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Casual Sex, Extramarital Sex, Condom Use and Alcohol Intake among Heterosexual Patients Attending an STD Clinic in Norway

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A study excluding homosexuals was performed to study casual sex, extramarital sex, the use of a condom with a casual sexual partner and the combination of alcohol intake and casual sex among patients attending a clinic for sexually transmitted diseases (STDs). Heterosexual patients (467) received a questionnaire, and 458 were included. Men reported more (94%) casual sexual partners than did women (76%). According to a multiple logistic regression analysis a condom was used significantly less frequently in "old" respondents, those having a permanent sexual partner, those having low education, those infected with STDs (earlier STDs), those who had had more than 4 sexual partners over the last year, and those combining alcohol intake and casual sex. Intravenous drug users/prostitutes used a condom more often than did men with paid sex and "other heterosexuals". To have an effect on STD patients, innovative forms of health education may be necessary, and greater emphasis should be placed on more informal means of information, including interactive health education and communication strategies to promote positive attitudes regarding condom use. ***Key words: sexual behaviour; STD clinic patients.***

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To fight AIDS, new concepts like "safer sex" have been introduced. The concept of "safer sex" is composed of several elements, including having only one sexual partner with known negative HIV status, practising non-invasive sex like petting or masturbation, using a condom constantly during intercourse with all sexual partners or having no sex at all. To this, one could add no alcohol intake when having sex. Since these elements are so important in any sexual behaviour preventive strategy, we undertook a study of heterosexual men and women at the STD clinic in Bergen, Norway, to investigate the prevalence of casual sex, the prevalence of extramarital sex, the prevalence of condom use and alcohol intake when having casual sex. In the discussion we compare the results from this study with available figures for the general population and adolescent groups to see how they differ from STD patients.

MATERIAL AND METHODS

We approached all new patients (467) visiting the STD clinic at the University Hospital in Bergen, Norway, May-June 1989. In this article the results are based on 458 (98%) respondents (4 patients did not want to participate and 5 patients were excluded because of missing answers). We considered that the 2 months of collected data were sufficient to obtain a representative sample (about 20% of the new patients attending the clinic during one year, i.e. 450 to 500 patients). Participation in the study was voluntary and anonymous. The inclusion criteria were that the patient wanted to be examined for any STD, and that it was the first attendance for that particular reason. A self-administered structured questionnaire, in Norwegian, was given to the patients who had agreed to participate after the preliminary medical history and the clinical examination had been completed. To reduce an influence on the results, the patients' sexual behaviour and "safer sex" practice were not discussed with the patient until after the questionnaire had been completed. We did not register any data that could connect the respondent to his/her questionnaire.

We asked about gender and age. The patients were classified as single, having a permanent partner (boy-/girlfriend), co-habitating or married. Married and co-habitants were grouped as married and were analysed as one group. Education was graded in three levels: less than 10 years at school (low), 10–12 years at school (medium), and more than 12 years at school/university (high). The respondents themselves reported whether they had had sex with a person of their own sex (homosexual), whether they had any experience of intravenous drugs/had ever received money for sex or had paid for sex from 1985–1989. Patients with no such behaviour were classified as "other heterosexuals". Because many of the prostitutes (4/9; 44%) were intravenous drug users (IVDUs) these two groups were analyzed together. Homosexuals were excluded from the study.

The respondents reported on casual sex (independent variable), extramarital sex (independent variable), use of condom (dependent variable), alcohol intake when having casual sex (independent variable and dependent variable) and number of sexual partners the year before (independent variable). Casual sexual partner was defined as any sexual partner other than their married sexual partner, co-habiting sexual partner or boy-/girlfriend. We made no discrimination between having sex with someone only once or on several occasions.

Married respondents were asked if they had had extramarital sex during the last 5 years.

We did not ask if a condom was used at the last intercourse. It was assumed that lack of protection during the last intercourse was the main reason for their present attendance at the STD clinic. Furthermore, only the use of condom with a casual sexual partner and not with their permanent partner was of interest. Respondents reporting no casual sex were categorised separately. The patients were asked to rank the use of condom from always/nearly always, sometimes and rarely/never. In the pilot study we found this to be an acceptable approach instead of suggesting the number of times they had used a condom when having casual sex, since some of the patients were offended by the figures suggested. In the stepwise multiple logistic regression analysis, respondents reporting that they used a condom sometimes when having casual sex was analysed together with those who rarely/never used one. In this analysis the use of condom when having casual sex is the dependent variable. Age, civil status, education, different groups of respondents ("other heterosexuals", respondents reporting paid sex, IVDUs/prostitutes), having casual sex under the influence of alcohol, number of sexual partners last year and number of times infected with STDs (see below) are the independent variables.

