

# The Cross Sectional Study on the Association between Sexual Awareness and Cognitive Social Capital among High School Students in Ho Chi Minh City, Vietnam

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## Abstract

**Purpose:** We aimed to reveal the association between cognitive social capital and sexual awareness among high school students in Ho Chi Minh City, Vietnam, where adolescent premarital sex is considered to be wide-spreading as consequence of socioeconomic changes, in comparison to our previous study in Hanoi, 2012. **Methods:** We conducted a questionnaire-based survey and a cross sectional study in late 2014, with 2051 eleventh graders at three high schools in Ho Chi Minh City. Complete data was received from 1935 respondents (94.3%). We assessed basic attributes, sexual knowledge, sexual awareness, sexual experience of peers, cognitive social capital such as a sense of community belonging, and Rosenberg Self-Esteem score. After the independent *t*-test and multiple logistic regression analyses on sexual awareness were performed assigning trivalent Rosenberg Self-Esteem score, sexual knowledge, and sexual experience of peers as independent variables (model 1), followed by analysis adjusted for cognitive social capital (model 2). This study was approved by Japanese Red Cross Akita College of Nursing (No. 24-003). **Results:** Of 1935 respondents, 99.9% were 16 or 17 years old and mostly from nuclear families (71.1%). Of all participants, 45.8% in males and 49.4% in females correctly answered on sexual knowledge, 47.6% of males and 28.3% of females accepted premarital sex, 60.0% of male and 65.0% of females knew peers with sexual intercourse experience, and 78.1% of males and 79.1% of females agreed with a sense of community belonging. When multiple logistic regression analyses performed, in model 1, sexual awareness was significantly associated with Rosenberg Self-Esteem score in female. In model 2, above association disappeared but significant association was found between sexual awareness and cognitive social capital in both sexes OR (95% CI), male 1.39 (1.05 - 1.84), female 1.99 (1.49 - 2.65). **Discussion:** The conservative traditional culture in both Hanoi and Ho Chi Minh City seems to be similar to the concept of cognitive social capital and it is considered to have influenced sexual awareness of high school students in Hanoi and Ho Chi Minh City, Vietnam. **Conclusion:** Cognitive social capital is significantly associated with sexual awareness among high school students in urban areas of Vietnam.

## Keywords

**Cognitive Social Capital, Sexual Behavior, Sexual Awareness, Self-Esteem, Adolescent, High School Student, Ho Chi Minh City, Vietnam**

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## 1. Introduction

Adolescent sexual behavior, particularly premarital sex, is a growing public health concern around the world because of adolescent pregnancy and sexually transmitted diseases as its outcome. In many circumstances, pregnant adolescent girls face a much higher risk of maternal mortality as their immature bodies are unable to cope with the experience [1]. Another serious problem is unsafe abortion, which often causes the death of many adolescent girls and injures many more [2] [3]. Likewise in Vietnam, premarital or unprotected sexual behavior is a growing health and social concern. The country's dramatic economic growth and political changes have resulted in social change, including premarital sexual attitudes and behaviors. Although premarital sex is long-considered a social taboo, the government has branded it a "social evil" and believes that high rates of premarital sexual activities are widespread among the younger generation [4]. Along with structural economic and political changes resulting from the country's renovation, the increased influential impact of foreign media sources such as the Internet, imported movies, pornography, and sexualized music that Vietnamese youth are exposed to is often mentioned as a leading cause of unhealthy social changes [4]-[6].

According to a Survey Assessment of Vietnamese Youth (SAVY), the largest and most comprehensive survey of youth in Vietnam, the mean age a youth (aged 14 to 25 years) first experiences sexual intercourse had decreased from 19.6 years old in 2003 to 18.1 years old in 2008, and the rate of premarital sex increased from 7.6% in 2003 to 9.5% in 2008 [7] [8]. Ghuman *et al.*'s research (2006) also reported that premarital sex was becoming more common in Vietnam [9].

Sexual activity is often initiated between the ages of 15 and 22 [10], when many adolescents are still at school days, and more than half (51.2%) of new HIV infections are among 15 to 24 year olds [11]. Therefore, it is necessary to address the sexual behaviors of high school students. A considerable number of demographic and reproductive health studies in Vietnam have been published in recent years [10]. Of these studies, one study focused on HIV/AIDS preventive behavior [12], and most previous studies have focused on raising self-esteem and sex education as important intervention techniques that influence sexual awareness and behavior of adolescents [13]. In their systematic review of fifteen studies, McPherson *et al.* explored the role and impact of social capital on sexual health outcomes [14]-[20]. The evidence suggested that social capital is a protective factor for sexual health behaviors [20] [21].

