



## ORIGINAL ARTICLE

## How Sexual Behaviors are Influenced by Personal Cognition and Control Toward Sex? Let Chinese University Students Tell You

Fangqiang Wei<sup>1,2</sup>, Chu Wang<sup>1</sup>, Yanli Jia<sup>1</sup>, Bingren Zhang<sup>1</sup>, and Wei Wang<sup>1\*</sup>

<sup>1</sup>Department of Clinical Psychology and Psychiatry/School of Public Health, Zhejiang University College of Medicine, Hangzhou, China

<sup>2</sup>Department of Hepatobiliary and Pancreatic Surgery, Zhejiang Provincial People's Hospital, Hangzhou Medical College, Hangzhou, Zhejiang Province, China

\*Corresponding author: Dr. Wei Wang, B. Med., D.Sc., Department of Clinical Psychology and Psychiatry/School of Public Health, Zhejiang University College of Medicine, Yuhangtang Road 866, Hangzhou, Zhejiang 310058, China, Tel: +86-571-88208188



### Abstract

In addition to sexual desire and knowledge, sexual morality, desire control, and attitude toward sex might contribute to the premarital sexual behaviors in young people, but were less studied. In 886 Chinese university students of Study 1, we have developed a Sexual Awareness and Coping Strategy Inventory (SACSI) with four domains of Personal release, Sexual knowledge, Traditional sexual morality and Negative attitude, which displayed satisfactory convergent and discriminant validities. In Study 2, we have invited 25 female students with (FS) and 50 without (FN), 50 male with (MS) and 97 without (MN) premarital sexual experience, to answer the SACSI, the sociodemographic and sexual risk behavior-related questions. Male students scored higher on Personal release, Sexual knowledge, and Negative attitude, but lower on Traditional sexual morality than female did. The FS group scored higher on Personal release, but lower on Negative attitude than FN did. The Negative attitude in MS and FS were correlated with the premarital sexual behaviors. Our studies have depicted more factors crucial for the premarital sexual behaviors, and recall for more education on the desire control and attitude toward sex in university students.

### Keywords

Chinese university students, Negative attitude, Personal release, Premarital sexual behaviors, Sexual knowledge, Traditional sexual morality

### Introduction

In recent years, the heterosexual contact has overtaken drug-injection as the main HIV/AIDS transmission mode in China [1]. Attitudes toward sexual intercourse become more diverse and the premarital sex behaviors increase in Chinese young people [2]. Some university students are engaging in sexual risk behaviors, such as the unprotected intercourse and multiple sexual partners [3,4]. The premarital sexual behaviors often result in the sexually transmitted diseases such as HIV/AIDS, in unexpected pregnancy, and in unsafe abortion [4].

Many scholars have investigated the influencing factors on the premarital sexual behaviors among Chinese university students [2,4-6]. For instance, Zhou, et al. found that the gender (male), grade (high), specialty (liberal arts), family situation (single-parent), knowledge level (low) and attitude (acceptance) were significantly associated with the premarital sexual behaviors [6]. Sun, et al. found other social-environmental or social-cognitive factors, such as age (old), level of economic consumption (high), exposure frequency to pornographic information (high), smoking, and drinking (intoxication) were risk factors for the behaviors [2].

However, other factors such as sexual morality also influence these behaviors but they are less studied. For

example, the primary reason for not accepting the premarital sex from most people was morality [7]. By contrast, people with unrestricted socio-sexual orientation were likely to experience earlier sex and more frequent sex, and to have more sexual partners [8]. In contemporary China, the traditional attitudes and morality still prevail among women, the traditional values in the mate-selection preferences persist much, the suppression of passionate love is being preached by the Confucian philosophy, and the sexual culture is relatively conservative [9]. Moreover, there is even less research examining the association between the premarital sexual behaviors and the personal desire control toward sex, such as the sexual dream, masturbation and pornography viewing [10-12].

Sexual knowledge and attitude toward sex are influential factors of premarital sexual behaviors as well. When engaging in sexual activity, those lacking of correct sexual knowledge might be at high risk of unexpected pregnancy and sexually transmitted diseases [13,14]. The sexual knowledge affects sexual attitudes and the reproductive health behaviors, [15] while the negative attitude toward sex functions as a protective factor to the premarital sexual behaviors [9].

