



Barrier and Facilitators of HIV Related Risky Sexual Behavior

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Abstract

Background: This study was conducted to identify the determinants of protective behavior in relation to HIV transmission. Since the risk of transmission is higher among those who have extramarital intercourse, the study sample constituted of such people.

Methods: We started this study in 2010 and finished it in 2011. Participants were divided into low-risk and high-risk groups. High-risk people included sex workers and those who presented at drop-in centers. Interviewees were 18 men and women in the low-risk group and 12 men and women in the high-risk group. Data were collected through in-depth interviews and were analyzed using the thematic framework method.

Results: In both groups, protective behavior was influenced by willingness to protect, intention or decision to protect, and personal, social, and environmental barriers and facilitators. In terms of willingness, behavior was influenced to preserve sexual pleasure by avoiding condoms. In terms of barriers and facilitators, trust in partner, misperceptions, condom inaccessibility, unplanned sex, fear of contracting the disease, partner's wish, ethical commitments were mentioned by both groups, stigma of condom possession by the low-risk group, and partner's force was mentioned by the high-risk group.

Conclusion: Educational programs need to focus on changing the concept that "condoms reduce sexual pleasure". In addition, interventional programs to strengthen factors such as self-efficacy, ethical commitments, faithfulness, and correct beliefs such as undue trust in partner, misconception of being safe, unplanned sex, and the stigma of possessing condoms can be very effective in changing high-risk sexual behavior.

Keywords: HIV, Sexual behavior, Barrier, Facilitator, Iran

Introduction

According to statistics, by October 2012, the number of cases of Acquired Immune Deficiency Syndrome (AIDS) and Human Immunodeficiency Virus (HIV) in Iran had reached 25041(1); 22.2% transmitted sexually and 60% through intravenous drug use (IDU) (2). Evidence suggests that the most common transmission route for AIDS

around the world is sexual contact, and in Iran, it is IDU (3,4). Some identified factors that speed the spread of the disease in Iran include limited sex education, a high prevalence of sexually transmitted infections (STI) and a high proportion of young people in the population (5-7).

Studies in Asian countries indicate increased HIV transmission through sexual contact in addition to IDU. According to a study in Central Asia, the increased prevalence of HIV in the countries in this region was due to the increased number of female sex workers and their clients (8). Similar studies in China, India, Pakistan, and Bangladesh have focused on the transmission of AIDS and factors that set the scene or increase the transmission. Even in Pakistan, which is culturally very similar to Iran, the most common transmission route is unsafe heterosexual contact (9-11). In Iran, research on knowledge, perception and sexual/reproductive behavior of adolescents has mostly focused on issues such as puberty in girls, and there is limited information about more sensitive issues such as sexual health (12). Insufficient research concerning sexual health and related issues has limited the availability of evidence that is required for proper planning and policy-making. The limited available information mostly concerns the prevalence of sexual contact and high-risk behavior. In a study conducted in 2002 in Tehran, 72.2% of the 15-18 year old participants were familiar with condoms and 27.7% had experienced sexual contact; 54.8% were not aware that condoms should be used only once, and only 42.4% understood their protective effect against sexually transmitted disease. In addition, 12.2% of the adolescents with previous sexual contact engaged in 2 concomitant high-risk behaviors; they did not use protective measures, and they had more than one sexual partner (12). In another study conducted in Iran on those presenting at drop-in centers (DIC) throughout the nation, 37.4% had unprotected sex (13). Nonetheless, studies on reasons for high-risk behavior and measures to correct them are rare (14).

We conducted this study to explore the causes of high-risk behavior. Our main objective was to identify barriers and facilitators of high-risk sexual behavior regarding the transmission of HIV, from the point of view of people who have experienced premarital or extramarital intercourse.

