



## Dual protection in sexually active women

Immo Kleinschmidt, Baker Ndugga Maggwa, Jennifer Smit, Mags E Beksinska, Helen Rees

**Objective.** To determine the prevalence and co-factors associated with the practice of dual protection against sexually transmitted infections (STIs) and unwanted pregnancy in a cross-sectional sample of South African women.

**Design.** Secondary analysis of cross-sectional household survey data.

**Methods.** Statistical analysis of responses by sexually active women to the question, 'Was a condom used on the last occasion you had sex?' were obtained from the women's questionnaire of the South African Demographic and Health Survey in relation to a number of other variables.

**Results.** (i) 10.5% of all sexually active women aged 15 - 49 years used a condom at last sex and 6.3% used a condom as

well as another contraceptive method; (ii) condom use is more likely among younger, more educated, more affluent, and urban women, and among women who change partners more frequently; (iii) reasons for not using condoms are more likely to be associated with the personal attitudes of women or their partners than with poor knowledge of or lack of access to condoms; (iv) women who have no need or desire to prevent pregnancy are less likely to use condoms; and (v) there is a minority of sexually active women, characterised by social disadvantage, who have difficulty obtaining condoms.

**Conclusions.** There is an urgent need for targeted programmes that increase dual protection with condoms.

*S Afr Med J* 2003; 93: 854-857.

Simultaneous prevention of unwanted pregnancy and sexually transmitted infections (STIs) has been identified as an important strategy in the promotion of reproductive health.<sup>1,2</sup> For the sexually active this generally implies the use of a condom, often in combination with another effective contraceptive method.<sup>3</sup>

Dual protection against STIs and unintended pregnancy is a health issue of particular importance in South Africa, not only because of very high rates of STIs<sup>4,5</sup> including HIV,<sup>6</sup> but also because of the large proportion of women who use long-acting effective hormonal contraceptive methods<sup>7</sup> and therefore have little incentive for using barrier methods for contraceptive purposes. The concomitantly high rates of STIs and unplanned pregnancies<sup>8</sup> make a compelling case for dual protection, the need for which has been highlighted in the South African national contraceptive policy.<sup>9</sup> This paper presents data on the self-reported practice of dual protection among South African women.

Facility-based studies have previously been undertaken to determine the extent of dual method use in South Africa,<sup>10</sup> but there have been no reports of community-based nationally

representative statistics. Data from the South African Demographic and Health Survey (SADHS) conducted in 1998<sup>7</sup> provide an opportunity to investigate the prevalence of dual protection in the general population in South Africa and the factors associated with it. We analysed responses to the question 'Was a condom used on the last occasion you had sex?' in relation to other variables in the women's questionnaire of the SADHS. We also analysed responses to questions relating to the reasons why participants did not use condoms.

### Methods

The SADHS, a national household survey, was conducted from January to September 1998. Women between the ages of 15 and 49 years ( $N = 11\,735$ ) were interviewed on questions relating to their health status, including reproductive health, fertility, child health, knowledge and attitudes relating to health matters, and general demographic questions. Standard survey sampling methods were used which have been reported elsewhere.<sup>7</sup>

We used the statistical package Stata<sup>11</sup> for our analysis of the SADHS data for this study, taking account of the sample design of the survey. Bivariate associations were tested for statistical significance based on a chi-square test using design-based variance estimates. Multiple logistic regression was used to determine odds ratios (ORs) and associated confidence intervals (CIs), adjusted for confounding effects of related variables, again using design-based variance estimates for the calculation of standard errors.<sup>12</sup>



The sample used in the analysis included all women interviewed for the SADHS who reported having had sexual intercourse during the past 4 weeks. Two outcome variables were analysed: reported condom use at last sex, and reporting access problems as a reason for not using a condom at last sex. Condom use at last intercourse was analysed in relation to variables grouped under the following themes: contraceptive use, demographic status and risk profile, fertility preferences, and knowledge of HIV/STI avoidance.

A variable was constructed for all those who did not use a condom at last sex by dividing them into two groups: those who mentioned problems with access to condoms as a reason for not using condoms, and those who did not mention access as a problem. This variable was analysed in relation to demographic status and risk profile variables.

