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Half Baked HIV/AIDS Knowledge: Blessing or Curse?

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ABSTRACT

I argue that educational efforts in Ethiopia have been partially handicapped because they have primarily focused on elevating risk perception by emphasizing how AIDS is fatal and contagious. This emphasis contributes to stigmatizing behavior by generating irrational fears directed at people with HIV/AIDS. Given the synergy between AIDS-related stigma and the spread of the disease, educational campaigns should be modified to reduce stigma in conjunction with providing basic knowledge about the disease.

KEY WORDS: Ethiopia, avoidance, HIV/AIDS knowledge, stigma, fear

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INTRODUCTION

Although many regard the 20th century as an epoch of major developments in science and technology, science has not yet triumphed over HIV/AIDS. Development of either a preventive vaccine or a curative drug is still remote. From a preventive point of view, promoting communication and disseminating knowledge about HIV/AIDS, and encouraging social support to AIDS patients are important actions for halting the further spread of HIV infection (Kaplan, *et al* 1987; MacNail, 1999). However, AIDS education programs might have also contributed to creating stigmatizing attitudes. In their study Dillard *et al.* (2001) say that one approach, widely used in the campaign against AIDS, has been to design fear generating messages that discourage risky behaviors by describing the negative consequences of such behaviors. The authors argue that such messages may induce other (other than fear) unintended affective responses. Educational efforts in Ethiopia have been primarily focused on elevating risk perception by emphasizing how AIDS is fatal and contagious. I argue that emphasizing risk and consequences of HIV/AIDS have led to fostering unintended stigmatizing attitude among the public. At the end of 2003, the prevalence of HIV was estimated to be about 7 percent. With its relatively large population (close to 70 million), Ethiopia hosts the third largest number of people with HIV/AIDS in the world (UNAIDS, 2003).

The first HIV case in Ethiopia was identified in 1986 (MoH, 1994). In just less than two decades, the estimated number of HIV cases had risen close to three million by the end of 2003 (UNAIDS, 2003). In an effort to slow down the spread of HIV infection, governmental and non-governmental organizations have launched educational efforts to increase HIV awareness and knowledge. However, two decades after the disease emerged, negative attitudes and general neglect are widespread reactions to HIV/AIDS victims. For policy advocates, the questions that arise are: What messages are being disseminated and how effective are these messages in increasing public awareness and knowledge of HIV/AIDS and ultimately in stopping the spread of HIV?

AIDS–related knowledge, Stigma, and Prevention Activities

The fight against the HIV/AIDS pandemic solely relies on preventive strategies. Disseminating accurate information about HIV/AIDS is believed to enable people to identify and avoid engaging in risky behavior. Recognizing the importance of sexual transmission in the spread of HIV in Ethiopia, the Ethiopian HIV/AIDS prevention activities stress provision of accurate information about the modes of prevention, condom promotion, and provision of early diagnosis and treatment of STD primarily for high risk groups such as young, unmarried people with multiple sexual partners, as well as commercial sex workers (MoH, 1994). Both the government of Ethiopia and non-governmental organizations have been promoting health education in the fight against HIV/AIDS. Most of these health education promotions have been conducted through formal and informal channels of communication. In general, the AIDS education messages being disseminated in Ethiopia emphasize that: a) HIV/AIDS is contagious, b) HIV/AIDS is fatal, c) there are multiple

modes of HIV transmission and means of prevention and, d) HIV/AIDS is primarily transmitted by risky behaviors. These messages are likely to make people anxious and fear news of HIV/AIDS.

However, the formats and balance of messages disseminated by formal media channels in Ethiopia have had an adverse effect on AIDS prevention activities. For instance, the strategy used by radio programs to alert the population created stigmatizing behavior. A report prepared by Ethiopia's Ministry of Health based on stakeholders' evaluation of the AIDS prevention activities agreed that "there is some evidence that the massive media campaigns have caused a backlash among parts of the population. Making people aware of a danger without actually teaching them the skills and without giving them the power and self-confidence to protect themselves is likely to lead to anxiety and fear first and fatalism later" (MoH, 1994; FHI, 2002). This is true for print media, as well. Fear appeal messages were common, especially in the early years of the epidemic, in the Ethiopian AIDS education programs. Soames Job (1988) argues that fear appeal messages are quite common in public health campaigns. The assumption behind using fear appeal messages in health communication campaigns is that people will easily be persuaded as messages induce fright and make threats against their safety.

