The female condom: knowledge, attitude, and willingness to use. The first Italian study

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Summary. Women account for nearly half the people living with HIV worldwide. This situation makes it necessary to improve prevention actions targeting women: the female condom is a good option. The study was conducted, the first in Italy, in a public AIDS Center on a sample of 162 participants (66.7% female, 33.3% men) who requested the HIV test. The objectives were: assess the current knowledge of the female condom; collect information on opinions, impressions and willingness to use the female condom. Participants were administered a Lickert-scale questionnaire after post-test counselling. The results are in line with international studies and show an early positive response, characterized by interest and openness to innovation, followed by resisting to use the female condom.

Key words: HIV infection, female condom, knowledge, attitude.

INTRODUCTION

Women account for nearly half of all people living with HIV worldwide: according to WHO estimates, as of December 2006 there were 17.7 million HIV-positive women. Compared to 2004 the women living with HIV in 2006 have increased by over one million. In some regions, such as Eastern Europe, Asia and Latin America, the proportion of women among HIV-positive people is in continuous growth, in Sub-Saharan Africa 59% of HIV-infected adults are women [1]. According to data collected by Centro Operativo AIDS (COA) which was last updated 31 December 2005, the proportion of women diagnosed with HIV between 1985 and 2004 has increased progressively: the male/female ratio which was 3.4 in 1985 had decreased to 2.2 by 2004 [2].

This situation makes it necessary to increase measures of prevention which target women, favouring empowerment and providing innovative preventive tools.

The female condom is a relatively new device which allows women to choose a barrier method of protection against both unwanted pregnancies and STD (sexually transmitted diseases) transmission, therefore constituting a valid alternative to the male condom. It was made available in Europe for the first time in 1992 in Great Britain, and has also been approved by the Food and Drug Administration (FDA) for distribution in the United States. In Italy it is not yet available [3]. It is a sheath made of polyurethane, with one end sealed, and is formed by two different sized flexible rings; it has to be inserted into the vagina, and can be positionned up to 8 hours before sexual intercourse, during which it forms a physical barrier between the penis and the vagina. The smaller ring at the closed end of the sheath is inserted deeply into the vagina, while the bigger ring remains to the exterior and covers the external genitalia [4]. Polyurethane is a very thin material, stronger than the latex of which male condoms are made, and can be used with any kind of lubricant. It conducts heat so well that sexual
sensitivity and natural pleasure are preserved. Furthermore, it is not affected by changes in temperature and humidity, produces no side-effects, and causes no alterations of the vaginal flora nor significant allergic or dermatological reactions. It can also be used by people who are allergic to latex. Unlike the male condom, it doesn’t constrict the penis.

In 2005 only 14 million female condoms were distributed worldwide, compared to 6-9 billion male condoms. One problem in achieving widespread distribution in national programs has been its cost. In an effort to address the problem of cost the Female Health Company has developed a second generation female condom (FC2). This new version has similar physical characteristics to the original female condom but is made of synthetic nitrile which utilizes a more efficient manufacturing process, particularly at higher volumes [5].

Used correctly, the annual risk rate of unwanted pregnancies of the device at 5% is lower if compared to the 6% figure of diaphragm and spermicide use and is closer to the 3% rate of male condom use. In vitro studies have shown that the female condom provides an effective barrier to the passage of even the smallest STD-causing organisms, including the HIV virus.

Several clinical studies undertaken since when the female condom first appeared have demonstrated its effectiveness [6-12] and a review of 41 studies carried out in different countries and cultures have shown that 50% to 70% of men and women found the device to be acceptable. Couples participating in the study reported that the use of the female condom not only didn’t interfere with sexual sensitivity and natural pleasure, but actually improved communication between men and women about sex [3, 13]. This suggests that although it is useful to implement female condom promotion programs which target specific population groups, it is also essential to carry out preliminary studies aimed at assessing women’s attitudes towards this device.

From 1992 to the present, the female condom does not seem to have attracted much scientific attention in our country, in fact studies focusing on this device and women’s attitudes towards this device.