The aim of the present investigation was to develop a structure-validated measurement of personal cognition and control toward sex, and to measure the relationship between the putative factors and the premarital sexual behaviors and related consequences in university students. We have hypothesized that: 1) The question-matrix covers the sex-related understandings, personal attitude and virtue of sexual behavior, and desire control toward sex; 2) Personal desire control and attitude toward sex are crucial factors influencing the premarital sexual behaviors in young people.

## Study 1

### Methods

**Participants:** In order to answer the questionnaire-matrix (see below), we have invited 886 students from six universities in Zhejiang province, China: 529 women (mean age: 20.77 years old with 1.40 S.D.; age range: 17-26 years), and 357 men (mean age: 21.57 ± 1.60; age range: 18-30), majoring in administration, computer science, education, economics, engineering, mechanics, medicine, natural sciences, and social sciences. All participants were heterosexual, were free from somatic or psychiatric illnesses, and were free from drug or alcohol for at least 72 hours prior to the test. The study protocol was approved by a local Ethics Committee and all participants had given their written informed consents to be included in the current study (the informed consent forms of the young adolescents were signed by their guardians).

**Questionnaire-matrix:** The matrix had 36 state-

ments designed to measure the following domains: the first domain was the personal management of sexual desire or impulse, example items of this domain were: "I did have sex with an opposite-sex partner in my dream", and "I have watched pornographic images secretly". Similar statements had been noted by Grubbs, et al. [16]. The second domain was the understandings of sex, example items were: "I have been well-educated in the contents of sexually transmitted diseases", and "I have been well-educated in the physical structure of the opposite sex", which had been noted by Sümer [17]. The third domain was the traditional or classical morality or virtue regarding sex, example items were: "I think sex comes after love", and "Lovers should be honest and open to each other", which had been measured by Sumter, et al. [18]. The fourth domain was the cognitive or behavioral inhibition toward sex, example items were: "I think sex is disgusting and ugly", and "I think masturbation is evil", which had been noted by Fullard, et al. [19]. Participants were asked to use a five-point Likert rating scale: 1-very unlike me, 2-moderately unlike me, 3-somewhat like and unlike me, 4-moderately like me, and 5-very like me.

**Statistical analyses:** Answers to the 36 items of the matrix were subjected to a Principal Component Analysis first, using the Predictive Analytics Software Statistics, Release Version 18.0.0 (SPSS Inc., 2009, Chicago, IL). The factor loadings were rotated orthogonally using the varimax normalized methods. Items which were loaded less heavily (below 0.45) on a target factor, or cross-loaded heavily (over 0.41) on more than one factor were removed from subsequent analyses one-by-one. The procedure continued until no further item was needed to be removed.

The model fits (components extracted as latent factors) were evaluated by the Confirmatory Factor Analysis for the structural equation modeling using Analysis of Moment Structures (AMOS) version 17.0 (AMOS Development Corp., 2008, Crawfordville, FL). We used the following parameters to identify the model fit: the  $\chi^2/df$ , the goodness of fit, the adjusted goodness of fit index, the comparative fit index, the Tucker-Lewis index, and the root mean square error of approximation.

Further, a questionnaire was developed based on the results of the exploratory and confirmatory factor analyses. The internal reliabilities (the Cronbach alphas) of the questionnaire factors were then calculated. The mean scale scores of the questionnaire in two genders were submitted to two-way ANOVA, i.e., group (gender) by scale, plus the post-hoc Student t test. A P value of < 0.05 was considered to be significant.

**Results:** After the Principal Component Analysis, six factors had emerged with eigen values larger than 1.0, which were 7.42, 4.86, 2.34, 1.81, 1.10 and 1.04. The vi-

**Table 1:** Item loadings on four factors regarding to the sexual awareness and coping strategy in 866 participants. The alphas are immediately after their factor names in parentheses.