AIDS education messages that are primarily based on AIDS fatality and contagiousness, coupled with people's poor knowledge about modes of HIV transmission, lead many to believe that HIV can be acquired through casual contact. This perception may become even more entrenched with the spread of fear regarding HIV/AIDS. Moreover, educational programs have not been able to reduce the stigma (intense negative reaction) attached to HIV/AIDS victims. As long as negative attitudes toward people with HIV/AIDS continue to prevail, the success of HIV prevention activities will be highly questionable. Consensus has been reached that appropriate measures should be taken to reduce the stigma attached to HIV/AIDS in order to effectively promote preventive activities. For example, the final report of the African Development Forum (ADF) 2000 clearly stated that stigma should be dealt with in an effective and appropriate manner to increase the success of preventive efforts in the continent (UNECA, 2000).

Reducing the stigma will benefit not just HIV positive persons, but the general public and the government as well. HIV positive persons will benefit from more favorable attitudes that reduce barriers to casual interaction, thereby facilitating their integration into the community. Furthermore, such favorable attitudes toward people with HIV/AIDS may stimulate families' and/or community contributions in providing care and support to victims in the later stage of the disease. Participation by families and the community in caring for and supporting AIDS victims may reduce government costs. Therefore, fair attitudes toward people with HIV/AIDS can improve the quality of life of people with HIV/AIDS, enhance HIV prevention activities and reduce government health expenditures.

The stigma associated with HIV/AIDS might be reduced through an education campaign. This is because the distortion of facts about HIV/AIDS by uninformed persons results in HIV/AIDS–related stigma. As a matter of fact, HIV infection is contagious, fatal and associated with stigmatized groups. Ignorant of the truth, uninformed persons distort these facts and falsely infer from them that HIV infection is spread by casual contact with infected persons. Hence, providing accurate and broad knowledge about HIV transmission and prevention is crucial in fighting stigma. However, the relationship between attitudes toward people with HIV and knowledge of HIV/AIDS

are fairly contradictory (Lewis and Range, 1992; Caprara *et al.*, 1993; Pattullo *et al.*, 1994; Aplasca *et al.*, 1995; Maswanya *et al.*, 2000). For instance, Pattullo *et al.* (1994) show that among Kenyan secondary students, a high knowledge about HIV/AIDS is associated with a positive attitude toward people with AIDS. On the contrary, among the Ivorian Bete and Baoule ethnic groups, Caprara *et al*. (1993) show that Education, as well as a better knowledge of the disease, appears to be associated with an attitude that favors isolating the patient from society.

Prejudice attached to stigmatized groups further stigmatizes those infected with the virus. Although preventive education efforts have succeeded in increasing knowledge about transmission of HIV/AIDS, which is crucial for people to protect themselves from infection, the impact of these efforts on stigma is not clear. AIDS related messages based on increasing the danger (seriousness and contagiousness) of the disease might also induce both rational and irrational measures to be safe. This may include avoidance of any casual contact with people with the virus.

The question arising is: what determines reaction to ill people? One common perspective is that symbolization of the illness affects reaction to an ill person. A lay person's cognitive representation of illness is believed to influence important health-related variables such as symptom recognition, medical help seeking, and reactions to ill persons (Clark, 1994; Croyle and Barger, 1993; Skelton and Croyle, 1991). Crandall and Moriarty (1995) identified three important illness dimensions in terms of which people categorize, interpret, and cognitively represent a wide variety of diseases. These illness dimensions are the perceived seriousness and contagiousness of the disease, and the extent to which the ill person can be held personally responsible for getting the disease. These illness dimensions are found to be correlated with social rejection of ill persons. Some studies show how one of the illness dimensions, the stressing of personal responsibility for getting the disease, influences reactions toward ill people. According to these studies, two emotions, anger and pity, mediate the effect of personal responsibility for getting the disease on reaction to ill people. The main thesis of this argument is that if an individual is held responsible for acquiring the disease, it generates anger and hence results in social rejection, whereas if an individual is not viewed as responsible for getting the disease, it generates pity which will lead to sympathetic or helping behavior toward the ill person. (Dijker and Raeijmaekers, 1999; Weiner, 1996; Weiner, Perry and Magnussen, 1988).

