Knowledge and attitudes about and practices of condom use for reducing HIV infection among Goma University students in the Democratic Republic of Congo

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Introduction

Sexually transmitted infections (STIs), human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS), continue to be a major health problem worldwide, particularly in young adults and in Africa. There are an increasing number of HIV-infected patients in the Democratic Republic of Congo (DRC). This implies that the use of preventative measures, such as condoms, is low.

Young adults have the highest risk of acquiring HIV infection. It has been revealed that in South Africa, more than 15% of women and almost 5% of men aged 15–24 years are infected with HIV. Prevalence studies of HIV/AIDS infection in the eastern Congo show that there is a prevalence of 5.4 % in adults.

Antiretroviral treatment is expensive in the DRC and patients have limited access to it. Emphasis is placed on the prevention of HIV/AIDS. Condoms are the most effective and affordable means through which to prevent HIV/AIDS. Condom use has been widely promoted in the DRC. However, there is resistance to it because of religious and cultural beliefs, education levels, myths and personal perceptions.

Forty-eight per cent of adults in the DRC knew that condoms can prevent HIV/AIDS. Sixty-three per cent knew that condoms were available in private pharmacies, while 9% said that they could be obtained from health centres. It was also found that in the previous year, 11% of women had a sexual partner other than their regular partner and only 13% had used condoms.

Large-scale information campaigns and condom distribution programmes are successful in South Africans aged 20-34 years old. Increased knowledge and more favourable attitudes towards the use of condoms was reported to decrease the prevalence of HIV/AIDS in India and Uganda. A low level of knowledge regarding the transmission and prevention of AIDS in adolescents is a predictor of non-use of condoms and a belief that condoms decrease pleasure.
Consistent condom use is negatively associated with being married or in a cohabiting relationship in Angola. Men who believed that condoms were safe and those who had multiple partners were more likely to be consistent users.14,16

Urban residence, attending school and not equating condom use with lack of trust were important predictors of condom use in regular and casual relationships, whereas access to condoms was the most important factor in spousal relationships.18 Age, sex education at school, having attended school and exposure to the radio were also significant predictors of knowledge on correct condom use. AIDS knowledge was associated with condom use.12 In Tanzania, adolescents were unlikely to use condoms despite their awareness of the increased risk of acquiring HIV infection.17

Religion has an influence on sexual activities. Spiritual leaders educate and counsel people on their sexual practices.18 In Malawi, understanding the religious background to sexual and reproductive health issues led to better informed discussions with religious leaders and communities, and thus a better grasp of the pertinent ethical issues regarding condom use.

The Catholic Church is opposed to condom use and believes that all sexual acts should only be carried out to unite a couple and to have children.19,20 According to Protestants, contraceptives do not stop life. The Church of England believes that contraception is not a sin. The Evangelical Lutheran Church in America allows married couples who do not intend to have children to use contraceptives.14 Many Islamic religious groups have accepted the use of condoms to prevent the transmission of HIV/AIDS.11

Parent-teenager discussions about sexuality and sexual risk are associated with an increased likelihood of teenagers using condoms, but only if parents are open, skilled and feel comfortable having such discussions.21

There are myths that uncircumcised men cannot use condoms, that religious people do not need to use condoms and that only homosexuals acquire AIDS.13,22 Following sexual education, young women were more receptive to changing their attitudes and practices. In spite of the acquisition of adequate knowledge, risky practices continued.23

In the Cameroon, many young men change sexual partners often.24 Condom use is low in regular relationships, even though many young people have multiple regular partners.24 Accessibility and knowledge about condoms have not translated into condom use in Cameroon and South Africa.9,24 However, at a Nigerian University, 55% of the students were sexually active. Seventy per cent of the men used condoms during sex.25

In Rwanda, of the students who had sex, 71% of the women reported condom use during their last sexual act with a regular partner. These students used condoms more often with regular partners than they did with casual ones.19