A distinction can be made between two groups of women using condoms: (i) those who used two methods, one of which was condoms; and (ii) a larger group including all those who used condoms and were therefore dually protected against STIs and pregnancy regardless of whether they used another contraceptive method. This study focuses largely on the latter group, i.e. those who were dually protected in that they used condoms irrespective of whether a second contraceptive method was used.

## Results

Of the 11 735 women interviewed in the SADHS, 6 022 (51%) reported that they had had sexual intercourse within the last 4 weeks. The responses of these women were analysed in this study.

Table I shows that overall 10.5% of sexually active women used a condom and therefore were dually protected against STIs and pregnancy at last intercourse. A subgroup of these,

6.3% of all sexually active women, used two methods.

A small proportion of sexually active women (2.3%) stated that the condom was their method of contraception. Most of these (88%) reported having used a condom at last intercourse. Of those stating that they were not using any contraceptive method, 5.5% reported that they had used a condom at last intercourse, presumably for STI prevention.

A number of logistic regression models were used, each containing variables relating to the themes mentioned above. Explanatory variables significantly associated with condom use alone were entered into multiple logistic regression models to control for confounding. Educational status, age and urban or rural residence were included as explanatory variables in all multiple logistic regression models. ORs for these three variables were similar in all models.

Logistic regression modelling in relation to demographic variables showed that condom use decreased significantly: (i) with lower educational status (OR 0.36, 95% CI: 0.17 - 0.77 for no formal education versus secondary education); (ii) with increasing age (OR 3.1, 95% CI: 2.3 - 4.1 for the 15 - 24-year age group compared with those 35 years and older); (iii) in the case of rural women (OR 0.76, 95% CI: 0.59 - 0.98); and (iv) in households that did not have television (OR 0.68, 95% CI: 0.53 - 0.88). Condom use was significantly higher among those who had occasional partners than among those who were married or living with a partner (OR 2.8, 95% CI: 1.9 - 4.0). Condom use at last sex was also higher for women who had had more than one partner over the past 12 months than among those who had only one partner (OR 1.6, 95% CI: 1.1 - 2.3). All these relationships hold independently, as shown by multiple regression results.

Further analysis of the subsample of women who used two methods showed that their demographic profile was similar to that reported above, except that they constituted a smaller

Table I. Proportion of sexually active women using a condom at last intercourse by current use of other contraceptive methods

Current contraceptive method	Used condom at last intercourse (%)	Per cent of all those who used condoms	N*
Not using any contraceptive method	5.5	19.9	2 275
Pill	13.1	16.5	798
IUCD	6.7	1.2	112
Injection	13.5	38.8	1 813
Condom	87.6	19.1	137
Female sterilisation	3.4	4.0	725
Male sterilisation	0.2	0.04	103
Other <sup>†</sup>	5.1	0.5	59
Total	10.5	100	6 022

\* Weighted in accordance with sample design.

<sup>†</sup>Including rhythm, withdrawal and herbal methods.



group (results not tabulated). For example, the proportion of women using two methods varied from 10.7% in the 15 - 24-year age group, to 2.5% in the above-35-year age group ( $p < 0.001$ ).

Of the 264 women who knew that they were pregnant, only 5.4% used condoms. Our analysis of variables related to fertility showed that condom use is negatively associated with pregnancy (OR 0.34, 95% CI: 0.15 - 0.78), with the desire for children (OR 0.38, 95% CI: 0.26 - 0.55), and with infertility (OR 0.25, 95% CI: 0.16 - 0.40). Those intending to become pregnant, those who were pregnant and those who believed that they had no need for contraception (i.e. were infertile) therefore represent very distinct risk groups for infection due to their comparatively low prevalence of condom use.

Analysis of variables related to knowledge of STI avoidance showed that condoms were less likely to be used if respondents knew only of their use for family planning (OR 0.64, 95% CI: 0.42 - 0.96) or only of their use for STI prevention (OR 0.26, 95% CI: 0.08 - 0.85), versus knowing about the dual protective function of condoms. This association persists after adjusting for education, age, urban/rural residence and knowledge of where to obtain condoms. There was no evidence that knowledge of how to avoid HIV infection and having recently heard of family planning through the media were independently associated with condom use. There was also no evidence of differences in condom use between women who used public sector and private sector sources of contraceptive methods.