Since I expect anger and pity to play a role in the perception of interaction, I divide personal responsibility conditions into those which cause anger, and those which lead to pity. Seriousness and contagiousness conditions, as well as personal responsibility, are affected by social and demographic factors. Finally, I recognize that these background factors may directly influence reaction of people toward ill persons.

This paper examines the relationship between knowledge about modes of HIV transmission and stigmatization of people with AIDS. In this paper, stigma is defined as a negative reaction, namely *avoidance,* toward HIV/AIDS victims. I construct a measure of HIV/AIDS knowledge from 15 questions.

DATA AND METHODS

This paper uses data from the 2000 Amhara Reproductive Health Survey, which was conducted in three zones (Debub Wello, Oromia, and Semen Shewa) in the Amhara region of Ethiopia. The survey was conducted by Birhan Research and Development consultancy. The survey interviewed 4,710 women aged 15-49. The analysis uses data for 3,734 women who reported they were aware of HIV/AIDS. I use logistic regression models to identify factors that are associated with the stigmatization of people with HIV/AIDS

Variables

Dependent variable

Stigma- is defined as an indicator of presence of negative reactions, namely *avoidance*, toward people with HIV/AIDS. I define stigma as a 0-1 dummy variable that equals one if the respondent answered yes to the question "Would you avoid someone very close to you if s/he told you that s/he has AIDS?"

Independent variables

Knowledge about HIV/AIDS- I construct a measure for knowledge based on a series of questions about mode of transmission of HIV/AIDS. There are huge variations in questions used to measure knowledge about HIV/AIDS in previous studies. For instance, while studying migrants in Delhi slums, Gupta (1999) uses a question on whether or not a person has heard of HIV/AIDS to measure knowledge of AIDS, whereas Al-Owaish *et. al*. (1995) use 26 sets of questions that deal mainly with "modes of transmission" and "means of prevention" to define knowledge about HIV/AIDS in Kuwait. In this paper I consider 15 questions[1] to measure knowledge. These questions are mainly related to modes of HIV transmission, methods of HIV protection, and myths and misconceptions related to HIV/AIDS, in addition to a question about whether or not HIV is avoidable. Many studies that deal with HIV/AIDS knowledge have created a knowledge scale by counting the number of correct responses (Al-Owaish *et al*. 1999; Brook, 1999; Ford *et al*. 2001; Pinkerton *et al.* 2003). However, knowledge of HIV/AIDS in the population can be multidimensional (Ambati *et al.*, 1997; Lew-Ting and Hsu, 2002). To examine if any pattern exists in HIV/AIDS knowledge responses in the data set, I employed principal component factor analysis. No clear structure emerges from this analysis. Owing to the fact that items in the knowledge measures are correlated, using principal component analysis I construct an HIV/AIDS knowledge score. In this paper, the HIV/AIDS knowledge score refers to the principal component

[1] The following questions are used to measure HIV/AIDS knowledge. All questions have two options: yes/no. The questions are: 1) Is there any thing a person can do to avoid getting infected with HIV, which is the virus that causes AIDS? What can a person do? a) Abstain from sex, b) Avoid blood transfusion, c) Use condom, d) Avoid injection with unclean needle, e) Limit sex to one partner, f) Avoid kissing, g) Limit number of sexual partners, h) Avoid sex with prostitute, i) Avoid mosquito bite, j) Seek protection from traditional healer, k) Avoid sex with persons who have MSP, l) Avoid sharing razors, 3) Is it possible for a healthy looking person to have the AIDS virus? and 4) Can the virus that causes AIDS be transmitted from mother to child?

factor of HIV/AIDS knowledge and is used in the multivariate analysis[2]. The factor explains about 60% of the variation in knowledge response.

