

Turkish Internet users' awareness of and attitudes toward HIV/AIDS and other STDs

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A B S T R A C T

Objective: The Internet is currently used as a tool to obtain information, make conversation, and find sexual partners. The aim of this study was to investigate Turkish Internet users' awareness of and attitudes toward HIV/AIDS and other sexually transmitted diseases (STDs) by using a standard web-based questionnaire.

Method: Our study was performed using a standard web-based questionnaire form open to all Internet users consisting of questions and statements about HIV/AIDS and other STDs. The study included 898 participants.

Results: The most common sources from which respondents obtained STD-related information were stated as primarily print sources, followed by the Internet. Although men and women had similar educational levels, women were more informed about HIV/AIDS ($p = 0.001$). People with better awareness of HIV/AIDS had more information and also had different attitudes ($p = 0.001$).

Conclusion: Our study shows that Turkish Internet users lack HIV/AIDS and other STD-related awareness and have mistaken opinions. Because it is the best and the fastest communication tool of our age, the Internet should have correct orientations and should be developed in order to give people access to reliable information. Because young people increasingly use the Internet on a daily basis, this medium might be a good educational tool for HIV/AIDS and other STDs.

K E Y W O R D S

HIV, AIDS,
sexually
transmitted
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Turkey,
Internet,
questionnaire

Introduction

Acquired Immune Deficiency Syndrome (AIDS) was initially defined in 1980 as a new disease of unknown etiology characterized by immune deficiency (1). The rate of Human Immunodeficiency Virus (HIV)/AIDS cases quickly grew throughout the world, so it was unlikely that Turkey would be spared. The detection of the first HIV positive patient in Turkey in 1985 caused a

great shock, but nonetheless people still believed that AIDS would spare the country (2). The number of HIV/AIDS cases has been gradually increasing every year, especially during the past 8 years. According to the Ministry of Health Services, by December 2004 there were 1,922 HIV/AIDS cases in Turkey. Of these, 551 were AIDS and 1,371 were HIV positive (3, 4). UNAIDS

Table 1. Participants' socio-demographic characteristics (n = 898).

Socio-demographic characteristics	n	%
Gender		
Female	227	25.3
Male	671	74.7
Age groups (years)		
13–24	174	19.5
25–34	319	35.5
35–44	241	26.8
45–54	126	14.0
55–60	38	4.2
Sexual orientation		
Heterosexual	893	99.4
Homosexual	5	0.6
Marital status		
Single	387	43.1
Married	464	51.6
Divorced	33	3.7
Living together	14	1.6
Educational level		
Elementary school	25	2.8
Secondary school	208	23.2
University	665	74.0
City of residence		
Istanbul	323	36.0
Ankara	209	23.3
Izmir	73	8.1
Others	293	32.6

Table 2. Answers to general questions on sexually transmitted diseases (STDs) (n = 898).

Questions and responses	n	%
<i>What is the most common source you turn to for information about STDs?</i>		
Newspapers/Magazines	333	37.1
Internet	182	20.3
Television	170	18.9
Books	122	13.6
Friends	36	4.0
School	22	2.4
Family	6	0.7
Others/Non-responders	27	3.0
<i>Have you had risky or unprotected sexual contact in the past two months?</i>		
Yes	63	7.0
No	790	88.0
Non-responders	45	5.0
<i>Have you ever taken a HIV test?</i>		
Yes	236	26.3
No	611	68.0
I do not remember	25	2.8
Non-responders	26	2.9
<i>Which of the followings are STDs?</i>		
Syphilis	785	87.4
Gonorrhea	812	90.4
Flu	26	2.9
Hepatitis B	488	54.3
Genital herpes	483	53.8
Scabies	99	11.0
Tinea inguinalis	427	47.6
Non-responders	20	2.2

and the World Health Organization do not find this number realistic, and they estimate that there are between 10 and 14 million infected people in Turkey (5).