Condom promotion campaigns in sub-Saharan Africa have resulted in increased condom use in young single women and married couples.12,26 In Gabon, individual adherence to condom usage progressed from 64% to 95%.27 In Nicaragua, 85% of young adults believed that consistent condom use could prevent HIV infection, but only 21% of them used condoms regularly.28

Factors that lead to condom use are a belief in the effectiveness of condoms, peer approval of condom use, feeling confident about being able to use a condom correctly, the ability to broach the subject with partners and avoidance of drugs or alcohol during sexual activity. The type of relationship (adolescents use condoms more often in casual, than in long-term, relationships), communication between partners, fear, the need to prevent pregnancy, and knowledge of someone who has died of AIDS, also influence condom use.29-37

Associated factors with low condom use include:

- Not using condoms during the first sexual encounter.
- A history of unwanted sex.
- A belief that condom use implies distrust of one's partner.
- Barriers that reflect physical, emotional or accessibility concerns.
- Difficulty in obtaining the condoms.
- A decrease in sexual pleasure.
- A prohibitive price.
- Having multiple partners.
- The use of tobacco, alcohol and illicit drugs during sex.
- Older teenagers.
- Consistent use of hormonal contraceptives (by the woman).
- Ambivalence about avoiding pregnancy.
- A lengthy sexual relationship.
- Significant trust in the main partner.
- A low level of education.
- Reluctance by the women to use condoms.
- A steady relationship.
- The perception that condoms are useful only during ovulation periods.
- The perception that condoms decrease sexual pleasure.
- A belief by the woman that having sex without a condom will endear her to her partner and prove that she trusts him.
- A belief by adolescents that not using condoms is a sign that the relationship is a “more serious” adult one.
- A decision that his or her partner “looks clean” and therefore condom use is unnecessary.
- Feeling insulted (the woman) that her boyfriend wishes to use a condom.36-41

Many students in Goma University are single and engage in casual sexual intercourse.7 The aim of this study was to determine the knowledge and attitudes about and practices of condom use to reduce HIV infection in Goma University students.
Method

Study design

This was a descriptive cross-sectional study, using self-administered questionnaires.

Setting of the study

Goma University is located in Goma which has a population of 700,000 people.

Study population and sampling

The study population was students at the University of Goma in 2008 and 2009. The inclusion criteria were students aged between 18 and 50 years old, who consented to participate.

The exclusion criterion was HIV-positive students because of assumed prior exposure to knowledge about HIV/AIDS. Stratified random sampling and simple random sampling within each stratum were carried out to reach the sample size.

Subjects were divided into groups (strata), and subjects within groups were randomly selected. The size of the sample was calculated using the approach described in Striker’s table (1998). The total population of Goma University is 988 students. The sample size is 14% of the population size, namely 138 students. The proportion of students according to field of study were medicine 40%, law 25%, economics 25% and agriculture 10%. Seventy per cent of the participants were men and 30% were female, while 10% of the total were married.

Random sampling was carried out from the administrative list to select the first participant, and subsequently every sixth student was chosen using lists of students according to sex, faculty, and marital status until 138 participants were recruited.

Data collection

A pilot study was conducted on 20 students who were not selected for the current study (eight from the medicine faculty, five from law, five from economics and two from agriculture). Respondents were given envelopes in which answered questionnaires were placed and sealed for privacy reasons. The questionnaire was carried out in French.

Data analysis

The data were captured on an Excel® spreadsheet before being coded and then saved in Statistical Package for Social Sciences® version 17 for analysis. Descriptive statistics was used to analyse the data.

Validity and reliability

External validity was ensured by taking a sample that reflected the university’s student population. Internal validity was assured by making sure that the questionnaire was comprehensible to all participants through a pilot study, followed by reformulation of the questionnaire. During data collection, researchers were present to clarify questions. Internal consistency was guaranteed by asking all the participants to complete the questionnaire on one occasion only.

