they are prepared to care for patients with mental illnesses, they unexpectedly showed less

inclination than students in general nursing to respect the human rights of marginalized population groups. However, this finding should be interpreted with caution, as there is a possibility of sample bias. The response rates of the students from the general and the mental health programmes were 16.6% and 45.5% respectively, and more of the latter than the former were in their first two years of study (41.1% vs 59.1%). The variation in the response rate of the students may due to the class arrangement at the time of the study, and that the teacher who invited the students showed interest in this topic as well.

### **Implications**

Given the special health needs of sex workers, students in nursing should be prepared to care for this special group of clients. The results of this study indicate that there is a need to reform the current nursing curriculum to better prepare nursing students to care for diverse populations.

First, social justice is the foundation of health equity (Hatchett, Elster, Wasson, Anderson, & Parsi, 2015). It should be the underpinning for how decisions are made in terms of equitable distribution and the allocation of healthcare services and resources (Shaw & Degazon, 2008). The American Association of Colleges of Nursing have recommended that social justice be considered an essential part of the baccalaureate level

of education for professional nurses (American Association of Colleges of Nursing, 2008).

A good understanding of social justice may help to prepare future nurses to address health disparities and complex social problems. They may also be able to reflect on how personal biases and stereotypes could lead to social injustice and health disparities for stigmatized populations.

Second, the development of a culture of respect and support for the human rights of patients holds the potential to empower both patients and advocates of social justice. The negative attitudes of nurses may contribute to violations of the human rights of sex workers stemming from the norms manifested in the clinical environment. The promotion of human rights is encouraged and should be incorporated into nursing education and professional training.

Third, there is a need to develop intervention programmes in professional education to reduce the prejudices and biases of healthcare students. As the Equality Challenge Unit emphasized, ‘It is not enough to simply alert people to the existence of bias and/or to alert them to their own particular biases; people need to be given strategies for addressing their biases which make them feel empowered and autonomous, rather than guilty and controlled’ (p.68) (Equality Challenge Unit, 2013). Stigma-reduction intervention programmes through education or other strategies, such as contact with marginalized populations, have

been shown to be effective at lessening prejudicial attitudes towards stigmatized groups, such as people living with HIV, patients with mental illness, and drug abusers (Dalky, 2012; Heijnders & Van Der Meij, 2006; Livingston, Milne, Fang, & Amari, 2012; Sengupta, Banks, Jonas, Miles, & Smith, 2011). Strategies may be borrowed from successful programmes.

### **Limitations of this study**

First, the generalizability of the findings is limited due to the low participation rate and to the use of convenience sampling from one university in Hong Kong. The participants represent only around 26.0% of the total student population in that university's School of Nursing. Given the sensitive nature of this study, many students might have decided not to participate; thus, there is a possibility of selection bias. Second, the study may have failed to include all critical predictive variables, since the multiple linear models only explain 7.7% of the variance in attitudes towards sex workers, with 92.3% of the variance unexplored. Third, the cross-sectional nature of this study has limited the ability of the researchers to determine causal relationships.

### **Conclusion**

This study contributes to an understanding of the knowledge, attitudes, and willingness of undergraduate nursing students in mental health and in general nursing programmes to care for sex workers. This study found that undergraduate nursing students had an overall low level of knowledge of sex workers, and that their attitudes were polarized.

A perceived need to have related knowledge was associated with both positive attitudes and a willingness to care for sex workers. This study showed that it is essential to improve the attitudes of nursing students and their support for the human rights of sex workers to improve their willingness to care for sex workers in their future practice. The findings emphasized the need to prepare competent nursing graduates to address health disparities from a social justice perspective. The development of self-awareness and self-reflection may enable nursing graduates to provide non-judgmental care. Moreover, to minimize fears and prejudicial attitudes towards sex workers, it is recommended that stigma-reduction intervention programmes be conducted.