According to 2005 data from the State Statistics Institute, the computer usage rate was 17.6% between the ages of 16 and 74 years in Turkey during the period from April to June, and the corresponding rate of Internet users was 13.9%. Considering the gender and age groups for whom computer and Internet use rates are highest, the 16–24 age group is the highest for both males and females, but these rates are higher for males across all age groups. Moreover, it was observed higher the education level corresponded to greater Internet use (6). Recently the use of the Internet in education has also been expanding. For this reason, the Internet can play an important role in disseminating information on HIV/AIDS and other STDs. However, the Internet is also frequently used to find one or more sexual partners. Unfortunately, the “chat” programs are on the increase and more websites of this kind can be expected in the future (7–13).

This survey was planned so that people from many regions of Turkey could participate, regardless of their age and education, in order to evaluate the awareness of and attitudes concerning HIV/AIDS and other STDs, by using a web-based standard survey form. It was also assumed that it would be more comfortable for people to participate in this survey on the Internet, in order to diminish the effect of their feelings of embarrassment. A further aim was to learn whether society was aware of the importance of sexual health education on STDs and whether these activities conform to society's expectations.

Method

Study population: This study was performed using a web-based standard survey form prepared in Turkish, including questions on awareness of and attitudes toward HIV/AIDS and other STDs. The survey form was

Table 3. Answers given to general questions for assessing HIV/AIDS awareness (correct answer in parentheses) (n = 898).

Statements	n*	%
<i>General statements testing AIDS awareness</i>		
AIDS is a disease that is only sexually transmitted. (F)	442	49.2
One can become infected by kissing an HIV/AIDS-infected person. (F)	432	47.1
AIDS has a cure/vaccination. (F)	102	11.4
AIDS is a viral disease. (T)	460	51.2
AIDS is a disease observed only in homosexuals. (F)	32	3.6
During blood donation, HIV is also transmitted to the blood donor. (F)	385	42.9
HIV/AIDS can be transmitted by an insect bite. (F)	391	43.5
The baby of an HIV-infected mother can also be infected with HIV. (T)	827	92.1
Getting regular HIV tests is one method of protection against AIDS. (F)	307	34.2
Condom use should be encouraged to help combat HIV/AIDS. (T)	830	92.4
For HIV/AIDS prevention, it is better to have only one spouse/partner. (T)	766	85.3
Regular screening of prostitutes is a major step in combating HIV/AIDS. (F)	753	83.9
<i>With which body fluids can HIV be transmitted?</i>		
Saliva (F)	341	38.0
Blood (T)	875	97.4
Semen (ejaculate) (T)	745	83.0
Vaginal fluids (T)	748	83.3
Breast milk (T)	356	39.6
Sweat (F)	47	5.2
Tears (F)	39	4.3
Non-responders	15	1.7
<i>In your opinion, which of the following actions, not including sexual contact, bear a risk of transmission of HIV?</i>		
Tooth extraction (T)	641	71.4
Manicure/pedicure (T)	520	57.9
Having a haircut (F)	66	7.3
Blood transfusion (T)	860	95.8
Organ transplantation (T)	659	73.4
Having a massage (F)	7	0.8
Acupuncture/tattoo (T)	649	72.3
Non-responders	20	2.2

*n = Number of participants giving the answer "yes" to each statement. T = True, F = False

first tested on a control group of 10 persons and corrections were made. Afterwards, Internet users were invited to participate from December 2003 to March 2004 through a link on the homepage of the Isnet health website (www.isnet.com.tr). Two e-mail messages were sent to all Isnet subscribers, the first one on the first day of the program, and the second after an 8-week period, inviting them to participate in the survey. Some required information was given at the start of survey and our purpose was briefly explained.

Survey instrument and data collection: The questionnaire included two sections. In the first section, the participants were asked for their demographic characteristics, such as age, gender, sexual orientation, marital status, educational level, occupation, and city of residence.

