

<http://www.pjbs.org>

**PJBS**

ISSN 1028-8880

**Pakistan  
Journal of Biological Sciences**

**ANSI***net*

Asian Network for Scientific Information  
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan

## Iranian Epidemiological Training Programs for AIDS Prevention in Mazandaran Province

Hallajian Ebrahim

Department of Management, Islamic Azad University, Ghaemshahr Branch, Iran

**Abstract:** The aim of this study to report data is derived from an investigation of the knowledge, attitudes, beliefs and practices of AIDS prevention among the large the descendant of the Iranian prisoners. Using a multistage area sampling method, a random sample of individuals aged 18-65 years in southern coastwise of the Caspian Sea from February to December 2006. To select a representative sample of the prisoners' population within 5 different prisons in Mazandaran Province had the same probability to be sampled. Prisoners who agreed to participate were given a four-page self-administered questionnaire. 760 (88%) of the 2000 eligible participants completed the questionnaire. The mean age of respondents was  $30.05 \pm 8.1$  years ranging from 18 to 59, 1686 (95.8%) were male and mostly married 1054 (59.9%) and had received secondary education or above 1178 (66.9%). Most respondents (1690, 96%) had household income levels low or average and 716 (40.7%) were out of work. The findings indicated that the respondents had average to fairly good knowledge about AIDS. The correct answers ranged from 11.9% to about 85.9%. Also the results showed that the majority of the respondents were strongly agree or agree with the statement that people with AIDS should have social right to study or work (1378, 78.3%) or with the statement that AIDS is public health problem (1522, 86.5%). The majority of the respondents (1538, 83.4%) said that the mass media including radio, television and newspapers were the main source of their information about HIV/AIDS. Such findings suggest that prevention programs should be encourage and these might have the potential role to limit the emergence of Iran's HIV/AIDS epidemic especially in prison's this of country.

**Key words:** AIDS, knowledge, attitudes, beliefs, practices, KABP, prisoners

### INTRODUCTION

The Acquired Immunodeficiency Syndrome (AIDS) caused by the Human Immunodeficiency Virus (HIV) has profoundly changed medical practice, contemporary society and public health initiatives worldwide (Schreiman and Friedland, 2003). AIDS, one of the most complex health problems of the 21st century, is in its third decade and has become a pandemic disease that threatens the world population. Moreover, with no treatment or cure in sight, the disease continues to spread at an alarming rate (Unal, 2005). Globally it has been estimated that 39.5 million people are living with HIV. In 2006, 2.9 million people died of AIDS-related illnesses. At present official reports by the Ministry of Health (December 2006) indicated that there are 14090 HIV positive individuals and 864 AIDS cases in the country. Of these 94.4% are male and mostly are aged between 15 and 44 years old (76.9%). The distribution of HIV/AIDS cases consists of: intravenous drug users (64.9%), sexually infected cases (7.5%), blood transfusion recipients (1.7%), newborns from infected mothers (0.5%) and unknown cases (25.5%). These data does not reflect the real numbers afflicted due to the inadequacy of the registration system and the fact that people with sexually transmitted diseases do not

generally attend health centers. According to the information supplied by the Ministry of Health, AIDS in this country is considered to be in its beginning phase. On the basis of AIDS distribution models in human society, many epidemiologists believe that prevention of high risk behaviors that included unsafe sexual activities and drug abuses are critical components in the reduction of AIDS morbidity and mortality (Seekoe, 2005; Miller *et al.*, 2002; Rotily *et al.*, 2001). Prevention of high risk behaviors in human society is related to the increase of knowledge and improvement of attitudes and beliefs population concerning AIDS (Helleringer and Kohler, 2005; Amirkhani *et al.*, 2008; Al-Mazrou *et al.*, 2005). The World Health Organization (WHO) has advocated the role of education in spreading knowledge about AIDS transmission. Although many behavioral research studies and public enlightenment campaigns have been undertaken by both government and non-governmental organizations in the general public, a few studies has been documented on prison inmates in Iran. The increasing inmate population has important implications for Mazandaran Province prison systems as they seek to provide medical and mental health services for this population (Ronald and Kimberly, 2005). On the other hand, the relatively slow development and implementation

