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Shiraz E-Medical Journal
Article DOI: 10.5812/semj.96311
Published in: Shiraz E-Medical Journal: 21(7); e96311

Peer Review Report for "HIV-Related Knowledge and Stigma Among the General Population in the Southeast of Iran"

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Review Timeline:

Submit Date: 15 Jul 2019
Revised Date: 24 Dec 2019
Accepted Date: 10 Jan 2020

Revision (0)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

REFEREE: Reviewer | **Revision** (0) — 20 Aug 2019

Dear AE,
1. Location of the study is not clear in the abstract.
2. There was no information about the questionnaire in the abstract.
3. There was no information about construct validity of the questionnaire.
4. High stigma means <10 or >10?
5. 66.2% were married or divorced?
Thanks.

REFEREE: Reviewer | **Revision** (0) — 28 Aug 2019

Dear AE,
Comments for the authors:
- The title is not novel but the subject is attractive
In the method:

- It is necessary to explain validity. What did the total score mean?

Result:

- Please address table 2 in this section
- Total rate of this manuscript:
- Originality: poor
- Technical quality: good
- Clarity of presentation:
- Result: good
- Explaining about validity of questionnaire: fair

Thanks.

REFEREE: Associate Editor | **Revision** (0) 31 Aug 2019

Dear EIC

The reviewer(s) have recommended publication, but also suggest some minor revisions to the manuscript. Therefore, I invite the author to respond to the reviewer(s)' comments and revise his manuscript.

Kind regards,

REFEREE: EIC | **Revision** (0) 3 Sep 2019

Dear Author,

The reviewers' comments are mentioned. Please correct the details as mentioned above carefully according to reviewers' request.

Thanks.

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Revision (1)

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You can read the authors' responses to the reviewers' comments in the next page.

Dear Editor in cheif of Shiraz E-Medical Journal
Thank you for considering this work for publication in Shiraz E-Medical Journal. We considered the comments of the reviewers and applied the comments in the manuscript. We highlighted the sections we changed. A copy .with highlight and a copy withoiut change submit to the journal

Reviewer: 1

1- Location of the study is not clear in the abstract.
Answer: thanks for your comment, It has been added.

2- There was no information about the questionnaire in the abstract.
Answer: thanks for your comment, It has been added.

3- There was no information about construct validity of the questionnaire.
Answer: thanks for your comment, we have reported the detail process of scale validation and psychometric properties of the scale in other manuscript which it has not yet published. Therefore, we totally explained about the scale validation. However, we added some other information about scale validity in the manuscript.

4- High stigma means <10 or >10?
Answer: thanks for your comment, It has been checked and revised.

5- 66.2% were married or divorced?
Answer: thanks for your comment ,The prevalence of being divorsed or widow/er was 3% in the present study. As this rate was very low we dicided to merg it with other categories. As having the history of marriage is very different to being single, we finaly categorized the marital status as single and ever married. Therefore, the participants who divorsed was merged in the “ever married” category. However, we changed the text and reported the single participants frequency.

Reviewer: 2

1- The title is not novel but the subject is attractive.
Answer: thanks for your comment

2- It is necessary to explain about validity.

Answer: thanks for your comment we have reported the detail process of scale validation and psychometric properties of the scale in other manuscript which it has not yet published. Therefore, we totally explained about the scale validation. However, we added some other information about scale validity in the manuscript.

3- What did total score mean?

Answer: thanks for your comment, It has been highlited in the text.

4- Please address table 2 in this section

Answer: thanks for your comment, It has been addresed in the text.

HIV-related knowledge and stigma among the general population in southeast of Iran

Abstract

Background: HIV-related stigma is a barrier to effective HIV responses among people living with HIV (PLHIV).

Objectives: We aimed to measure knowledge, stigma and factors associated with them among the general population in the southeast of Iran through a self-administered questionnaire.