Methods

The present was a qualitative one. We started the study in 2010 and finished it in 2011. Inclusion

criteria were 15 to 35 years of age, being single having premarital sex. Participants were studied in two main groups of high and low risk. The high-risk group included people known as the HIV-bridge-population in STI; i.e. people who disseminate the infection in the population due to their contact with multiple people (15). From this group, those who presented at DICs and female sex workers were considered for enrollment. Female sex workers were women who had sexual contact in return for money or gifts. The low-risk group consisted of people who had no contact with IDUs or sex workers, but had extramarital sex. Four strata were considered to account for gender and high-risk behavior: high-risk behavior women, low-risk behavior women, high-risk behavior men, and low-risk behavior men. Snowball sampling was done in the city of Tehran. We approached the high-risk group at DICs (centers that provide free services for drug abusers in an attempt to prevent their social impact) and participants' residences, and the low risk group at clinics, parks, and participants' residences. We interviewed 18 people in the low-risk group and 12 people in the high-risk group. These 30 interviews were conducted by interviewers of the same sex, in about 45 to 60 minutes. Data was collected through in-depth interviews.

The interview guide was prepared by consulting similar literature and expert opinion, and the research team finalized the first version. Appropriate amendments were made during data collection and simultaneous data analysis. For the interview, first we explained the objectives of the study and why the interviewee was selected. Those who consented were enrolled in the study and were free to leave at any time they wished. We asked participants' permission to make recordings of the sessions. All data was filed confidentially and presented anonymously. Sampling was ceased when data was saturated and no new code was assigned. Data was analyzed using a thematic framework. First, codes were extracted and described, and then determinants of protective behavior were found by identifying associations among codes (16). The target frame in this study was the theory

of planned behavior (TPB) which is a familiar model in the assessment of sexual behavior (17).

Results

Figures 1 and 2 summarize the main findings of this study. Differences were observed between high and low risk groups, stigma in the low risk group and delivering the ultimate sexual performance to continue the relationship and payments

in the high-risk group. Therefore, 2 separate figures are presented, and results are presented separately for each group.

It must be noted that interviewees' responses are summarized along with individual's direct quotes (in italic font). Where inter-gender differences existed, results are given separately otherwise they are presented together.