	Factor 1	2	3	4
Factor 1: Personal release (alpha: 0.85)				
I had imagined about having sex with an opposite-sex partner	0.78	0.2	0.12	-0.09
I did have sex with an opposite-sex partner in my dream.	0.77	0.17	-0.14	0.03
I have watched pornographic images secretly.	0.77	0.17	-0.04	0.05
I cannot help watching porn movies or books to resolve sexual impulses.	0.75	0.03	-0.19	0.21
It is more likely for me to masturbate when I am alone.	0.75	0.11	-0.18	0.09
Factor 2: Sexual knowledge (0.81)				
I understand the contents of the process from pregnancy to childbirth.	0.03	0.75	0.06	0.03
I have been well-educated in the contents of sexually transmitted diseases.	0.04	0.75	0.17	-0.01
I have been well-educated in the physical structure of the opposite sex.	0.31	0.72	-0.13	-0.07
I have been well-educated in the physiological process of normal menstruation and nocturnal emission.	0.05	0.69	0.26	0.02
I know how to do the contraception effectively.	0.24	0.62	0.09	-0.09
I have been well-educated in human sexual physical structure.	0.1	0.62	0.19	-0.13
Factor 3: Traditional sexual morality (0.64)				
I think sex comes after love.	-0.14	0.03	0.63	0.05
I believe that sex and love are mutually reinforcing each other.	0.25	0.11	0.63	-0.19
Lovers should be frank and open to each other.	-0.12	0.11	0.62	0.03
I think it is necessary for society to educate adolescents with more sex education.	-0.1	0.24	0.59	-0.03
I do not think that I have homosexual tendencies.	-0.14	0.11	0.54	-0.01
Factor 4: Negative attitude (0.64)				
I dare not take the initiative to pursue an opposite-sex partner.	-0.13	-0.1	0.18	0.67
I am afraid to be alone with the opposite-sex partner whom I have a secret crush on.	0.27	-0.12	-0.15	0.59
In front of the opposite-sex partner of my favorite, I cannot express myself naturally always.	0.22	-0.08	0.19	0.59
I think sex is disgusting and ugly.	-0.06	-0.01	-0.36	0.57
I think masturbation is evil.	-0.18	-0.02	-0.22	0.56
In front of the opposite-sex partner whom I have a secret crush on, I will conceal my feelings of happiness and sorrow always.	0.18	0.07	0.05	0.54

**Table 2:** Scale scores of the Sexual Awareness and Coping Strategy Inventory in 886 participants in Study 1.

	Personal release	Sexual knowledge	Traditional sexual morality	Negative attitude
Male students (n = 357)	16.38 ± 3.44 <sup>a</sup>	20.69 ± 4.40 <sup>a</sup>	19.68 ± 3.61 <sup>a</sup>	16.57 ± 4.23 <sup>a</sup>
Female students (n = 529)	9.67 ± 4.02	18.70 ± 4.52	20.64 ± 3.36	15.98 ± 3.76

Note: a:  $p < 0.05$  vs. female students.

sual speculation on the scree plot and the Horn Parallel Analysis had suggested a four-factor solution, and the first four factors altogether accounted for 45.65% of the variance. After applying the item target-loading ( $\geq 0.45$ ) and cross-loading ( $< 0.41$ ) criteria, the model fit of the 22 items retained were satisfactory: the goodness of fit, 0.89; the adjusted goodness of fit index, 0.87; the comparative fit index, 0.84; the Tucker-Lewis index, 0.82; and the root mean square error of approximation, 0.07. These factors were named as Personal release (5 items), Sexual knowledge (6 items), Traditional sexual morality (5 items), and Negative attitude (6 items) and their Cronbach alphas were acceptable (Table 1). Further the measurement was named as the Sexual Awareness and Coping Strategy Inventory (SACSI).