MATERIALS AND METHODS
The study was carried out by an AIDS Unit of the National Health Service (NHS) in Rome from 06/01/2005 to 07/31/2005 with the collaboration of researchers working at the National Institute of Health (Istituto Superiore di Sanità). The sample was comprised of seronegative heterosexual adults of age 18 or older who were not involved in prostitution and approached the NHS to have an HIV test.

After post-test counselling, an Italian abridged version of the US Lickert-scale questionnaire was administered to participants. The questionnaire was divided into three sections. The first section collected demographic data; the second analysed male condom use and knowledge of the female condom; the third was compiled only after the participant had been briefed about the female condom and its use and was asked about impressions on the device and willingness to use it.

Women were also questioned if they were interested in using this new tool. If they agreed, they received a package which contained three female condoms and instructions for use. Correct use and insertion were also explained directly by trained staff.

Finally, women willing to use the female condom were asked to come back within three months in order to refer about their experience, whether or not they had decide to use it. Information were gathered using a different Lickert-scale questionnaire derived from Neiland’s study.

Data collected was inserted into a database, analysed and processed using the Epi-Info Software of Disease Control & Prevention, Atlanta (USA).

The female condoms used for the present study were supplied free of charge and distributed exclusively by the Female Health Company of London (UK).

RESULTS
The participants recruited were 162. The women were 66.7% of the total, of whom 56.5% were in the 20-29 year age group and 26.9% were 30-39 (mean age 29.3); 51.9% of the males were in the 20-29 year age group and 27.8% were 30-39 (mean age 31.5).

From the educational point of view, 61.1% of males and 63.0% of females had a secondary school degree, while 24.1% of males and 23.1% of females were university educated; 87.0% of both sexes were unmarried. Occupationally, 30.9% of males and 38.3% of females were students; 23.6% of males and 29.9% of females were office workers/clerks and 14.6% of males and 6.5% of females were professionals (Table 1).

About 18.5% of males and 13.9% of females reported a consistent use of male condom, while 14.8% of males and 16.7% of females had never used it.

An extremely small number of participants – approximately a fourth of each gender group – had ever heard of the female condom.

Of those who had heard of the device, the main sources of information were magazines or newspapers (57.2% of males and 44.5% of females), friends (35.7% of males and 22.2% of females), and television (7.1% of males and 25.9% of females).

Nearly all participants regarded the female condom both as a method of preventing unwanted pregnancies as an alternative to the male condom (90.7% of males and 87.0% of females) and as protection against STDs,
HIV included (92.6% of males and 87.1% of females). Note that these rates are comparable.

Only a fourth of the participants stated that the female condom was not more difficult to use than the male condom. A good rate of men (11.1% compared to 2.8% of women) did not express their opinion; 59.2% of men and 37.1% of women stated that the female condom would make it more difficult for the woman to reach orgasm, while 42.6% of males and 31.5% of females thought that it would have negative effects on the man’s orgasm (Table 2).

Overall, 18.5% of males and 27.8% of females stated they would not use the female condom even if it were available in Italy. The reasons given for this are shown in Table 3.

Finally, 67.6% of the women agreed to use the female condom – four women less than those who had initially stated willingness to use it if it were on sale.

In the follow-up study, only 6 women out of the 73 who received the package containing three female condoms came back to report on their experience; 2 women out of 6 didn’t use it because they had not had sexual intercourses during the study period (3 months). The 4 women who used it reported they felt more protected against both STDs, including HIV, and unwanted pregnancies. They also appreciated the fact that they themselves had been responsible for the protection. Three women out of 4 felt embarrassed to use it, having chosen to put it on in the presence of their partner before sexual intercourse. Finally, answers to questions concerning sexual pleasure and willingness to use the device again received disparate answers which could not be classified (unpublished data).

