Sexual Needs and Sexual Health in the Elderly Population in Eastern China: Findings From a Cross-Sectional Study

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Abstract

Objective: To investigate the sexual activity of older adults, to understand their knowledge attitude and practice(KAP) regarding sexually transmitted diseases (STD) and to perform correlation analyses of STD symptoms in this population.

Methods: A cross-sectional study was conducted among 585 subjects from counties in eastern China. Data was collected from unified questionnaires; descriptive statistics were used for demographic characteristics and sexual activity, which used student *t* test, to compare the different groups, and multivariate logistic regression analysis to identify the dependence of influential factors.

Results: 24.62% of participants were reported as sexually active. The subjects still work and the main income from personal salary was higher than other individuals . Furthermore, when participants monthly income or expenses was more than 1000 RMB, they seemed to have a higher sexual activity. Gender and monthly income were dependent on influential factors related to sexual activity. 54.7% showed good awareness of STD, but only 7.96% of them consistently and correctly used condoms; moreover, 21.03% report to have previously suffered from any STD symptoms. Sexual behavior, use of condoms and commercial sexual behavior were dependent on influential factors of sexual activity.

Conclusions: Sexual needs and sexual health of older adults should not be neglected, effective strategies should be drafted for such population.

Plain English Summary

To investigate the sexual activity of older adults, to understand their knowledge attitude and practice(KAP) regarding sexually transmitted diseases (STD) and to perform correlation analyses of STD symptoms in this population. We conducted a cross-sectional study among 585 subjects from counties in eastern China. We found that 24.62% of participants were reported as sexually active. The subjects still work and the main income from personal salary was higher than other individuals . Furthermore, when participants monthly income or expenses was more than 1000 RMB, they seemed to have a higher sexual activity. Gender and monthly income were dependent on influential factors related to sexual activity. 54.7% showed good awareness of STD, but only 7.96% of them consistently and correctly used condoms; moreover, 21.03% report to have previously suffered from any STD symptoms. Sexual behavior, use of condoms and commercial sexual behavior were dependent on influential factors of sexual activity. Sexual needs and sexual health of older adults should not be neglected, effective strategies should be drafted for such population.

Introduction

According to the Joint United Nations Program on human immunodeficiency virus (HIV) and AIDS (UNAIDS) report in 2015, the number of people living with HIV (PLWH), and who are aged 50 and older reached a record high number of roughly 5.8 million, of whom 58% were men¹ . The statistics reported by

the Center for Disease Control and Prevention of China (CDC) showed that as of September 2016 654,000 people were reportedly living with HIV, and the cumulative mortality was 201,000 ². In some places in China, The HIV incidence among both young students and the elderly rose significantly. Between January 2016 and September 2016, sexual intercourse accounted for 94.2% of all newly reported infections. The number of new cases of HIV infection among men aged 60 and older was 13,000 in 2015, 3.6 times higher than in 2010 ^{3,4}.

Therefore, it is vital to improve HIV prevention among older people. The common misconception that risky sexual behavior is limited to adolescents and young adults has been found to be incorrect; a survey regarding sexual activity revealed that the old American people aged between 57-64, 65-74, 75-85 were 73%, 53% and 26%, respectively. Many individuals over 80 years old still had sex, such as vaginal intercourse, oral sex and masturbation ⁵. Three quarters of men aged between 50-70 had sex, while the number of 50-60 years old and 60-70 years old women who had sexual intercourse were 75% and 33% ⁶. Sexually transmitted diseases (STD) are not only commonly associated with adolescents and young adults, but also sexually active older adults ⁷. A concern for increasing the HIV/STD epidemic among the elderly in China among male clients of low-paying female sex workers (FSW) needs be raised. This has already been regarded as a unique characteristics of older men who were more likely to patronize low-paying FSW for sexual services ⁸.