Alcohol intake and casual sex were given 3 alternatives: (i) always used alcohol when having casual sex; (ii) sometimes used alcohol when having casual sex; (iii) never used alcohol when having casual sex.

The respondents were also asked to report all different STDs that

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the prevalence of HIV infection in the study population did not markedly change (18), and inclusion in the multivariate analysis of information for year of data collection did not change the estimated OR (data not shown). There is, however, consistent evidence from different populations of an association between various STDs and HIV (8, 9). For example, the risk of HIV infection was about double in prostitutes with a history of syphilis in a study conducted in Africa, and in American homosexuals (3, 10).

STD may facilitate HIV infection in different ways. First of all, STD may facilitate the HIV contact with blood, for example through genital ulcers. Some follow-up studies have shown a time relation between the presence of genital ulcer and HIV infection (9, 19). In this series we found no significant association between the presence of genital ulcers at trial entry and risk of HIV infection, but the finding was based on few subjects.

STD may activate macrophages and stimulate T-lymphocytes (20–22) (which *in vitro* are more susceptible to HIV infection than unstimulated cells) (23), and antigenic stimulation of latent HIV-infected T-lymphocytes could result in activation of the virus and increased viral shedding (24).

We also observed a strong relation between HbsAg positivity and HIV infection. This persisted after taking into account the role of intravenous drug use, suggesting similar conditions facilitating the HIV and HVB infection. The lack of association between number of sexual partners over the 3 years before the interview and risk of HIV infection must be considered cautiously, in view of the low statistical power in male nonusers of intravenous drugs and potential biases.

In conclusion this study offers further data on the importance of STD in the risk of HIV infection and underlines the need for populations attending STD clinics to undergo HIV infection screening and prevention campaigns.

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had been diagnosed up to the present attendance. *Candida albicans* was not included.

For statistical analyses, the chi-square method and stepwise multiple logistic regression were performed (1); a p value of <0.05 was considered significant. Statistical analyses were performed using the Statview package designed for Macintosh (2).

RESULTS

Casual sex and extramarital sex

The heterosexuals comprised 321 (70%) men and 137 (30%) women. The average age for men was 24.8 and for women 21.9 years ($\chi^2=33.0$, df: 1, $p<0.001$). Men (301/321; 94%) reported casual sex more frequently than did women (104/137; 76%, $\chi^2=29.9$, df: 1, $p<0.001$). There was no significant difference between single men (120/126; 95%), married men (104/110; 95%) and men with a permanent partner (77/85; 91%). Corresponding figures among women were: single 37/42 (88%), married 33/44 (75%), permanent partner 34/51 (67%). Twelve (7 men and 5 women) single people reported no sexual partners the previous year; 4 of these respondents stated no lifetime sex partners.

There was no statistically significant difference between married men (42/110; 38%) and married women (11/44; 25%) regarding extramarital sex in relation to their present partner, but 50% rarely/never used a condom on these occasions (men: 44%, women: 77%). Of the married men reporting extramarital sex, 6/42 (14%) had had more than 5 sex partners the previous year (women: 0/11).

Use of condom

There was little difference between men and women and the reported use of condom when having casual sex. There was an inverse relationship of age and condom use, and this was seen among both women ($\chi^2=16.00$, df: 6, $p<0.05$) and men ($\chi^2=16.99$, df: 6, $p<0.01$). The frequency distribution among respondents who rarely/never used a condom was among women 15–20 years 33% (9/27), 21–23 years 45% (14/31), 24–30 years 58% (18/31) and older than 30 years 87% (13/15). Corresponding figures among men were: 15–20 years 44% (12/27); 21–23 years 31% (20/65); 24–30 years 54% (67/125) and older than 30 years 62% (52/84).