DISCUSSION

Our data show that in Italy the existence of the female condom is practically unknown; in fact, very few participants had received any information on the female condom through magazines, newspapers, TV or friends, and none had ever seen one.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td>54 (33.3)</td>
<td>108 (66.7)</td>
<td>162 (100.0)</td>
</tr>
<tr>
<td><strong>Age group</strong></td>
<td>2 (3.7)</td>
<td>5 (4.6)</td>
<td>7 (4.3)</td>
</tr>
<tr>
<td>&lt; 20</td>
<td>28 (51.9)</td>
<td>61 (56.5)</td>
<td>89 (54.9)</td>
</tr>
<tr>
<td>20-29 years</td>
<td>15 (27.8)</td>
<td>29 (26.9)</td>
<td>44 (27.2)</td>
</tr>
<tr>
<td>40-69 years</td>
<td>9 (16.6)</td>
<td>13 (12.0)</td>
<td>22 (13.6)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>54 (100.0)</td>
<td>108 (100.0)</td>
<td>162 (100.0)</td>
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<th>Female</th>
<th>Total</th>
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<tr>
<td><strong>Education</strong></td>
<td>8 (14.8)</td>
<td>15 (13.9)</td>
<td>23 (14.2)</td>
</tr>
<tr>
<td>Junior high school</td>
<td>33 (61.1)</td>
<td>68 (63.0)</td>
<td>101 (62.3)</td>
</tr>
<tr>
<td>University degree</td>
<td>13 (24.1)</td>
<td>25 (23.1)</td>
<td>38 (23.5)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>54 (100.0)</td>
<td>108 (100.0)</td>
<td>162 (100.0)</td>
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<th>Characteristics</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Civil status</strong></td>
<td>47 (87.0)</td>
<td>94 (87.1)</td>
<td>141 (87.1)</td>
</tr>
<tr>
<td>Unmarried</td>
<td>2 (3.7)</td>
<td>5 (4.6)</td>
<td>7 (4.3)</td>
</tr>
<tr>
<td>Married</td>
<td>28 (51.9)</td>
<td>61 (56.5)</td>
<td>89 (54.9)</td>
</tr>
<tr>
<td>Cohabitant</td>
<td>15 (27.8)</td>
<td>29 (26.9)</td>
<td>44 (27.2)</td>
</tr>
<tr>
<td>Divorced</td>
<td>9 (16.6)</td>
<td>13 (12.0)</td>
<td>22 (13.6)</td>
</tr>
<tr>
<td>Legally separated</td>
<td>8 (14.8)</td>
<td>15 (13.9)</td>
<td>23 (14.2)</td>
</tr>
<tr>
<td>Widow/Widower</td>
<td>33 (61.1)</td>
<td>68 (63.0)</td>
<td>101 (62.3)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>54 (100.0)</td>
<td>108 (100.0)</td>
<td>162 (100.0)</td>
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<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occupation</strong></td>
<td>13 (23.6)</td>
<td>32 (29.9)</td>
<td>45 (27.8)</td>
</tr>
<tr>
<td>Office-worker</td>
<td>2 (3.6)</td>
<td>0 (0.0)</td>
<td>1 (0.6)</td>
</tr>
<tr>
<td>Business owner</td>
<td>4 (7.3)</td>
<td>2 (1.9)</td>
<td>6 (3.7)</td>
</tr>
<tr>
<td>Entertainment sector</td>
<td>3 (5.6)</td>
<td>6 (5.6)</td>
<td>9 (5.5)</td>
</tr>
<tr>
<td>Professional</td>
<td>8 (14.6)</td>
<td>7 (6.5)</td>
<td>15 (9.2)</td>
</tr>
<tr>
<td>Undocumented workers</td>
<td>0 (0.0)</td>
<td>5 (4.7)</td>
<td>5 (3.1)</td>
</tr>
<tr>
<td>Craftman</td>
<td>1 (1.8)</td>
<td>2 (1.9)</td>
<td>3 (1.9)</td>
</tr>
<tr>
<td>Journalist</td>
<td>2 (3.6)</td>
<td>1 (0.9)</td>
<td>3 (1.9)</td>
</tr>
<tr>
<td>Teacher</td>
<td>0 (0.0)</td>
<td>5 (4.7)</td>
<td>5 (3.1)</td>
</tr>
<tr>
<td>Military</td>
<td>2 (3.6)</td>
<td>0 (0.0)</td>
<td>2 (1.2)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>54 (100.0)</td>
<td>108 (100.0)</td>
<td>162 (100.0)</td>
</tr>
</tbody>
</table>
Most of the male and female participants, having been shown a female condom for the very first time, seemed rather worried that it would be difficult to use. This could be overcome with appropriate training programs. In fact, a correct and consistent use has been reported to produce an increase in the level of acceptance among women by helping them to overcome previous obstacles [14-16].