of HIV prevention programs in prison settings in southern coastwise of the Caspian Sea has occurred for several reasons. In the face of budget constraints and the existence of competing programs, it is clear how correctional officials may not consider HIV prevention programs to be important enough for funding, although public health professionals remain adamant in support of such programs. On the basis of similar findings have been reported in other countries (Polonsky *et al.*, 1994; Grinstead *et al.*, 1999; Heckman *et al.*, 1999), many prison officials are slow to embrace HIV prevention messages (the consistent use of condoms, the use of sterile syringes) that they perceive as directly contradicting policies to prohibit anal sex, condom use and injection drug use in prisons. Inmates may fear that by expressing an open interest in learning about HIV prevention strategies or requesting testing, they are openly admitting to engage in homosexual or drug use behavior, which may cause others to think negatively about them (Arriola *et al.*, 2002; Braithwaite *et al.*, 2003; McCusker *et al.*, 1990). This study is part of first Iranian Epidemiological Training Programs (IETP) for AIDS prevention among high risk groups, health workers and teachers in southern coastwise of the Caspian Sea and reports data derived from an investigation of the knowledge, attitudes, beliefs and practices of AIDS prevention in a large descendant of the Iranian prisoners.

## MATERIALS AND METHODS

**Study design:** A cross-sectional descriptive, population-based study was conducted to investigate the state of knowledge, attitudes, beliefs and practices of the Iranian prisoners' population towards AIDS in southern coastwise of the Caspian Sea from February through December 2006. The study protocol was approved by the five-institutional ethics review committee.

**Participants and procedures:** Participants were the Iranian prisoners living in southern coastwise of the Caspian Sea and they spent their conviction period in the prisons of this area. According to the aims of this study, using a multistage area sampling method a random sample of individuals were aged between 18-65 years old living in 5 different prisons in Amole, Babol, Behshahre, Ghaemshahre and Sari cities in Mazandaran Province, in Iran. We selected a representative sample of the prisoners' population within 5 different prisons in Mazandaran Province which had the same probability to be tested. The information for the main study was collected by a group of trained interviewers in face-to-face

interviews. Prisoners who agreed to participate were given a four-page self-administered questionnaire. Those who had difficulty in reading the questionnaire were provided with assistance.

**Measurements:** The questionnaire used in this survey, based on the WHO AIDS programme knowledge attitudes, beliefs and practices survey in 1988 as well as literature (Unal, 2005; Tavossi *et al.*, 2004; Montazeri, 2005; Nakhaee, 2002), was modified to suit the Iranian culture and norms, in a way that covered all the profession groups in the general public living in the urban or rural districts. The questionnaire, consisting of 54 questions in Iran, was divided into six broad sections: sociodemographic information including age, gender, marital status, educational level, employment status, economic status, family number and the causes of criminal behavior [8 items], questions on AIDS related knowledge covering three main topics on general information, mode of HIV transmission and treatment [25 items], statement regarding people's attitudes towards AIDS covering items related to social and cultural issues [11 items], beliefs about HIV/AIDS and AIDS patients [5 items], practices status of participation towards AIDS prevention programs [2 items] and finally questions about the source of people's information on AIDS and their information needs [3 items]. The response categories for the section on knowledge were in yes, no and I don't know form and for items on attitudes and beliefs a 5-point Likert scale ranging from strongly agree, to strongly disagree were used. Panels of health professionals were invited to examine and to validate the questionnaire and after their approval it was pilot-tested.

**The internal consistency of the scale:** Alpha coefficients for reliability and internal consistency of the questions were found to be 0.816, 0.840 and 0.690 for knowledge, attitudes, misconceptions or beliefs about HIV/AIDS, respectively in 75 subjects [15 subjects per city].

**Statistical analysis:** Statistical evaluation was performed by using the statistical package for the social sciences [SPSS 14.0]. Descriptive statistics were used to compute frequencies of responses for all demographic, knowledge, attitudes, beliefs and practices items. Chi-square analysis was used to test for the association of knowledge attitudes, beliefs and practices of preventive programs to age, gender, educational level, marital status, employment status, family's total income level, number of those living at home and the causes of criminal behavior. A p-value of <0.05 was considered to be statistically significant.