Methods: We conducted a cross-sectional study among a convenience sample of 900 people in Kerman, southeast of Iran, between July to September 2016. Data collection was completed using a three-part researcher-made questionnaire including: i) demographic and background characteristics, ii) HIV-related

stigma, and iii) HIV-related knowledge. Data were analyzed using descriptive statistics, bivariable, and multivariable linear regressions.

Results: Low, moderate, and high levels of stigmatizing attitudes toward PLHIV were reported by 39.1%, 57.8%, and 3.1% of the participants, respectively. Female sex (beta: 0.33, P-value: 0.01), and not having a history of HIV testing (beta: 0.45, p-value: <0.001) were positively associated with higher levels of stigmatizing attitudes, while higher levels of education (beta: -0.97, p-value: <0.001) was associated with lower level of stigmatizing attitudes.

Conclusions: Various population-level gender-sensitive educational interventions need to be developed to reduce the negative attitude towards PLHIV.

Keywords*:* Stigma, attitude, knowledge, people living with HIV, Iran

1. Background

HIV-related stigma is considered one of the main obstacles for an effective response to the HIV epidemic worldwide (1). The Joint United Nations Program on HIV/AIDS (UNAIDS) defines HIV-related stigma as: “a process of devaluation of people either living with or associated with HIV and AIDS” (2). Stigma could manifest in two ways: 1) internal stigma, which leads to an unwillingness to seek help and access resources; and 2) external stigma, which leads to discrimination by HIV status or association with someone who is living with HIV/AIDS (3). Stigma and discrimination not only affect preventive measures for HIV transmission (4-7), but also reduce PLHIV’s access to health services, social interactions and supports (5, 8, 9); issues that are more pronounced in the context of conservative and Islamic countries (10).

In Iran which has the highest number of known people living with HIV (PLHIV) in the Middle East (i.e., 35,000), the HIV epidemic is concentrated mainly among people who inject drugs (PWID) and female sex workers (FSW); however, a shift in the primary mode of transmission from drug use to sexual behaviors is evident (11-15). Although more than 30 years have passed since the epidemic’s onset in Iran, PLHIV continues to experience significant HIV-related stigma and are often shunned by the general public. While there is a growing literature on HIV-related stigma, our understanding of HIV-related stigma among the general population in Iran remains very limited (16, 17) and most

studies have focused on knowledge and attitudes of the general populations towards HIV (18-22).

Previous stigma studies have mainly investigated the lived experiences of PLHIV and highlighted the high levels of internal and external stigma among them in a variety of contexts. For example, participants mentioned internal stigma like silence, shame, and feeling miserable also they reported experiencing external stigma from their families, communities, and the health care system (3, 23-25).

2. Objectives: Given our limited understanding of HIV-related stigma among the general population in Iran and the limitations of the existing narrow body of evidence (e.g., small sample size, qualitative study designs), the present study aimed to assess HIV-related stigma among the general population in the southeast of Iran in 2016.

3. Methods

3.1. Participants and setting

This cross-sectional study was conducted in Kerman (the largest city in the southeast of Iran with a population around 750,000 individuals) from July 2016 to September 2016. Assuming that 50% of the general population had stigmatizing attitudes (26), 95% confidence interval (CI), and a precision level of 0.07, a sample size of 784 was calculated. Due to the convenience nature of the sample, the questionnaires were distributed among 1,045 individuals and 900 of them answered to the questions (response rate=86.1%).

Based on urban divisions, Kerman city consists of four urban regions. Therefore, first, the city was categorized into four strata. Within each stratum, neighborhoods were considered as clusters and some neighborhoods were randomly selected. In each cluster, according to the sample size, trained interviewers selected participants from different crowded streets and public places (e.g., shopping centers, parks, Transit stations) at different times of the day. This was guided by the result of previous studies in Iran that suggested people are more likely to disclose sensitive information (e.g., sexual health-related topics) in street-based surveys compared to household- or telephone-based surveys (27, 28). The study population included all people of the society above 18 years' old who were able to make verbal communication. In addition, people had not heard about HIV excluded from the study. The questionnaire was self-administered, however, In case insufficient literacy, the questionnaire was completed with the interviewer's assistance.