Along with the advancement of the aging process, the number of old people suffering from STD has risen in recent years, which happens due to various factors. In addition, the epidemic modes of these diseases has also been changing. The elderly population has become an important but challenging focus point in work relating to venereal disease prevention ; however, there is a general lack of research regarding sexual behaviors among older populations in China. Moreover, direct comparisons of change in sexual behaviors following diagnosis with HIV have not been conducted across the age spectrum ⁹. Therefore, it is important to study the sexual activity and symptoms of sexually transmitted diseases in older people, and this study aims to explore the knowledge, attitude and practices of sexual health in older adults, as well as to try and provide useful suggestions for this population.

Materials And Methods

Definition of older adults

Older adults were defined as individuals aged 50 years or older at the time of the study.

Study setting and subjects

Zhejiang is a coastal province located in Eastern China. It has a highly developed economy , a large migrant population (inflow mainly), it has a liberal cultural and has a high risk of sexually transmitted diseases. STD risk factors include a high prevalence of STD and different entertainment venues distributed in the main urban areas in which female sex workers are employed.

Using convenience sampling, we chose 585 older adults selected from representative counties (Tongxiang, Keqiao and Nanxun) in Zhejiang between March 1st and June 31st in 2015. All patients in the study met these inclusion criteria: 1) aged 50 years or older, 2) proves satisfactory intellectual and psychological capacity to complete the investigation.

Questionnaire Design and Filling out

The study regarding sexual activity and symptoms of sexually transmitted diseases among old people was conducted by using unified questionnaires, which were specially designed by ourselves. The questionnaires included basic information, knowledge, behavior, self-efficacy and self-assessment of STD symptoms. After receiving appropriate training offered by the lead researchers in this study, the physicians in each participating county conducted their respective interviews.

Data Analysis

All data collected by paper-and-pencil surveys were input manually into a custom-designed database and analyzed using SPSS for Windows Version 16.0. Firstly, we organized demographic information and examined whether there were differences in the scale for being sexually-active of distinct gender, age, marital status, education level, working condition, source of income and expenses level. Subsequently, STD related KAP and symptoms were examined using correlation analysis. Finally, we used multivariate logistic regressions to identify specific dependent variables that effected the results of being sexually-active, or not, as well as other symptoms of STD.

Results

Demographic

Of the 585 subjects included in the analysis, 368(62.91%) were men and 217(37.09%) were women. The average age was 62.57, ranging from 50–88 years, and 274(46.84%) were aged 60–69 years. Most participants (440cases, 75.21%) were married, 382(65.3%) were employed and 419(71.62%) used their personal salary as an economic source. 415(73.16%) had only received six years of education or less, 365 (62.39%) of them had a monthly income greater than 1000RMB, while 380(64.96%) had a monthly income less than 1000RMB (Table 1).

Sexual activity analysis

Totally, 144 participants (24.62%) reported an active sexual activity status; among them, males (27.45%) were significantly higher than females (19.82%), $\chi^2 = 4.283$, $P=0.039$. The subjects were employed and their main economic source was from their personal salary, which was higher than others ($\chi^2 = 17.876$, $P<0.01$; $\chi^2 = 25.807$, $P<0.01$, respectively). Moreover, when monthly income or expenses was more than 1000 RMB, they seemed to have a higher sexual activity ($\chi^2 = 40.59$, $P<0.01$; $\chi^2 = 22.423$, $P<0.01$, respectively). Marital status, education level and age group did not prove to have a significant impact on

the rate of sexual activity (Table 1). Furthermore, multivariate regression analysis showed that gender and monthly income were dependent on influential factors of sexual activity (OR = 1.53, AOR = 1.57, $p < 0.05$; OR = 4.52, AOR = 2.74, $p < 0.05$, respectively) (Table 2).