In the second section, we used questions to assess their awareness of and attitudes toward HIV/AIDS and other STDs. There were 27 questions concerning awareness and 8 concerning attitudes to these problems. One point was assigned to each correct answer and the result was graded on a 0-100 scale. The total awareness and attitude scores were calculated for each person. These scores were taken as the basis for comparison.

Statistical Analysis: All variables were expressed as numbers and percentages. A *t*-test, ANOVA test, and chi-square test were used for statistical analysis. The Bonferroni test was used as the ANOVA test. Values of $p < 0.05$ were considered statistically significant. All data were entered and processed using Epi Info 2002 software (CDC, Atlanta, GA, USA).

Table 4. Answers given to statements consisting of attitudes toward HIV/AIDS (correct answer in brackets) ($n = 898$).

Statements	n^*	%
<i>Check the statements that you agree with regarding contact with HIV/AIDS-infected people.</i>		
I can tell an HIV/AIDS-infected person from his or her external appearance. (F)	60	6.7
It is risky to swim in same pool as an HIV/AIDS-infected person. (F)	141	15.7
I do not share towels, glasses, toilets, or bathrooms with HIV/AIDS-infected individuals. (F)	266	29.6
I do not share a toothbrush, razor blade, or hypodermic needle with an HIV/AIDS-infected individual. (T)	853	95.0
Work permits should not be granted to HIV/AIDS-infected individuals. (F)	43	4.8
I can comfortably shake hands with or embrace my HIV/AIDS-infected friend. (T)	545	60.7
<i>I would not like to be in the same school/class/workplace with an HIV/AIDS-infected individual.</i>		
I agree (F)	96	10.7
I do not agree (T)	479	53.3
I am not sure	298	33.2
I have no idea	25	2.8

* n = Number of participants giving the answer "yes" to each statement, T = True, F = False

Results

A total of 898 persons participated in the survey: 671 (74.7%) males and 227 (25.3%) females. Participants' ages ranged from 13 to 60 years. The mean ages were 35.2 ± 10.6 for males and 31.6 ± 9.4 for females. The participants' socio-demographic characteristics are outlined in Table 1. The answers to the most common questions on STDs, such as risky partners, unprotected sexual intercourse during the last 2 months, the rate of having had an HIV test previously, and so on, are presented in Table 2. The participants were asked general questions on STDs, questions that assessed their awareness of HIV/AIDS, and questions to determine their attitudes towards HIV/AIDS-infected people. The answers obtained are given in Tables 2, 3, and 4, respectively.

Eighty-two percent of participants stated that HIV/AIDS constituted a significant risk in Turkey, and 38.9% stated that the information on this topic in educational programs was insufficient. The answers given to questions pertaining to the social aspects of HIV/AIDS are outlined in Table 5.

Although males and females had comparable educational levels, females were better informed about HIV/AIDS ($p = 0.001$). There was no statistically significant difference for marital status in relation to HIV/AIDS awareness and attitudes ($p = 0.301$, $p = 0.822$). In parallel with rising educational levels, HIV/AIDS-related awareness also increased and attitudes were different ($p = 0.001$). While awareness changed with age ($p = 0.008$), with the highest score being in the 35–44 age group and the lowest in the 13–24 age group, attitudes did not show a positive change with age ($p = 0.590$) (Table 6).

Discussion

There are obvious difficulties in getting answers to questions related to sexuality, due to reasons such as personal beliefs and feeling ashamed in face-to-face interviews. We therefore believe that answers obtained using the Internet will be more reliable. By having this investigation accessible to every section of society, we believe that we have obtained important data on the awareness, attitudes, and behavior of Internet users, who are mostly well-educated young people, on HIV/AIDS and other STDs. At the same time, important information is provided regarding Turkish societal expectations concerning sexual health education and the fight against STDs. In addition, the Internet, which is becoming easier to use and gradually more widely available, is also frequently employed to find a sexual partner, and this fact presents a new danger in the spread of HIV/AIDS and other STDs (7–13).