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**Table 1 Demographic characteristics of the participants (N\*=317)**

<b>Factors</b>	<b>Total (n=317) n (%)</b>	<b>General nursing (n=141) n (%)</b>	<b>Mental health nursing (n=176) n (%)</b>	<b>Chi- square test /t test</b>	<b>p- value</b>
<b>Mean age (SD<sup>#</sup>)</b>	20.64 (1.949)	21.05 (1.983)	20.32 (1.864)	3.37	<b>0.001</b>
<b>Gender</b>					
Male	76 (24.0)	24 (17.0)	52 (29.5)	6.74	<b>0.009</b>
Female	241 (76.0)	117 (83.0)	124 (70.5)		
<b>Place of origin</b>					
Hong Kong	275 (86.8)	121 (85.8)	154 (87.5)	0.20	0.903
Mainland China	38 (12.0)	18 (12.8)	20 (11.4)		
Overseas	4 (1.3)	2 (1.4)	2 (1.1)		
<b>Religion affiliation</b>					
Yes	78 (24.6)	36 (25.5)	42 (23.9)	0.117	0.732
No	239 (75.4)	105 (74.5)	134 (76.1)		
<b>Year of study</b>				12.47	<b>0.014</b>
Year one	85 (26.8)	26 (18.4)	59 (33.5)	9.08	<b>0.003</b>
Year two	77 (24.3)	32 (22.7)	45 (25.6)	0.35	0.553
Year three	51 (16.1)	26 (18.4)	25 (14.2)	1.04	0.308
Year four	44 (13.9)	23 (16.3)	21 (11.9)	1.26	0.262
Year five	60 (18.9)	34 (24.1)	26 (14.8)	4.45	<b>0.035</b>
<b>District</b>					
Hong Kong Island	48 (15.1)	20 (14.2)	28 (15.9)	2.50	0.287
Kowloon	85 (26.8)	44 (31.2)	41 (23.3)		
New territories	184 (58.0)	77 (54.6)	107 (60.8)		

\*N: Number

#SD: Standard deviation

**Table 2 Knowledge or training of students related to care for sex workers**

	Total (N*=317) n (%)	General nursing (n=141) n (%)	Mental health nursing (n=176) n (%)	Chi- square test	p-value
Interpersonal contact with sex workers					
Yes	12 (3.8)	5 (3.5)	7 (4.0)	0.040	0.842
No	305 (96.2)	136 (96.5)	169 (96.0)		
Can recognize a person as sex worker					
Yes	72 (22.7)	32 (22.7)	40 (22.7)	3.491	0.175
No /not sure	245(77.3)	109 977.3)	136 (77.3)		
Knowledge of prostitution law in Hong Kong					
Prostitution is legal	62 (19.6)	25 (17.7)	37 (21.0)	2.105	0.551
Prostitution is illegal	126 (39.7)	54 (38.3)	72 (40.9)		
Prostitution is not illegal <sup>1</sup>	80 (25.2)	41 (29.1)	39 (22.2)		
No idea	49 (15.5)	21 (14.9)	28 (15.9)		
Ever received training related to caring for sex workers					
Yes	46 (14.5)	21 (14.9)	25 (14.2)	0.030	0.863
No or can't remember	271 (85.5)	120 (85.1)	151 (85.8)		
Hours of education on caring for sex workers in nursing curriculum					
None	223 (70.3)	100 (70.9)	123 (69.9)	1.286	0.526
1-5h	78 (24.6)	32 (22.7)	46 (26.1)		
>5 h	16 (5.0)	9 (6.4)	7 (4.0)		
Self-rated knowledge about caring for sex workers					
No or very little	28 (8.8)	16 (11.3)	12 (6.8)	4.262	0.119
Some knowledge	279 (88.0)	123 (87.2)	156 (88.6)		
Good knowledge	10 (3.2)	2 (1.4)	8 (4.5)		
Perceived need for having knowledge in caring for sex workers					
Yes	260 (82.0)	120 (85.1)	140 (79.5)	1.641	0.200
No	57 (18.0)	21 (14.9)	36 (20.5)		
Perceived need for addressing sex workers in nursing curriculum					
Yes	239 (75.4)	112 (79.4)	127 (72.2)	1.767	0.184
No	78 (24.6)	29 (20.6)	49 (27.8)		
Prefer education approach to acquire knowledge related to caring for sex workers					
Lecture	152 (47.9)	63 (44.7)	89 (50.6)	1.193	0.275
Workshop / seminar	171 (53.9)	86 (61.0)	85 (48.3)	4.852	<b>0.028</b>
Service - learning	100 (31.5)	39 (27.7)	61 (34.7)	1.870	0.171
Self-directed learning	71 (22.4)	28 (19.9)	43 (24.4)	0.996	0.318
NGO volunteer training	106 (33.4)	56 (39.7)	50 (28.4)	4.351	<b>0.037</b>
Not interested to attend	18 (5.7)	4 (2.8)	14 (8.0)	3.875	0.054