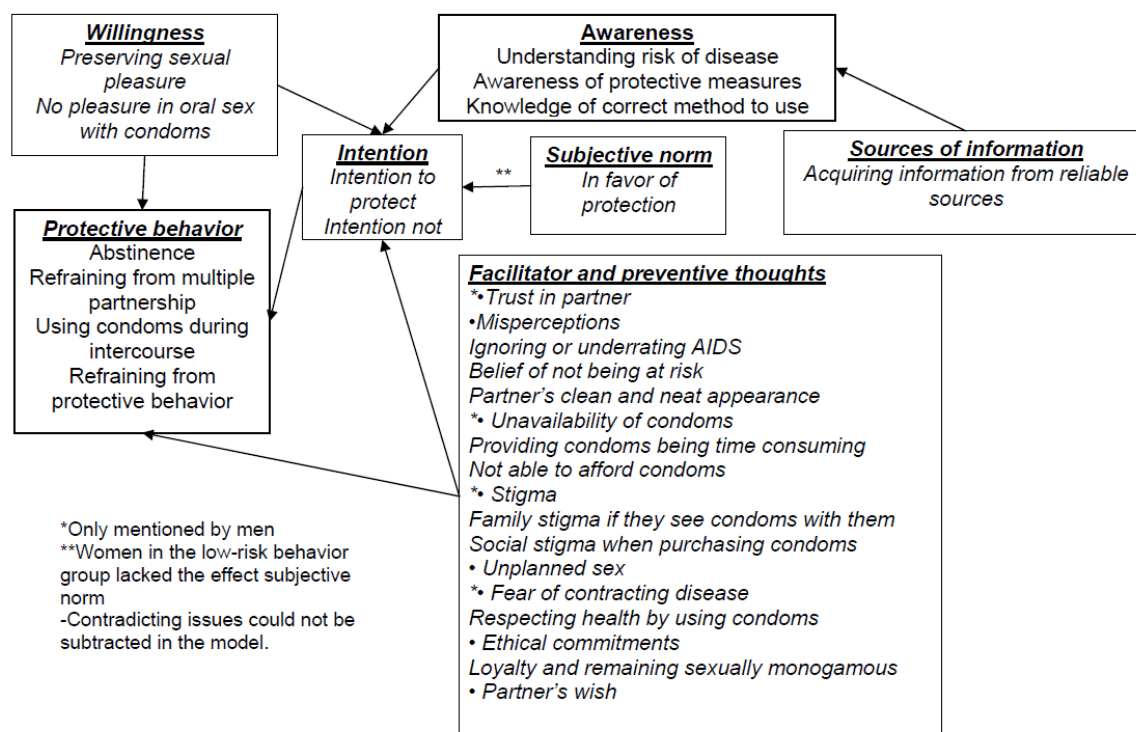


Fig 1: Factors associated with high-risk behavior in the high-risk group

A) High-risk group

A1) Awareness of and understanding risks

All participants were aware of the sexual transmission of AIDS and its preventive methods. In some cases, although there were misconceptions, magnification of wrong information increased their fear of contracting disease and led to more caution. When they were asked to grade the danger of the disease on a scale of zero to 10 (zero for no danger and 10 for maximum danger), all participants responded with grades 8 and over. One of them, although asked three times, insisted on a grade of 20.

Awareness about the vaginal transmission of AIDS was satisfactory. Some knew about the anal transmission of the disease, but as for oral transmission, they were either not sure, or they believed the disease could not be transferred orally. Increased risk of transmission with multiple partners was known to everyone. The most dangerous sexual route, according to the interviewees, was vaginal intercourse. Only one participant thought anal intercourse is the most dangerous transmission route.

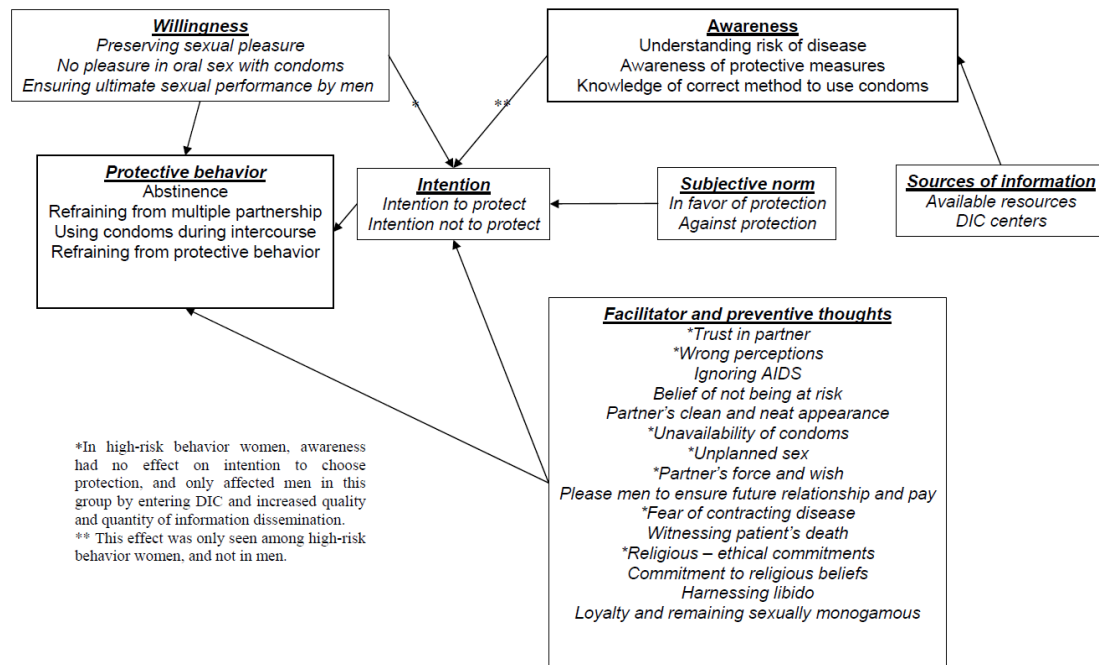


Fig 2: Factors associated with high-risk behavior in the low-risk group

They believed condoms prevented the sexual transmission of disease, had to be worn throughout intercourse, and there was risk of transmission if torn. They realized condoms were disposable, and did not offer 100% protection against disease.

