

ADOLESCENT SEXUAL HEALTH

Knowledge about the prevention of sexually transmitted diseases: a longitudinal study of young women from 16–23 years of age

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Objectives: To describe knowledge and attitudes regarding sexually transmitted diseases (STD) in the same women followed longitudinally for 7 years from teenage years to early adulthood, and to relate the findings to sexual behaviour.

Methods: A face to face interview and a questionnaire were completed by 79 young women when they were 16, 18, and 23 years old.

Results: The questionnaire, testing knowledge about the mode of transmission and prevention of STD, gave a total score of correct answers varying between 44% and 64%, with less knowledge about human papilloma (HPV) and herpes viruses than about chlamydia. Awareness of the possibility of asymptomatic transmission was low. The highest scores were obtained at the age of 18 years. Experience of many partners, a history of STD, smoking, and more frequent use of alcohol were associated with a higher level of knowledge.

Conclusions: Knowledge was fairly good and consistent, but was more often incorrect regarding viral infections and the possibility of asymptomatic transmission, and in total did not ensure an adequate protective behaviour. A higher level of knowledge was associated with a more risky behaviour, indicating that information was best received by those who could identify with the problem.

The occurrence of chlamydia infections among young women in Sweden decreased fourfold in the 1980s.¹ However, higher frequencies of sexually transmitted viral infections² appeared simultaneously indicating that the decrease in chlamydia was mostly the result of better diagnostics, contact tracing, and treatment rather than consistent use of condoms. Several surveys have demonstrated a good knowledge about sexually transmitted disease (STD) protection³ among teenagers but some have questioned subsequent appropriate behaviour.⁴ The aim of this study was to describe knowledge and attitudes regarding STD in the same women followed longitudinally for 7 years from teenage years to early adulthood, and to relate the findings to sexual behaviour.

MATERIAL AND METHODS

Sixteen year old girls commencing their upper secondary school education in a middle sized Swedish city participated in a 2 year study about sexuality and STDs, as described previously.⁵ Seven years later, women who completed all aspects of the teenage study⁵ were invited to take part in a follow up assessment. The women were assessed at the age of 23 years using the same techniques as in the assessments at 16 and 18 years of age—that is, a face to face interview about

family, sexuality, knowledge and attitudes to contraceptives and STD, and a standardised self administered multiple choice questionnaire which included relevant, practical questions about how to identify and avoid STD, consequences of STD, and forms of treatment. The numbers of correct answers were added up in a score, in order to compare the level of knowledge over time. A visual analogue scale (VAS) was used to assess subjective feelings.

RESULTS

Seventy nine of the 88 women (90%) who completed all aspects of the previous 2 year study participated in the 7 year follow up. There were no statistical differences between the responders and non-responders with regard to family background, sexual experience, and socioeconomic status (assessed at the age of 18 years). The mean age of the 79 women was 22.8 years. Two women were still virgins (2.5%), 29 had been pregnant (37%), and 23 women (29%) had given birth. Mean age for coitarche was 15.7 years. The mean number of lifetime sexual partners was 5.9 (compared to 3.9 at the 2 year control). Sixty five women (82%) had a steady partner for a mean period of 3.5 years. Seventy one women (90%) reported sexual intercourse within the past 6 months, of whom 17 (24%) reported sex with a new or occasional partner. Nineteen women (24%) mentioned a history of STD. Most women had left school after 12 years and 57% had a job.

The anxiety of becoming infertile was much higher than the anxiety of being at risk for contracting an STD (expressed as 4.6 and 2.2 respectively, $p < 0.001$, on a visual analogue scale from 0–10). The knowledge score reflecting awareness of how to identify and to avoid STD, consequences of STD, and forms of treatment are shown in table 1. All women knew that chlamydia can be spread during coitus when not using a condom. All but three knew that the partner has to attend for an examination if a chlamydia infection is diagnosed. Eighty per cent of the women were aware of the possibility of finding asymptomatic carriers of a chlamydia infection. Contrary to the findings regarding chlamydia, only 49% and 38% respectively knew that HPV and herpes could occur non-symptomatically. Only two women could imagine the possibility of having transmitted an STD infection to their partner at the last coitus, and only one woman could imagine the corresponding risk of transmission to her. Half of the women had received information about STD during the past year, the majority by reading papers and books. However, no differences in knowledge were seen regarding reported recent information about STD or not.