Of those sexually active women who were not using condoms at last intercourse (approximately 90%) the majority gave personal attitude (28%) or relationship issues (39%) as the main reason for not using a condom, while a smaller group (18%) said that they wished to become pregnant or saw no risk of infection in their situation. Another 9% of women did not use condoms because they lacked education about them, while a smaller minority (6%) did not use condoms because they could not access them.

Although access is not a major reason for women not using condoms, we further analysed responses of this group of non-users as this problem can be addressed more easily than attitude change. Multiple variable logistic regression shows that the problem of access to condoms as a reason for not using them was significantly associated with being young (OR 1.6, 95% CI: 1.2 - 2.1 for the 15 - 24-year age group compared with those 35 years and older), being a woman in a rural area (OR 1.6, 95% CI: 1.2 - 2.2), having had intercourse with non-regular partners (OR 1.6, 95% CI: 1.1 - 2.4), and living in a household without a television set (OR 1.4, 95% CI: 1.1 - 1.9).

## Discussion

Our analysis shows that a distinct minority of sexually active women are simultaneously protected against STIs and pregnancy during sexual intercourse by using a condom, with or without another contraceptive method, and that a smaller minority use two methods to achieve this. There were also single-method users who appear to use the condom for STI prevention only, namely those who used a condom while pregnant, and others who used a condom even though they stated that they were not using any contraceptive method. It is noteworthy that the proportion of sexually active women who used condoms when their need for contraception was taken care of by another method (6.3%), or who used condoms when they had no need for contraception because they knew that they were pregnant (5.4%), or who used condoms while stating that they were not using any contraceptive method (5.5%), was very consistent. This might suggest a threshold proportion of approximately 5% of women in all these groups who were using condoms primarily for STI prevention.

Overall, only about 10% of sexually active women reported that they used a condom at last sex. While definitions of 'sexually active' vary somewhat from one study to another, this is nearly double the figure reported in the Kenya Demographic and Health Survey of 1998 (KDHS).<sup>13</sup> A recent household survey to establish HIV prevalence in South Africa<sup>14</sup> found a higher proportion of respondents who purported to be using condoms than was found by the SADHS. It is possible that respondents in a survey involving HIV testing and counselling, including counselling to use condoms, are more likely to give the 'correct' as opposed to the truthful answer than respondents in a general household survey that does not involve HIV testing. However, the pattern of condom use reported in the SADHS is similar to that reported elsewhere, namely, women who are younger, more educated, living in urban areas and more affluent are more likely to have been dually protected through using a condom at last sex.

Our finding of higher condom use among women who reported having more than one partner over the past year, or who had non-regular partners, is a pattern that has been observed in surveys in other countries.<sup>13</sup> The association between perceived greater risk of acquiring a STI and increased condom use observed in our analysis shows that women exercise a measure of self-assessment of risk of STI infection, which they are prepared to act on. This suggests that interventions should be designed to build on the behaviour of these women.

Our results also show that knowledge of the dual protective function of condoms appears to lead to greater use of condoms, even after adjusting for differences in education and other



factors. This shows the importance of developing distinct health awareness messages that promote dual protection as a concept, and that reach not only family planning and STI clients, but the community at large.

Sexually active women who see no need for contraception on account of being pregnant, intending to become pregnant, being sterilised or being infertile, and those who use other effective methods of contraception, are less likely to use condoms, yet they are at risk for both STIs and HIV. Dual protection promotion should therefore appeal to these groups of women in particular.

The reasons women gave for not using a condom show that there are strong negative perceptions around condom use that prevent them from using this method, or cause them to discontinue use.

Numerous reasons were given for not using condoms at last intercourse. Therefore interventions have to be multifaceted to confront the different obstacles to the use of condoms. Interventions should be: (i) education to overcome lack of knowledge and misinformation about condoms; (ii) advocacy to change negative attitudes towards and dislike of condoms; (iii) empowerment of women to negotiate safe sex to address the relationship issues cited by a large proportion of non-users; (iv) targeting of specific groups that experience difficulty in accessing condoms; and (v) raising awareness of the risk of STIs among women who have no need or wish to prevent pregnancy.