Participants described the danger of AIDS as incurable and lethal.

"AIDS is so dangerous that if I get it, I will kill myself... AIDS turns a person into a country with no army; the military power is low and any disease can bring one down."

They had acquired information through media, magazines, educational posters and pamphlets, books, physicians and health care workers, friends, acquaintances, and HIV positive individuals. Some cases refrained from acquiring more knowledge because they were afraid to learn about their mistakes or gain more knowledge about AIDS.

"I bought books, but didn't read them because I was afraid I couldn't have sex if I knew about the disease..."

From different sources of information, they trusted physicians at the DICs, and informational posters by the Ministry of Health. To improve awareness, they suggested using the TV (uncensored), consultants of the same sex with similar experiences at Narcotics Anonymous centers, free resources, the AIDS Society, health care teachers in schools, simple and understandable posters in public places such as parks and movie theatres.

A2) Subjective Norm

By definition, subjective norm includes a person's perceptions on whether they are expected by important others to behave in a certain way or not (17).

The subjective norm in this group was influenced by family and friends. In most cases, this led to avoidance of protection, and in some cases, lack of an influential person led to lack of subjective norm effect.

One female drug user, settled at the DIC for women, stated that her family totally disap-

proved of high-risk behavior and protective behavior altogether. During the interview, she said: "... my family is very healthy and closed; they think intercourse in itself is a disaster, save finding a condom in my bag..."

In contrast, one of the female sex workers stated that high-risk behavior was a norm in her family; all family members engaged in the same behavior and her brother had passed away of AIDS. Protective norms did not exist in this family, and using protective measures was just by clients' request to maintain income. It made no difference to them to protect or not during intercourse. "... my mother and sister did the same thing... first time I did it, I went to my mom and told her everything. Instead of advising me, she said: find out how much money you can get out of him. Try to do as he pleases so you can get money out of him again..." One of the male IDUs at the DIC believed attending different societies and their norms can significantly affect our decision about a certain behavior and said: "as long as you are with other addicts, you never think about protection against AIDS and its risks. If you bring it up, they gibe you and say 'Come one!'. The risk of AIDS is nothing when you're struggling with death every time you inject. Is there anything worse than death?"

A3) Intention for protective behavior

By definition, intent is the thought behind a behavior, and its immediate determinant (17). In this study, people who had no thought of protective behavior, and those who intended to protect at all times, and insisted so much that if means for protection was not available, they would refrain from sexual contact.

A4) Barriers to protective behavior

In interviewees' opinion, these barriers included:

- Trust. Partners were trusted because they had been in a relationship for a long time and knew them well, they were known to be free of disease, and they showed ethical commitment. "I tested her a couple of times, I sent my friends, but he wouldn't go with anyone... I knew her since childhood and we were relatives. That's why I trusted her."

- Misconceptions. The barriers included the idea that AIDS was not transferred through oral or

anal sex, AIDS was ignored or underrated, believing they were not at risk, women feeling secure because they had one partner only, and the neat appearance of the partner. "I was with someone very dangerous and was with 60-70 others. Even with a person like this, I never thought of AIDS. I used to say AIDS is for others, not me."

- Condom inaccessibility. Difficulty in providing condoms due to long distance from drug stores, and limited number of pharmacies in each neighborhood were mentioned as problems. Suggested solutions were making them available at supermarkets and cosmetics/health product shops.