A higher level of knowledge regarding STD was associated with an experience of more partners, a history of STD, smoking, and the more frequent use of alcohol (table 2). The use of condoms was no more common among women with recent new partners than among women with a steady partner for more than half a year. Among 17 women reporting a new or

Table 1 A longitudinal assessment of the young women's knowledge (n=79) about how to avoid and identify sexually transmitted diseases (STD), forms of treatment, and consequences of STD

	16 years	18 years	23 years
Chlamydia score (max score = 5 points)	3.0 (60%)	3.7 (74%)	3.7 (74%)
HPV score (max score = 3 points)	1.3 (33%)	2.1 (53%)	1.6 (40%)
Herpes score (max score = 2 points)	1.0 (50%)	1.2 (62%)	1.3 (65%)
Total score (max score = 11 points)	5.3 (44%)	7.0 (64%)	6.6 (60%)

Table 2 Comparison between the 23 year old women with a high and low total score of knowledge regarding how to avoid and identify sexually transmitted diseases (STD), forms of treatment, and consequences of STD. Scoring system as in table 1

	Total score ≤6 points	Total score >6 points	Significance of difference
	No (%)	No (%)	
More than 5 partners (n = 34)	8 (24)	26 (76)	p<0.01
5 partners, or less (n = 45)	25 (56)	20 (43)	
History of STD (n = 20)	3 (15)	17 (85)	p<0.05
No history of STD (n = 57) (2 subjects did not report if they had a history of STD or not)	29 (51)	28 (49)	
Smoker (n = 29)	6 (21)	22 (79)	p<0.01
Non smoker (n = 50)	27 (53)	24 (47)	
Drinking alcohol more frequently than once a month (n = 29)	6 (21)	23 (79)	p<0.01
Drinking alcohol less frequently (n = 50)	27 (54)	23 (46)	

occasional partner during past 6 months, four women reported use of a condom at some time during that period. These four women had a high total level of knowledge (mean 9.0).

DISCUSSION

This study has shown fairly good and consistent knowledge about genital chlamydia infections but inferior knowledge regarding viral infections, especially HPV. Although good knowledge is a necessary prerequisite for safe sexual behaviour it does not in itself ensure an adequate protective behaviour. Most women seem to have been at a higher risk for STD transmission as teenagers and at the age of 23 most of them reported a steady partner.

A history of more risky behaviour was associated with a higher level of knowledge about STD. Nevertheless, only 24% of the women who reported a new or occasional partner during past 6 months reported the use of a condom at some time during this period, indicating as in previous studies⁵ that knowledge did not affect their behaviour.

One of the most important findings was the low awareness of HPV and herpes as asymptomatic infections. Information has to focus more on the possibility of asymptomatic transmission, motivating the use of condoms. The concerns about how to act with regard to asymptomatic transmission is alarming, especially with viral infections, as these infections cannot be managed by diagnostics, treatment, and contact tracing. An indistinct policy by physicians can contribute to this uncertainty.⁶

The tendency towards an underestimated perceived relative risk for STD transmission represents an important reason for inappropriate behaviour.⁷ Traeen and Lewin focused on the

fact that adolescents in the Nordic countries are good at contraception but appear to have problems in taking adequate STD precautions.⁸ They proposed that young people find it "natural" to perceive themselves and their partners as fecund but do not accept as "natural" that they or their partner may be carriers of an STD. The paradoxical association between a higher level of knowledge about STD and the experience of more partners and histories of STD indicates that the resultant contact with the healthcare system probably is one of the most effective educational tools.

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CONTRIBUTORS

Both authors were involved in the design and writing of this paper. The young women in this study were all interviewed by the same author (AA-E) on all three occasions during the course of this longitudinal study.

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ECHO

HR-HPV test woos reluctant women



Please visit the Sexually Transmitted Infections website [www.sextransinf.com] for link to this full article.

Women averse to traditional screening could avoid invasive cervical cancer with an alternative method to test for high risk human papillomavirus (HR-HPV) in lavage samples they can collect themselves. This could drive down the 50% rate of invasive cervical cancer in women who are not currently screened.

A prospective study compared lavage samples collected by a doctor and by women at home with a standard Papanicolaou (Pap) smear. It found good agreement for detecting HR-HPV (93% and 78%, respectively) but unacceptably low agreement for cytological results. However, there was sufficient agreement between high grade cervical intraepithelial neoplasia and HR-HPV results from the lavage samples taken by the doctor (91%) and the women (81%) and from the smear (91%) to indicate that samples collected by women are suitable for screening. A brief questionnaire showed that most women preferred self collection over the smear test.

Seventy one women from two colposcopy clinics collected a cervicovaginal lavage sample at home and had another taken by a doctor in the clinic, followed by a standard Pap smear test and then colposcopy. Fifty six women had mild dyskaryosis or worse and 15 had normal results. Each sample/smear was tested for cytological signs of cervical cancer and evidence of HPV infection by PCR immunoassay.

Cervical cancer is treatable if diagnosed early, but many women fail to attend for a smear test. Testing lavage samples for HR-HPV is a feasible alternative. Nevertheless, “participation in the [traditional] screening programme remains the best option,” say the researchers.

▲ *Journal of Clinical Pathology* 2002;**55**:435–439.