Training should also seek both to give women reasons for using the condom and to increase their ability to negotiate sex, thus also taking into account the cultural characteristics of the different targets involved.

For example, in Kenya and Zimbabwe the female condom promotion campaigns have particularly stressed the contraceptive function rather than the protective one, thus giving women in those countries more chances of convincing their sexual partners to accept the female condom since in those cultures the use of STD prevention devices indicates sexual promiscuity and infidelity [3].

From the point of view of sexual pleasure and orgasm for both males and females, men showed to be more pessimistic than women. This could be due to both lack of knowledge and prejudice, since different studies have proven that the female condom has no negative effects on the quality of sexual intercourse [3].

Most adults interviewed showed to be willing to use the female condom or to try it if it was on sale in Italy. A wider availability could promote the plan-

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|}
\hline
\textbf{Attitudes} & \textbf{Male} & \textbf{Female} & \textbf{Total} \\
\hline
\textbf{Gender} & 54 (33.3) & 108 (66.7) & 162 \\
\hline
\textbf{Do you think that they give better protection against unwanted pregnancies than male condoms?} & & & \\
Totally agree & 33 (61.1) & 58 (53.7) & 91 (56.2) \\
Partially agree & 16 (29.6) & 36 (33.3) & 52 (31.2) \\
Mostly disagree & 1 (1.9) & 7 (6.5) & 8 (4.9) \\
Totally disagree & 4 (7.4) & 4 (3.7) & 8 (4.9) \\
Don’t know & 0 (0.0) & 3 (2.8) & 3 (1.9) \\
Total p = 0.33 & 54 (100.0) & 108 (100.0) & 162 (100.0) \\
\hline
\textbf{Do you think that they are more difficult to use than male condoms?} & & & \\
Totally agree & 18 (33.3) & 47 (43.5) & 60 (40.1) \\
Partially agree & 16 (29.6) & 27 (25.0) & 43 (26.5) \\
Mostly disagree & 5 (9.3) & 18 (16.7) & 23 (14.2) \\
Totally disagree & 9 (16.7) & 13 (12.0) & 22 (13.6) \\
Don’t know & 6 (11.1) & 3 (2.8) & 9 (5.6) \\
Total p = 0.10 & 54 (100.0) & 108 (100.0) & 162 (100.0) \\
\hline
\textbf{Do you think they make female orgasm more difficult to achieve?} & & & \\
Totally agree & 16 (29.6) & 11 (10.2) & 27 (16.7) \\
Partially agree & 16 (29.6) & 29 (26.9) & 45 (27.8) \\
Mostly disagree & 7 (13.0) & 16 (14.8) & 23 (14.2) \\
Totally disagree & 5 (9.3) & 36 (33.3) & 41 (25.3) \\
Don’t know & 10 (18.5) & 16 (14.8) & 26 (16.0) \\
Total p = 0.0020 & 54 (100.0) & 108 (100.0) & 162 (100.0) \\
\hline
\textbf{Do you think they make male orgasm more difficult to achieve?} & & & \\
Totally agree & 14 (25.9) & 19 (17.6) & 33 (20.4) \\
Partially agree & 9 (16.7) & 15 (13.9) & 24 (14.8) \\
Mostly disagree & 10 (18.5) & 17 (15.7) & 27 (16.7) \\
Totally disagree & 21 (38.9) & 50 (46.3) & 71 (43.8) \\
Don’t know & 0 (0.0) & 7 (6.5) & 7 (4.3) \\
Total p = 0.24 & 54 (100.0) & 108 (100.0) & 162 (100.0) \\
\hline
\textbf{Do you think that they give a better protection against STDs, HIV included?} & & & \\
Totally agree & 35 (64.8) & 61 (56.5) & 96 (59.3) \\
Partially agree & 15 (27.8) & 33 (30.6) & 48 (29.6) \\
Mostly disagree & 1 (1.9) & 6 (5.5) & 7 (4.3) \\
Totally disagree & 3 (5.5) & 5 (4.6) & 8 (4.9) \\
Don’t know & 0 (0.0) & 3 (2.8) & 3 (1.9) \\
Total (p = 0.52) & 54 (100.0) & 108 (100.0) & 162 (100.0) \\
\hline
\end{tabular}
\caption{Attitudes towards female condoms}
\end{table}
ning and development of female condom promotion programs which would target women in general and not only high risk sub-groups.