Meanwhile, Watanabe *et al.* report in research in Hanoi that previous theory that sexual knowledge and self-esteem are determinants of sexual awareness has been negated as persons who are permissive to premarital sex are recognized to show higher cognitive social capital such as a sense of community belonging and contribution to society when several factors such as gender, self-esteem, sexual knowledge, sexual experience of peers (siblings and friends) are considered simultaneously [22] [23]. Based on reports showing that low-levels of cognitive social capital increased the risk of unhealthy sexual behavior [20], we hypothesized that the sexual attitudes of Vietnamese high school students' permissiveness and acceptance of premarital sex, are influenced by cognitive social capital, such as a sense of community belonging. Thus, the purpose of this cross-sectional study was to examine whether cognitive social capital is associated with raised awareness of sexual behaviors among Vietnamese high school students. Also, we aimed to clarify determinants for sexual awareness among high school students in urban area of Vietnam by verifying that if we can acquire the same results from this research in Ho Chi Minh City in South part of Vietnam which is different in cultural background from Hanoi, the Capital city in North part of Vietnam, where Watanabe *et al.* researched [22].

## 2. Methods

The participants of this study were randomly (but gender and school equally-balanced) selected from eleventh grade students at three public high schools in Ho Chi Minh City (area: 2096 km<sup>2</sup>, population: 7992 million), the southern metropolitan city of the Socialist Republic of Vietnam (area: 330,967 km<sup>2</sup>, population 90,729 million)

[Vietnam General Statistics Office-GSO, 2014] [24]. The Center for Population Information and Documentation (CPID), the General Office for Population and Family Planning (GOPFP), and the Ministry of Health of Vietnam supported the survey. We conducted a questionnaire-based survey from October to November, 2014, with 2051 students participating. Responses were received from 2051 students, (a response rate of 100%). Incomplete surveys such as no description on gender and age were excluded from the analysis. Complete data was received from 1935 respondents (94.3%), consisting of 933 males (48.2%) and 1002 females (51.8%).

The survey was a self-administrated questionnaire which is the same questionnaire previously made and used for high school students in Hanoi (Watanabe *et al.* 2014) [22] [23]. We obtained permission to conduct the survey from the appropriate person in charge at each school. The high school staff and GOPFP distributed the questionnaires, and explained the details to participating students. The survey was anonymous. Each student sealed the completed survey in an envelope to protect their privacy.

The questionnaire assessed the participants' sexual knowledge, awareness of sexual behavior, awareness of peers' sexual intercourse experience, cognitive social capital, and used Rosenberg Self-Esteem Scale Score (SE Score) [25]. We assigned each variable to groups such as (1) male or female for gender, (2) whether the respondent agreed or not with the questions on social capital and sexual awareness, or (3) correct or incorrect answers to the sexual knowledge questions. Then, we compared the means of the two groups using the independent *t*-test, and performed multiple logistic-regression analysis to examine the association between acceptance of premarital sex and social capital with adjustment for Rosenberg Self-Esteem score (divided into three groups with the mean value and standard deviation), timing to wear a condom, and sexual experience of peers (model 1). This was followed by analysis of the associations adjusted for sense of community belonging, Rosenberg Self-Esteem score, wearing a condom, and sexual experience of peers (model 2).

All analyses were computed using SPSS21 (Chicago, IL) statistical software.

This study was approved by the Ethical Review Board of the Japanese Red Cross Akita College of Nursing (approval number 24-003). We had the cooperation of the high schools and obtained written informed consent from the participating students.

### 3. Results

Of the 1935 respondents with complete data, 99.9% was 16 or 17 years old. Most participants (71.1%) were from the nuclear families.

**Table 1** shows the sexual knowledge of the participants. The percentage of the participants who correctly answered the question on the proper timing to wear a condom was 45.8% in males and 49.4% in females. **Table 1** also shows the results of sense of community belonging and awareness of sexual behavior. Of all participants,

**Table 1.** Sexual awareness, sexual knowledge, sense of community belonging.

Variable	Male	Female
	n (%)	n (%)
Question about timing to wear condom (n = 1935)		
Correct answer	427 (45.8)	495 (49.4)
Incorrect answer	506 (54.2)	507 (50.6)
Permissiveness toward premarital sex (n = 1926)		
Permissible	486 (52.4)	716 (71.7)
Impermissible	442 (47.6)	282 (28.3)
Sexual experience of peers (friends and siblings) (n = 1890)		
Yes	548 (60.0)	634 (65.0)
No	366 (40.0)	342 (35.0)
Sense of community belonging (n = 1932)		
Agree	729 (78.1)	790 (79.1)
Disagree	204 (21.9)	209 (20.9)

47.6% of males and 28.3% of females accepted premarital sex, and 60.0% of male and 65.0% of females knew peers with sexual intercourse experience. As to cognitive social capital, 78.1% of males and 79.1% of females agreed with a sense of community belonging.