KAP of STD

Of all the subjects, more than half of them (54.7%) showed good awareness of STD knowledge, but only 7.96% of them were consistent and correctly used condoms. Furthermore, we found that different sexual partners had different rates of condom usage; spouses were significantly lower than non-spouses ($\chi^2 = 10.42$, $p = 0.001$) (figure 1). 51 (8.72%) of the reported that they have multiple sex partners, and 78 (13.4%) of them have commercial sexual behavior. Also, the percentage of non-spouse sexual partners revealed gender differences: males were significantly higher than females ($\chi^2 = 5.24$, $p = 0.022$) (figure 2) (Table 3).

STD symptoms analysis

In this study, 123 participants (21.03%) reported to have previously suffered from STD symptoms. Correlation analysis showed that those who reported sexual activity, use of condoms, had multiple sexual partners and commercial sexual behavior, seemed to have a higher risk of suffering STD symptoms ($\chi^2 = 23.825$, $P < 0.01$; $\chi^2 = 14.995$, $P < 0.01$; $\chi^2 = 48.071$, $P < 0.01$; $\chi^2 = 244.963$, $P < 0.01$, respectively). Moreover, multivariate regression analysis showed that sexual behavior, use of condoms and commercial sexual behavior, were dependent on influential factors of sexual activity (OR = 2.81, AOR = 9.84, $p < 0.05$; OR = 3.79, AOR = 3.07, $p < 0.05$; OR = 63.89, AOR = 55.52, $p < 0.05$, respectively) (Table 3,4).

Discussion

Sexual needs still exist among older adults

In recent years, the numbers of older patients suffering from STD has increased rapidly in China. By the end of 2012, the proportion STD/HIV infection in older people already reached those reported four years ago in Europe and the USA¹⁰. The differences between China and Western countries in terms of local, social and cultural attitudes, as well as different perceptions of sex and different behavior, all put older Chinese people at a higher risk of STD/HIV infection, but this situation is rarely reported. Our results showed that sexual activity still exists among older adults, and that men tended to have stronger sexual needs, consistent with previous studies at home and abroad^{11,12}. Yao found people over 45 years old who had no interest in sex were only 16.8% and 25.9%, in men and women respectively¹³. Gao's survey results also supported the idea that sexual needs of the elderly population still exists¹⁴.

However, understanding intimate relationships among older adults is not an easy task. Among sexually active respondents, about half of both men and women reported at least one bothersome problem, such as changes in body shape and changes in sexual functioning, such as vaginal dryness after menopause in women and erectile difficulties in men, so some of them would like to take medication or supplements

to improve sexual function and performance^{7,15}. Regarding the elderly in society, old people's sexual appeal are often subject to the conditions of social consciousness and social morality. Moreover, elderly who are widowed or have a partner with sexual dysfunction are usually dissatisfied with sex in their life for over a long period of time, which may lead to social problems such as crime and prostitution. Consequently, this can promote further spread of sexually transmitted diseases in the elderly¹⁶.

Social problem behind sexual activity of senior citizens

A non-negligible proportion of patients engaged in casual sexual encounters, often with sexual workers. social changes, as the rise of divorce and new relationships among older people also affects the likelihood of engaging in risky sexual behavior¹⁷. Furthermore, low-paying female sex workers were usually less likely to practice safe sex, in other words, were associated with the rate of inconsistent condom use compared with their peers who worked in a high-paying region. For this reason, they are at a higher risk of contracting STD^{18,19,20}. Low condom use rate and awareness of the relevant knowledge, as well as multiple partners and prostitution, resulted in an epidemic of HIV and syphilis, which increased year-by-year²¹. With the increasing popularity of people accepting antiretroviral therapy (ART), the life expectancy of HIV patients is greatly prolonged. In addition, this problem relating to the elderly population in China is becoming more serious, and the number of elderly PLWH patients, in the next few decades, may further rise. Therefore, it is necessary to strengthen the HIV prevention and control work of older adults.