- Unplanned intercourse. Some reasons for unprotected intercourse were having no experience on their first intercourse, as well as unplanned intercourse.

- Partners' force or request. For some women, intercourse without condoms was because they wanted to please the client and ensure next payments, the decision was not up to them, or they were forced to do so, especially in oral sex. In contrast, in an interview with the men's group, the partner's wish to have unprotected sex prior to the man's wish, had led to a protective behavior for fear of losing the partner.

"I dealt with men who were very dirty; their bodies reeked and they hadn't cleaned up. I wanted the intercourse to be with condoms, but they wouldn't accept. I had to do it ..."

A5) Facilitators of protective behavior

This group believed the facilitators included:

- Fear of disease. Awareness of risks, witnessing the death of AIDS patients, and respecting health led to fear of contracting AIDS and protective behavior.

- Lack of trust. Partner's possible affair with others (having a multipartner sexual partner), awareness of partner's affair with partners with high risk behavior, unpleasant and dirty appearance of the partner, and insufficient familiarity with the partner were reasons for lack of trust in the partner.

- Partner's force or wish. Women believed they had no say in choosing a protective behavior, and the decision is up to the man. But according

to men, women's insistence, fear of losing the relationship, and the partner's wish to use protection are reasons for using condoms, especially among men of higher social status and positions. *"Men of higher social classes (note: we refrain from mentioning names to respect our ethical obligation) insisted on using condoms, and paid no attention to my wishes. Since they paid good money, I gave in to their wishes."*

-Religious and ethical commitment. Preventing the transmission of hepatitis and AIDS to the sexual partner, regretting previous sexual affairs, remorse, remaining loyal and single partner, commitment to religious beliefs, fear of committing some sins (relationship with same sex or married women), and harnessing the libido were issues mentioned on this topic. One IDU believed: *"I'm sure my addiction is a curse of the family of the married woman I had an affair with. I'm sure you'll have to pay if you do something wrong in your life... I'm never having a relationship with anyone any more. Because you're ashamed before God, and feel remorse."*

-Raised awareness. Awareness about risks of disease, qualitative and quantitative improvement in information dissemination among male IDUs after entering DIC, and awareness of the sexual route of AIDS transfer had motivated them to use condoms.

- Access to condoms. Easy availability of condoms, offering them at DIC, availability of round-the-clock pharmacies, overlooking the social stigma when purchasing condoms at pharmacies, and not feeling ashamed of asking for them are the most important facilitators of protective behavior in the high-risk group.

-Preventing pregnancy. In some cases, the use of condoms was to prevent pregnancy, and there was no intention to protect against disease; this is considered an indirect protective factor against disease.

A6) Willingness

Willingness to engage in high-risk behavior is in circumstances that lead to that behavior, and is usually associated with refraining from thinking about negative consequences of that behavior (18). In our study, the intention to protect existed in

some cases, and circumstances were favorable, but protection did not occur. In fact, in some cases, willingness influences the intention and leads to avoidance of protection. The most important cause was preserving sexual pleasure of having intercourse without condoms. Participants believed condoms spoiled sexual pleasure. The smell and taste of condoms in having oral sex is irritating and unbearable. Condoms cannot be used because opportunities are limited, the partner prefers not to use condoms and reach utmost sexual pleasure. On the other hand, creating excitement on their first experience for single young men, sense of dominance over the woman and increasing attention to her, and ensuring the ultimate sexual performance led to turning down condoms by men. Another reason for not using condoms was the pleasure of hiding an extramarital affair for married women.

A7) Protective behavior

Protective behavior included abstinence, refraining from multiple partnership, and using condoms during intercourse. In this group, protective behavior was not practiced with anal and oral sex, and it was mostly about vaginal intercourse. Overall, protective behavior in the high-risk group was influenced directly by willingness, intention or intent to protect, and personal, environmental, and social facilitators and barriers.