**RESULTS**

**Respondents' characteristics:** 1760 (88%) of the 2000 eligible participants completed the questionnaire. The mean age of respondents was 30.05 (SD = 8.1) years ranging from 18 to 59, 1686 (95.8%) were male and mostly married 1054 (59.9%) and had received secondary education or above 1178 (66.9%). Most respondents (1690, 96%) had household income levels low or average and 716 (40.7%) were out of work. The characteristics of the respondents are shown in Table 1.

**Respondents' knowledge:** The analysis of data indicated that in most items, respondents had an average to fairly good knowledge about HIV/AIDS. The correct answers ranged from 11.9% to about 85.9%. The vast majority knew that a virus causes AIDS (81.6%), HIV/AIDS can be contacted through sharing a razor blade with an infected person (85.8%); using a needle previously used by an infected person could cause AIDS infection (85.2%), or AIDS can be transmitted from an infected person to his partner during sexual intercourse (85.9%). However, over 30% of the respondents thought that AIDS is not a contagious disease (34.8%); that urine, X-ray, total blood count and biochemistry analysis were tested used to check for the HIV virus in the blood (56.9%); that HIV virus can be contacted through the bite of a mosquito (49.2%) and using an infected person's belonging such as clothes; combs, underwears and towels (35.9%). The results are presented in Table 2.

Age groups were found to be significantly associated with AIDS related knowledge for 19 of the items. Those in age group between (25-34) years old responded better to all items and on the other hands, those in age group  $\geq 45$  years old had less correct responses for all items. There was an important evidence of gender differences in responses regarding knowledge about HIV/AIDS for only 9 items out of the 25 items. In statements relating to knowledge on items 1, 5, 6, 14, 21, 22, 23, 24 and 25 males gave significantly more correct responses than did female respondents.

There were significant differences between those with different level of education and almost all knowledge items about HIV/AIDS except on item 4. The knowledge levels of those who had attained a higher education level, such as university, were higher than those having lower educational levels, save for items 1, 5, 7, 11, 12, 14, 16, 17, 21, 23, 24 and 25. There were significant differences between other demographics characteristics of respondents with almost all knowledge items about HIV/AIDS except on items 4, 10, 11, 12, 13, 14 and 17 for marital status; 3, 4, 9, 10, 16, 21 and 24 for employment

Table 1: The respondents' characteristics (n = 1760)

Characteristics	No.	%
<b>Age</b>		
$\leq 24$	442	25.1
25-34	846	48.1
35-44	360	20.5
$\geq 45$	112	6.4
Mean $\pm$ SD	30.05 $\pm$ 8.1	
Range	18-59	
<b>Gender</b>		
Male	1686	95.8
Female	74	4.2
<b>Marital status</b>		
Single	640	36.4
Married	1054	59.9
Windowed	66	3.8
<b>Education levels</b>		
Illiterate	582	33.1
Secondary	392	22.3
High school	632	35.9
Higher education	154	8.8
<b>Employment status</b>		
Employed	846	48.1
Housewife	138	7.8
Student	60	3.4
Unemployed	716	40.7
<b>Family's total income level</b>		
Low	688	39.1
Average	1002	56.9
High	70	4.0
<b>No. of those living at home</b>		
Between 1-3	534	30.3
Between 4-5	766	43.5
$\geq 6$	460	26.1
<b>Causes of criminal behavior</b>		
Drug abuse/addiction	594	33.8
Theft/ethical	630	35.8
Financial/Penal	536	30.5

status; 3, 11, 19 and 22 for family's total income level; 2, 3, 6, 8, 13, 14, 19 and 24 for number of those living at home and 1, 3, 4, 12, 14 and 19 for the causes of criminal behavior.

**Respondents' attitudes:** In general, the respondents' attitudes toward AIDS were found to be tolerable and positive. The majority of the respondents were strongly agree or agree with the statement that people with AIDS should have social right to study or work (1378, 78.3%) or with the statement that AIDS is public health problem (1522, 86.5%). However, 338 (19.2%) of the respondents were disagree or strongly disagree with the statement that lack of religious and moral commitments could cause AIDS infection. The results are presented in Table 3.