Bias

Language bias was minimised by using a questionnaire that was conducted in French, the teaching language in the DRC. Acquiescence response set, and random measurement error and response style bias were reduced by making sure that questions for which the response was “yes” or “no” were followed-up by questions to validate them. Evaluation apprehension bias was lessened by assuring anonymity and privacy during completion of the questionnaire. Research tool bias was reduced by explaining the questionnaire thoroughly before completion thereof by the student. Sampling bias was diminished by choosing a representative sample to reflect the student population.

Ethical considerations

Ethical clearance for this study was obtained from the Medunsa Campus Research and Ethics Committee (MCREC No. 30/2009). There is no formal research and ethics committee in the DRC. This research was carried out as partial fulfilment of the Master of Medicine degree at the University of Limpopo (Medunsa Campus). Permission to conduct the study was obtained from the University of Goma. Informed consent was obtained from all students. Students’ participation was voluntary and anonymity was assured.

Study limitations

This is a sensitive topic and some students may have found it awkward to answer some of the questions. Only one University in DRC was studied.

Results

The participants’ ages varied between 18 and 33 years. One hundred and thirty-eight participants completed the questionnaire. Of this number, 101 were between 18 and 25 years old and 37 were between 26 and 33 years of age. Most of the participants were men: 111 (81%). One hundred and twenty-eight (93%) were single (not married).

Of the participants, 51 (37%) were from the Faculty of Medicine, 42 (31%) from the Faculty of Law, 26 (19%) from the Faculty of Economics, and 19 (14%) from the Faculty of Agriculture.

Thirty-one (23%) were first-year, 33 (24%) second-year, 30 (23%) third-year, 19 (14%) fourth-year and 15 (11%) fifth-year students.
Sixty-one participants were Protestants (44%), 57 (41%) Roman Catholics, 7 (5%) Muslims, and 13 (10%) from other denominations, such as revolving churches and the Kimbaguist Christian Church. The ethnic groups of participants included 37 Nande (26.8%), 30 Havu (21.7%), 16 Shi (11.5%), 13 Hutu (9.4%), 8 Hunde (5.7%), 6 Tutsi (4.3%), 5 Nyanga (3.6%) and 23 others (16.6). Thirty-four (25%) were from rural areas.

**Knowledge of condoms**

The majority of participants 137 (99%) knew what condoms were. Most participants 92 (67%) knew that condoms were made of latex. All students (100%) knew that condoms have an expiry date.

Fifty-five participants (40%) said the price for one condom was 50 Congolese francs, 54 (39%) said the price was 100 Congolese francs and 29 (21%) did not know the price.

One hundred and thirty-two (96%) participants knew that condoms were sold in pharmacies, 5 (4%) said that they were available in the shops, and 1 (1%) said that he did not know where to buy condoms.

**Use of condoms**

Most participants 72 (52%) knew that condoms can prevent HIV/AIDS, pregnancy and STIs (Table I).

<table>
<thead>
<tr>
<th>What are the uses of condoms?</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid HIV/AIDS, pregnancy and STIs</td>
<td>72</td>
<td>52</td>
</tr>
<tr>
<td>Avoid HIV/AIDS only</td>
<td>41</td>
<td>30</td>
</tr>
<tr>
<td>Avoid pregnancy only</td>
<td>19</td>
<td>14</td>
</tr>
<tr>
<td>Avoid STIs only</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>138</td>
<td>100</td>
</tr>
</tbody>
</table>

| AIDS: acquired immune deficiency syndrome, HIV: human immunodeficiency virus, STIs: sexually transmitted infections |

The disadvantages of using condoms

Table II lists perceptions about the disadvantages of using condoms.

<table>
<thead>
<tr>
<th>What are the disadvantages of using condoms?</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce pleasure</td>
<td>32</td>
<td>23</td>
</tr>
<tr>
<td>Loss of trust</td>
<td>32</td>
<td>23</td>
</tr>
<tr>
<td>The condom can tear</td>
<td>48</td>
<td>35</td>
</tr>
<tr>
<td>Loss of pleasure</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Do not know of any disadvantages</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>138</td>
<td>100</td>
</tr>
</tbody>
</table>

Thirty-two (23%) of the participants felt that condoms reduced pleasure and implied a lack of trust. Forty-eight (35%) stated that condoms can tear, 11 (8%) said that with condom use there is a loss of pleasure, and 15 (11%) did not know of any associated disadvantages with condom use.