There was no statistically significant difference between married respondents, respondents with a permanent partner and single respondents and the use of a condom when having casual sex, but among women 64% of those who were married reported that they rarely/never used a condom when having casual sex, compared to 51% of the single respondents and 41% with a permanent partner. Education did not influence condom use when having casual sex among women. Men with low (50/88; 57%) and medium (33/56; 59%) education reported frequently that they rarely/never used a condom (high education: 68/157; 43%, $p<0.05$).

Respondents with more than 4 sexual partners the year before reported infrequent use of condom (rarely/never using a condom: 51/77; 66%) compared to respondents reporting 0–4 sex partners (rarely/never using a condom: 154/328; 47%, $\chi^2=15.59$, df: 2, $p<0.001$). There were statistically significantly fewer STDs in the group reporting always/nearly always using a condom when having casual sex (0 STD: 52/75; 69%, 1 STD: 18/75; 24%, 2 or more STDs: 5/75; 7%) compared to those who used it sometimes (0 STD: 57/125; 46%, 1 STD: 40/125; 32%, 2 or more STDs: 28/125; 22%, $\chi^2=12.91$, df: 2, $p<0.01$). Respondents reporting that they used a condom sometimes when having casual sex still reported fewer STDs than those who rarely/never used it (0 STD: 69/205; 34%, 1 STD: 68/205; 33%, 2 or more STDs: 68/205; 33%, $\chi^2=6.03$, df: 2, $p<0.05$). Among individuals reporting no casual sex, 79% had never been infected with an STD and none reported more than 1 STD.

Among respondents always drinking alcohol when having casual sex, 25/170 (15%) always/nearly always used a condom and 96/170 (56%) rarely/never used a condom, compared to 22/64 (34%, always/nearly always) and 23/64 (36%, rarely/never) who never used alcohol when having casual sex ($\chi^2=14.92$, df: 4, $p<0.01$).

Use of condom (stepwise multiple logistic regression)

Stepwise multiple logistic regression analysis was carried out to control any indirect effect between the independent variables (Table I). Individuals between 15–20 years used a condom 6.7 times ($p<0.01$) more often than did respondents older than 30 years (21–23 years: 4.8 times ($p<0.05$) more often as compared to those older than 30). Accordingly respondents who were single (3.7 times, $p<0.05$), were married (2.6 times, $p<0.05$), had high education (5 times, $p<0.001$), were IVDUs/prostitutes (10 times, $p<0.01$), did not drink when

Table I. *Stepwise multiple logistic regression analysis*

The use of a condom with a casual sexual partner as the dependent variable is shown for some independent variables.

Variables	Odd ratio	d.f. 3	P-values $p<0.01$
Age			
15–20	6.7		
21–23	4.8		
24–30	2.2		
30+	1.0		
Civil Status		2	$p<0.01$
Married/Cohabiting	2.6		
Having a boy/girlfriend	1.0		
Single	3.7		
Education		2	$p<0.001$
Low	1.0		
Medium	1.7		
High	5.0		
Subgroups of respondents		2	$p<0.01$
Heterosexuals	1.0		
Paid sex	1,1		
IVDUs/prostitutes	10.0		
Combining sex alcohol		1	$p<0.01$
Yes	1.0		
No	3.0		
No. of sex partners last year		2	$p<0.001$
0–1 sexual partners	14.6		
2–4 sexual partners	8.6		
4+sexual partners	1.0		
Infected with different STDs		3	$p<0.001$
0 STD	14.0		
1 STD	5.0		
2 STDs	1.0		
2+STDs	2.5		

having casual sex (3.0 times, $p<0.01$), had 0–1 (14.6 times, $p<0.001$) or 2–4 (8.6 times, $p<0.01$) sexual partners the previous year, had never been infected with an STD (14 times, $p<0.001$) or had been infected once (5 times, $p<0.01$) reported that they used a condom always/nearly always statistically significantly more often than did other respondents (Table I).

Alcohol intake and sexual behaviour

There was no difference between the sexes, the civil status groups and the education levels when seen in combination with alcohol intake and casual sex. Men younger than 30 years of age reported more often that they were drinking alcohol when having sex with a casual sexual partner, compared to the men older than 30 ($\chi^2=17.67$, df: 2, $p<0.001$). This was not found among females. Respondents with 5 or more sexual partners reported frequently the combination of casual sex and alcohol ($\chi^2=13.97$, df: 2, $p<0.001$).