Totally, there were significant differences for almost all attitude items toward HIV/AIDS and demographics characteristics of respondents except on items 7 for age group; 2 and 11 for gender; 3, 4, 7 and 11 for marital status; 5, 9, 10 and 11 for employment status; 8 for family's total income level; 1, 2, 3, 4 and 7 for number of those living at home and 6 for the causes of criminal

Table 2: The respondents' knowledge on HIV/AIDS (n = 1760)

No.	Knowledge items	Yes	No	Don't know
		No. (%)		
<b>General knowledge</b>				
1	AIDS is an infectious disease and a virus causes the disease	1436(81.6) <sup>a</sup>	166(9.4)	158(9.0)
2	AIDS is a contagious disease	1006(57.2) <sup>a</sup>	612(34.8)	142(8.1)
3	AIDS is a hereditary disease	362(20.6)	1218(69.2) <sup>a</sup>	180(10.2)
4	AIDS is mostly seen in the developing or undeveloped countries, mostly in countries least able to afford to care for infected people	1132(64.3) <sup>a</sup>	230(13.1)	398(22.6)
5	AIDS is not a serious disease. It is a simple disease like the common cold	226(12.8)	1422(80.8) <sup>a</sup>	112(6.4)
6	The appearance of HIV carries are not different from normal population	1034(58.8) <sup>a</sup>	546(31.0)	180(10.2)
7	Resistance to other disease in an individual with AIDS is rather low	1336(75.9) <sup>a</sup>	232(13.2)	192(10.9)
8	A person infected with HIV usually diagnose with symptoms of the disease	504(28.6)	1040(59.1) <sup>a</sup>	216(12.3)
9	The ELISA test is used to check for the HIV virus in the blood	848(48.2) <sup>a</sup>	184(10.5)	728(41.4)
10	Urine, X-ray, total blood count and biochemistry analysis are used to check for the HIV virus in the blood	1002(56.9)	210(11.9) <sup>a</sup>	548(31.1)
<b>HIV/AIDS can be contacted through</b>				
11	Sharing public toilets and swimming pools with an infected person	542(30.8)	946(53.8) <sup>a</sup>	272(15.5)
12	Using an infected person's belongings such as clothes, comb, underwear and towel	632(35.9)	936(53.2) <sup>a</sup>	192(10.9)
13	Sharing a razor blade with an infected person	1510(85.8) <sup>a</sup>	114(6.5)	136(7.7)
14	Touching an infected person, such as hugging, holding and shaking hand	264(15.0)	1350(76.7) <sup>a</sup>	146(8.3)
15	Sharing the food utensils of an infected person	620(35.2)	872(49.5) <sup>a</sup>	268(15.2)
16	Exposure to an infected person who coughs or spits	570(32.4)	930(52.8) <sup>a</sup>	260(14.8)
17	The bite of a mosquito	866(49.2)	586(33.3) <sup>a</sup>	308(17.5)
18	Sharing an injection needle previously used or the surgical operation devices of an infected person	1500(85.2) <sup>a</sup>	140(8.0)	120(6.8)
19	Donating to another person the bloods, organs and tissue of an infected person	1432(81.4) <sup>a</sup>	172(9.8)	156(8.9)
20	An infected pregnant woman's infecting her unborn baby	1410(80.1) <sup>a</sup>	168(9.5)	182(10.3)
21	From an infected person to his partner during vaginal, oral, or anal sexual intercourse	1512(85.9) <sup>a</sup>	130(7.4)	118(6.7)
22	The urine, tears, mucus or nasal fluid of an infected person	674(38.3)	748(42.5) <sup>a</sup>	338(19.2)
23	The breast milk of an infected person	1154(65.6) <sup>a</sup>	316(18.0)	290(16.5)
<b>Treatment</b>				
24	There is an active treatment for AIDS	362(20.6)	1134(64.4) <sup>a</sup>	264(15.0)
25	There is a vaccine for AIDS	462(26.3)	1084(61.6) <sup>a</sup>	214(12.2)

<sup>a</sup>Correct responses

Table 3: The respondents' attitudes toward HIV/AIDS (n = 1760)