**Table 2** shows the Rosenberg Self-Esteem Scale scores. The mean value of the Rosenberg Self-Esteem score was  $21.5 \pm 2.6$  and female scores were significantly higher than male scores ( $P < 0.01$ ). This was similar to average scores in Western countries [25], but different from the result of eleventh graders of high schools in Hanoi that the overall mean score was  $18.0 \pm 3.9$  and male scored higher than females. There was no significant difference in Rosenberg Self-Esteem score depending on the presence or absence of sexual experience, sexual knowledge, sexual experience of peers, and whether permissible or impermissible to premarital sex or not.

**Table 3** shows the results of the multiple logistic regression analyses, including sense of community belonging as a variable. There was a positive association between sense of community belonging and acceptance of premarital sex even after adjusting for Rosenberg Self-Esteem score, sexual knowledge, and sexual experience of peers. In model 1, the acceptance of premarital sex was significantly associated with Rosenberg Self-Esteem score and sexual experience of peers. In model 2, after adjusting for a sense of community belonging, the association disappeared between acceptance of premarital sex and Rosenberg Self-Esteem score, and sexual experience of peers, but a significant association was found between acceptance of premarital sex and a sense of community belonging OR (95% CI), male 1.39 (1.05 - 1.84), female 1.99 (1.49 - 2.65).

#### 4. Discussion

Our results indicate that sexual knowledge, sexual experience of peers and Rosenberg Self-Esteem score are explanatory factors relevant to the risk of sexual behaviors when a sense of community belonging is not included in a logistic regression model. This coincides with previous research that reported adequate sexual knowledge, lesser sexually experienced peers around, and high level of self-esteem were factors associated with the risk of adolescent sexual behaviors. However, when a sense of community belonging was included in the logistic regression model, the association was attenuated, and we found only a sense of community belonging significantly associated with the risk of sexual behaviors. This implies that, at least among adolescents in developing countries like Vietnam, cognitive social capital is a more important factor associated with the risk of sexual behaviors compared with sexual knowledge, sexual experience of peers and self-esteem.

This finding is in line with a considerable number of studies on the association between cognitive social capital and the risk of sexual behaviors published in the US or other countries [14]-[20]. These concluded that cognitive social capital decreases the risk of sexual behaviors.

**Table 2.** Rosenberg self-esteem scale scores.

Variable	Male			Female		
	n	mean(SD)	P value	n	mean(SD)	P value
Sexual experience						
Presence	38	21.2 (2.6)	0.6	15	21.4 (2.1)	0.8
Absence	822	21.4 (2.8)		926	21.6 (2.5)	
Premarital sex						
Permissible	456	21.4 (2.7)	0.7	686	21.6 (2.5)	0.9
Impermissible	416	21.5 (2.9)		269	21.6 (2.5)	
Sexual knowledge (Proper timing to wear condom)						
Correct answer	402	21.4 (2.7)	0.6	478	21.5 (2.4)	0.7
Incorrect answer	475	21.5 (2.8)		481	21.6 (2.5)	
Sexual experience of peers						
Yes	343	21.5 (2.7)	0.4	323	21.8 (2.4)	0.1
No	516	21.4 (2.9)		615	21.5 (2.5)	

**Table 3.** Results of logistic regression analysis on the association between premarital sex permissiveness and sense of community belonging.