DISCUSSION

Men reported more frequent casual sex than did women. Older individuals used barrier protection less frequently than did younger. We think that intake of alcohol reduced the likelihood of using barrier contraception. In the stepwise logistic regression analysis we found a direct effect between infrequent use of condoms when having casual sex and having casual sex under the influence of alcohol, having many sexual partners last year and reporting several STDs. Of special concern was the finding that STD clinic patients with many sexual partners last year found it hard to use a condom.

Although the study design and the questions used in our study are not totally identical to studies of the general population 18–60 years of age (3) and adolescents 17–19 years of age (4), we can still compare the results. Using this comparison we get the impression that the STD clinic patients have had more casual sex (general population: 14% of single people reported casual sex the last 3 years (3), adolescents: 41.4% during their lifetime (4), single STD patients: 93% reported casual sex during their lifetime) and have more extramarital sex (general population: 15.3% of married men and 8.8% of married women had been unfaithful during the last 3 years (3), married STD patients: men 38% and women 25% unfaithful to their present partner the last 5 years). The STD patients also reported more sexual partners during the last year than did the general population and adolescents in Norway (general population: single men: 22.8% and single women: 19.4% reported 5 or more sexual partners during the last 3 years (3), adolescents: 6.8% reported 5 or more sexual partners last year (4), single STD patients: men 37% and women 24% reported 5 or more sexual partners last year). Among the STD clinic patients only 4% of the men and 6% of the women reported that they always used a condom, while among adolescents 27.4% of men and 23.1% of women used a condom at their last intercourse (4) (general population: 15.9% of single people (3)). In the adolescent study, drinking alcohol prior to sex was reported by 83% of the men and 75% of the women with casual sexual practice (4). An inverse relationship between age and condom use has also been demonstrated among single people in the general population of Norway in 1987 and 1992 and among Norwegian adolescents (3–5). Among married people having extramarital sex there was a positive relationship between age and the use of a condom on these occasions (5).

Studies of heterosexual STD patients clearly demonstrate that condom use during intercourse is far from usual (6–9). In England, among heterosexual STD clinic visitors, 58% of the men and 59% of the women had never used condoms with non-regular partners during the previous year (6). Condom use is reported to increase as sexual risk behaviour and STD risk decrease, and as cognitive maturity and positive condom attitudes increase (10). Respondents not using condoms report a greater number of recent sexual partners (4,11). These results correspond well with the results of our study.

Extramarital sex is considered more acceptable among men than women (12,13), and men engage in extramarital sex with greater frequency than do women (14,15). Among heterosexual female STD patients in London, 59.5% reported no alcohol intake prior to sex, while the rest had been drinking and 17% reported a rather large quantity (7). Other studies have found that homosexual men (16,17) and adolescents (10,18) were less likely to use condoms or engage in "safer sex" practices after drinking and/or drug use than when sober. Drinking has also been found to be one of the most frequently cited reasons for relapse of sexual risk behaviour, particularly among homosexual men with no regular partner (18). Some other studies have concluded that the greatest risk for HIV and other STDs is the increased likelihood of having sex after drinking, not the decreased likelihood of condom use after drinking, because so few people consistently use condoms during intercourse (18,19). Besides, it has been suggested that people under the influence of alcohol are considered "not responsible" for their sexual behaviour, thereby avoiding social sanctions (20). Alcohol intake could then be used as an excuse for increased sexual activity, extramarital sex and not using contraception, including condoms (20).

It is likely that the majority of heterosexual STD patients are recruited from the part of the heterosexual population having most sexual partners and may include those practising casual sex especially often when under the influence of alcohol. To have an effect on these people, innovative forms of health education will be necessary, and greater emphasis should be placed on more informal means of information, including interactive health education and communication strategies to promote positive attitudes, and ultimately greater self-efficacy regarding condom use (21). Some of these strategies have been carried out in Norway, and there are some indications that there has been a change in sexual behaviour towards "safer sex" practice in 1992 compared to 1987 (3,5). The 1992 study showed that the general population used a condom more frequently when having casual sex, and the number of sexual partners the last 3 years also declined (5). Another indication of change in the sexual behaviour is the reduction in STDs in the period 1989–1994 (chlamydia trachomatis and gonorrhoea) (22). In the years to come new studies should be carried out at STD clinics to see if this change is also found among STD clinic patients.

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