No.	Attitudes items	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
		No. (%)				
1	Students with AIDS should go to special schools for those with AIDS	614(34.9)	422(24.0)	344(19.5)	218(12.4)	162(9.2)
2	If there is a student with AIDS in a school, I would delete the record of my child from that school	458(26.0)	468(26.6)	362(20.6)	378(21.5)	94(5.3)
3	I would not sit in the same armchair or desk with a person with AIDS	298(16.9)	282(16.0)	482(27.4)	518(29.4)	180(10.2)
4	They should be located up or isolated in special center	564(32.0)	560(31.8)	310(17.6)	220(12.5)	106(6.0)
5	They must be supported, treated and helped	938(53.3)	540(30.7)	192(10.9)	38(2.2)	52(3.0)
6	People with AIDS should have social right to study or work	766(43.5)	612(34.8)	236(13.4)	88(5.0)	58(3.3)
7	I would share public toilets and swimming pools with someone with AIDS	296(19.8)	358(20.3)	450(25.6)	408(23.2)	248(14.1)
8	Lack of religious and moral commitments could cause AIDS infection	670(38.1)	448(25.5)	304(17.3)	244(13.9)	94(5.3)
9	AIDS is A public health problem	1142(64.9)	380(21.6)	154(8.8)	40(2.3)	44(2.5)
10	People with AIDS should inform others about their disease	1064(60.5)	482(27.4)	126(7.2)	52(3.0)	36(2.0)
11	Everybody must know about those with AIDS by means of national media	1302(74.0)	306(17.4)	86(4.9)	32(1.8)	34(1.9)

behavior. Upon comparison of people with different educational levels, it was found that there were significant differences between individuals with different level of education for 10 items out of 11. Those with higher education were more positive in their attitudes comparing to less educated respondents.

**Respondents' beliefs:** In general, the proportions of the respondents' beliefs were found to be significantly low for all the items. The majorities of the respondents was strongly disagree or disagree with all the statements.

However, 600 (34.2%) of the respondents were strongly agree or agree with the statement that AIDS does not influence the Iran or with the statement that I will not be infected with AIDS come what may 710 (40.3%). The results are presented in Table 4.

Totally, there were significant differences for almost all beliefs or misconceptions items toward HIV/AIDS and demographics characteristics of respondents except on items 1, 2, 3 and 4 for age group; 2 and 3 for marital status; 5 for employment status; 3 for family's total income level; 2, 4, for number of those living at home.

Table 4: The respondents' beliefs or misconceptions toward HIV/AIDS (n = 1760)

No.	Attitudes items	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
		No. (%)				
1	AIDS is a punishment from GOD	236(13.4)	162(9.2)	390(22.2)	536(30.5)	436(24.8)
2	AIDS does not influence the Iran	222(12.6)	380(21.6)	514(29.2)	376(21.4)	268(15.2)
3	Married couples do not contract AIDS	280(15.9)	276(15.7)	384(21.8)	524(29.8)	296(16.8)
4	I will not be infected with AIDS come what may	322(18.3)	388(22.0)	406(23.1)	390(22.2)	254(14.4)
5	You cannot be infected with HIV/AIDS if you are engaged in sport and are well nourished	226(12.8)	124(7.0)	318(18.1)	638(36.3)	454(25.8)

Table 5: The respondents' source of information and their informational needs (n = 1760)

	No.	%
<b>Level of information about HIV/AIDS</b>		
Excellent	244	13.9
Good	538	30.6
Average	638	36.3
Low	214	12.2
Very low	126	7.2
<b>Source of information</b>		
Family	82	4.7
Friends	262	14.9
Radio	112	6.4
Television	958	50.4
Newspaper	468	26.6
Books	182	10.3
<b>Informational needs</b>		
General information	632	35.9
Prevention	574	32.6
Transmission modes	722	41.1
Others	60	3.4

\*The total exceeds the sample size since each respondent could choose several response categories

**Respondents' practices:** 1292 (73.4%) of the respondents said that their sexual activities were on the basis of safe, religious and moral commitments for AIDS prevention. Also, 1632 (92.7%) of the respondents agreed with performing essential tests to check for the HIV virus in their blood.