Two-way ANOVA has detected that male and female students scored significantly different on the four SACSI scales (group,  $F [1, 884] = 205.02$ , mean square effect (MSE) = 3705.66,  $P = 0.000$ ); scale,  $F [3, 2652] = 645.16$ , MSE = 9453.25,  $P = 0.000$ , group X scale interaction,  $F [3, 2652] = 159.55$ , MSE = 2337.77,  $P = 0.000$ ). Male students scored higher on Personal release ( $P = 0.000$ , 95% confidence interval (CI): 6.22 ~ 7.21), Sexual knowledge ( $P = 0.000$ , 95% CI: 1.39 ~ 2.59), and Negative attitude ( $P = 0.035$ , 95% CI: 0.04 ~ 1.13), but lower on Traditional sexual morality ( $P = 0.000$ , 95% CI: -1.42 ~ -0.49) than female students did (Table 2). Considering that SACSI had its structural-validations and gender-discriminations, it was used to measure the sex-related cognitions and behaviors in Study 2.

## Study 2

### Methods

**Participants:** From six universities in Zhejiang, China, we invited 25 female (FS, mean age 21.12 years with 1.56 S.D., age range 19-25 years) and 50 male (MS, mean age 21.70 ± 1.74, age range 18-27) students with sexual experience, and 50 female (FN, mean age 21.12 ± 1.55, age range 19-25) and 97 male (MN, mean age 21.55 ± 1.51, age range 18-26) students without sexual experience to participate in this study. All participants were heterosexual and came from Study 1. These participants were confirmed majoring in administration, computer science, education, economics, engineering, mechanics, medicine, natural sciences, and social sciences. No two participants were belonging or had belonged to a heterosexual couple. All participants had no somatic or psychiatric illnesses and had to be free from antipsychotic drugs or alcohol for at least 72 hours prior to testing. No age (one-way ANOVA,  $F [1, 220] = 0.22$ ,  $MSE = 0.55$ ,  $P = 0.64$ ) or gender ( $\chi^2 = 0.01$ ,  $P = 0.92$ ) differences were found between groups. One FS and one MS students had once suffered from gonorrhea after having sex experience with their first sexual partners. The study protocol was approved by a local Ethics Committee and all participants had given their written informed consent.

**Measures:** Participants were asked to answer the Sexual Awareness and Coping Strategy Inventory (SACSI), which measured four domains: Personal release, Sexual knowledge, Traditional sexual morality, and Negative attitude. They were asked to use a five-point Likert rating scale: 1-very unlike me, 2-moderately unlike me, 3-somewhat like and unlike me, 4-moderately like me, and 5-very like me. Besides their sociodemographic information, participants were asked to report their monthly average expenditure (in Chinese RMB), history of sexual experience (before and during college life), unexpected self/partner pregnancy, number of life-long sexual partners, and the use of contraceptives (including condom use).

**Statistical analyses:** The mean average monthly expenditures (in RMB) in four groups of participant were submitted to the Mann-Whitney U test. The mean scores of SACSI scales in the four groups were submitted to two-way ANOVA, i.e., group (sexual experience and gender) by scale. Whenever a significant main effect was found, post-hoc analysis by the Bonferroni cor-

rection was employed to evaluate between-group differences. The Fisher test was employed to compare the population distributions of the first sex experience before entering university, of the number of sexual partner(s), of the use of contraceptives (including condom use), and of the unexpected pregnancy. The Spearman rank order correlation test was used to explore relationship between influencing factors and premarital sexual behaviors. A P value less than 0.05 (for group differences) or 0.01 (for correlations) was considered to be significant.

**Results:** There were significant differences of the four SACSI scale scores in four groups of participant (group,  $F [3, 218] = 7.69$ ,  $MSE = 185.51$ ,  $P = 0.000$ ; scale,  $F [3, 654] = 110.39$ ,  $MSE = 1751.79$ ,  $P = 0.000$ , group X scale interaction,  $F [9, 654] = 11.16$ ,  $MSE = 177.05$ ,  $P = 0.000$ ). FS scored higher on Personal release ( $P = 0.000$ , 95% CI: 1.50 ~ 6.78) and lower on Negative attitude ( $P = 0.015$ , 95% CI: -6.28 ~ -0.44) than FN did (Table 3).