The study participants stated that written media, such as magazines and newspapers, were their first most common source of STD-related information, and the Internet was the second. Therefore, mass media are the leading tools among the sources from which people obtain information on STDs. The high educational level of the participants should be considered an important factor. In two studies performed with university students in 2000 and 2003, more than half of the participants reported radio-television and written media as AIDS information sources (14, 15). The mass media seem to rank first among information sources in studies performed in Japan and Jordan as well (16, 17). In our study, school and family place last as information resources

Table 5. Answers given to questions concerning the social context of HIV/AIDS (n = 898).

Questions and responses	n	%
<i>Do you believe HIV/AIDS constitutes an important risk for Turkey?</i>		
Yes	736	82.0
No	43	4.8
I'm not sure	81	9.0
I have no idea	38	4.2
<i>What is the most important risk factor for Turkey about AIDS and other STDs?</i>		
Not enough education on the subject	350	39.0
Not enough encouragement of condom use	225	25.0
Female sex-workers not screened well enough	184	20.5
Blood and blood products not screened well enough	93	10.4
Too many tourists coming from other countries	25	2.8
Allowing HIV carriers into school/workplace	1	0.1
Non responders	20	2.2
<i>In which circumstances should an HIV test be performed?</i>		
After a blood transfusion	748	83.3
Before and after unprotected intercourse	740	82.4
Before getting married	731	81.4
When going abroad/coming back	202	22.5
When applying for a job	94	10.5
When registering at school	69	7.7
Non-responders	15	1.7
<i>Whose has the primary responsibility in the fight against AIDS?</i>		
All sections of society	573	63.8
Ministry of Health Services	210	23.4
Ministry of National Education	42	4.7
Written and visual media	30	3.3
Employers in the sex sector	14	1.6
Doctors and other health sector employees	8	0.9
Other	5	0.6
Non-responders	16	1.8
<i>What do you think of the media approach to HIV/AIDS?</i>		
Insufficient	454	50.5
Sensational	384	42.8
Adequate and positive	29	3.3
I have no idea	31	3.4

on STDs. It is obvious that educational activities at schools should be increased in order to better inform

students of these problems. The reason for the Internet ranking second as an information source in our study could be due to the Internet gradually becoming more accessible, or that the participants were self-selected as Internet users.

Most of the participants in our study were heterosexual and married; hence their rate of unprotected sexual contact in the previous two months was quite low. The strength of Turkish family values, the high marriage rate, the low divorce rate, and social and religious proscriptions against illegitimate relationships could offer a logical explanation. On the other hand, in two other studies performed at Turkey's major universities, almost two-thirds of male and one-fifth of female university students stated that they had had sexual experiences (14, 18). These studies suggest that it must be considered very important to offer young people better and more correct information about STDs and HIV/AIDS.

With regard to general information about AIDS, 50% of the respondents said that it is a viral disease and is transmitted only sexually, and 11.4% of them stated that AIDS is curable. In a previous study by Ungan and Yaman in Turkey, 60% of participants stated that AIDS was curable and, in another study by Savaser, 12% of participants stated it was curable (14, 19). This shows that Turkish society does not have adequate awareness of the treatment of HIV/AIDS.

Almost all of the participants knew that HIV/AIDS could be transmitted by blood, but only 83% of them knew that it could be transmitted via sexual fluids. Nearly half of the participants believed that donating blood, kissing, and insect bites were risk factors, and 15.7% of them stated that getting into the same pool with an infected person could transmit HIV/AIDS. In Ungan and Yaman's study of university students, nearly two-thirds of the participants stated that donating blood, kissing, getting into the same pool, and insect bites could lead to transmission of the infection (14). This agrees with our results. On the other hand, false information saying that HIV/AIDS can be transmitted by insect stings is still spread by the media (15, 20). In Canada, despite years of active public service campaigns about HIV/AIDS, one out of every four persons still believes that the disease can be transmitted through kissing or insect bites (21), although this is known to be false (22).