\*N: number

**Table 3 Attitudes of students toward sex workers**

Items	Total (N*=317) (n %)	General nursing (n=141) n (%)	Mental health nursing (n=176) n (%)	Chi- square test	p- value
<b>Prostitution should be legalized</b>				0.42	0.81
Disagree/strongly disagree	89 (28.1%)	42 (29.8)	47 (26.7)		
Neutral	140 (44.2%)	60 (42.6)	80 (45.5)		
Agree/strongly agree	88 (27.8%)	39 (27.7)	49 (27.8)		
<b>Prostitution is immoral</b>				1.52	0.47
Disagree/strongly disagree	88 (27.8%)	38 (27.0)	50 (28.4)		
Neutral	130 (41.0%)	54 (38.3)	76 (43.2)		
Agree/strongly agree	99 (31.2%)	49 (34.8)	50 (28.4)		
<b>Prostitution is a sin</b>				0.94	0.63
Disagree/strongly disagree	135 (42.6%)	62 (44.0)	73 (41.5)		
Neutral	148 (46.7%)	62 (44.0)	86 (48.9)		
Agree/strongly agree	34 (10.7%)	17 (12.1)	17 (9.7)		
<b>There should be compulsory medical tests of sex workers</b>				5.33	0.07
Disagree/strongly disagree	19 (6.0%)	11 (7.8)	8 (4.5)		
Neutral	74 (23.3%)	25 (17.7)	49 (27.8)		
Agree/strongly agree	224 (70.7%)	105 (74.5)	119 (67.6)		
<b>Before admission to hospital, sex workers should be routinely tested for HIV/STDs</b>				1.57	0.46
Disagree/strongly disagree	23 (7.3%)	13 (9.2)	10 (5.7)		
Neutral	74 (23.3%)	31 (22.0)	43 (24.4)		
Agree/strongly agree	220 (69.4%)	97 (68.8)	123 (69.9)		
<b>Sex workers who become infected with HIV/STDs deserve no sympathy</b>				9.22	0.01
Disagree/strongly disagree	217 (68.5%)	106 (75.2)	111 (63.1)		
Neutral	75 (23.7)	22 (15.6)	53 (30.1)		
Agree/strongly agree	25 (7.9%)	13 (9.2)	12 (6.8)		
<b>Sex workers who get HIV/STDs through their activity should have to pay for medical care</b>				0.65	0.72
Disagree/strongly disagree	64 (20.2%)	30 (21.3)	34 (19.3)		
Neutral	136 (42.9%)	57 (40.4)	79 (44.9)		
Agree/strongly agree	117 (36.9%)	54 (38.3)	63 (35.8)		
<b>Sex workers should be given free condoms to reduce the spread of HIV/STDs</b>				0.64	0.73
Disagree/strongly disagree	38 (12.0%)	17 (12.1)	21 (11.9)		
Neutral	81 (25.6%)	33 (23.4)	48 (27.3)		
Agree/strongly agree	198 (62.5%)	91 (64.5)	107 (60.8)		
<b>Total score</b>	Mean (SD): 24.07 (3.338)	Mean (SD): 24.21 (3.282)	Mean (SD): 23.96 (3.388)	t-test value 0.67	0.50

Note: The negatively worded items were reversed in their scoring, including item 2-7 in the attitudes toward FSWs scale.