3.2. Ethical Consideration

..... University of Medical Sciences reviewed and approved the proposal (Reference number: .....). Before starting the interview, the participants were provided with the information that reviewed the objectives of the study and the confidential and anonymous nature of the data. The participant could withdraw from the interview at any time and provided verbal informed consent.

3.3. Data collection

Data collection was completed using a three-part researcher-made questionnaire was used: i) demographic and background characteristics, ii) HIV-related stigma, and iii) HIV-related knowledge. We collected information on age (<30 or ≥30), gender (men or women), marital status (single or ever married), education (less than diploma, diploma, or college/university), current +occupation status (unemployed/housewife, student university, or employed), self-reported knowledge about high risk behaviors (Yes or No) and their history with regard to these behaviors (Yes or No), knowledge about HIV (continuous), sources of receiving information about HIV (scientific books, mass media, internet/social networks, family/friends/relatives, health care centers, or school/university), the history of HIV test (Yes or No), and the history of having communication with an individual living with HIV if they knew any (Yes or No). Knowledge about HIV transmission was measured using a scale with three general items, with the following response options: “correct,” “incorrect,” and “I do not know”. The sum of the scores yielded a final score ranged from 0 to 24, and then standardized on a 0 to 20 score, with higher scores indicating higher knowledge about HIV. We then categorized the standardized score poor (i.e., <10), moderate (i.e., 10-14), and high knowledge (i.e., >14) (21).

We measured HIV-related stigma using the HIV-related stigma index, an 18-item scale with four subscales. The subscales were ‘Patient social position’ with five items, ‘Social support’ with four items, ‘Social disease perspective’ with seven items, and ‘Social harassment’ with two items **(Table 2)**. Items were

rated on a five-point Likert scale ranging from completely agreed (score 5) to completely disagreed (score 1), yielding an overall score ranged from 18 to 90, with a higher score indicating a higher level of HIV-related stigma (i.e., negative perception) towards PLHIV. Psychometric properties of the questionnaire were evaluated using content and construct validity and internal consistency and repeatability. To measure validity of the questionnaire, we used the comments of 15 people who were in our sampling frame (Including nurses, midwifes, social medicals, Health education specialists, sociologists and epidemiologists). The Content Validity Index was 0.98. The construct validity showed that this index has four dimensions: 4 " patient social position " (5 items), "Social support" (4 items), "Social disease perspective" (7 items), and "Social harassment" (2 items). The confirmatory factor analysis showed that the 4-dimension index of stigma had suitable fit indices. In addition, the scale had a good internal consistency and stability (Cronbach's alpha coefficient = 0.69 and ICC = 0.57).

For the analysis, we standardized the score on a value from 0 to 20. With higher scores indicating higher HIV-related stigma. We then categorized the standardized score poor (i.e., <6), moderate (i.e., 6-10), and high stigma (i.e., >10).

3.4. Data analysis

Descriptive statistics were reported for continuous (mean and standard deviation) and categorical (absolute and relative frequencies) measure. To

examine the factors associated with HIV-related stigma, we first ran multiple bivariable linear regression models in which HIV-related stigma was the study dependent variable and demographic, background, and HIV knowledge were considered as independent factors. To deal with the issue of bias due to confounding, we also performed multivariable linear regression. A three-stage model-building approach was used to assess the effect of different variables on the stigma score. In the first stage, correlation analysis of independent variables was conducted to identify pairs of variables that essentially contained the same information and had to be removed due to collinearity. In the second stage, the bivariable analysis was carried out to identify variables that were associated with stigma. During this screening phase, a significance level of 0.25 was used. In the third stage, all variables with $P<0.25$ were simultaneously inserted into a full model which was, subsequently, reduced by backward elimination. The procedure was repeated until all the remaining variables were significant at $P<0.05$ (29). Data were analyzed using SPSS 20.

