

Limited changes in sexual behaviour of heterosexual men and women
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Limited changes in sexual behaviour of heterosexual men and women with multiple partners in the Netherlands

Abstract

Abstract To study changes in sexual behaviour, heterosexuals with multiple sexual partners were recruited through an STD-clinic and asked to return every 4 months for follow-up. Between October 1987 and June 1989, 512 heterosexuals entered the study and 140 men and 200 women had at least one follow-up visit. No changes were found between 3 visits in the kind of sexual techniques practiced. Condom use during vaginal intercourse with commercial partners (prostitutes or clients) was relatively high and remained high, but was low and remained at that level with private partners. Men and women reduced their number of private sexual partners by 50%, but the decline in the number of commercial partners was non-significant. Although more information is needed about the underlying social-psychological aspects of behavioural change, it seems necessary to redesign prevention activities to stress the effectiveness of condoms and to encourage condom use especially among heterosexuals with multiple private partners.

Introduction

In Western countries to date, the majority of adult AIDS cases have been among men with homosexual contacts and intravenous drug users (IVDUs). Only a small proportion can be attributed to heterosexual transmission (Curran et al., 1988; Centers for Disease Control, 1989; Anonymous, 1990; Stoneburner et al., 1990). In Africa on the other hand, the human immunodeficiency virus (HIV) is almost exclusively transmitted through heterosexual contact (Plot et al., 1987; Plot et al., 1988). Heterosexuals who have sexual contact with persons from high-risk groups, are at an increased risk for infection with HIV (Piot et al., 1987; Haverkos & Edelman, 1988; Stoneburner et al., 1990). Multiple sexual partners and a history of sexually transmitted diseases (STDs), especially genital ulcerations, have been identified as major risk factors for heterosexual transmission of HIV in Africa (Centers for Disease Control, 1988; Greenblatt et al., 1988). Only limited information is available about the potential spread of heterosexually transmitted HIV-infection in Western countries (Centers for Disease Control, 1989; Stoneburner et al., 1990). Since 1982, when the first AIDS case in The Netherlands was reported, much effort has been invested in different kinds of prevention activities. The national AIDS campaign--which started in April 1987--was designed to inform the general population about AIDS and to encourage, or stimulate safe sex. At the same time, prevention activities were directed towards more specific groups, such as prostitutes and their clients.

Recommendations about safe sex were expected to have some impact on sexual behaviour. At present, however, the risk for heterosexually acquired HIV-infection in the Netherlands is still very low, compared with the risk for homosexual men and

IVDUs (Hooykaas et al., 1989a, Hooykaas et al., 1989b; Dutch Health Inspection, 1990). Therefore, becoming infected with HIV and developing AIDS are probably not perceived as real threats by most sexually active heterosexuals, despite the message of safe sex for all.

To investigate whether heterosexuals with multiple partners are at risk for HIV infection and to assess the possible effects of prevention campaigns on their sexual behaviour, we designed a longitudinal study. This study focuses on heterosexual men and women with multiple partners, and consists of a sizeable sample of prostitutes and clients of prostitutes. In this paper, we present data on changes in sexual behaviour--i.e. type of partner, number of partners, sexual techniques and condom use--during one year of follow-up.

Subjects and methods

Study group

Heterosexuals with 5 or more sexual partners in the preceding 6 months, were recruited from visitors to one of the STD clinics of the Municipal Health Service of Amsterdam, The Netherlands. Haemophiliacs, men with homosexual contacts and IVDUs in the preceding 5 years were excluded. Participation was on a voluntary basis, based on written informed consent after extensive counseling. All participants were asked to return every 4 months for follow-up. Data collected at entry and two follow-up visits (referred to as visit 1, visit 2, visit 3) will be presented.

All participants were examined for STDs with a standard protocol and interviewed at each visit about (1) the number of private and/or commercial partners (men with commercial partners are referred to as clients, female prostitutes being their commercial partners; women with commercial partners are referred to as prostitutes, clients being their commercial partners), (2) frequency of practising different sexual techniques with private and/or commercial partners, (3) frequency of using condoms with private and/or commercial partners, and (4) demographic characteristics.

From approximately 1,000 eligible clinic attenders between October 1987 and June 1989, 512 heterosexuals (44% male) entered the study (Van der Linden et al., 1990). At the end of 1989 all participants who entered the study could have had at least one follow-up visit. Despite all efforts to motivate participants to follow-up, 172 participants (34%) did not return (87 men, 85 women). The reasons for not returning are unknown in most cases.