\*N: number

**Table 4 Support of human rights of sex workers among students (N=317)**

<b>Scales</b>	<b>Total (N<sup>#</sup>=317) (n %)</b>	<b>General nursing (n=141) n (%)</b>	<b>Mental health nursing (n=176) n (%)</b>	<b>Chi- square test /t-test</b>	<b>p- value</b>
<b>Sex workers have the right to nondiscrimination and equal treatment.</b>				7.726	<b>0.021</b>
Disagree/strongly disagree	9 (2.8)	2 (1.4)	7 (4.0)		
Neutral	48 (15.1)	14 (9.9)	34 (19.3)		
Agree/strongly agree	260 (82.0)	125 (88.7)	135 (76.7)		
<b>Sex workers have the right to life, including quality of life.</b>				3.888	0.143
Disagree/strongly disagree	5 (1.6)	2 (1.4)	3 (1.7)		
Neutral	45 (14.2)	14 (9.9)	31 (17.6)		
Agree/strongly agree	267 (84.2)	125 (88.7)	142 (80.7)		
<b>Sex workers have the right to maintain their physical integrity, without fear of violence.</b>				4.518	0.104
Disagree/strongly disagree	5 (1.6)	1 (0.7)	4 (2.3)		
Neutral	46 (14.5)	15 (10.6)	31 (17.6)		
Agree/strongly agree	266 (83.9)	125 (88.7)	141 (80.1)		
<b>Sex workers have the right to marry and start a family.</b>				6.002	<b>0.050</b>
Disagree/strongly disagree	6 (1.9)	1 (0.7)	5 (2.8)		
Neutral	55 (17.4)	18 (12.8)	37 (21.0)		
Agree/strongly agree	256 (80.8)	122 (86.5)	134 (76.1)		
<b>Sex workers have the right to privacy of their personal information.</b>				6.672	<b>0.036</b>
Disagree/strongly disagree	5 (1.6)	1 (0.7)	4 (2.3)		
Neutral	45 (14.2)	13 (9.2)	32 (18.2)		
Agree/strongly agree	267 (84.2)	127 (90.1)	140 (79.5)		
<b>Sex workers have the right to information and education that may affect their well-being.</b>				4.831	0.089
Disagree/strongly disagree	2 (0.6)	1 (0.7)	1 (.6)		
Neutral	47 (14.8)	14 (9.9)	33 (18.8)		
Agree/strongly agree	268 (84.5)	126 (89.4)	142 (80.7)		
<b>Sex workers have right to access the highest attainable standard of health (physical and psychosocial).</b>				7.770	<b>0.021</b>
Disagree/strongly disagree	4 (1.3)	1 (0.7)	3 (1.7)		
Neutral	48 (15.1)	13 (9.2)	35 (19.9)		
Agree/strongly agree	265 (83.6)	127 (90.1)	138 (78.4)		
<b>Sex workers have the right to benefit from health-related scientific progress.</b>				7.487	<b>0.024</b>
Disagree/strongly disagree	5 (1.6)	1 (0.7)	4 (2.3)		
Neutral	49 (15.5)	14 (9.9)	35 (19.9)		
Agree/strongly agree	263 (83.0)	126 (89.4)	137 (77.8)		
<b>Sex workers have the right to access the basic necessities (housing, food, and clothing) for an adequate standard of living.</b>				6.647	<b>0.036</b>
Disagree/strongly disagree	4 (1.3)	1 (0.7)	3 (1.7)		
Neutral	54 (18.3)	16 (11.3)	38 (21.6)		
Agree/strongly agree	259 (81.7)	124 (87.9)	135 (76.7)		
<b>Total score</b>	36.99 (5.791)*	38.00 (5.258)*	36.18 (6.080)*	2.817 <sup>#</sup>	<b>0.005</b>

