Abstract A total of 978 Japanese students, who visited the health services center of a college in Japan for medical check-ups, were asked to anonymously complete a 55-item questionnaire which assessed their attitudes toward sex and sexual behavior. Seven hundred eighty-five Japanese students (80.3%) responded to the questionnaire. In this survey, 90% of male students and 83% of female students indicated that they expected to have sexual intercourse before marriage, while 8% of male students and 3% of female students indicated that it was not wrong to have extramarital sexual intercourse after marriage. In addition, 75% of sexually experienced students reported that they used a condom during their first sexual intercourse, while 73% reported using a condom during their most recent sexual intercourse. The more sexual partners students had had up to the time of the study, the less condom use they reported for both their first and most recent sexual intercourse. The proportion of Japanese students who used a condom is high in comparison to that of students in other countries. However, as students are prone to have sexual intercourse with non-steady, casual partners, more efforts are needed to promote safe sex practices among college students in Japan.


Keywords: Japanese students, attitudes toward sex, sexual behavior

Introduction

HIV infections have been steadily increasing in Japan since the first case of AIDS was reported in 1985, though the cumulative number of about 10,100 people with HIV/AIDS from 1985 until 2003 is relatively small compared with Western countries (UNAIDS/WHO, 2002; AIDS Task Committee of the Japanese Ministry of Health, Labor and Welfare, 2003). The incidence of HIV infection through sexual transmission has increased in the last 10 years in Japan. In 2003, 640 people were reported to have been infected with HIV while 336 people were newly diagnosed with AIDS in the same year. About 56% of HIV infections reported in 2003 were found to be through male-to-male transmission, while 28% were through heterosexual transmission. Parenteral or mother-to-child transmission was less than 1% (AIDS Task Committee of the Japanese Ministry of Health, Labor and Welfare, 2003).

It is well known that the most important route of HIV infection in Africa and Asia is through heterosexual intercourse (UNAIDS/WHO, 2002). Using a latex condom is the only means to avoid HIV infection associated with sexual intercourse. As adolescents and young adults tend to have an active sex life, they are likely to contract HIV infection through unprotected sexual intercourse. It is said that HIV is increasingly spreading among young people in Japan, who have a tendency to have sexual intercourse with non-steady, casual partners (Kihara et al., 2003). Nearly 40% of new HIV infections in 2001 in Japan were among people in their teens and twenties, which seems to correlate with reports of increased rates of sexually transmitted infections among men and women under 24 (UNAIDS/WHO, 2002). It has therefore become increasingly important for young people to adopt precautions in order to not contract HIV through sexual intercourse. Educational programs encouraging safe sex should therefore be increased in order to cope with the growing number of HIV infections among young people in Japan. Before an effective educational program of safe sex can be established, the attitudes toward sex of young people and their sexual behavior must be clarified.

The sexual behavior of humans is considered to be affected by their ideas about sex, sexual values and attitudes toward sex, suggesting that sex life represents a form of whole body coordination in humans. This study attempts to address the issue of whole body coordination in humans from the viewpoint of the sex life of Japanese students, which may help us to establish an effective educational program fostering safe sex.
Methods

A 55-item questionnaire which assesses students’ attitudes toward sex, sexual behavior, condom use, sexually transmitted disease (STD), abortion and substance abuse was developed. A minimum of personal detail, such as age, sex, and marital status were asked, but it contained no identifying marks and was totally anonymous and voluntary.

A total of 1260 college students (1166 Japanese and 94 foreigners) enrolled at a national university in Fukuoka, Japan, are requested every April to visit the health services center for medical check-ups consisting of such diagnostic tests as a chest X-ray examination, urinalysis, blood pressure measurement, and a physical examination carried out by a physician, regardless of whether they are apparently healthy or not. 978 Japanese students who visited the health services center for the medical check-ups on the 23rd and 24th of April in 2002 were asked to answer the questionnaire and 785 Japanese students (80.3%) responded to the questionnaire. Any students from foreign countries were excluded from the study, as this study was designed to clarify the attitudes toward sex and sexual behavior of Japanese students. Statistical significance was assumed for a $p$ value of less than 5% ($p<0.05$).

Results

Student characteristics

521 male and 264 female college students responded to the questionnaire. 66% of the respondents were male and 34% female (Table 1). The mean ages of the male and female students were 21.2±2.4 and 20.5±2.1 years, respectively. Most students were between 18 and 24 years of age. Only 8 students (1%) were married.