More attention should be paid to STD in the elderly

In recent years, chronic disease has gradually replaced infective disease, which has become a first risk factor that threatens old people's health. However, they are vulnerable to contract infections owing to poor physical well-being, weaker immunity and deterioration of organ function. In addition, the existing knowledge about regarding infection disease and prevention behaviors was not significantly high^{22,23}. As a result, older people should be treated as important population during the process of preventing and curing infection disease. Although it is not the only important point, but it is however a challenging issue. A foreign study showed the increasing frequency of sexual activity in people over 50 years old, which led to the rapid prevalence of STD, including HIV , syphilis, gonorrhea and chlamydial infection²⁴.

Even though the HIV-positive population in China is aging, the health needs of this group remains understudied and likely under served. Older PLWH individuals may continue to engage in unprotected or inconsistent safe sexual activity. Educated people are more likely to pay attention to their health and screen for sexually transmitted infections by their own initiative²⁵. Therefore, related education projects for the elderly need to be promoted in communities. The Community Action for Preventing HIV/AIDS Project' was implemented in four provinces in Cambodia, for instance, it achieved a high level of consistent condom use with commercial sex in all groups, which demonstrated the vital importance of decentralized planning, management and accountability, with government institutions playing the leading role²⁶. On the other hand, social networking technologies could be an important and useful tool for HIV

and STD prevention²⁷. Consequently, considering the cultural level and living habits that older people have, importance is given to sexual health. Moreover, education regarding the prevention and control of STD in the by means of television, radio or leaflets will ensure that the elderly have access to real and effective information. Furthermore, children working far away from home should also show more concerns for the parents.

Limitations

This study also had some limitations: First of all, a self-reported survey is subject to participant recall bias, and information selected from the survey could not be verified. Furthermore, we may have missed or been given false sensitive information because of imparity, which can also affect results. Secondly, the survey did not include specific questions regarding sexual orientation, sexual partnerships and sexual practices in this demographic. Ellen JM found that men who have sex with men and women may be more likely to ever exchange sex for money and even have a higher risk of contracting sexually transmitted diseases than men who only sex with men²⁸.

In conclusion, sexual needs and sexual health of older adults should not be neglected, effective strategies should be drafted for such population.

Abbreviations

ART: Antiretroviral therapy

CDC: The Center for Disease Control and Prevention of China

FSW: Female sex workers

HIV: Human immunodeficiency virus

KAP: knowledge attitude and practice

PLWH: People Living with Hiv

STD: Sexually transmitted diseases

UNAIDS: The Joint United Nations Program on HIV and AIDS

Declarations

Ethics approval and consent to participate:The study was approved by the Ethics Committee of The First Affiliated Hospital at the School of Medicine of Zhejiang University. Written consent was obtained from each participant.

Consent for publication:Not applicable

Availability of data and material:The original data from the survey is available from Action for work group in an excel spreadsheet.

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Author Contributions: Conceived and designed the experiments: TSX. Performed the experiments: GHW,HB,Y,GJJ. Analyzed the data: TSX . Wrote the paper: TSX.

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Tables

Table1 Demographic characteristics and sexual activity

Characteristics	Total 585 (100.0)	Sexual activity		χ^2	P
		Yes	No		
		144(24.62)	441 (75.38)		
Gender				4.283	0.039
Male	368(62.91)	101(27.45)	267(72.55)		
Female	217(37.09)	43(19.82)	174(80.18)		
Age group				2.7	0.259
50-59	212(36.24)	54(25.47)	158(74.53)		
60-69	274(46.84)	72(26.28)	202(73.72)		
70-90	99(16.92)	18(18.18)	81(81.82)		
Marriage				4.014	0.134
Unmarried or cohabiting	52(8.89)	11(21.15)	41(78.85)		
Married	440(75.21)	117(26.59)	323(73.41)		
Divorce or widowhood	93(15.9)	16(17.2)	77(82.8)		
Education level				10.448	0.005
Illiterate	170(29.06)	40(23.53)	130(76.47)		
Primary school	258(44.1)	51(19.77)	207(80.23)		
Secondary school or above	157(26.84)	53(33.76)	104(66.24)		
Work status				17.876	0
Still working	382(65.3)	115(30.1)	267(69.9)		
Retirement	203(34.7)	29(14.29)	174(85.71)		
Economic source				25.807	0
Personal salary	419(71.62)	127(30.31)	292(69.69)		
From family	166(28.38)	17(10.24)	149(89.76)		
Monthly income (RMB)				40.59	0
< 1000	220(37.61)	22(10)	198(90)		
≥1000	365(62.39)	122(33.42)	243(66.58)		
Monthly expenses(RMB)				22.423	0
< 1000	380(64.96)	70(18.42)	310(81.58)		