B) Low-risk group

B1) Awareness of and understanding risks

Participants in this group had knowledge of the sexual transmission of AIDS and preventive methods, as well as other routes of transfer and prevention. Awareness about vaginal transmission was complete; there was doubt about anal transmission, while oral transmission was almost unknown. There was awareness of increased risk in multipartner sexual relationships. The most dangerous route of transmission was considered to be vaginal intercourse, due to its high frequency, and some considered it to be anal sex. The disease was considered very acute because it had no symptoms, the affected person cannot be identified, and it is lethal. Correct condom application was known to

all participants; they were familiar with different types of condoms and how to use it in sex. All these issues influenced the intention for protective behavior. Their information resources included media, school and general books, university lecturers, friends and acquaintances, the internet, prostitutes, and porn videos. To increase awareness, they suggested using books, media, internet, documentaries on patients, interviews with patients, holding scientific meetings, education by physicians, psychiatrists and nurses, and establishing information centers throughout the city. They believed there were barriers in disseminating information such as weak dissemination of information through the media because sexual relationships are considered anti-value and no education inside the family because sex is considered shameful.

B2) Subjective norm

This group was more influenced by friends. In women, there was no mention of being influenced by important others in life, and subjective norm were out of the picture. In men, the mentioned issues included being with friends whose norm was to engage in protective behavior, and this increased their motivation for such behavior and thus, they always had condoms with them due to their belief in the necessity of protection. In some cases, neither the individual nor their friends and acquaintances were familiar with condoms; therefore the necessity of protection had no meaning as a norm. *"I've never seen a condom myself. Never seen my friends with one either. Because my friends are clean, and those who do such things don't think of protection"*

B3) Intention for protective behavior

Some participants said that they would refrain from sexual intercourse if condoms were not available. On the contrary, some stated they would not think of condoms if there was an opportunity for sexual intercourse, and they had no intention to protect.

B4) Barriers to protective behavior

The posed barriers to protective behavior included:

-Trust. Reasons included trusting the partner's belief in ethics, knowledge of their being disease-free, being certain of the partner being monogamous,

and trusting the partner because of being in a long-term relationship.

-Low awareness. Men in this group used no protection because they were not aware of the risks of AIDS, had no knowledge of protective measures, and did not know that AIDS can be transmitted through anal and oral sex.

-Misperceptions. The participants mentioned wrong perceptions such as being with one partner, underrated or ignored AIDS, not believing they were at risk, relying on the neat and happy appearance of people and showing no signs of depression in the partner. *"I'd never thought of the dangers of AIDS, because its existence and risks are not repeated... when having sex, my mind doesn't go to the risk of AIDS at all."*

-Stigma. Reasons for not using condoms included family stigma if they had a condom with them, social stigma when purchasing condoms, and being ashamed of asking for condoms when female staff or customers were present at the pharmacy. *"I can't keep condoms in my pocket all the time. If my family sees, they will get very horrible ideas about me, and that's the end for me. If my family finds out I have such a relationship, only God can save me."*

-Condom accessibility. According to men, the problems of condom availability included no access to a pharmacy, unavailability of condoms, not carrying condoms at more accessible centers such as supermarkets and beauty product stores, proving condoms being time consuming and losing the opportunity (place or partner) is likely, and inability to afford condoms.

-Partner's wish. Women mentioned condoms were not suggested by men, and men mentioned partner's wish for protection, and in some cases, wish not to protect, and partner's belief that condoms can be allergenic.

-Unplanned intercourse. They mentioned having sex without prior preparation and frequent instances of unplanned sex. *"I don't do it all the time. Every now and then, there might be a chance, and so I can't always keep a condom in my pocket."*

B5) Facilitators of protective behavior

The posed facilitators included:

-Partner's wish. Reasons for not using condoms were partner's lack of desire to protect, partner's

encouragement to use condoms, and the woman being the decision maker because men were afraid of losing the relationship.

-Accepting social stigma. Signs that indicated that the social stigma of providing condoms had been accepted included carrying condoms at all times, overlooking the attitude and perception of people and staff in pharmacies, and not being shy when purchasing them.