Seriousness and Contagiousness- Under this category, the following three questions are used to assess how respondents are sensitized in terms of how dangerous and contagious the disease is. a) Is AIDS incurable?; b) Does AIDS threaten humankind?; and c) Does AIDS affect everybody? For each of the three questions dummy variables defined as '1', if affirmatively answered, and '0'. if answered otherwise, are created.

Perceptions of responsibility for acquiring the virus- Public reaction to people with HIV/AIDS and their families may be affected by perceptions of responsibility for the onset of the disease. In addition, several attribution studies have focused on the role of mode of contraction, or how the virus was contracted, on perceptions of responsibility or causality (Lewis and Range, 1992; Weiner, 1996). If a person is perceived as responsible for contracting infection then perceivers tend to feel anger rather than pity toward him/her. In such situations perceivers are likely to stigmatize people with the virus. But if people with HIV/AIDS are not regarded as responsible for their infection, perceivers tend to sympathize rather than stigmatize. Thus the mode of contraction may also play a role in the assignment of responsibility and stigmatization. In order to test the relationship between respondents' attribution of responsibility and stigmatizing behavior in this study area, I use three variables, namely; one's own fault to contract the disease, people with HIV/AIDS tend to undermine advice and control from their parents, and people with HIV/AIDS lacked advice/assistance to avoid infection. Each of these variables is dummy, with a value of '1' if answered affirmatively, and '0' if answered otherwise.

Sources of information about HIV/AIDS – Every respondent was asked whether or not they receive information on HIV/AIDS through a) radio/TV, b) leaflet/brochure, c) friends/relatives, d) husbands/partners, e) social gatherings, f) youth club, g) school/college, h) health worker, and i) other sources. These options comprise both formal channels (such as radio, TV, and print media) and informal channels (such as social gatherings, friends, and religious institutions). I categorized respondents into three groups: a) those who obtain their information solely from *formal media channels*, b) those who obtain their information solely from *informal channels*, and c) those who obtain their information from both formal and informal channels. Information on HIV/AIDS from radio, TV, health worker or school/teacher is meant to be structured and accurate, and regarded here as 'formal channels.' Other sources of information from friends/relatives, social gatherings, or churches/mosques are regarded as 'informal channels.'

I control for other social variables such as marital status, education, religion, urban-rural, zone and whether a respondent knows someone with HIV/AIDS.

RESULTS

a) Distribution of Respondents

The data indicate that 21% of the study population stigmatize people with HIV/AIDS. Table 1 presents the distribution of the variables in this analysis. The average level of knowledge about HIV/AIDS is generally low (about 6 points) with high variation in

[2] A score made of counting correct answers to the 15 questions also produces similar results in multivariate analysis.

knowledge (SD=5.4). About 44% of the populations have heard only that there is a disease called HIV/AIDS. These respondents are ignorant about the knowledge items. The knowledge score also indicates that there are many people who have misconceptions about HIV transmission. For instance, 56% of the respondents believe that mosquitoes can transmit the virus and 75% believe that a healthy-looking person cannot have the virus. About 8% of the respondents stated that they know someone with HIV/AIDS. Informal channels (friends/relatives/husbands and social gatherings) (51%) are identified as the only main sources of information about HIV/AIDS. Close to 13% of the population obtain their information about HIV/AIDS only from formal channels, Radio/TV, print media, health workers and school teachers. The remaining 36% of the population obtain their information from both formal and informal channels. The population is predominantly illiterate (78%). Islam is the dominant religion in the study areas (56%). The remaining 44% are Christians. The population is predominantly rural (79%).

b) Bivariate relationships

All predictor variables have significant association with avoiding people with HIV/AIDS (Table 2). Knowledge about HIV/AIDS is significantly ($p<0.0001$) and positively associated with stigma; suggesting that an increase in the knowledge score leads to an increase in avoiding persons having HIV/AIDS. This association could be due to factors that mediate between these two variables. In order to predict the independent effect of knowledge on stigma, we examine the effects of all variables simultaneously using a multivariate analysis. I use a step by step procedure to build a full model that predicts a person's tendency to avoid people with AIDS.

c) Multivariate Analysis

I ran four separate models (Model I to Model IV) in order to examine the effect of knowledge on stigma. Model I shows the effect of knowledge about HIV/AIDS on stigma. Model II presents the effect of knowledge on stigma, controlling for social variables, namely, education, marital status, religion, urban-rural, place of residence as measured by zone, whether respondents know someone with HIV/AIDS, and source of information about HIV/AIDS. Model III presents the effect of knowledge on stigma controlling for all variables in Model II plus whether respondents think that people affected with the virus should be held responsible for infection. Model IV presents the effect of knowledge on stigma after controlling for all variables in Model III plus variables about 'seriousness and contagiousness of HIV/AIDS.'