4. Results

4.1. Participant characteristics

Totally, 900 men and women over 18 years old responded to the questions (response rate=86.1%). Of the overall sample analyzed (N = 900), the mean (SD) age of participants was 35.89 (12), 50% were male and 33.8% were single, 57% reported having a university degree and 63.6% had a job (**Table 1**).

Overall, 74.3% of participants believed that they were aware of the high-risk behaviors, 14.7% reported having at least one high-risk behavior and 16.9% reported a history of HIV testing. A considerable proportion of the participants (89.8%) assumed they knew about HIV and mass media (radio, television, newspapers, and magazines) was reported as the main source of HIV-related information (86.1%). While knowing an individual living with HIV was reported by 9.4%, only 3.9% had regular communication with such individuals. The mean (SD) score of HIV-related knowledge was 16.05 (2.27) (on a score ranged from 0 to 20). The high, moderate, and low HIV-related knowledge was respectively estimated among 87.6, 11.7, and 0.8% of the total sample (**Table 1**).

Mean (SD) score of HIV-related stigma was 7.5 (1.94), ranging from 1.11 to 14.72 out of a possible range of 0 to 20. Of the total sample, 39.1% had a low level of HIV-related stigma, 57.8% had a moderate level of HIV-related stigma, and only 3.1% had a high level of HIV-related stigma towards PLHIV. According to the result of dimension I (Patient social position), about 75% of the participants agreed/completely agreed that ‘PLHIV should be ashamed of their disease.’ Also, 55% of them agreed/completely agreed that ‘PLHIV will lose their respect and social status.’ According to the result of dimension III (Social disease perspective), 90% of participants agreed/completely agreed that ‘All PLHIV are guilty.’ Based on dimension IV (Social harassment) 53% of

them agreed/completely agreed that ‘In our society, PLHIV will be verbally assaulted’ (**Table 2**).

In addition, the scores of each dimension were calculated based on 20. The mean (SD) of ‘Patient social position’, ‘social support’, ‘Social disease perspective’ as well as ‘Social harassment’ were respectively 12.02 (4.38) ranging from 0-20, 4.12 (2.95) ranging from 0-16.25, 12.02 (4.38) ranging from 0-20, and 4.59 (10.23) ranging from 0-20. Therefore, the lowest level of stigma belonged to the ‘social support’ dimension followed by the 'Social harassment.

4.2. Factors associated with HIV-related stigma

Results from the bivariable linear regression showed that higher HIV knowledge, higher education level, and being university student were associated with lower level of HIV-related stigma (i.e., more positive perception), while being women, lack of knowledge on high-risk behaviors, no HIV testing were associated with higher level of HIV-related stigma (i.e., more negative perception). Analysis from the multivariable linear regression demonstrated that higher level of HIV knowledge (beta = -0.05, P-value = 0.05) and having diploma (beta = -0.64, P-value = 0.006) or higher education (beta = -0.97, P-value < 0.001) were significantly associated with lower level of HIV-related stigma. Conversely, female gender (beta = 0.33, P-value = 0.01) and never having HIV testing (beta = 0.45, P-value = 0.009) were associated with increased levels of HIV-related stigma (**Table 3**).

5. Discussion

In the current study, we documented a high proportion of either moderate (57.8%) or high (3.1%) level of HIV-related stigma in our study population, indicating negative perception/attitude, towards PLHIV. Interestingly, we found that women had a more negative perception. In addition, higher stigma was associated with not having had an HIV test, while higher HIV knowledge and a higher level of education were associated with lower HIV-related stigma. Consistent with our study, other research also reported a high level of HIV-related stigma. For example, A study on Stigma against HIV-infected persons among migrant women living in Shanghai, China reported that 80% of participants afraid of HIV positive people and above half of them had a discriminative attitude towards people with HIV (30). In a national study among young individuals (2016) reported that only 20.7% had a positive attitude towards PLHIV (21).