-Fear of contracting disease. Factors that motivated protective behavior included fear of losing jobs and being unable of making a living due to disease and weakness, fear of being alone and outcast by family due to disease, and fear of contracting other disease such as hepatitis.

-Ethical commitments. As for facilitators in this regard, men mentioned harnessing libido, and women mentioned doubting men's loyalty. "... *When he's not faithful to his wife, he's not faithful to me either, and he has affairs with others. You have got to use protection with such people*".

-Condom accessibility. Interviewees believed having round the clock pharmacies, and easy provision of condoms from pharmacies facilitated access to condoms.

-Lack of trust. Included probability of the partner having multiple affairs, distasteful appearance, and avoiding prostitutes.

-Planning for sex. The use of condoms was more frequent in cases of planned sex because they were better prepared. "*I live with my family and my partner is away from me with his family, that's why we always plan to meet, and I always have condoms with me so he won't have any excuse for not having condoms and not using them*".

B6) Willingness

In this group, there was only willingness to avoid condoms during intercourse. Participants believed using condoms reduced sexual pleasure, and there was no pleasure in oral sex with condoms. Thus, condoms should not be used to preserve sexual pleasure. One male participant said: "*Even if says she has AIDS, I'll say never mind, we'll do it now, and leave it to God almighty*." One female participant said: "*Although I knew it might be transferred orally, but you don't realize it at that moment and don't think about these things*".

B7) Protective behavior

Engaging in protective behavior included abstinence, refraining from multi-partnership, and using condoms. Avoiding protective behavior was especially reported in cases of anal and oral sex. In terms of multi-partnership, not only did the person refrain from it, but the partner refused to have intercourse if they thought multi-partnership was likely. In some cases, they mentioned insistence on constant use of condoms, in any type of sex. In terms of condom use, they mentioned ensuring that the condom was intact and interrupting intercourse if it broke. In some cases, the behavior went to extremes; for example, using two-ply of condoms for intercourse. Overall, similar to the high-risk group, protection was influenced by willingness to protect, intention to protect, and personal, social, and environmental facilitators. It seems that in both studied groups, the biggest barriers to using condoms were desire to preserve sexual pleasure by avoiding the use of condoms, while other factors played less important, but still effective roles.

Discussion

In this study, we intended to reveal reasons for lack of protection despite awareness and understanding associated risks. Another objective was to provide documentary evidence for planning in the field of sexual health. According to results of the framework analysis, the behavior was influenced by willingness to protect, intention to protect, and personal, social, and environmental barriers and facilitators in both high-risk and low-risk groups. Intention per se was affected by awareness and understanding risks of disease, subjective norms, and barriers and facilitators to protection.

In the United States, studies on adolescents have shown that awareness about HIV and condoms reduces the chance of engaging in high-risk behavior, while fear that their parents might find out about their use of condoms and reduced sexual pleasure due to use of condoms increases the probability of engaging in high-risk behavior (19-22). This evidence is noteworthy when compared

to our country, which is significantly different from the United States in terms of culture and beliefs.

In the design of this investigation, all participants with high-risk behavior were studied as one group. It was plausible to group these people (who were chosen from among sex workers and some DICs) in more categories according to their selection source. On the other hand, there were various sex worker classes (23), and only one class was entered in the study.

Analysis of findings demonstrated that "intention" was the main determinant of protective behavior in both high-risk and low-risk groups. This finding was not far from expectation because according to definition, intention is the thought of engaging in a certain behavior, and its immediate determinant (17). Other studies in this field concur with our findings (24, 25). An interesting point in our study was that, contrary to our expectations, intention was not always the immediate determinant; in some cases intention existed, awareness of risks of disease and avoiding condoms was mentioned, and according to participants, there was no barrier to protection, yet, protection did not occur. From the TPB point of view, only "intention" influences behavior, and most high-risk behavior are intentional (17). However, according to participants of the present study, willingness to preserve sexual pleasure by avoiding the use of condoms was the most influential factor for avoiding protection, and this finding matches the prototype/willingness model. In such models, behavior is influenced by a factor named "willingness", which is independent from "intention" and "planning" (26).