Results of the logistics regression indicate that without controlling for any variable, knowledge about HIV/AIDS has a significant positive relationship with stigma. A unit increase in knowledge score increases the likelihood of having stigmatizing behavior by 32% (Model I). The significant positive relationship between knowledge and stigma still holds true when I control for social variables (Model II). Those currently in union, compared to those who are out of union and those with more than primary education, compared with illiterates, are significantly less likely to have stigmatizing attitudes toward people with HIV/AIDS. Muslims, compared to those who are Christians; and those who reside in urban areas, compared to rural residents, are significantly less likely to stigmatize people with HIV/AIDS. Residents in Debub Wello and Oromia zones are also significantly less likely than residents in Semen Shewa Zone to stigmatize people with HIV/AIDS.

Table 1. Distribution of Variables, Amhara Ethiopia 2000.

Variables	%
Dependent Variable	
Stigma/Avoidance	20.9
Independent Variables	
Knowledge Score *(MEAN*)	5.5
Highest grade completed	
Illiterate	77.6
Primary	17.9
Secondary and above	4.5
Marital status	
Never Married	14.4
Currently Married	68.3
Formerly Married	17.2
Religion	
Christians	44.1
Muslim	55.9
Urban/rural	
Rural	78.6
Urban	21.4
Zone	
Oromia	20.2
Debub Wello	41.8
Semen Shewa	30.8
Know Someone with HIV/AIDS (base=No)	
Yes, Know someone with HIV/AIDS	7.8
Source of information about HIV/AIDS	
Formal Channels	12.8
Informal Channels	51.4
Formal and Informal Channels	35.8
Perceptions of responsibility to acquire the virus	
Own fault (Yes)	10.8
Lacked parental control (Yes)	13.4
Lacked advice (Yes)	19.6
Seriousness and Contagiousness	
Is AIDS incurable? (Yes)	53.3
Does AIDS threaten humankind? (Yes)	50.1
Does AIDS affect everybody? (Yes)	43.3

Table 2. Distribution of Women Who Avoid People with HIV/AIDS by Background Variables, Amhara Ethiopia 2000.

Variables	%
Knowledge Score *(MEAN*)	8.8
Highest grade completed *	
Illiterate	20.4
Primary	24.5
Secondary and above	14.9
Marital status *	
Never Married	19.1
Currently Married	22.3
Formerly Married	16.9
Religion *	
Christians	23.1
Muslim	19.1
Urban/rural	
Rural	22.4
Urban	15.5
Zone	
Oromia	13.4
Debub Wello	20.9
Semen Shewa	24.9
Know Someone with HIV/AIDS	
Yes, Know someone with HIV/AIDS	36.0
Source of information about HIV/AIDS	
Formal Channels	22.8
Informal Channels	17.3
Formal and Informal Channels	25.3
Perceptions of responsibility to acquire the virus	
Own fault (Yes)	70.3
Lacked parental control (Yes)	68.5
Lacked advice (Yes)	51.5
Seriousness and Contagiousness	
Is AIDS incurable? (Yes)	37.1
Does AIDS threaten humankind? (Yes)	37.6
Does AIDS affect everybody? (Yes)	35.0

Results from Model III show similar results to most of the variables included in Model II. Knowledge of HIV/AIDS and stigma are significantly and positively associated. In this model, respondents do not differ in their reaction toward people with HIV, irrespective of whether or not they ever know a person with HIV/AIDS. Respondents who think that it is the fault of the person with HIV/AIDS for becoming infected are 3 times as likely as those who do not consider peoples' infection as their own fault to stigmatize people with HIV/AIDS. Also those who thought people with HIV/AIDS became infected because they 'lacked parental control,' i.e., people with