≥1000

205(35.04)

74(36.1)

131(63.9)

Table2 Multivariate logistic regression analysis of sexual activity

Items	OR[95%CI]	P	aOR[95%CI]	P
Gender				
Male	1.53(1.02,2.29)	0.04	1.57(1.02,2.41)	0.04
Female	ref			
Work status				
Still working	2.58(1.65,4.05)	0	1.48(0.8,2.73)	0.22
Retirement	ref			
Economic source				
Personal salary	3.81(2.21,6.56)	0	1.5(0.69,3.3)	0.31
From family	ref			
Monthly income(RMB)				
< 1000	ref			
≥1000	4.52(2.77,7.39)	0	2.74(1.46,5.14)	0
Monthly expenses(RMB)				
< 1000	ref			
≥1000	2.5(1.7,3.68)	0	1.33(0.85,2.09)	0.22

Table3 KAP of STD and correlation analysis of STD symptoms

Items	Total 585(100)	STD symptoms		χ^2	P
		Yes	No		
		123(21.03)	462 (78.97)		
Knowledge awareness				0.123	0.726
Yes	320(54.7)	54(20.38)	211(79.62)		
No	265(45.3)	69(21.56)	251(78.44)		
Sexual behavior				23.825	0
Yes	144(24.62)	51(35.42)	93(64.58)		
No	441(75.38)	72(16.33)	369(83.67)		
Condom use				14.995	0
Yes	36(7.96)	15(41.67)	21(58.33)		
No	416(92.04)	66(15.87)	350(84.13)		
Multiple sexual partnes				48.071	0
Yes	51(8.72)	30(58.82)	21(41.18)		
No	534(91.28)	93(17.42)	441(82.58)		
Commercial Sexual Behavior				244.963	0
Yes	78(13.4)	69(88.46)	9(11.54)		
No	504(86.6)	54(10.71)	450(89.29)		

Abbreviation

KAP: knowledge, attitude and practice

STD: sexually transmitted diseases.

Table4 Multivariate logistic regression analysis of STD symptoms

Items	OR[95%CI]	P	OR[95%CI]	P
Knowledge awareness				
Yes	ref		–	–
No	0.93(0.62,1.39)	0.73		
Sexual behavior				
Yes	2.81(1.84,4.3)	0.001	9.84(4.77,20.3)	0.001
No				
Condom use				
Yes	3.79(1.86,7.73)	0.001	3.07(1.09,8.69)	0.03
No	ref		REF	
Multiple sex partners				
Yes	6.77(3.72,12.35)	0.001	1.77(0.72,4.35)	0.22
No	ref		REF	
Commercial Sexual Behavior				
Yes	63.89(30.19,135.22)	0.001	55.52(21,146.78)	0.001
No	ref		REF	

Abbreviation

STD: sexually transmitted diseases.

Figures

Figure 1

The rate of condom use in different types of partner Different types of sexual partners had different rates of condom usage, spouses(8.21%) were significant lower than in non-spouses(35.01%) ($\chi^2=10.42$ $p=0.001$) .

Figure 2

The percentage of non-spouse sexual partners in males (12.86%) were significantly higher than females (5%) ($\chi^2=5.24$, $p=0.022$).