Lack of access to condoms was given as the main reason for non-use by 6% of non-users. Although this group is relatively small, we have shown that it primarily included women who were at a disadvantage, namely those who were less educated, less affluent, more likely to live in rural areas, and more likely to be young. The finding that condom use was higher among younger respondents occurred despite their finding condoms harder to procure than older women did. This analysis shows which groups need to be targeted with interventions that ensure adequate access to condoms. Condom access also needs to be improved in places where sex might be initiated with casual partners, since those who had sex with a non-regular partner were more likely to find condoms inaccessible.

One of the major limitations of our study is that it does not

tell us how consistent condom use is, and therefore what impact it may have on STI and pregnancy prevention. Previous studies have shown that inconsistent condom use may have little or no effect on HIV incidence compared with that among non-users.<sup>15,16</sup> Condom use at last sex is only a marker of overall condom use, but it is reasonable to assume that it is correlated with consistency of condom use. Undoubtedly the proportion of consistent condom users among all sexually active women is lower than the proportion of respondents who have used a condom at last sex.

The results of this national, community-based survey provide ample evidence of the urgent need for programmes to increase dual protection with condoms. More importantly, these results show where the need for such intervention is most pressing.

#### References

1. Woodsong C, Koo HP. Two good reasons: women's and men's perspectives on dual contraceptive use. *Soc Sci Med* 1999; **49**: 567-580.
2. Best K. Many clients need dual protection. *Network* 2001; **20**(4): 4-7. [http://www.fhi.org/en/RH/Pubs/Network/V20\\_4/index.htm](http://www.fhi.org/en/RH/Pubs/Network/V20_4/index.htm) (last accessed 18 Sep 2003).
3. Centers for Disease Control. Sexually transmitted diseases treatment guidelines. *Morb Mortal Wkly Rep* 2002; **51**: 1-80. <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5106a1.htm> (last accessed 18 Sep 2003).
4. Pham-Kanter GB, Steinberg MH, Ballard RC. Sexually transmitted diseases in South Africa. *Genitourin Med* (last accessed 18 Sep 2003) 1996; **72**: 160-171.
5. Colvin M. Sexually transmitted infections in Southern Africa: a public health crisis. *South African Journal of Science* 2000; **22**: 335-339.
6. Department of Health, Republic of South Africa. *National HIV and Syphilis Sero-prevalence Survey of Women Attending Public Antenatal Clinics in South Africa 2000*. Pretoria: DOH, 2002. <http://www.doh.gov.za/docs/reports-f.html> (last accessed 18 Sep 2003).
7. Department of Health, Republic of South Africa. *South African Demographic and Health Survey 1998*. Pretoria: DOH, 2002.
8. Smit J, McFadyen L, Beksinska M, et al. Emergency contraception in South Africa: knowledge, attitudes and use among public sector primary healthcare clients. *Contraception* 2001; **64**: 333-337.
9. Department of Health, Republic of South Africa. *National Contraception Policy Guidelines*. Pretoria: DOH, 2001: 28.
10. Myer L, Morroni C, Mathews C, Little F. Dual method use in South Africa. *Int Fam Plann Perspect* 2002; **28**: 119-121.
11. StataCorp. 1997-2000. *Stata Statistical Software: Release 5.0 - 7.0*. College Station, Texas: Stata Corporation.
12. STATA manual version 7. StataCorp. 1997-2000. *Stata Statistical Software: Release 5.0 - 7.0*. College Station, Texas: Stata Corporation. Vol. 4: 15-101.
13. Waithaka M, Bessinger R. *Sexual Behaviour and Condom Use in the Context of HIV Prevention in Kenya*. Nairobi: Population Services International, 2001.
14. Shisana O, Simbayi L. *South African National HIV Prevalence, Behavioural Risks and Mass Media (household survey 2002)*. Nelson Mandela/Human Sciences Research Council Study of HIV/AIDS. Cape Town: Human Sciences Research Council 2002.
15. De Vincenzi, for the European Study Group on Heterosexual Transmission of HIV. A longitudinal study of human immunodeficiency virus transmission by heterosexual partners. *N Engl J Med* 1994; **331**: 341-346.
16. Deschamps MM, Pape JW, Hafner A, Johnson WD jun. Heterosexual transmission of HIV in Haiti. *Ann Intern Med* 1996; **125**: 324-330.

Accepted 24 July 2003.