Attitudes toward sex

90% of the male students and 83% of the female students answered that they expected to have sexual intercourse before marriage, while 16% of the male students and 10% of female students answered that it was not wrong to have sexual intercourse with non-steady, casual partners before marriage (Table 2). 8% of male students and 3% of female students answered that it was not wrong to have extramarital sexual intercourse after marriage. In addition, 22% of male students and 13% of female students answered that it was not wrong to have sexual intercourse with commercial sex workers. 34% of male students and 58% of female students had no negative feelings toward sex between two males, while 41% of male students and 57% of female students had no negative feelings toward sex between two females.

Substance abuse and attitudes toward illegal substances

40% of male students and 30% of female students reported that they had friends or acquaintances who had used substances such as marijuana or amphetamines for pleasure (Table 2). 6% of male students and 2% of female students answered that it was not wrong for them to use such substances for pleasure. 36 male students (7%) and 11 female students (4%) reported that they had used such substances for pleasure. 4 students (0.5%) reported having used amphetamines, 6 students (0.8%) inhalants such as paint thinners, 12 students (1.5%) sedatives, 3 students (0.4%) cocaine, 32 students (4.1%) marijuana, 4 students (0.5%) methylenedioxy-methamphetamine (MDMA), and 6 students (0.8%) hallucinogens such as lysergic acid diethylamide (LSD).

Table 1  Student characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Male, N (%)</th>
<th>Female, N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male, 521 (66)</td>
<td>Female, 264 (34)</td>
</tr>
<tr>
<td>Age</td>
<td>Male, 21.2±2.4 years</td>
<td>Female, 20.5±2.1 years</td>
</tr>
<tr>
<td>Marital status</td>
<td>Single, 99 %</td>
<td>Married, 1 %</td>
</tr>
</tbody>
</table>

Table 2  Student attitudes toward sex and substance abuse

<table>
<thead>
<tr>
<th></th>
<th>Male (N=521)</th>
<th>Female (N=264)</th>
<th>$\chi^2$ (1)</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>I expect to have sexual intercourse before marriage.</td>
<td>90/10</td>
<td>83/17</td>
<td>7.31</td>
<td>**</td>
</tr>
<tr>
<td>It is not wrong to have sexual intercourse with casual partners before marriage.</td>
<td>16/84</td>
<td>10/90</td>
<td>4.49</td>
<td>*</td>
</tr>
<tr>
<td>It is not wrong to have extramarital sexual intercourse after marriage.</td>
<td>8/92</td>
<td>3/97</td>
<td>8.70</td>
<td>**</td>
</tr>
<tr>
<td>It is not wrong to have sexual intercourse with commercial sex workers.</td>
<td>22/78</td>
<td>13/87</td>
<td>10.31</td>
<td>**</td>
</tr>
<tr>
<td>I have no negative feelings toward sex by men with men.</td>
<td>34/66</td>
<td>58/42</td>
<td>39.08</td>
<td>**</td>
</tr>
<tr>
<td>I have no negative feelings toward sex by women with women.</td>
<td>41/59</td>
<td>57/43</td>
<td>17.87</td>
<td>**</td>
</tr>
<tr>
<td>I have experienced sexual intercourse.</td>
<td>69/31</td>
<td>59/41</td>
<td>8.38</td>
<td>**</td>
</tr>
<tr>
<td>I have friends or acquaintances who have used substances for pleasure.</td>
<td>40/60</td>
<td>30/70</td>
<td>7.47</td>
<td>**</td>
</tr>
<tr>
<td>It is not wrong to use substances for pleasure.</td>
<td>6/94</td>
<td>2/98</td>
<td>5.33</td>
<td>*</td>
</tr>
<tr>
<td>I have used substances for pleasure.</td>
<td>7/93</td>
<td>4/96</td>
<td>2.36</td>
<td>ns</td>
</tr>
</tbody>
</table>

*$p<0.05$; **$p<0.01$; ns, not significant
Sexual behavior

361 male students (69%) and 155 female students (59%) reported having experienced sexual intercourse (Table 2). 98.4% of the sexually experienced students were heterosexual. The mean age of the first experience of sexual intercourse for male students was 18.05 ± 1.91 years while that for the female students was 18.10 ± 1.87. Figure 1 indicates the proportion of sexually experienced male and female students by age. 41% of male students at the age of 18 have experienced sexual intercourse (Fig. 1A). The proportion of sexually experienced male students rose with age ($\chi^2=67.60, df=6, p<0.001$). 76% of male students at the age of 22 and 87% at the age of 23 reported having experienced sexual intercourse. 17% of female students at the age of 18 reported having experienced sexual intercourse (Fig. 1B). The proportion of sexually experienced female students steadily rose with age ($\chi^2=56.44, df=6, p<0.001$). 77% of female students at the age of 22 and 89% at the age of 23 reported having experienced sexual intercourse.