Although generally correct answers were given to questions about living with HIV/AIDS-infected persons, nearly one-third of the respondents have incorrect or faulty information on preventing its spread, on working in the same environment with infected people, or on communicating with HIV/AIDS-infected individuals. For instance, nearly 40% of the participants said that they would not shake hands with or embrace an HIV/AIDS-infected friend. Furthermore, checking for HIV

Table 6. Relation between age, gender, education, marital status, and awareness and attitudes with regard to HIV/AIDS ($n = 898$).

Demographic features	Awareness score		Attitudes score	
	Mean \pm SD	p	Mean \pm SD	p
Gender				
Female ($n = 227$)	76.2 \pm 8.9	0.001*	80.2 \pm 16.6	0.212
Male ($n = 671$)	73.2 \pm 10.5		81.7 \pm 15.9	
Education				
High school or less ($n = 233$)	71.9 \pm 10.0	0.001*	78.3 \pm 17.1	0.001*
University ($n = 665$)	74.6 \pm 10.3		82.4 \pm 15.6	
Marital status				
Married and living together ($n = 478$)	73.5 \pm 10.6	0.301	81.5 \pm 16.1	0.822
Single and divorced ($n = 420$)	74.3 \pm 9.9		81.2 \pm 16.1	
Age groups (years)				
13–24 ($n = 174$)	71.9 \pm 11.3	0.008*	79.8 \pm 16.7	0.590
25–34 ($n = 319$)	74.4 \pm 9.7		81.5 \pm 16.4	
35–44 ($n = 241$)	75.4 \pm 9.5		81.9 \pm 14.9	
45–54 ($n = 126$)	73.0 \pm 10.3		81.1 \pm 16.8	
55–60 ($n = 38$)	73.6 \pm 12.1		83.9 \pm 14.4	

*Mean scores are statistically significant.

antibodies is mandatory in Turkey when entering military service or getting married. It is interesting that the participants demand that the test should also be done when applying for a job or registering for school. This shows that the media have a responsibility to publish correct information and to avoid sensational news. Similarly, half of the participants said they did not like the media's behavior on this subject. They should devote more room to publications stressing that there is no drawback in staying together with HIV/AIDS-infected persons and sharing the same environment. It may also be necessary for sociologists and psychologists to make greater efforts in order to transmit the necessary messages to society about HIV/AIDS and other STDs. University graduates were significantly better informed and their attitudes differed from persons with a high-school education or less.

Both younger and older persons had limited knowledge of HIV/AIDS, but their attitudes did not change with age. The fact that the 13–24 age group is the most threatened implies that the greatest educational efforts should be directed towards this age group. Their behavior and attitudes are primarily affected by cultural, economic, social, and political factors (23). Positive and intense messages given by all segments related to this subject may be effective in modifying social behavior.

The majority of participants expressed the opinion that AIDS is a great problem for Turkey, and that all sectors of society should be involved in the struggle against this problem. Approximately 40% of participants

stated that deficient education is an important factor in the spread of STDs. Despite the fact that only 8% of participants accused the media and schools, the fact stands that they are the most important information tools and should be widely used in the struggle against HIV/AIDS. However, studies show that modifications in behaviors and attitudes can be effected through education (24,25).

Our study showed that Turkish Internet users lacked HIV/AIDS and other STD-related awareness and have mistaken opinions. Because it is the best and the fastest communication tool of our age, the Internet should be developed in order to offer people access to reliable information. On the other hand, the Internet constitutes an important threat by encouraging uncontrolled sex. We believe that Internet users should also be better informed about this subject. In view of our results, we are of the strong opinion that a certain degree of control would be beneficial. Undoubtedly, control of information on the Internet is difficult to achieve, but at least it ought to be initiated.

Study limitations

We do not know whether the participants in this study represent the entire portfolio of Isnet customers because the company refused to release any information about the number and socio-demographic characteristics of its users.

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