HIV/AIDS were rebellious or unable to be controlled by their parents, are about 6 times as likely as those who didn't think so to stigmatize people with HIV/AIDS. On the contrary, respondents who thought that people with HIV/AIDS were infected because they lacked advice/knowledge about how to protect themselves are less likely to stigmatize people with HIV/AIDS. These results suggest that stigmatizing behavior depends on judgment as to how one gets the virus. Unlike results in Model II, in this model, sources of information also have significant impact on stigma. Compared with individuals who obtain their information about HIV/AIDS only from informal channels, those who obtain their information from only formal channels are more likely to stigmatize victims.

Model IV includes variables related to seriousness and contagiousness of the diseases in addition to all variables in Model III. Once controlling for seriousness and contagiousness variables, the positive significant association between the knowledge score and stigma dissipates. In this model, seriousness and contagiousness knowledge about HIV/AIDS has the most influence on stigma. Those who believe that the disease is incurable are about 10 times as likely as those who do not think so to avoid people with HIV/AIDS. Those who believe that the disease threatens humankind are 3 times as likely as those who do not think so to avoid people with HIV/AIDS. However, those who think that AIDS affects everybody are negatively and significantly associated with stigmatizing behavior. Results from this model indicate that the three variables considered as proxy measures for 'fear' do not have consistent effects on stigmatizing behavior. Those who believe that the epidemic is fatal and threatening are more likely to have an unfavorable reaction to victims; whereas those who believe that 'AIDS affects everybody' are less likely to have an unfavorable reaction to people with HIV/AIDS. Almost all other variables in this model maintain the same effect on stigma as they did in Model III. The only difference observed is that respondents who obtain their information from both formal and informal channels no longer have a statistically significantly different behavior toward people with HIV/AIDS.

DISCUSSION AND CONCLUSION

This analysis demonstrates that knowledge about HIV/AIDS modes of transmission is associated with increasing stigma toward people with HIV/AIDS. To date, the only measure to halt the spread of HIV/AIDS is AIDS–related education promotion. The positive contribution of education promotion in fighting the spread of the disease has been apparent. Central messages of the promotion activities have been 'abstain', 'be faithful' and 'use condoms.' These messages mainly focus on how to avert risk of infection. Apart from that, educational efforts in Ethiopia have been partially handicapped, because they have primarily focused on elevating risk perception by emphasizing how AIDS is fatal and contagious. This approach has generated and strengthened fear, which in turn creates stigma directed at people with the virus. Indeed reports from Ethiopia have also indicated that the AIDS education campaigns generated fear (MoH, 1996; FHI, 2002). So far, the education promotion campaigns do not adequately address stigma which is believed to have a tremendous effect on the success of preventive campaigns. Given the synergy between AIDS–related stigma and the spread of the disease, current education programs are partially handicapped. Education programs could have achieved more if they had addressed the issue of stigma. Therefore, in order for preventive efforts to succeed, educational campaigns should be modified to explore issues of stigma in conjunction with providing basic knowledge about the disease. Generally, since AIDS is differentially viewed from moral, cultural, and political

perspectives, AIDS information can be ambiguous or misleading depending on who disseminates the information. Because the majority of the population acquires their knowledge about HIV/AIDS through informal contacts and these channels could be contaminated with myths and misconceptions, if clear AIDS messages do not prevail, an effort should be made to ensure that the information disseminated is accurate and non-stigmatizing.

Table 3 – The Predicted Likelihood (Odd Ratio) of AIDS-Related Stigma (Avoidance) Toward People with HIV/AIDS Using Logistic Regression, Amhara Ethiopia 2000.