Although previous studies showed a relatively high level of stigma in Iran and PLHIV have repeatedly reported experiencing several forms of stigmatizing practices (3, 17, 23), our finding suggests that there might have been a shift in people's attitude toward PLHIV, in the past few years probably due to the role of media. However, the fact that moderate levels of stigma was frequent. To support the importance of the government-based media, we found that more than 80% of the study sample reported that mass media (radio, television, newspaper and magazines) was the main source for receiving reliable information about HIV. A previous national population-based survey among

Iranian youth also found that almost 70% of young people in a national study with convenience sampling obtained their information about HIV from mass media (21).

However, despite the importance of such mass media-based approaches to improve the knowledge of the general population about HIV – e.g., its impact on HIV testing referrals (31), such high level of stigma within the general population implicates that the current interventions, even though appear to be beneficial, require to be improved to reduce the negative attitudes towards PLHIV in Iran effectively. In line with prior studies in Shanghai, China (2017), Vientiane (2010), and Heilongjiang, Northeast China (2016) (30, 32, 33), we also found a significant inverse association between higher level of HIV knowledge and lower level of HIV-related stigma. Therefore, public educational campaigns aimed at improving knowledge and reducing HIV-related stigma in the general population should be continued. Such approaches should also enhance communications between individuals with HIV and the general population to both decreases the internalized level of stigma among affected individuals and their negative perception of the people surrounding them, for example, providing training programs for the general population to increase their awareness in national AIDS day and other similar days. The interventions in which individuals with HIV are involved may reduce the level of HIV-related stigma among the general population; an approach called the “contact

hypothesis" (34) through which prejudice or discriminatory attitudes towards "other" groups – here people with HIV – can be mitigated via intergroup interactions (35).

Development of the stigma-reduction interventions is particularly imperative among women as we found women had a higher level of HIV-related stigma. It might be hard to explain the reasons for such significant differences between men and women about HIV-related stigma levels in the current cross-sectional study; however, women in Iran have historically experienced greater social, cultural, and contextual barriers (24, 36) that might impact their level of knowledge and their attitude. Our findings may indicate gender-based interventions in which women's negative attitudes about HIV can be effectively addressed. More attempts by government and policymakers are required to be put into scaling up and implementing stigma-reduction strategies such as HIV education and prevention campaigns at the community level, in which cultural and social norms are taken into account (37). Apart from the community-based interventions, other studies have proposed a combination of multiple strategies at different levels of individual, interpersonal, organizational, and public policy to address the issue of HIV-related stigma and discrimination better (7).

We also identified that around 0ne-sixth of participants reported lifetime having HIV test. Subsequently, we found that individuals who reported HIV testing had a greater level of positive attitude towards HIV and individuals living with HIV relative to those who never did HIV testing. We did not explore

the reasons for HIV testing among our participants; however, this proportion is consistent with prior studies in Iran with 13.6% (38) and 13.1% in another study (21). Therefore, stigma reduction strategies may require to address the importance of HIV testing. While previous studies have predominantly focused on the impact of HIV-related stigma on the reduction of individuals' desire to involve in HIV testing(39), we identified the-other-way-round association. Although such reverse association might be due to the nature of the sampling strategies of study, this may not impact the importance of both HIV testing and HIV-related stigma and their associations together.

5.1. Study Limitations: We acknowledge the limitations of this study. The first limitation was that this study was conducted only in Kerman and this finding may not be applied to the entire country. However, we think that our findings in a large urban setting are informative for other provinces. The second one was that this study relied on self-reported attitudes and is therefore subject to reporting bias. Overall, given the scope of the study, we believe our findings have important implications for both research and policy.

5.2.: Conclusions

Approximately 60% of our study population reported experiencing a moderate to high level of HIV-related stigma towards PLHIV. Gender-based stigma-reduction strategies and increasing HIV-related knowledge have the potential to improve the level of negative attitudes toward HIV. While mass media-based strategies can still be considered as one of the main strategies to

increase knowledge of the general population about HIV, multiple approaches in which different levels of individual, organizational and communities are considered can better address HIV-related stigma. Educational and preventive national campaigns in which a broad range of population is covered can be considered as one important strategy to reduce HIV discrimination and stigma.