Totally, there were significant differences for almost all practices items toward HIV/AIDS and demographics characteristics of respondents except on items 1 and 2 for marital status; 1 for number of those living at home.

**Respondents' source of information and their informational needs:** The majority of the respondents indicated that mass media (radio, television and newspapers) were the major source of their information about AIDS (1538, 83.4%). However, as it has been shown in Table 5, they identified that they need more general information about AIDS 632 (35.9%), in addition to information on prevention 574 (32.6%) and transmission modes 722 (41.1%). The results are presented in Table 5.

## DISCUSSION

The prevention of HIV infection remains an important task to public health professionals. It is argued that an understanding of the dynamics of a country's HIV

epidemic, how it changes over time and who is currently at greatest risks is essential to guiding decisions about effective prevention (Pisani *et al.*, 2003). HIV infections in Iran are confined primarily in intravenous drug users. Targeted prevention approaches are needed for those community groups. In addition, HIV/AIDS prevention efforts for the high-risk groups must be quickly undertaken in Iran as recommended for other societies (Montazari, 2005). Prisons and prison inmates present important targets for HIV/AIDS prevention interventions. Inmates often have histories of high-risk behavior that place them in danger of contracting HIV/AIDS and rates of HIV/AIDS tend to be much higher in this population. This study reports data were derived from an investigation of the knowledge, attitudes, beliefs and practices of AIDS prevention among the Iranian prisoners' society.

The findings indicated that prisoners in Mazandaran Province demonstrated average to fairly good knowledge about HIV/AIDS. Also, misconception do exist where 612 (34.8%) of the respondents believed that AIDS is not an infectious disease or mosquitoes are vectors of HIV 866 (49.2%) and told that the appearance of HIV carriers differ from normal population 546 (31%). In addition, the respondents showed limited knowledge of how HIV and AIDS cannot be transmitted where only 930 (52.8%) said that AIDS cannot be transmitted through coughing or spitting of an infected person. Similar findings have been reported in other countries (Amirkhanian *et al.*, 2008). The findings suggested the number of female respondents were significantly less than male respondents. It seems that this is a limitation for our study. In contrast, those who had higher levels of education and young adults, those were aged between (25-34) years old, generally had more correct answers on questions relating to knowledge about HIV/AIDS. This study shows that in spite of the high prevalence of at risk behaviors among people who are incarcerated, that population is not targeted enough by HIV prevention programs. In other words, as a result of the non existence of planning health education intervention and population-based specific regular preventive programs despite the improving level of knowledge and attitudes related to HIV/AIDS, preventive methods and early diagnosis, there still exists some

serious problems even in the high educational levels in Iran. Therefore, it seems that knowledge about HIV transmission, treatment, the benefits of early HIV screening guidelines and health care clinics (Tavossi *et al.*, 2004; Montazari, 2005; Nakhaee, 2002) of high risk behaviors especially HIV/AIDS may be little in this population. It is urgent to enhance the equality of access to care and prevention policy inside and outside of the prison.

Comparing the study findings with those from Africa for example among prisoners in Lagos, Nigeria showed that (i) almost all the prisoners studied had heard of AIDS although only a few had seen or known a case of AIDS; (ii) despite the fact that many of them knew the correct modes of transmission, many indulged in high risk behaviors for AIDS transmission; (iii) there is a considerable proportion of receptive naive inmates who stand the risk of being infected due to their high level of ignorance about HIV/AIDS. Well designed information, education and communication programs on AIDS with such formidable support structures as the provision of harm-reduction devices and risk-reduction counseling are urgently recommended for the low income countries prisoners to effectively combat the imminent HIV/AIDS epidemic among the prison inmates (Odujinrin and Adebajo, 2001). Ronald and Kimberly (2003) in a study, showed that HIV/AIDS education intervention for male prisoners can significantly improve HIV/AIDS risk behaviors. Other studies have suggested that improved knowledge and attitudes positively affect the preventive behavior of prisoners (Helleringer and Kohler, 2005; Amirkhanian *et al.*, 2008; Al-Mazrou *et al.*, 2005). Regarding the almost high level of education in the Iranian prisoners comparing to the other developing countries such as, the Middle East countries, Caucasian countries, African people and Latin America, it seems that designing and performing regular planning health education intervention in HIV/AIDS will increase the practices and performance of preventive program in HIV/AIDS in the Iranian society faster than these countries.