Variables	Model 1				Model 2			
	Male		Female		Male		Female	
	OR (95%CI)	P	OR (95%CI)	P	OR (95%CI)	P	OR (95%CI)	P
Sense of Community Belonging								
Agree					1.39 (1.05 - 1.84)	0.02	1.99 (1.49 - 2.65)	<0.01
Disagree					ref		ref	
Self-Esteem Scale Score								
24<	1.37 (1.08 - 1.73)	0.01	2.65 (2.04 - 3.43)	<0.01	1.15 (0.87 - 1.52)	0.33	1.82 (1.34 - 2.48)	0.25
20 - 24	1.12 (0.73 - 1.72)	0.6	2.21 (1.34 - 3.62)	0.02	0.98 (0.63 - 1.52)	0.91	1.56 (0.92 - 2.63)	0.1
<20	ref		ref		ref		ref	
Sexual knowledge (Proper timing to wear condom)								
Correct answer	0.86 (0.66 - 1.12)	0.28	1.06 (0.81 - 1.39)	0.67	0.82 (0.63 - 1.07)	0.15	0.99 (0.75 - 1.30)	0.95
Incorrect answer	ref		ref		ref		ref	
Most peer have sexual experience								
Not applicable	0.64 (0.47 - 0.87)	0.04	1.99 (1.08 - 3.67)	0.03	0.84 (0.60 - 1.16)	0.29	0.86 (0.61 - 1.21)	0.38
Applicable	ref		ref		ref		ref	

OR: Odds Ratio, CI: Confidence Interval. Results are based on logistic regression analysis. Model 1 has been adjusted for Rosenberg Self-Esteem Scale Score, Proper Timing to Wear Condom and Most of Peer Have Sexual Experience. Model 2 has been adjusted for Community Belonging, Rosenberg Self-Esteem Scale Score, Proper Timing to Wear Condom and Most of Peer Have Sexual Experience.

In Vietnam, there is deep-rooted culture that people respect to belonging community, family, and the elders and follow the teachings of them [26] [27]. It suggests that, regardless South or North, it coincide with the perception of Watanabe *et al.* saying that these concepts seem to be similar to the concept of cognitive social capital in the western world [25].

Prevalence of sexual coitus among adolescents and young adults was lowest in Ho Chi Minh City on a par with the report on Hanoi by Watanabe *et al.* [21], and Vietnamese adolescents with more traditional views were less likely to engage in sexual activity [27]. This finding suggested that the conservative traditional culture may have a distinct association with adolescents' sexual behaviors, and that cognitive social capital, in general, is associated with less risky sexual behavior [20] [21]. Also, throughout Vietnam, the conservative traditional culture regards virginity as a virtue among both males and females [5]. Cultural environment change is an important factor influencing adolescents' sexual behaviors. In the wake of modernization, rapid industrialization, and contemporary globalization, Vietnam is undergoing marked sociocultural changes, which are weakening aspects of the conservative traditional culture, including dependence and connectedness to the family and community.

A possible reason that sexual knowledge and self-esteem were weaker factors than a sense of community belonging, compared with previous studies, may be that this study simultaneously analyzed sexual knowledge, sexual experience of peers and self-esteem with cognitive social capital.

There is a major difference in culture and historic background between South and North in Vietnam. Since this research obtained the same results of the research of Hanoi in North of Vietnam by Watanabe *et al.* (2014) [22], we may conclude that determinants of sexual awareness, at least in concerning high school students in urban areas of Vietnam, are different from above mentioned previous findings such as sexual knowledge and self-esteem. This implies that cognitive social capital is a more important determinant factor of sexual awareness compared with any other factors. Therefore, future studies of adolescent sexual behaviors should consider the

cognitive social capital factors.

The findings of this study highlight the importance of strengthening cognitive social capital such as a sense of community belonging as well as sexual education to enrich reproductive health knowledge among high school students in urban areas of Vietnam like Ho Chi Minh City and Hanoi as Vietnamese conservative traditional culture still appear to have a strong influence on their attitudes about premarital sex while urban youth are beginning to be easing of judgement and accepting of premarital sex. In other words, increasing opportunities of participating in community events and volunteer activities for high school students along with sexual education at school is useful approach to enhance cognitive social capital to prevent them from risky sexual behaviors.

Several study limitations need to be considered. First, the cross-sectional nature of this survey design does not allow for changes in participants' beliefs, past, present and future, to be examined. This can be achieved with a long-term longitudinal study. Second, because this is a self-administered questionnaire survey, there is a possibility of reporting bias.

Since this research and the research of Hanoi in 2014 by Watanabe *et al.* [22] were both targeted to high school students in urban areas, hereafter it is necessary to clarify the whole picture of adolescents by researching on high school students in rural area and adolescents who do not move up to high school.

## 5. Conclusion

Cognitive social capital, such as a sense of community belonging, was found to be significantly associated with sexual awareness such as a negative attitude towards premarital sex among high school students in urban areas of Vietnam. This suggests that the concept of cognitive social capital should be enhanced in sexual health promotion and education especially with adolescents.

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