One man (only multiple private partners as risk factor) and one woman (IVDU more than 5 years ago and working as a prostitute at time of the study), were found to be HIV-positive on entry to the study. Therefore, an HIV-prevalence of 2/512 (0.4%) was found at the beginning of the study. During follow-up, another man seroconverted for HIV who reported sexual contact with intravenous drug using prostitutes.

Stepwise discriminant analysis (significant change in Rao's V as criterion) was used to select variables to distinguish participants still in follow-up from those who were

lost. Men lost to follow up belonged more often to ethnic minorities (Surinam, Turkey, Morocco) and were younger than those still in study (Table 1), but no differences were found with respect to several aspects of sexual behaviour. Women lost to follow-up were also more often from ethnic minorities (especially from Latin American countries), more likely to have had less than 10 year's education and had no history of STDs in the preceding 5 years (Table 1). They had more commercial partners than those followed up (139 vs 86 clients per month; $p < 0.01$), but did not differ on the other variables concerning sexual behaviour.

During 20 months of recruitment and 24 months of follow-up study, 340 heterosexuals--140 men and 200 women--had at least one follow-up visit, 132 men and 189 women returned at visit 2 (8 men and 11 women (6%) missed visit 2 but returned for follow-up on visit 3). Not all participants had the opportunity to return for visit 3, and therefore data were collected from 106 men and 138 women at visit 3. The average period of time between the visits was 4.2 months.

Data analysis

The number of private and commercial partners in the preceding 4 months, was reported. With each type of partner (private or commercial) the frequency of practising 10 different sexual techniques and frequency of condom use in the preceding 4 months was assessed and measured on a five-point scale: (1) never, (2) sometimes, (3) half the time, (4) often or (5) always practising the technique of using condoms.

To analyze the overall frequency of different sexual techniques, the arithmetic mean was computed for each technique. Risk for HIV infection was defined as the number of (private and/or commercial) partners with whom unprotected vaginal intercourse was practised. The frequency score for vaginal intercourse and condom use were first transformed to a scale ranging from 0 to 1 (0, 0.25, 0.5, 0.75, 1; a higher score indicates increasing risk) and subsequently multiplied. For example, a participant 'often' practising vaginal intercourse (transformed score 0.75) and 'often' using condoms (transformed score 0.25) has a score of $0.75 \times 0.25 = 0.1875$. Assuming this participant had 10 different partners in the preceding 4 months, the estimated number of partners with whom unprotected vaginal intercourse was practised is 1.9 (10×0.1875).

Participants were divided into three groups with respect to the type of partners they had in the preceding 4 months: those with (1) private partners only (PPO), (2) commercial partners only (CPO) and (3) both private and commercial partners (PCP). Whenever possible, we refer to two different groups: all participants who had private partners (PP) and all participants who had commercial partners (CP), regardless of whether they also had commercial or private partners as well. Data were analyzed using chi-square, analysis of variance (ANOVA) and two-sided t-tests (paired and for two independent samples) (Norusis, 1986). For multiple comparisons--i.e. sexual techniques--individual significance levels were adjusted using the Bonferroni criterion (Hays, 1973), in order to achieve an overall test of

significance at the 0.05 level.

Results

Type of partners

Men with PPO at visit 1 (39%) were the most stable group, with only a minor shift (4%) in type of partner over time (Fig. 1). Men with CPO at visit 1 (26%) had a tendency to shift to PPO (20%), but most men still had CPO at visit 2 (59%). Men with PCP at visit 1 (35%) had most variation in the type of partner over time: 30% shifted to PPO, 17% to CPO and 51% had still both type of partners. This shift in type of partner resulted at visit 2 in 53% of 132 men with PPO, 25% with CPO, 20% with PCP. Two per cent had no partners at visit 2. At visit 3, 52% of the 106 men had PPO, 18% had CPO, 26% had PCP and 4% had no partners.

Like men, women with PPO at visit 1 (31%) were the most stable group, because only 3% had a different type of partners at visit 2 (Fig. 2). Women with CPO (12%) had most variation in the type of partner over time: 9% of the prostitutes did stop working as such and had only private partners, 50% had PCP and 41% had still CPO at visit 2. Of the women with PCP at visit 1 (57%), 13% did stop working as a prostitute, 12% had only clients as sexual partners and 75% had still both type of partners at visit 2. In summary, at visit 2 40% of the women had PPO, 11% CPO and 49% PCP. In total 12% of the prostitutes reported that they did not work as such anymore. At visit 3 43% of the 138 women had PPO, 10% had CPO, 43% had PCP and 4% had no partners.