\*Data is presented as mean (Standard deviation); <sup>#</sup>N: number

**Table 5 Willingness of nursing students to care for sex workers (N=317)**

<b>Scales</b>	<b>Total (N*=317) (n %)</b>	<b>General nursing (n=141) n (%)</b>	<b>Mental health nursing (n=176) n (%)</b>	<b>Chi- square test /t-test</b>	<b>p- value</b>
<b>If I am allowed to choose, I will not choose to provide care to patients who are sex workers</b>				1.575	0.455
Disagree/strongly disagree	230 (72.6%)	107 (75.9)	123 (69.9)		
Neutral	66 (20.8%)	25 (17.7)	41 (23.3)		
Agree/strongly agree	21 (6.6%)	9 (6.4)	12 (6.8)		
<b>I would refuse to care for patients who are sex workers</b>				2.289	0.318
Disagree/strongly disagree	246 (77.6%)	115 (81.6)	131 (74.4)		
Neutral	60 (18.9%)	22 (15.6)	38 (21.6)		
Agree/strongly agree	11 (3.5%)	4 (2.8)	7 (4.0)		
<b>I am willing to take care of patients who are sex workers</b>				4.684	0.096
Disagree/strongly disagree	13 (4.1%)	4 (2.8)	9 (5.1)		
Neutral	90 (28.4%)	33 (23.4)	57 (32.4)		
Agree/strongly agree	214 (67.5%)	104 (73.8)	110 (62.5)		
<b>Total score</b>	Mean (SD): 11.74 (2.082)	Mean (SD): 11.95 (2.071)	Mean (SD): 11.57 (2.080)	1.629	0.104

Note: The negatively worded items were reversed in their scoring, including item 1-2 in the willingness to care for FSWs scale.

\*N: number

**Table 6 Stepwise linear regression to identify the correlating factors of students' attitudes toward sex workers**

Variables	Categories	$\beta$	Standard error	Beta	t	p	95% confidence interval
<b>All nursing students</b>							
<sup>1</sup> Constant		19.381	1.065		18.204	0.000	17.287-21.476
Willingness to care for FSWs total score		0.296	0.092	0.184	3.220	0.001	0.115-0.477
Perceived need for having knowledge relating to sex workers	Yes	1.247	0.504	0.142	2.473	0.014	0.255-2.239
Year of study (Reference group: year 1)	Year five	1.034	0.467	0.122	2.216	0.027	0.116-1.953
<b>Students in the general nursing programme</b>							
<sup>2</sup> Constant		20.010	1.542		12.973	0.000	16.960-23.060
Self-rated knowledge of FSWs (reference group: little or no knowledge)	Good knowledge	7.007	2.192	0.253	3.197	0.002	2.673-11.341
Willingness to care for FSWs total score		0.347	0.130	0.219	2.671	0.008	0.090-0.603
Gender (ref: male)	Female	-1.636	0.677	-0.188	-2.416	0.017	(-2.974)-(-0.297)
Perceived need for having knowledge relating to sex workers	Yes	1.549	0.745	0.169	2.079	0.039	0.076-3.022
<b>Students in the mental health nursing programme</b>							
<sup>3</sup> Constant		22.485	0.582		38.602	0.000	21.335-23.635
Perceived need for having knowledge relating to sex workers	Yes	1.560	0.635	0.182	2.457	0.015	0.307-2.813
Year of study (ref: year 1)	Year five	1.584	0.706	0.167	2.244	0.026	0.190-2.978

<sup>1</sup>R=0.277, R<sup>2</sup>=0.077, adjusted R<sup>2</sup>=0.068, F=8.629, Model p=0.000.  
<sup>2</sup>R=0.446, R<sup>2</sup>=0.199, adjusted R<sup>2</sup>=0.176, F=8.456, Model p=0.000.  
<sup>3</sup>R=0.242, R<sup>2</sup>=0.059, adjusted R<sup>2</sup>=0.048, F=5.338, Model p=0.006.