The main sources of information on condoms were television (41%), hospital and health centres (29%), school (22%), parents (4%), and churches (3%). One hundred and five participants (76%) said that condoms can prevent HIV infection.

**Attitudes towards condoms**

**Acceptability of condoms as a contraceptive device**

Thirty-three participants (24%) had a negative attitude towards using condoms for contraception. Of the 33, 11 (33%) said this was because condoms can tear inside the vagina and 8 (24%) said that they can be retained within the vagina. Fourteen (42%) did not give any reason why they would not use condoms.

**Readiness to use a condom**

Ninety-four participants (68%) stated they would use a condom. Of the 44 who would not use one, 28 (64%) said that condoms reduce sexual pleasure and that they were uncomfortable. Six (14%) stated that the price of condoms restricted their use and 10 (22%) did not explain why they would not use a condom.

Twenty-seven (20%) said that going through the act of purchasing condoms was a barrier. Of these 27, 6 (22%) said that they were too expensive and 9 (34%) stated that they were not always available at the places where they were sold.

Sixty-six students (48%) would not use condoms regularly even if they were free. Seventy-seven participants (56%) were uncomfortable with the places where condoms were sold. Of these 77, 52 stated that there was no privacy at these sites.

Ninety-one participants (66%) said that their parents did not approve of condom use. Of these 91, (74, 81%) stated that this was because condom use was “against their culture” and because they did not speak to their parents about condom use. Twelve (13%) claimed that it was because it was against their religious beliefs. Five (6%) did not provide a reason.

**Religious views on condom use**

One hundred and ten (80%) said that their religion did not approve of condom use. Of these 91, (74, 81%) stated that this was because condom use was “against their culture” and because they did not speak to their parents about condom use. Twelve (13%) claimed that it was because it was against their religious beliefs. Five (6%) did not provide a reason.

**Should the university supply condoms to students?**

One hundred and two participants (74%) felt that the university...
should supply students with condoms. Of the 102, 58 (57%) said this because condoms can prevent HIV, 34 (33%) because they can stop pregnancies and 10 (10%) because they can block the acquisition of STIs. Of the 36 (25%) participants who felt the university should not provide condoms, 29 (80%) said that they could promote prostitution among students. Seven (19%) did not give any reason.

Seventy-two participants (52%) said that their tribes approved of condom use, while 66 (48%) said that their tribes did not. Of the 66 who said that their tribes did not approve of condom use, 34 said that condom use was against God’s law, 21 said that it was “against their culture”, and 11 did not indicate a reason.

Condom use practices

In this sample, 91 (66%) were sexually active, having sex three or more times per week. Eighty-three (60%) said that usually men initiated condom use, while 55 (40%) said that women did so. Seventy-one (51%) reported that they had purchased a condom on at least one occasion, and 67 (49%) said that they had never purchased a condom.

Condom use during the last sexual intercourse

Ninety-eight (71%) reported that they had had unprotected sex, while 40 (29%) uses a condom the last time they had sexual intercourse. Of the 98, 59 (60%) claimed they would not use a condom even if it were available at the time, while 39 (40%) reported that they would use one if it were on hand.