The MS group spent (1416.00 RMB/month ± 344.85) similarly to the FS group did (1324.00 ± 397.16,  $z = -1.26$ ,  $P = 0.209$ ). The MS group spent significantly higher than the MN (1198.97 ± 295.63,  $z = -3.98$ ,  $P = 0.000$ ), FN (1236.00 ± 292.60,  $z = -2.82$ ,  $P = 0.005$ ) groups did. Both FS and MS groups had reported similarly in regard to the numbers of sexual partners ( $P = 0.805$ ): 16 FS and 30 MS students had only one partner, while 9 FS and 20 MS students had more than one partner. The use of contraceptives (including condom use) in FS (24 students) and MS (46) groups were also similar ( $P = 0.659$ ). By contrast, more MS students (22) than FS (2) had experienced their first sex before entering university ( $P = 0.002$ ). Moreover, more MS students (18) than FS (2) had experienced unexpected pregnancies ( $P = 0.012$ ).

Regarding the relationships between SACSI scale scores, monthly expenditure, and the premarital sexual behaviors in students with sexual experience, students who had lower Negative attitude had sex earlier ( $n = 75$ ,  $r = -0.41$ ,  $P = 0.000$ ) and experienced more unexpected pregnancies ( $r = -0.66$ ,  $P = 0.000$ ). Participants in MS also behaved and experienced similarly in these regards ( $n = 50$ ,  $r = -0.41$ ,  $P = 0.004$ , and  $r = -0.79$ ,  $P = 0.000$  respectively).

### Discussion

In two successive studies on Chinese university students, we have developed a 22-item SACSI inventory

**Table 3:** Scale scores of the Sexual Awareness and Coping Strategy Inventory in male with (MS) and without (MN), and in female students with (FS) and without (FN) premarital sexual experience in Study 2.

	Personal release	Sexual knowledge	Traditional sexual morality	Negative attitude
MS (n = 50)	17.16 ± 3.41	22.22 ± 5.13	19.32 ± 3.70	15.94 ± 5.81
MN (n = 97)	15.77 ± 4.03	20.48 ± 4.06	19.68 ± 3.89	17.05 ± 4.02
FS (n = 25)	14.00 ± 4.79 <sup>a</sup>	20.68 ± 5.82	20.12 ± 3.24	13.40 ± 4.40 <sup>a</sup>
FN (n = 50)	9.86 ± 4.27	19.24 ± 4.90	20.64 ± 3.05	16.76 ± 3.78

Note: a:  $p < 0.05$  vs. FN.



with satisfactory convergent and discriminatory validities, and explored their relationships with the premarital sexual behaviors. Male students scored significantly higher on Personal release, Sexual knowledge, and Negative attitude, but significantly lower on Traditional sexual morality scales than female students did. The FS scored higher on Personal release but lower on Negative attitude than FN did. Both MS and FS had higher monthly expenditure than MN and FN did, and more MS than FS experienced the unexpected pregnancies. The Negative attitude scale in participants with sexual experience was correlated with the premarital sexual behaviors. The four-factor SACSI structure was validated, which confirmed our first hypothesis. On the other hand, the relationships between SACSI scale scores and history of sexual experience and unexpected self/partner pregnancy partly confirmed our second hypothesis.

The gender differences on SACSI scale scores and their relationships with premarital sex were generally consistent with previous findings in China [6,20-22]. For instance, men have greater sexual desire than women do [23]. Indeed, pursuing sexual release and orgasm, and pleasing partners characterize men, while obtaining sexual intimacy, love, emotional closeness, and sexual desire satisfying characterize women [24].

Our male students reported both higher Negative attitude and higher Personal release, these results were consistent with a previous study showing that men often failed to resist masturbating as much as women did, even both gender groups had negative attitudes towards masturbation [25]. In addition, the lower Traditional sexual morality found in our male students was consistent with Higgins, et al. [9], a research showing that men reported lower sexual morality and had more liberal attitudes to the premarital sex and homosexuality. The higher Sexual knowledge in our male students was consistent with the finding that women had less knowledge about sex than men [26,27]. Furthermore, people with less accurate sexual knowledge were more likely to have conservative sexual attitudes [28]. These reports might also offer partial explanation for our findings that female students had less sexual knowledge but higher sexual morality than male students did.