Approximately 81% of sexually experienced students had their first sexual intercourse with a long-term, steady partner. However, about 8% reported having had their first sexual intercourse with a friend (a friendly person on non-sexual terms), about 4% with a senior or a junior from their school, 2.8% with an acquaintance and 1% with a partner found at a drinking party. As a result, a total of 19% had their first sexual intercourse with a non-steady, casual partner.

48% of sexually experienced male students and 64% of female students reported having a steady sexual partner at the time of the study (Table 3). 65% of sexually experienced male students and 57% of female students reported having had sexual intercourse with more than one partner up to the time of the study. Figure 2 indicates that female students who have experienced sexual intercourse with more than one partner did not have fewer partners than the male students ($\chi^2=9.49, df=6, p=0.148$). A Spearman rank correlation was carried out between the age of their first sexual intercourse and the number of sexual partners up to the time of the study. The younger the age of students was at their first sexual intercourse, the more sexual partners students tended to have ($r_s=0.41, p<0.001$).

We next asked the students to describe all their sexual partners up to the time of the study. The students were requested to choose all of the partners with whom they had had sexual intercourse from the list in the questionnaire. 91% of sexually experienced students had had sexual intercourse with

### Table 3 Student sexual behavior and condom use

<table>
<thead>
<tr>
<th></th>
<th>Male (N=361)</th>
<th>Female (N=155)</th>
<th>$\chi^2$ (1)</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have a steady sexual partner now.</td>
<td>48/52</td>
<td>64/36</td>
<td>10.60</td>
<td>**</td>
</tr>
<tr>
<td>I have had sexual intercourse with more than one partner.</td>
<td>65/35</td>
<td>57/43</td>
<td>2.74</td>
<td>ns</td>
</tr>
<tr>
<td>I have experienced an STD.</td>
<td>4/96</td>
<td>4/96</td>
<td>0.01</td>
<td>ns</td>
</tr>
<tr>
<td>I have experienced an artificial abortion.</td>
<td>6/94</td>
<td>4/96</td>
<td>0.71</td>
<td>ns</td>
</tr>
<tr>
<td>I have had sexual intercourse with commercial sex workers.</td>
<td>6/94</td>
<td>0/100</td>
<td>8.92</td>
<td>**</td>
</tr>
<tr>
<td>I have been raped.</td>
<td>1/99</td>
<td>1/99</td>
<td>0.23</td>
<td>ns</td>
</tr>
<tr>
<td>I used a condom for my first sexual intercourse.</td>
<td>75/25</td>
<td>76/24</td>
<td>0.03</td>
<td>ns</td>
</tr>
<tr>
<td>I used a condom for my most recent sexual intercourse.</td>
<td>77/23</td>
<td>63/37</td>
<td>11.33</td>
<td>**</td>
</tr>
</tbody>
</table>

* $p<0.05$; ** $p<0.01$; ns, not significant
long-term, steady partners, 23% with friends, 8% with seniors or juniors from their school, 6.7% with acquaintances, and 5.5% with partners found at a drinking party.  

4% of sexually experienced male students and 4% of female students reported having been infected with STD (Table 3). There was no difference in the proportion of students who had experienced an STD between male and female students. The top three STDs which students had suffered from were chlamydial infections (8 cases), gonorrhea (3 cases) and condyloma acuminatum (3 cases).

4% of the sexually experienced female students reported having had a non-therapeutic, artificial abortion, while 6% of sexually experienced male students had asked their partners to have a non-therapeutic, artificial abortion (Table 3). There was no difference between males and females in the proportion of students who had been involved in abortion procedures. 6% of sexually active male students had had sexual intercourse with commercial sex workers, while no female students had done so. 1% of male and 1% of female students reported having been raped.