Number of partners

Men and women decreased their number of private partners over time, mainly between visit 1 and visit 2 (Table 2). This decrease could especially be attributed to a decrease in number of partners of men and women with PPO. Some decrease was found--although not significant--in the number of commercial partners men (number of prostitutes visited) and women (number of clients) had at the 4 months preceding each visit.

Sexual techniques and condom use

The frequency with which sexual techniques were practised by men and women with either private or commercial partners remained stable over time: no differences were found between the three visits (data are only shown for vaginal intercourse). Vaginal intercourse was almost always practised by men and women, with PP and CP at entry and the 2 follow-up visits (Table 2). Ano-genital contact was only rarely practised.

Condom use during vaginal intercourse of men and women with private partners did not change between the visits (Fig. 3). Although not significant, an increasing trend in always using condoms during vaginal intercourse was noticed for both men and women with commercial partners, at the expense of never using condoms. Unprotected vaginal intercourse

While no differences were found in the frequency with which vaginal intercourse was practised and only a slight increase in condom use, the number of private partners with whom men and women had unprotected vaginal intercourse was mostly influenced by the absolute number of partners they had. The significant decrease in absolute number of private partners between the visits, is reflected in the number of unprotected vaginal contacts with private partners (Table 2). Condom use during vaginal intercourse with commercial partners increased (n.s.) while the number of commercial partners decreased (n.s.) between the three visits. The decrease found in the number of unprotected vaginal contacts clients had with prostitutes, or prostitutes had with clients was also not significant.

Discussion

The Dutch national AIDS-campaign tried to influence heterosexual behaviour and to promote safe sex, especially to encourage condom use. The heterosexual group with multiple partners that we studied, received additional specific counselling at entry into the study about high risk sexual behaviour and preventive measures to be taken with respect to HIV-infection and other STDs. Despite the expectation that this extensively counseled group would have enough information to be able to change their sexual behaviour, our data suggest that only a limited change in sexual behaviour occurred. However, subjects were only followed up for a limited length of time.

The kind of sexual techniques that were practised with private and commercial partners remained stable over time. The changes in condom use depended on the type of partners. Condom use of men and women with private partners was low and remained low. On the other hand, condoms seem to be accepted during commercial contact. Among prostitutes and clients a non-significant increase of condom use over time was found. Concerning the absolute number of partners, a major change was found among men and women with private partners, who considerably reduced the number of different sexual partners. Among clients of prostitutes we noticed a shift towards private partners. Some prostitutes stopped working completely, and among prostitutes still working the number of clients they had per month decreased. Other studies among men with homosexual contacts suggested that high risk sexual practices were difficult to change and changes in sexual behaviour in this group consisted primarily of a reduction of the number of partners (McCusker et al., 1988; Van Griensven et al., 1988; Coutinho et al., 1989; Van Griensven et al., 1989). It should be noted that the prevalence of HIV among men with homosexual contacts is much higher than among heterosexuals, and the perceived need of heterosexuals to practice safe sex seems to reflect this low prevalence.

Prevention campaigns and counselling in The Netherlands stressed the importance of always using condoms--especially for heterosexuals with multiple partners--but did not explicitly recommend a reduction in number of partners. The message of always using condoms seems to be effective for some groups which, even before the AIDS epidemic, accepted condoms as an inevitable part of sexual contact (i.e. prostitutes and clients) but not for heterosexuals with multiple private partners.

Apparently this latter group, probably more difficult to identify and to reach, did not pick up the 'always use condoms' message and responded to the message with a reduction in the number of sexual partners. It is probably easier to reduce number of partners than to always and consistently use condoms, especially if condoms were never used before.

This study has several elements of self selection, and therefore is not representative of all heterosexuals with multiple partners (Turner, 1989). Within this study almost no behavioural changes occurred. It is unlikely that refusers or participants lost to follow-up did change their sexual behaviour. However behaviour change, with regard to the use of condoms, prior to joining the study cannot be totally excluded. We think that the results presented here and the consequences are important enough to be taken into account in future AIDS-education programmes. Although more information is needed about the underlying social-psychological aspects of behavioural change (Becker & Joseph, 1988; Coxon & Carballo, 1989), it may be necessary to redesign prevention activities, to stress the effectiveness of condoms in preventing HIV-infection and STDs, and to encourage condom use among heterosexuals and multiple private partners.