In concordance with other studies, determinants of intention originated from the issue of self efficacy and control beliefs, valuing health and prevention by using condoms, remaining monogamous, or avoiding intercourse (24, 27-28). Underrating or ignoring AIDS, however, either dismissed the decision to protect, or prevented the thought entirely.

Another influencing factor for intention was subjective norm, which although fainter than control beliefs, played an effective role. The intermediate

to strong influence of subjective norms on intention has been documented in a systematic review (29). But in the present study; there was no subjective norm for women in the low-risk group, while it led to intention to protect in men. This effect was transmitted predominantly through friends, and to some extent the partner. According to studies in other countries, friends, the partner, and family members play a role in this regard (27), but in the culture of the Iranian society, the parent-child relationship does not cater for discussions around sexual intercourse and protection. Therefore, the participants in this study were less influenced by parents, and were mostly influenced by friends' and the partner's norms. In the high-risk group, protection was not considered a norm. Women were influenced by their families. Men were influenced by friends, and they had no norm on protection.

In this study, the third influencing factor on intention was understanding risks of disease, awareness of protective measures, and information on how to use condoms correctly. This aspect is not included in the TBP model. However, it has been found a determinant of intention in this study and some other investigations. Some studies report its effect negligible (29), and some declare it desirable (28, 30-31). Despite this relationship, the influence of awareness is still not clear, and findings indicate lack of protection in societies with high levels of awareness (32).

In addition to awareness and intention, control beliefs influenced behavior as facilitators and barriers to protective behavior. As discussed, this influence was observed on intention as well as behavior. Additionally, a similar observation was reported in the study by Villarruel AM (27).

Conclusion

In the National HIV/AIDS Prevention and Control Program (2007-2009), infection control strategies include education and information dissemination, impact reduction, and strengthening operational research (33). In light of the results of the present study, it seems that education and infor-

mation dissemination, as well as impact reduction, have had an effective role in the control of infection. Education and information dissemination is also the priority strategy in the Islamic Republic of Iran National HIV/AIDS Strategic Control Program (2010-2014) (34). In both programs, despite having three levels of prevention, the psychological aspect of prevention (willingness to preserve sexual pleasure) has been overlooked. It seems that achieving behavior change in our society's adolescents requires paying more attention to the issue of willingness. Since "willingness to preserve pleasure" was a barrier to protective behavior, larger studies are warranted to identify reasons and related intervention approaches. Solution may even lie in holding discussion groups with teenagers and adolescents.

To change control beliefs (facilitators and barriers to protection), we need to strengthen facilitators such as self-efficacy, ethical commitments, and faithfulness, while barriers such as undue trust in the partner, misconception of being safe, unplanned sex, and the stigma of possessing condoms should be eliminated. To tackle the stigma with condoms, they have been placed in public view at pharmacies throughout the country, and different brands and types have been presented. Educational pamphlets could be used at these sites as well. Another measure taken to reduce high-risk behavior was distribution of free condoms at DICs. In both strategic programs, free distribution of condoms at DICs has been successful in decreasing impact (33, 34). Still, we need measures to improve condom accessibility to ordinary people so that a positive step can be taken for the general population. Studies in this regard should target teenagers, adolescents, and even older age groups separately, so that policies can be made based on the needs and characteristics of each group. With this approach, higher rates of success can be achieved, especially in groups such as sex workers or DIC clients who are considered the HIV-bridge-population in STI.

But there has been enough information dissemination on different aspects of disease and its risks, and will have no further effect (at least not significant) on protective behavior.

Ethical considerations

Ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc) have been completely observed by the authors. The ethical committee of Tehran University of Medical Sciences approved this study.

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