It has been shown that the cyberporn users were 3.7 times more likely to engage in paid sex than people with lower levels of Internet pornography use [29]. The finding supports our study that FS students had higher SACSI Personal release than FN students did, and that both FS and MS reported higher monthly expenditures. Although we did not collect detailed expenditure of these students, the reasons for higher monthly cost in MS and FS students might be related to the coverage of dating and hotels, besides the occasions for socializing or meeting people. Further, our results that MS students experienced more unexpected pregnancies than FS did might be due to their higher Personal release and lower Traditional sexual morality. The higher SACSI Neg-

ative attitude scale scores in FS than those in FN and that the negative correlation between Negative attitude scale and history of sexual experience or unexpected pregnancies in MS and FS students, were supported by the finding that the negative attitude helped university students to get away from the sexual behaviors [9].

One should also note that there are several limitations of the current study. Firstly, all data came from self-reports, which might be subject to recall bias or social desirability. Indeed, sexual experience tends to be over-reported by men and under-reported by women in most developing Asian countries [30]. Secondly, our data were from the Chinese young university students, results therefore cannot be generalized to other ages or other cultures. Thirdly, the monthly expenditure we noted was a total cost, with the lack of detailed classifications, therefore, the exact overheads on the heterosexual or on sexuality were not clear. Fourthly, the participants attending Study 2 had been enrolled in Study 1 due to the participant-recruiting difficulties, thus our study results need confirmation from other independent laboratories. However, our study designs have depicted some factors crucial for the premarital sexual behaviors, and advocate the emphasis on sexual education in universities, especially the desire control and the attitude toward sex.

## Acknowledgments

The study was supported by grants from the Natural Science Foundation of China (No. 81771475) to the correspondent author (Dr. W Wang), and from the 2011 Chinese National Innovative Researches among University Students to FW. The authors thank Chai Jin for data collecting.

## Conflict of Interest

Regarding research work described in the paper, each one of our co-authors, Fangqiang Wei, Chu Wang, Yanli Jia, Bingren Zhang, and Wei Wang, declares that there is no conflict of interest, and has conformed to the Helsinki Declaration concerning human rights and informed consent, and has followed correct procedures concerning treatment of humans in research.

## References

1. Huang MB, Ye L, Liang BY, Ning CY, Roth W, et al. (2016) Characterizing the HIV/AIDS epidemic in the United States and China. *Int J Environ Res Public Health* 13: 30.
2. Sun X, Liu X, Shi Y, Wang Y, Wang P, et al. (2013) Determinants of risky sexual behavior and condom use among college students in China. *AIDS Care* 25: 775-783.
3. Zhou Y, Xiong C, Xiong J, Shang X, Liu G, et al. (2013) A blind area of family planning services in China: Unintended pregnancy among unmarried graduate students. *BMC Public Health* 13: 198.
4. Bogale A, Seme A (2014) Premarital sexual practices and its predictors among in-school youths of Shendi town, west