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Table 1. General characteristics at entry to the study of participants still in the study vs those lost to follow-up (column percentage in brackets)

Legend for Chart:

- A - Men: In study n (%) 140 (100)
- B - Men: Lost n (%) 87 (100)
- C - Women: In study n (%) 200 (100)
- D - Women: Lost n (%) 85 (100)

| | A C | B D |
|--------------------------|----------------------------------|---------------------------------------|
| Mean age (S.D.) in years | 34 (10) | 29 (7)[a] |
| Born in The Netherlands | 28 (7) 87 (62) 135 (68) | 27 (6) 23 (26)[a] 41 (48)[b] |
| <10 years education | 67 (48) 106 (53) | 53 (61) 62 (73)[b] |

| | | |
|-------------------------|----------|------------|
| >/=1 STD in 5 year[d] | 71 (51) | 42 (48) |
| | 103 (52) | 30 (35)[c] |
| >/=1 STD in 4 months[d] | 20 (14) | 14 (16) |
| | 16 (8) | 5 (6) |
| Regular partner | 42 (30) | 29 (33) |
| | 91 (46) | 43 (50) |
| Client resp. prostitute | 85 (61) | 59 (66) |
| | 138 (69) | 69 (81) |
| HIV-positive[e] | 2 (1.4) | 0 (0) |
| | 0 (0) | 1 (1.2) |

a STDs are self-reported and include syphilis, gonorrhoea, Chlamydia trachomatis infection and genital herpes; e in serum sample collected at entry of the study or during follow-up; a p<0.001; b p<0.01; c p<13.05.

Table 2. Mean number of partners, mean frequency of vaginal intercourse[b] and mean number of unprotected vaginal contacts[c], in 4 months preceding each visit

Legend for Chart:

A - Visit 1 n mean (sd)

B - Visit 2 n mean (sd) n

C - Visit 3 mean (sd)

| | A | B | C |
|----------------------------------|-------------|-------------|----------------|
| Men with: | | | |
| Private partners | | | |
| Number of partners | 104 5.5 (5) | 96 3.6 (4) | 83 2.5 (2)[a] |
| Frequency of vaginal intercourse | 4.6 (1) | 4.7 (1) | 4.7 (1) |
| Number of unprotected contacts | 4.0 (4) | 2.4 (3) | 1.7 (2)[a] |
| Commercial partners | | | |
| Number of partners | 85 8.0 (12) | 59 6.6 (8) | 47 6.0 (9) |
| Frequency of vaginal intercourse | 4.5 (1) | 4.7 (1) | 4.6 (1) |
| Number of unprotected contacts | 4.0 (9) | 3.3 (8) | 2.5 (9) |
| Women with: | | | |
| Private partners | | | |
| Number of partners | 175 3.9 (5) | 166 2.1 (2) | 119 1.9 (2)[a] |
| Frequency of vaginal intercourse | 4.6 (1) | 4.6 (1) | 4.6 (1) |
| Number of unprotected contacts | 2.2 (2) | 1.3 (1) | 1.2 (1)[a] |

| | | | |
|----------------------------------|--------------|-------------|------------|
| Commercial partners[d] | | | |
| Number of partners | 138 87 (100) | 115 80 (88) | 75 63 (77) |
| Frequency of vaginal intercourse | 4.1 (1) | 4.2 (1) | 4.3 (1) |
| Number of unprotected contacts | 7.1 (22) | 5.6 (25) | 3.0 (14) |

a Measured on a 5-point-scale: (1) never, (2) sometimes, (3) half the time, (4) often and (5) always practising vaginal intercourse; c for computation of unprotected vaginal contacts: see Subjects and Methods; d clients per month, in 4 months preceding each visit; a $p < 0.001$.

GRAPH: Fig. 1. Shift in type of partner of men between visit 1 and visit 2 (a Commercial partners only (CPO); b Private and commercial partners (PCP); c Private partners only (PPO); d No partners).

GRAPH: Fig. 2. Shift in type of partner of women between visit 1 and visit 2 (a Commercial partners only (CPO); b Private and commercial partners (PCP); c Private partners only (PPO)).

GRAPH: Fig. 3. Condom use during vaginal intercourse with private and commercial partners, in 4 months preceding each visit (a no intercourse; b never used condoms; c irregular use of condoms; d always used condoms).

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