**Table 7 Stepwise linear regression of the correlating factors for the willingness of nursing students to care for sex workers**

Variables	Categories	$\beta$	Standard error	Beta	t	p	95% confidence interval
<b>All nursing students</b>							
<sup>1</sup> Constant		2.815	0.842		3.343	0.001	1.158-4.472
Support for FSWs' human rights total score		0.179	0.017	0.500	10.634	0.000	0.146-0.212
Perceived need for having knowledge relating to sex workers	Yes	0.812	0.257	0.149	3.165	0.002	0.307-1.317
Able to recognize FSWs in daily lives	Yes	0.576	0.226	0.116	2.556	0.011	0.133-1.020
Attitudes toward FSWs total score		0.063	0.029	0.102	2.202	0.028	0.007-.120
<b>Students in the general nursing programme</b>							
<sup>2</sup> Constant		1.760	1.381		1.275	0.205	(-0.970)-4.490
Support for FSWs' human rights total score		0.177	0.028	0.449	6.315	0.000	0.122-0.232
Attitudes toward FSWs total score		0.105	0.045	0.167	2.362	0.020	0.017-0.194
Perceived need for having knowledge relating to sex workers	Yes	0.885	0.411	0.153	2.153	0.033	0.072-1.698
Able to recognize FSWs in daily lives	Yes	0.715	0.343	0.145	2.083	0.039	0.036-1.393
<b>Students in the mental health nursing programme</b>							
<sup>3</sup> Constant		3.994	0.749		5.331	0.000	2.515-5.474
Support for FSWs' human rights total score		0.185	0.021	0.546	8.839	0.000	0.144-0.227
Perceived need for having knowledge relating to sex workers	Yes	0.770	0.324	0.148	2.381	0.018	0.132-1.409
Knowledge of the local prostitution law (ref: incorrect answer)	Correct	0.618	0.299	0.124	2.069	0.040	0.028-1.208
Religion (ref: none)	Yes	0.588	0.292	0.121	2.009	0.046	0.010-1.165
<sup>1</sup> R=0.609, R <sup>2</sup> =0.371, adjusted R <sup>2</sup> =0.362, F=45.626, Model p=0.000.							
<sup>2</sup> R=0.600, R <sup>2</sup> =0.361, adjusted R <sup>2</sup> =0.342, F=19.167, Model p=0.000.							
<sup>3</sup> R=0.631, R <sup>2</sup> =0.399, adjusted R <sup>2</sup> =0.384, F=28.010, Model p=0.000.							

## Appendix 1

### I. Knowledge of sex workers and prostitution law (Expert panel N=6)

Item	Relevant (ratings $\geq 3$ )	Not relevant (rating $\leq 2$ )	Item- content validity index (I-CVI)	Interpretation
1. Do you personally know anyone who identifies as a sex worker?	6	0	1.00	Appropriate
2. Have you ever met/recognized a sex worker?	6	0	1.00	Appropriate
3. Do you have any ideas about the prostitution law in Hong Kong?	5	1	0.833	Appropriate
4. Have you ever attended a lecture, course or community forum about sex worker at any time before the survey?	6	0	1.00	Appropriate
5. How much education you have received regarding caring for sex workers from the nursing curriculum?	5	1	0.833	Appropriate
6. How would you rate your level of knowledge about sex workers?	6	0	1.00	Appropriate
7. In practical classes, do you feel the need to have some knowledge about sex workers?	5	1	0.833	Appropriate



## II. The Attitudes toward Prostitutes and Prostitution Scale (Expert panel N=6)

Item	Relevant (ratings $\geq 3$ )	Not relevant (rating $\leq 2$ )	Item- content validity index (I-CVI)	Interpretation	Scale- content validity index (S-CVI)
1. Prostitution is trafficking of women	6	0	1.00	Appropriate	0.891
2. Most prostitutes are drug addicts	5	1	0.833	Appropriate	
3. Prostitution is forcing undesired sexual behavior	5	1	0.833	Appropriate	
4. Prostitution is important for teaching teenage boys about sexuality	2	4	0.667	Appropriate	0.891
5. Prostitutes earn a lot of money	5	1	0.833	Appropriate	
6. Prostitution allows the women who practice it to actualize their sexual fantasies	5	1	0.833	Appropriate	
7. Prostitution increases drug use in society	6	0	1.00	Appropriate	0.891
8. Most prostitutes are morally corrupt	6	0	1.00	Appropriate	
9. Without prostitution more women would get raped	6	0	1.00	Appropriate	
10. Most prostitutes are ugly	3	3	0.50		0.891
11. Prostitution damages society's morals	5	1	0.833	Appropriate	
12. Prostitutes spread AIDS	6	0	1.00	Appropriate	
13. Prostitution is a violation of women's human dignity	6	0	1.00	Appropriate	0.891
14. Prostitutes enjoy the controlling of men	5	1	0.833	Appropriate	
15. Women become prostitutes because they were not properly educated	5	1	0.833	Appropriate	
16. Prostitution provides men with stress relief	6	0	1.00	Appropriate	0.891
17. Prostitution is a form of violence against women	6	0	1.00	Appropriate	
18. Prostitutes like sex	5	1	0.833	Appropriate	