Condom use

75% of the sexually experienced students reported having used a condom for their first sexual intercourse, while 73% of them used a condom for their most recent sexual intercourse. 75% of sexually experienced male students used a condom for their first sexual intercourse, while 76% of sexually experienced female students used a condom for their first sexual intercourse (Table 3). 77% of sexually experienced male students used a condom for their most recent sexual intercourse, while 63% of sexually experienced female students used a condom for their most recent sexual intercourse, thus indicating that more male students than female students used for condom at their most recent sexual intercourse. Figure 3 shows that the more sexual partners students had had up to the time of the study, the less likely students were to have used a condom for both their first ($\chi^2=16.11$, df=6, $p=0.013$) and most recent sexual intercourse ($\chi^2=21.44$, df=6, $p=0.002$). 81% of the students with one sexual partner used a condom for first sexual intercourse, while 59% of the students with 10 or more sexual partners used a condom (Fig. 3A). 78% of the students with one sexual partner used a condom for their most recent sexual intercourse, while 54% of the students with 10 or more sexual partners used a condom (Fig. 3B).

61% of sexually experienced students used a condom for both their first and most recent sexual intercourse, 26% for either their first or most recent sexual intercourse, while 13% used a condom for neither their first nor most recent sexual intercourse. 68% of the students who had a steady sexual partner reported having used a condom for their most recent sexual intercourse, whereas 79% of students who did not have a steady sexual partner used a condom for their most recent sexual intercourse, thus indicating that students who have a steady sexual partner are less likely to use a condom than
students who do not have one ($\chi^2 = 7.38, df = 1, p = 0.007$).

74% of the students who had used substances for pleasure reported having used a condom for their first sexual intercourse while 76% of students who had not used substances reported having used a condom. 71% of students who had used substances for pleasure reported having used a condom for their most recent sexual intercourse while 73% of students who had not used substances reported having used a condom. As a result, no association was observed between substance abuse and condom use of the students for either their first ($\chi^2 = 0.06$, df = 1, $p = 0.803$) or most recent sexual intercourse ($\chi^2 = 0.13$, df = 1, $p = 0.717$).

**Discussion**

Our results show that though most Japanese college students expect to have sexual intercourse before marriage, the number of students who answer that it is not wrong to have sexual intercourse with non-steady, casual partners before marriage or extramarital partners after marriage is small, and may indicate that they have strong sexual values, which make them prone to having a long-term relationship with one partner. However, 65% of sexually experienced male and 57% of female students had had two or more sexual partners up to the time of the study and 6% of sexually experienced male students had had sexual intercourse with commercial sex workers. Therefore, a discrepancy exists between the attitudes toward sex and the sexual behavior of students, thus indicating that their sexual values have little impact on their sexual behavior. Even though female students have more conservative attitudes toward sex than male students, the fact that there is little difference in the sexual activity of male and female students may support this finding.

The proportion of Japanese students who used substances for pleasure is small in comparison with adolescents in the US, where 15% of 16 to 19 year-olds have been reported to have experienced such substances as marijuana (Hingson et al., 1990). Adolescents in the US who use substances are less likely to use a condom than those who do not, while there is no association between condom use and substance use among Japanese students. The fact that the number of Japanese students who had used substances is relatively small may be one of the reasons for the discrepancy in the results between Japanese students and American adolescents. Our results that only 1% of sexually experienced Japanese students had their first sexual intercourse with a partner found at a drinking party and 5.5% of sexually experienced students had had sexual intercourse with partners found at a drinking party indicate that the association between alcohol and sexual activity is not strong among Japanese students.

The proportion of Japanese students who have experienced sexual intercourse rises with age. The mean age of first sexual intercourse for Japanese students is older than that of young Americans (Upchurch et al., 1998), British students (Madhok et al., 1993) or Ukrainian students (Mogilevkina et al., 2001). It is interesting to note that the mean age of first sexual intercourse of Asian American males, 18.1 years old, is similar to Japanese male students, 18.05 (Upchurch et al., 1998). 58% of first-year college students in Australia reported to be sexually experienced (Rodden et al., 1996), while 59% of female first-year students and 83% of male first-year students in the Ukraine revealed that they had experienced sexual intercourse (Mogilevkina et al., 2001). In contrast to these findings, 17% of Japanese first-year female students and 41% of first-year male students reported having experienced sexual intercourse. Japanese students younger than 18 years of age therefore seem to be less active sexually than students in Australia or the Ukraine. Japanese students who must study hard in order to pass the entrance examination for college may not have enough time to find a sexual partner during high school. Our results suggest that many Japanese adolescents begin to actively search for a sexual partner after they enter college. They also indicate that about 80–90% of male and female Japanese students have experienced sexual intercourse by the time they graduate from college at the age of 22–23.