Condom usage

Eighty-two of the participants (59%) had used a condom previously. Thirty-three (24%) used condoms regularly, while 49 (36%) did not. Of those who said that they did not use condoms regularly, 32 stated that condoms were sometimes unavailable, 58 that they reduced pleasure and15 that his or her partner might think that he or she was a prostitute. Eighty-three (60%) said that condoms prevented HIV, STIs and unwanted pregnancies, and that it was important to use a condom every time that they had sexual intercourse. Similar results have been reported in South Africa, Nigeria and Rwanda.47-50

Table III: Personal use of condoms in the previous month

<table>
<thead>
<tr>
<th>How often have you used condoms during sexual intercourse in the past month?</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once (but had sex more than once)</td>
<td>36</td>
<td>26</td>
</tr>
<tr>
<td>Twice (had sex more than twice)</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>More than once (had sex more than once)</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>I did not use them in the past month</td>
<td>87</td>
<td>63</td>
</tr>
<tr>
<td>Total</td>
<td>138</td>
<td>100</td>
</tr>
</tbody>
</table>

Discussion

Students were chosen because they are a high-risk group for HIV/AIDS. Students engage in transactional, indiscriminate and/or unprotected sex, leading to unwanted pregnancy, STIs and HIV/AIDS.41,42 Condom use is reported to be low among university students.10,25,44

Socio-demographic characteristics

The respondents’ ages were between 18 and 33 years. The ages were the same in studies that were carried out among Madagascar university students.45 In this study, there were predominantly men (111, 80%). Early marriages for women and gender inequality in the DRC are reasons why most Congolese families prioritise the education of men.

Most participants (134, 75%) were from urban areas. This reflects the difficulties that face the rural population when trying to obtain education.

Knowledge about condoms

A significant relationship between education level and knowledge about condom use has been well established. The more educated people are, the more likely they are to be informed about condoms.8 In the DRC, most of the information on condoms is available in French. This makes it difficult for uneducated people to access this information.

In this study, 137 (99%) of respondents knew what condoms were. Ninety-two (67%) knew that generally, condoms are made of latex. Sixty-five per cent of participants from other studies also understood what condoms were and what they comprised.8,12,46,47

Goma University students’ knowledge about condoms could be attributed to the intensive efforts of the DRC government and nongovernmental organisations (NGOs) to educate students about HIV and condom use. In this study, most participants (76%) knew that condoms prevented HIV, STIs and unwanted pregnancies, and that it was important to use a condom every time that they had sexual intercourse. Similar results have been reported in South Africa, Nigeria and Rwanda.47-50

Seventy-nine per cent of participants knew that the price of a condom ranged from 50-100 Congolese francs in the DRC. Eighty-one per cent said that they could afford this. This price
is lower than that reported elsewhere, where the price can be more than 300 Congolese francs for one condom.\textsuperscript{30} In Ukraine, the price of condoms has increased by 60%. This has led to concerns about a possible corresponding rise in the spread of HIV and other STIs.\textsuperscript{51} Although condoms were perceived to be affordable in this study, 20% of the participants said that the price was a barrier to their use.

Ninety-five per cent stated that condoms were sold in pharmacies and 3% said that they were sold in retail shops. Legislation in the DRC is that condoms should be sold in pharmacies only. This is a barrier to condom availability, especially at night.\textsuperscript{2}

The disadvantages of using condoms were reported by participants to include tearing, decreased sexual pleasure and decreased trust in their partner. Other studies have reported similar results.\textsuperscript{19,20,32,34,36,51}

Most information on condoms was obtained from television, while churches and parents provided the least information. Some studies have shown that in many countries, churches are a barrier to condom use.\textsuperscript{19,33-35,45,52} In many African countries, poor communication between parents and children is also a barrier.\textsuperscript{37,40,53}

**Attitudes about condom use**

Seventy-six per cent of participants said that a condom was an acceptable method of contraception and the prevention of HIV infection.\textsuperscript{12} Low levels of knowledge about the transmission and prevention of HIV/AIDS in adolescents was a predictor of non-use of condoms. Thirty-two per cent said that they did not use condoms because of their religious and cultural beliefs, and because condom use was uncomfortable during sex. Fifty-two per cent of participants stated that if condoms were provided freely, they would use them regularly, and 48% said that even if condoms were distributed freely, they would not use them regularly. These results are the same as those that were reported in Côte d’Ivoire, where it was found that accuracy of knowledge about AIDS did not significantly predict condom use.\textsuperscript{54} Access to and knowledge on condoms have not translated into condom use for many young people.\textsuperscript{8}

Fifty-six per cent of participants stated that the places where condoms were sold were not acceptable because of lack of confidentiality and privacy. It is important that condoms are sold in confidential locations.