Acknowledgements

The authors would like to thank ..... University of Medical Sciences for Financial support of this project. We also thank the interviewer team for their .worthwhile cooperation in gathering information

:Footnotes

Authors' Contribution

Study concept and design: M.D., H.SH., M. K., AA.R and A.I.

Analysis and interpretation of data:M.SH., N.N. and M.K

Drafting of the manuscript: M.D., S.M. and F.T.

Critical revision of the manuscript for important intellectual content:M.D., H.SH., M.K., A.I., N.N., S.M., F.T., M.SH. and AA.R

Conflict of interest

.None to declare

:Ethical Approval .....

Funding/Support

.This study was founded by the ..... University of Medical Sciences, Iran

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Table 1. Demographic and background characteristics of participants to estimate the HIV knowledge and stigma in southeast of Iran (n = 900).

Variable	N (%)
Age (yr)	
<30	316 (35.4)
≥30	577 (64.6)
Gender	
Men	450 (50)
Women	450 (50)
Marital status	
Single	304 (33.8)
Ever married	596 (66.2)
Educational Level	
Less than diploma	87 (9.7)
Diploma	298 (33.3)
College/University	513 (57.0)
Occupation	
Unemployed/Housewife	186 (20.7)
University Student	141 (15.7)
Employed	573 (63.6)

Knowing about high-risk behaviors (Yes)	668 (74.3)
History of being involved in high-risk behaviors (Yes)	132 (14.7)
Ever HIV testing	152 (16.9)
Last-time HIV testing	
Within last year	35 (23.0)
Within 1 to 2 years ago	34 (22.4)
Before 2 years ago	83 (54.6)
Self-reported sufficient knowledge about HIV (Yes)	802 (89.8)
Sources of information about HIV*	
Scientific books	186 (22.2)
Mass Media (radio, television, …)	720 (86.1)
Internet and social networks	404 (48.3)
Family/friends/relatives	236 (28.2)
Healthcare centers	167 (20)
School/university	355 (42.5)
Knowing an individual living with HIV (Yes)	84 (9.4)
Having communication with PLHIV	35 (3.9)
HIV-related knowledge	
High	788 (87.6)
Moderate	105 (11.7)
Low	7 (0.8)
HIV-related stigma	
Low (positive perception)	352 (39.1)
Moderate	520 (57.8)
High (negative perception)	28 (3.1)

* Participants could select more than one choice

Table 2. Participants' responses to HIV-related stigma index in southeast of Iran (n = 900).

Item	Responses (Frequency/Valid Percent)		
	Disagree	No idea	Agree
Dimension I: the Patient social position			
The person living with HIV should be ashamed of his/her disease.	86 (12.3)	91 (13)	523 (74.7)
The family of PLHIV should be ashamed of having such a family member.	281 (40.1)	189 (27)	230 (32.9)
In our society, PLHIV is rejected and forgotten by their families.	227 (32.5)	198 (28.4)	288 (42)
In our society, PLHIV is rejected and forgotten by their close friends.	176(25.1)	165 (23.6)	359 (51.3)
PLHIV will lose their respect and social status.	173 (24.7)	143 (20.5)	383 (54.8)
Dimension II: Social support			