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19. Many prostitutes are students who prefer a convenient, profitable job	5	1	0.833	Appropriate
20. Prostitutes are victims of drug abuse	6	0	1.00	Appropriate
21. Prostitution is a way for some women to gain power and control	6	0	1.00	Appropriate
22. Women choose to be prostitutes	6	0	1.00	Appropriate
23. Prostitution increases the rate of sexually transmitted diseases	6	0	1.00	Appropriate
24. Prostitution is a form of rape in which the victim gets paid	5	1	0.833	Appropriate
25. Prostitution harms the institution of marriage	4	2	0.667	Inappropriate
26. Most prostitutes only work as prostitutes for a few years to get settled financially	5	1	0.833	Appropriate
27. Prostitutes are unable to get out of the situation they are in	6	0	1.00	Appropriate
28. Prostitution is a way to empower economically disadvantaged populations	6	0	1.00	Appropriate
29. Through prostitution, pretty girls can find a husband	5	1	0.833	Appropriate

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### III. Attitudes toward sex workers with HIV and sexually transmitted diseases (STDs) (Expert panel N=6)

	Relevant (ratings $\geq 3$ )	Not relevant (rating $\leq 2$ )	Item- content validity index (I-CVI)	Interpretation	Scale- content validity index (S-CVI)
1. Sex workers should be legalized	6	0	1.00	Appropriate	1.00
2. Sex workers is immoral	6	0	1.00	Appropriate	
3. Sex workers is a sin	6	0	1.00	Appropriate	
4. There should be compulsory medical tests of sex workers	6	0	1.00	Appropriate	
5. Before admission to hospital, sex workers should be routinely tested for HIV/STDs	6	0	1.00	Appropriate	
6. Sex workers who become infected with HIV/STDs deserve no sympathy	6	0	1.00	Appropriate	
7. Sex workers who get HIV/STDs through their activity should have to pay for medical care	6	0	1.00	Appropriate	
8. Sex workers should be given free condoms to reduce the spread of HIV/STDs	6	0	1.00	Appropriate	

#### IV. Support for FSWs' human rights (Expert panel N=6)

**Attitudes toward sex workers' human rights** (Self-developed questionnaire based on reproductive rights and human rights standards and principles)

	Relevant (ratings $\geq 3$ )	Not relevant (rating $\leq 2$ )	Item- content validity index (I- CVI)	Interpretation	Scale- content validity index (S-CVI)
1. Sex workers have the right to nondiscrimination and equal treatment.	6	0	1.00	Appropriate	0.963
2. Sex workers have the right to life, including quality of life.	6	0	1.00	Appropriate	
3. Sex workers have the right to maintain their physical integrity, without fear of violence.	5	1	0.833	Appropriate	
4. Sex workers have the right to marry and start a family.	6	0	1.00	Appropriate	
5. Sex workers have the right to privacy of their personal information.	6	0	1.00	Appropriate	
6. Sex workers have the right to information and education that may affect their well-being.	6	0	1.00	Appropriate	
7. Sex workers have the right to access the highest attainable standard of health (physical and psychosocial).	6	0	1.00	Appropriate	
8. Sex workers have the right to benefit from health-related scientific progress.	5	1	0.833	Appropriate	
9. Sex workers have the right to access the basic necessities (housing, food, and clothing) for an adequate standard of living.	6	0	1.00	Appropriate	