Sixty-six per cent of participants stated that their parents did not want them to use condoms because of their cultural and religious beliefs. There is a need for sex education to be encouraged in families and for communication to be improved between parents and their adolescent children on sex-related matters. The same need has been identified by many other studies that have been carried out in Africa.\textsuperscript{55-59} Eighty per cent of participants said that their religion was opposed to condom use. These results are similar to those reported by Daniel where religious objections were a barrier to condom use in developed and developing countries.\textsuperscript{21}

Twenty-six per cent of participants did not agree that the university should provide condoms. They felt that this would result in students becoming more promiscuous. Sixty per cent said that generally the men initiated condom use. In African culture, the man is perceived to be the head of household and the initiator of sex.

**Condom use practices**

Two thirds of participants stated that they were sexually active. Those who were not so said that this was because of religious and cultural issues and because they had no partner. Having a partner had financial implications. Seventy-one per cent of participants stated that they had unprotected sex because of the unavailability of condoms, because condoms reduced sexual pleasure, and because they did not like them. This result is similar to that reported in Madagascar.\textsuperscript{60} Fewer than 15% of the youth used a condom during their last sexual intercourse encounter with their regular partner. Kegeles indicated that despite increasing levels of AIDS knowledge, adolescents do not use condoms consistently.\textsuperscript{51}

Of those who had unprotected sex, 60% said that if a condom was available at the time, they would use it. Condom availability is necessary, but does not automatically lead to widespread usage thereof. Pettifor found that for many adolescents, access to and knowledge of condoms did not translate into condom use.\textsuperscript{5} Fifty-one per cent of participants stated that they had previously bought a condom and 59% that they had used one previously. Only 24% of participants said that they regularly used a condom.

Of those who did not use condoms regularly, 28% said that they used other forms of contraception, such as a calendar, abstinence and an intrauterine device, while 72% said that they did not use any form of contraception.

Thirty-seven per cent of participants stated that they would not want to use condoms during future casual sexual encounters because of religious and cultural beliefs, partner issues and the disadvantages that condom use bring.

Forty-three stated that even if condoms were distributed freely, they would not use them regularly. These results are similar to those reported by Kegeles,\textsuperscript{51} who found that despite increasing levels of AIDS knowledge, adolescents did not use condoms consistently. In 18 sub-Saharan African countries, most young men were aware of condoms (73-98%), but usage thereof during their last sexual intercourse encounter was quite variable, ranging from 6% in Madagascar to 74% in Namibia.\textsuperscript{47}

Alarmingely, 63% said that in the last month, they had not used a condom during sexual intercourse. Sixty-nine per cent of participants said that they had received training on how to use
In this study, condom awareness was high and obtained from varying sources of information, although knowledge of the correct use of condoms was low. Most students accepted that condom use was an effective means of preventing HIV/AIDS, STIs and pregnancy. Condoms were affordable. However, many students said that paying for condoms was a barrier to regular use thereof. Many religions and cultures are opposed to the use of condoms. Barriers to condom use, as reported by the students, were that condoms reduced sexual pleasure and could tear. Consistent use of condoms was low among many students said that paying for condoms was a barrier to regular use thereof. Many religions and cultures are opposed to the use of condoms. Barriers to condom use, as reported by the students, were that condoms reduced sexual pleasure and could tear. Consistent use of condoms was low among many students said that paying for condoms was a barrier to regular use thereof. Many religions and cultures are opposed to the use of condoms. Barriers to condom use, as reported by the students, were that condoms reduced sexual pleasure and could tear. Consistent use of condoms was low among many students said that paying for condoms was a barrier to regular use thereof. Many religions and cultures are opposed to the use of condoms. Barriers to condom use, as reported by the students, were that condoms reduced sexual pleasure and could tear. Consistent use of condoms was low among

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