The most interesting finding from this study was the fact that prisoners in Iran showed a more positive attitude towards AIDS and those with AIDS infections than expected and this was true for both men and women and all age groups. For example only a small number of the respondents disagreed with the statement that people with AIDS should have social right to study or work (8.3%). Several studies have shown that people with good knowledge about AIDS do become more tolerant of people with AIDS (Maswanya *et al.*, 2000). Also it was found that 19.2% of the respondent disagreed with the statement that lack of religious and moral commitments could cause AIDS infection. This means that these people

believe that even religion or moral commitments could not prevent a person from HIV infection or simply they do not believe that religion or moral issues can be preventive. It seems there is need for further investigation about the role of religion and AIDS prevention especially in these countries such as Iran where religion has important role in people's everyday life.

The study about AIDS could be regarded as a sensitive topic in Iran. To collect data a carefully designed questionnaire was used to avoid any conflicts with people's concerns especially with their religious beliefs and moral considerations. However, this led to limit the study objectives and thus questions about risk behaviors or sexual activities were not included in the questionnaire. According to a report by the United Nations Population Division (2002) evidence suggest that while people in many developing countries have heard of HIV/AIDS, a significant number have limited knowledge to prevent infection and their behaviors remain risky. The majority of the respondents (83.4%) indicated that mass media was the main source of their information about AIDS. It appears that the mass media especially television have succeeded in raising AIDS awareness in Iran. In contrast, only 4.7% said that their family informed them about the disease. This indicates that very little communication regarding HIV/AIDS occurred between themselves and their family. Furthermore, same amount of people indicated that they need more general information about AIDS and prevention of the disease. Such findings suggest that prevention programs should be encouraged and these might have the potential role to limit the emergence of Iran's HIV/AIDS epidemic.

## CONCLUSION

In conclusion, the findings from this study provide basic information on AIDS knowledge, attitudes, beliefs and practices among the Iranian prisoners' society. Present study population demonstrated average knowledge of AIDS and positive attitudes towards AIDS. However, misconceptions about AIDS exist and needs to be addressed by health education programs targeting those at higher risk especially those with lower level of education. Indeed it is also necessary to fulfill people's informational needs. Therefore we suggest these points for the reduction of AIDS morbidity and mortality in Iran: (1) The performing regular planning health education interventions for improving knowledge and attitude related to AIDS in high-risk groups. (2) The establishing and supporting of non-government organizations (NGO) toward AIDS education in society. (3) The establishing of AIDS and behavioral diseases clinics in any city. (4) The performing of active screening by physicians in Rural and Urban Health and Medical Centers for high-risk groups.

Future researchers need to design and assess specific rather than general interventions that first provide accurate information and then explore beliefs and attitudes that might impede or facilitate turning the information into health-related behaviors.

#### ACKNOWLEDGMENTS

The author thanks the study sites and instructors for their valuable contribution. The author is thankful for contributions of those who helped to carry this study especially researchers who evaluated the questionnaire and those who carried out the interviews. This study supported by Young Researchers Club, Islamic Azad University, Ghaemshahr-Branch, Mazandaran, Iran.