**V. Willingness to treat sex workers (Expert panel N=6)**

<b>Item</b>	<b>Relevant (ratings <math>\geq 3</math>)</b>	<b>Not relevant (rating <math>\leq 2</math>)</b>	<b>Item- content validity index (I-CVI)</b>	<b>Interpretation</b>	<b>Scale- content validity index (S-CVI)</b>
1. If I am allowed to choose, I will not choose to serve patients who are sex workers	6	0	1.00	Appropriate	1.00
2. I would refuse to care for patients who are sex workers	6	0	1.00	Appropriate	
3. I am willing to take care of patients who are sex workers	6	0	1.00	Appropriate	

**VI. Cultural Competence Assessment for caring for sex workers (Expert panel N=6)**

<b>Item</b>	<b>Relevant (ratings <math>\geq 3</math>)</b>	<b>Not relevant (rating <math>\leq 2</math>)</b>	<b>Item- content validity index (I-CVI)</b>	<b>Interpretation</b>	<b>Scale- content validity index (S-CVI)</b>
<b>For each of the following statements, select the response that best describe how you feel about the statement:</b>					
1. Occupation is the most important factor in determining a person's culture	1	5	0.167	Inappropriate	0.833
2. Sex workers think and act alike	4	2	0.667	Inappropriate	
3. Many aspects of sex work influence health and health care	5	1	0.833	Appropriate	
4. Aspects of sex work need to be assessed for each individual, group, and organization	6	0	1.00	Appropriate	
5. If I know about a sex worker, I don't need to assess their personal preferences for health services	4	2	0.667	Inappropriate	
6. Spiritually and religious beliefs are important aspects of many sex workers	5	1	0.833	Appropriate	
7. Sex worker may identify with more than one cultural group	5	1	0.833	Appropriate	
8. Language barrier is the only difficulties for sex workers in Hong Kong	2	4	0.333	Inappropriate	
9. I believe that sex workers should be treated with respect no matter what occupation	6	0	1.00	Appropriate	
10. I understand that sex workers may define the concept of "health care" in different ways	5	1	0.833	Appropriate	

11. I think that knowing about sex workers helps direct my work with them	6	0	1.00	Appropriate
<b>For each of the following statements check the box that best describes how often you do the following:</b>				
12. I include sex work assessment when I do individual or organizational evaluations	5	1	0.833	Appropriate
13. I seek information on cultural needs when I identify sex workers	6	0	1.00	Appropriate
14. I have resources books and other materials available to help me learn about sex workers	5	1	0.833	Appropriate
15. I use a variety of sources to learn about the sex workers	6	0	1.00	Appropriate
16. I ask sex workers to tell me about their own explanations of health and illness	6	0	1.00	Appropriate
17. I ask sex workers to tell me about their expectations for health services	6	0	1.00	Appropriate
18. I avoid using generalizations to stereotype groups of sex workers	6	0	1.00	Appropriate
19. I recognize potential barriers to service that might be encountered by sex workers	6	0	1.00	Appropriate
20. I remove obstacles for sex workers) when I identify barriers to services	5	1	0.833	Appropriate
21. I remove obstacles for sex workers when people identify barriers to me	4	2	0.667	Inappropriate
22. I welcome feedback from sex workers about how I relate to sex workers from their work	6	0	1.00	Appropriate
23. I find ways to adapt my service to sex workers' preference	5	1	0.833	Appropriate
24. I document sex work if I provide direct client service	5	1	0.833	Appropriate

25. I document the adaptations I make with sex workers if I provide direct client services	5	1	0.833	Appropriate
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## VII. Education needs

Item	Relevant (ratings $\geq 3$ )	Not relevant (rating $\leq 2$ )	Item-content validity index (I-CVI)	Interpretation
1. Do you think the topic of FSWs should be addressed in the undergraduate nursing curriculum?	6	0	1.00	Appropriate
2. Which education approach would you prefer to acquire knowledge related to caring for FSWs?	6	0	1.00	Appropriate

## Appendix 2 Psychometric properties of the measurements

Measurement	Cronbach's Alpha	Intra-class correlation coefficient (ICC)	95% confidence interval (CI)
Attitudes toward FSWs	.653	.911	.776-.965
Support for FSWs' human rights	.967	.872	.668-.951
Willingness to care for FSWs	.745	.844	.605-.938