- Gojjam zone, North Western Ethiopia. *Reprod Health* 11: 49.
5. Chi X, Yu L, Winter S (2012) Prevalence and correlates of sexual behaviors among university students: A study in Hefei, China. *BMC Public Health* 12: 972.
  6. Zhou H, Wang XY, Ye F, Gu HH, Zeng XP, et al. (2012) Contraceptive knowledge, attitudes and behavior about sexuality among college students in Beijing, China. *Chin Med J Engl* 125: 1153-1157.
  7. Hong JH, Fan MS, Ng ML, Lee L KC, Lui PK, et al. (1994) Sexual attitudes and behavior of Chinese university students in Shanghai. *Journal of Sex Education and Therapy* 20: 277-286.
  8. Yost MR, Zurbriggen EL (2006) Gender differences in the enactment of sociosexuality: An examination of implicit social motives, sexual fantasies, coercive sexual attitudes, and aggressive sexual behavior. *J Sex Res* 43: 163-173.
  9. Higgins LT, Zheng M, Liu Y, Sun CH (2002) Attitudes to marriage and sexual behaviors: A survey of gender and culture differences in China and United Kingdom. *Sex Roles* 46: 75-89.
  10. Paul B, Shim JW (2008) Gender, sexual affect, and motivations for internet pornography use. *International Journal of Sexual Health* 20: 187-199.
  11. Yu CKC, Fu W (2011) Sex dreams, wet dreams, and nocturnal emissions. *Dreaming* 21: 197-212.
  12. Carvalheira A, Leal I (2013) Masturbation among women: Associated factors and sexual response in a Portuguese community sample. *J Sex Marital Ther* 39: 347-367.
  13. Brandhorst SR, Ferguson B, Sebbly RA, Weeks R (2012) The influence of peer sexual activity upon college students' sexual behaviour. *North American Journal of Psychology* 14: 111-122.
  14. Shin KR, Park HJ, Hong CM (2010) Effects of an educational program about reproductive health promotion on sexual knowledge and attitudes of university students from Korea. *Korean Journal of Adult Nursing* 22: 448-456.
  15. Kim HY, Park M, Lee E (2018) A cross-sectional survey of relationships between sexual knowledge, sexual attitudes, and reproductive health behaviour among female university students. *Contemporary Nurse* 54: 640-650.
  16. Grubbs JB, Volk F, Exline JJ, Pargament KI (2015) Internet pornography use: Perceived addiction, psychological distress, and the validation of a brief measure. *J Sex Marital Ther* 41: 83-106.
  17. Sümer ZH (2015) Gender, religiosity, sexual activity, sexual knowledge, and attitudes toward controversial aspects of sexuality. *J Relig Health* 54: 2033-2044.
  18. Sumter SR, Valkenburg PM, Peter J (2013) Perceptions of love across the lifespan: Differences in passion, intimacy, and commitment. *International Journal of Behavioral Development* 37: 417-427.
  19. Fullard W, Johnson DA, Lief HI (1998) The sexual knowledge and attitude test for adolescents. In: Davis CM, Yarber WL, Bauseman R, Shreer G, Davis SL, Handbook of sexuality related measures. Thousand Oaks, CA Sage, USA, 439-442.
  20. Zhang L, Gao X, Dong Z, Tan Y, Wu Z (2002) Premarital sexual activities among students in a university in Beijing, China. *Sex Transm Dis* 29: 212-215.
  21. Ma Q, Ono-Kihara M, Cong L, Xu G, Zamani S, et al. (2006) Sexual behavior and awareness of Chinese university students in transition with implied risk of sexually transmitted diseases and HIV infection: A cross-sectional study. *BMC Public Health* 6: 232.
  22. Yu XM, Guo SJ, Sun YY (2013) Sexual behaviours and associated risks in Chinese young people: A meta-analysis. *Sex Health* 10: 424-433.
  23. Impett EA, Peplau LA (2003) Sexual compliance: Gender, motivational, and relationship perspectives. *J Sex Res* 40: 87-100.
  24. Mark K, Herbenick D, Fortenberry D, Sanders S, Reece M (2014) The object of sexual desire: Examining the "What" in "What Do You Desire?". *Journal of Sex Medicine* 11: 2709-2719.
  25. Abramson PR, Mosher DL (1975) Development of a measure of negative attitudes toward masturbation. *Journal of Consulting and Clinical Psychology* 43: 485-490.
  26. Yu J (2012) Teenage sexual attitudes and behaviour in China: A literature review. *Health and Social Care in the Community* 20: 561-582.
  27. Mutha AS, Mutha SA, Baghel PJ, Patil RJ, Bhagat SB, et al. (2014) A Knowledge, attitudes and practices survey regarding sex, contraception and sexually transmitted diseases among commerce college students in Mumbai. *J Clin Diagn Res* 8: 14-18.
  28. Meston CM, Trapnell PD, Gorzalka BB (1998) Ethnic, gender, and length of residency influences on sexual knowledge and attitudes. *Journal of Sex Research* 35: 176-188.
  29. Stack S, Wasserman I, Kern R (2004) Adult social bonds and use of Internet pornography. *Social Science Quarterly* 85: 75-88.
  30. Jaya J, Hindin MJ (2009) Premarital romantic partnerships: Attitudes and sexual experiences of youth in Delhi, India. *Int Perspect Sex Reprod Health* 35: 97-104.