#### REFERENCES

- Al-Mazrou, Y.Y., M.S. Abouzeid, M.H. Al-Jeffri, 2005. Impact of health education on knowledge and attitudes of Saudi paramedical students toward HIV/AIDS. *Saudi Med. J.*, 26: 1788-1795.
- Amirkhajian, Y.A., J.A. Kelly, E. Kabakchieva, A.V. Kirsanova and S. Vassileva., 2008. A randomized social network HIV prevention trial with young men who have sex with men in Russia and Bulgaria. *AIDS*, 19: 1897-1905.
- Arriola, K.R.J., S.S. Kennedy, J.C. Coltharp, R.L. Braithwaite, T.M. Hammett and M.J. Tinsley, 2002. Development and implementation of the cross-site evaluation of the CDC/HRSA corrections demonstration project. *AIDS Educ. Prev.*, 14: 107-118.
- Braithwaite, R.L. and K.R.J. Arriola, 2003. Male prisoners and HIV prevention: A call for action ignored. *Am. J. Public Health*, 93: 759-763.
- Grinstead, O.A., B. Zack, B. Faigeles, N. Grossman and L. Blea, 1999. Reducing postrelease HIV risk among male prison inmates. *Crim. Justice. Behav.*, 26: 453-459.
- Heckmanm, T.G., J.A. Kelly, L.M. Bogart, S.C. Kalichman and D.J. Rompa, 1999. HIV risk differences between African-American and White men who have sex with men. *J. Natl. Med. Assoc.*, 91: 92-100.
- Helleringer, S. and H.P. Kohler, 2005. Social networks, perceptions of risk and changing attitudes towards HIV/AIDS: New evidence from a longitudinal study using fixed-effects analysis. *Popul. Stud. (Camb.)*, 59: 265-282.
- Maswanya, E., K. Moji, K. Aoyagi, Y. Yahata, Y. Kusano, K. Nagata, T. Izumi and T. Takemoto, 2000. Knowledge and attitudes toward AIDS among Female college students in Nagasaki. *Jpn. Health Educ. Res.*, 15: 5-11.
- McCusker, J., B. Koblin, B.F. Lewis and J. Sullivan, 1990. Demographic characteristics, risk behaviors and HIV seroprevalence among intravenous drug users by site of contact: Results from a community-wide HIV surveillance project. *Am. J. Public Health*, 80: 1062-1067.
- Miller, J.E., P.J. Guarnaccia and A. Fasina, 2002. AIDS knowledge among Latinos: The roles of language, culture and socioeconomic status. *J. Immigr. Health*, 4: 63-72.
- Montazeri, A., 2005. AIDS knowledge and attitudes in Iran: Results from a population-based survey in Tehran. *Patient Educ. Couns.*, 57: 199-203.
- Nakhaee, F.H., 2002. Prisoners' knowledge of HIV/AIDS and its prevention in Kerman, Islamic Republic of Iran. *East Mediterr Health J.*, 8: 725-731.
- Odujinrin, M.T. and S.B. Adebajo, 2001. Social characteristics, HIV/AIDS knowledge, preventive practices and risk factors elicitation among prisoners in Lagos, Nigeria. *West Afr. J. Med.*, 20: 191-198.
- Pisani, E., G.P. Garnett, T. Brown, J. Stover and N.C. Grassly., 2003. Back to basics in HIV prevention: Focus on exposure. *Br. Med. J.*, 326: 1384-1387.
- Polonsky, S., S. Kerr, B. Harris, J. Gaiter, R.R. Fichtner and M.G. Kennedy, 1994. HIV prevention in prisons and jails: Obstacles and opportunities. *Public Health Rep.*, 109: 615-625.
- Ronald, L.B. and R.J.A. Kimberly, 2003. Male prisoners and HIV prevention: A call for action ignored. *Am. J. Public Health*, 93: 759-763.
- Rotily, M., J. Prudhomme, M.S. Pardal, F. Hariga, E. Iandolo, A. Papadourakis and J.P. Moatti, 2001. Knowledge and attitudes of prison staff towards HIV/AIDS: A European study. *Sante Publique*, 13: 325-338.
- Schreirman, T. and G. Friedland, 2003. Human immunodeficiency virus infection prevention: Strategies for clinicians. *Clin. Infect Dis.*, 36: 1171-1176.
- Seekoe, E., 2005. Reproductive health needs and the reproductive health behavior of the youth in Mangaung in the Free State Province: A feasibility study. *Curationis*, 28: 20-30.
- Tavossi, A., A. Zaferani, A. Enzevaei, P. Tajik and Z. Ahmadinezhad, 2004. Knowledge and attitude toward HIV/AIDS among Iranian students. *BMC Public Health*, 4: 17-17.
- Unal, A., 2005. AIDS knowledge and attitudes in Turkish population: An epidemiological study. *BMC Public Health*, 5: 95-95.
- United Nations Population Division, 2002. AIDS awareness and behavior. New York: United Nations Population Division; <http://www.unpopulation.org/>. ISBN 00-0-000000-0.