Variables	MODEL I	MODEL II	MODEL III	MODEL IV
Knowledge about HIV/AIDS				
Knowledge score	1.321***	1.412***	1.369***	1.019
Social variables				
Highest grade completed (base=Illiterate)				
Primary		0.809	0.730*	0.773
Secondary and above		0.399***	0.454**	0.585*
Marital status (base=currently married)				
Never Married		0.702*	0.878	0.939
Currently Married		0.707*	0.688*	0.732*
Religion (base=Muslim)				
Christian		0.469***	0.494***	0.519**
Urban/rural (base=rural)				
Urban		0.527***	0.535***	0.532***
Zone (base=Semen Shewa)				
Oromia		0.315***	0.273***	0.308***
Debub Wello		0.239***	0.253***	0.381***
Knowledge of HIV/AIDS victim (base=No)				
Know someone with HIV/AIDS		1.323*	1.062	1.163
Source of information about HIV/AIDS (base=informal)				
Formal channels		1.256	1.438*	1.198
Formal and Informal Channels		1.175	0.958	0.872
Perceptions of responsibility to acquire the virus				
Own fault (Yes)			2.985***	3.045***
Lacked parental control (Yes)			5.656***	4.821***
Lacked advice (Yes)			1.106	0.811
Seriousness and Contagiousness				
Is AIDS incurable? (Yes)				9.740***
Does AIDS threaten humankind? (Yes)				3.237***
Does AIDS affect everybody? (Yes)				0.624**
Degrees of Freedom	1	12	15	18
Likelihood Ratio	375.3***	560.3***	1063.6***	1330.7***

* p<0.05
** p<0.005
*** p<0.0001

All the three variables considered as proxy measures for 'fear' do not have consistent effects on stigmatizing behavior. The negative association between the questions 'AIDS affects everybody'

and 'intention to avoid people with HIV' requires further elaboration. What does an affirmative answer to the question 'AIDS affects everybody' mean? An affirmative response to this question can have two opposite meanings and can thus lead to different reactions toward people living with HIV/AIDS. For instance, an affirmative answer can mean that AIDS can affect anyone irrespective of color, status, age, religion, etc., as long as appropriate methods are not adopted to avert infection. A woman with such understanding has correct knowledge and seems to believe that there are appropriate means of HIV prevention that can be adopted. Such a woman is less likely to worry about casual contact, and hence, less likely to avoid people with the virus. Also, an affirmative answer to the question that 'AIDS can affect everybody' can represent a fatalistic view: we cannot avoid it; everybody will be infected anyway, etc. People who hold fatalistic views about the disease do so because they believe that means of protecting themselves from the disease are beyond their reach. If the reason why those who affirmatively respond to the question 'AIDS can affect everybody' are likely to have stigmatizing behavior is because they hold fatalistic views, it indicates the inadequacy of AIDS education programs to reach the public at large and correct such views. Therefore, the AIDS education promotion campaigns should be directed at providing broad information about the disease, modes of transmission and means of prevention, and care and support to people with AIDS to provide knowledge and skill, as well as to dissipate mythical and fatalistic views.

Further research is needed to better understand mechanisms by which differences in place of residence or religion significantly affect stigmatizing attitudes. Disparities in HIV/AIDS intervention activities, if any, in the two religions, three zones, and urban-rural areas could contribute to the exhibited differences.

To sum up, the fact that HIV is fatal and contagious could create anxiety. This anxiety in turn may lead to defective judgment regarding AIDS and AIDS related issues. Although AIDS is transmissible, the medium of transmission should not have created stigma. AIDS is transmitted through exchanging bodily fluids, semen and blood with infected people. From this point of view, AIDS is a disease that cannot be transmitted through casual contact compared with other communicable diseases such as influenza, which are airborne diseases. Hence, it should not have led to avoiding people with AIDS. This implies that lack of accurate information on HIV protection and transmission is still a very crucial issue in determining one's reaction to AIDS patients.

Since the overall level of knowledge about HIV/AIDS is low, my recommendation is that, in order to raise knowledge levels, comprehensive education campaigns providing basic knowledge about infection and protection should be continued. Also, education promotion should recognize that fighting stigma is a component of prevention activities and hence, appropriately tailored non–stigmatizing educative messages should be included in all educative materials. More importantly, the education programs should be cognizant of, and adequately address, prejudice surrounding the disease. Since, as a matter of fact, information is commonly and quickly transmitted through informal channels, education programs should take full advantage of social gatherings, as a medium for disseminating *accurate* and *non–stigmatizing* information. Working through this mechanism has the significant advantage of being cost effective.

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