Our results that 65% of sexually experienced Japanese male students and 57% of female students have reported having had more than one sexual partner and that there was no difference in the number of sexual partners between male and female students who have had more than one sexual partner suggest that female Japanese students are not less active sexually than male students. In contrast, it is reported that male students were likely to have had more sexual partners than female students in Australia (Rodden et al., 1996) or the US (Prince and Bernard, 1998).

It is reported that heterosexual British students who had experienced penetrative sex before 16 years of age were more likely to have had a higher number of sexual partners than those who experienced it after the age of 16 (Madhok et al., 1993). Our results indicating that the younger Japanese students were when they experienced their first sexual intercourse, the more sexual partners they tended to have up to the time of the survey, therefore seem to parallel those of the UK.

About 10% of sexually experienced Ukrainian students have experienced an artificial abortion (Mogilevkina et al., 2001), while 4% of sexually experienced female Japanese students and 6% of male students had been involved in non-therapeutic, artificial abortion procedures. About 6% of Ukrainian students reported having had an STD (Mogilevkina et al., 2001), while 4% of sexually experienced Japanese male and female students reported having suffered from an STD. These discrepancies may be explained by the higher rate of condom use among Japanese students than among Ukrainian students, whose rate of condom use is only about 50% (Mogilevkina et al., 2001).

Slightly over half of American college students reported having never used a condom and only 17% used a condom consistently (Simkins, 1994). In Canada, it was reported that only about 25% of male and 16% of female students always used a condom during sexual intercourse (MacDonald et al.,
Our results that 61% of sexually experienced Japanese students used a condom for both their first and most recent sexual intercourse may indicate that the proportion of students in Japan who use a condom consistently is higher than that of students in other countries. The fact that Japanese students use a condom for contraceptive purposes rather than for disease prevention may explain their high rate of condom use (Kihara et al., 2003). Our findings that the more sexual partners Japanese students had had up to the time of the study, the less students used a condom is noteworthy since the risk of HIV transmission is considered to rise as students have unprotected sexual intercourse with many partners. Similar trends in the sexual behavior of the young have been noticed in the US (Oswalt and Matsen, 1993; Brien et al., 1994; Prince and Bernard, 1998).

Our results that more male Japanese students used a condom than female students for their most recent sexual intercourse may be consistent with the results obtained concerning American students (Warren et al., 1998). The fact that it is male students who use a condom whereas female students must ask their partner to use a condom may explain the disproportion of condom use between male and female students. It was also considered that women are more likely to avoid carrying a condom because they fear that they might appear to be loose and immoral if they carried condoms (Madhok et al., 1993).

Japanese students who had a long-term, steady partner were less likely to use a condom than those who did not. It is reported that American students who are in monogamous relationships are less likely to use a condom than those who report having multiple sexual partners (Prince and Bernard, 1998). If students have a long-term, steady partner, they may feel safe even if they have sexual intercourse with their partner without a condom. Conversely, Japanese students who had few sexual partners up to the time of the study used a condom more than those who had had more sexual partners. Students who have had more sexual partners seem to be more eager to have sexual intercourse than to practice safe sex.

From the results of the present study, we are able to obtain the following lessons about the sex life of Japanese students. First, there is a discrepancy between students’ attitudes toward sex and sexual behavior, thus indicating that students’ sexual values have little impact on their sexual behavior. Second, female Japanese students are not less sexually active than male students. Thirdly, Japanese students are prone to have sexual intercourse with non-steady, casual partners. Lastly, though the proportion of Japanese students who use a condom is relatively high in comparison to that of other countries, students who have had multiple sexual partners are less inclined to use a condom. It is recognized that having knowledge of HIV/AIDS has not led to the practice of safe sex for the young (Mickler, 1993). The lessons described above may help us to establish an effective educational program promoting safe sex for Japanese students which puts more emphasis on skill development that will help students perform safe sex than on a simple dissemination of information. At the same time, humans’ sex life is deemed to be an activity based on the coordination of mind and body. Our results indicate that the mind and body may not be very well coordinated regarding sex life among Japanese college students. An educational program promoting safe sex thus needs to be established with the perspective of getting students to achieve better coordination of mind and body regarding their sex life.

References


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