It was also interesting to analyse the reasons why people don't want to use it. Women reported more objective difficulties (“difficult insertion” and “trouble during sexual intercourse”), while men reported reasons having more to do with psychological issues. Therefore, it could be argued that while female difficulties could be more easily overcome by instruction and frequent use of the female condom, the male hurdles could be more complex to overcome and could ultimately negatively influence use of the device in couples. Promotional programs should therefore be designed to reach out to males in particular, as is clearly suggested by international guidelines [17]. Although the device is physically used by females, sexual intercourse involves decisions which must be taken by both members of the couple.

Almost all the women who were described the device showed a certain dose of curiosity, interest and willingness, and accepted to try it after having been shown the condom.

It appears extremely important not only to widely publicize the female condom, but also to help women overcome the initial barriers and motivate them to use the device in groups where it is possible for them to discuss the difficulties and successes they encounter.

Another motive that the amount of women who did return after the first phase of the study was so high could be due to the fact that during the time frame given they did not have sexual intercourse or could not convince their sexual partners to accept its use. In fact, as opposed to previous studies in which high risk female groups such as sex workers were chosen [14, 18], in this study women from a low risk group took part. This decision was taken since there was no initial training period involved and an incorrect use of the device would increase the risk of exposure to HIV and other STDs among participants who are already highly exposed.

However, the outcome of the study is in line with international studies which also confirm an early positive response, characterized by interest, curiosity and openness to innovation, followed by a resistance to use the device.

When designing and planning female condom promotional activities, the opinions of health workers involved in the study must not be ignored and should be taken into account. A study on a female condom promotion campaign carried out in rural communities in Kenya [19] showed that it was the health workers themselves who supported the women in the use of hormonal contraceptives, sustaining that the female condom was more suitable for women without a partner or prostitutes, and therefore they did not recommend its use [20].

In conclusion, although our findings are not encouraging, we believe that the female condom remains an option to be considered for the prevention of HIV infection among women even in our country. Promotional strategies and training activities should be designed to increase the willingness to use the device in settings in which valid alternatives to male condom use are necessary.

Acknowledgments
We would like to thank The Female Health Company, Chicago IL/London UK for having supplied our study with female condoms. We also thank Torsten B. Neiland and Kyung-Hee Choi of the Center for AIDS Prevention Studies, University of San Francisco, California, for having allowed us to use the abridged version of the questionnaire they validated.

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References

Table 3 Reasons for unwillingness to use female condoms (more than one answer)

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Male</th>
<th>%</th>
<th>Female</th>
<th>%</th>
<th>Total</th>
<th>%</th>
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<tbody>
<tr>
<td>Difficult insertion</td>
<td>2</td>
<td>13.3</td>
<td>13</td>
<td>35.2</td>
<td>15</td>
<td>28.8</td>
</tr>
<tr>
<td>Uneasiness during intercourse</td>
<td>1</td>
<td>6.7</td>
<td>11</td>
<td>29.7</td>
<td>12</td>
<td>23.1</td>
</tr>
<tr>
<td>Preference for male condom</td>
<td>2</td>
<td>13.3</td>
<td>5</td>
<td>13.5</td>
<td>7</td>
<td>13.5</td>
</tr>
<tr>
<td>Psychological barriers</td>
<td>9</td>
<td>60.0</td>
<td>4</td>
<td>10.8</td>
<td>13</td>
<td>25.0</td>
</tr>
<tr>
<td>Lack of trust as far as protection is concerned</td>
<td>1</td>
<td>6.7</td>
<td>3</td>
<td>8.1</td>
<td>4</td>
<td>7.7</td>
</tr>
<tr>
<td>Preference for unprotected sex with HIV-seronegative partners</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>2.7</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100.0</td>
<td>37</td>
<td>100.0</td>
<td>52</td>
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p = 0.01.