Physicians, nurses and other care providers should treat PLHIV like other patients.	52 (7.4)	123 (17.6)	525 (75)
PLHIV should be welcome in social participation.	46 (6.7)	87(12.4)	566 (80.9)
PLHIV should be allowed to work and cooperate with others.	23(3.3)	77 (11)	599 (75.7)
PLHIV should be treated like anyone else in society.	227 (32.5)	193 (28.4)	288 (42)
Dimension III: Social disease perspective			
All PLHIV are guilty.	10 (1.4)	59 (8.5)	629 (90.1)
PLHIV are disgusting.	560 (80.3)	123 (17.6)	15 (2.1)
Only those who have high-risk sexual relationships are at risk of HIV.	466 (66.9)	181 (26)	49 (7.1)
PLHIV should be punished.	530 (76)	151 (21.6)	16 (2.4)
HIV is a punishment of individual behaviors in the past.	408(58.5)	227 (32.6)	62 (8.9)
Quarantine of positive individuals is the best method for prevention of HIV.	413 (59)	216 (30.9)	71 (10.1)
We should not buy fruits and vegetables from the PLHIV.	395 (56.7)	264 (37.9)	38 (5.4)
Dimension IV: Social harassment			
In our society, PLHIV will be verbally assaulted.	159 (22.7)	169 (24.1)	372 (53.2)
PLHIV will be physically assaulted in our society.	327 (46.7)	212 (30.3)	160 (23)

Table 3. Correlates of HIV-related stigma from the perspective of the general population in the southeastern of Iran (N = 900).

Variable	**Bivariable liner regression**			**Multivariable liner regression**		
	Beta	**95% CI***	**P-value**	**Beta**	**95% CI**	**P-value**
HIV-related knowledge	-0.07	-0.13, -0.02	0.01	-0.05	-0.1, 0.01	0.05
Age						
<30	Ref.					
≥30	0.26	-0.01, 0.52	0.06			
Gender						
Men	Ref.			Ref.		
Women	0.34	0.08, 0.59	0.009	0.33	0.08, 0.58	0.01
Marital status						
Single	Ref					
Married/Divorced/widow	-0.17	-0.44, 0.09	0.19			
Educational level						
Less than diploma	Ref			Ref.		
Diploma	-0.72	-1.19, -0.26	0.002	-0.64	-1.1, -0.19	0.006
College/University	-1.1	-1.53, -0.65	<0.001	-0.97	-1.4, -0.53	<0.001
Occupation						
Unemployed/Housewife	Ref					
University Student	-0.55	-0.98, -0.13	0.01			
Employed	-0.24	-0.56, 0.08	0.15			
Knowledge of high-risk behaviors						
Enough	Ref.					
Not enough	0.45	0.16, 0.74	0.002			
Reported experiencing high-risk behaviors						
No	Ref.					

Yes	0.14	-0.23, 0.52	0.44			
History of HIV testing						
Yes	Ref.			Ref.		
No	0.6	0.26, 0.94	0.001	0.45	0.11, 0.78	0.009

∗ Confidence interval

OPEN PEER REVIEW

Revision (1)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

REFEREE: Reviewer | **Revision** (1) 20 Oct 2019

Dear AE,
The study is reviewed carefully. According to comments and revisions by the author, this manuscript is accepted.
Thanks

REFEREE: Reviewer | **Revision** (1) 2 Dec 2019

Dear AE,
This is an attractive population-based stud, which is done in Kerman city of Iran and the results could be beneficial for other cities. Overall, the article is written well, but needs some corrections.
Tile and Abstract
1) Please follow capitalization rules in the title.
2) Instead of factors associated with them, it is better to say “and associated factors…”
3) Please refer to the information analysis software
4) “population-level in phrase “various population-level gender-sensitive educational interventions…” is not necessary.
Background
1) HIV-related stigma is considered one of??? Or as one of..??
2) You mentioned “Previous stigma studies have mainly investigated the lived experiences of PLHIV..”. In the similar context of Iran, HIV-related stigma among healthcare providers is also studied a lot. Please refer to below articles;
- Religious beliefs and HIV-related stigma: Considerations for healthcare providers
- Stigmatized attitude of healthcare providers: a barrier for delivering health services to HIV positive patients
Methods
1) Please omit “to” in “answered to the questions..”
Discussion
1) The uppercase is used in the middle of the sentence; … A study on Stigma…
2) However, the fact that moderate levels of stigma was frequent????? You mean the fact is …
3) The government-based media? Do you mean national media??
4) “Such approaches should also enhance communications between individuals with HIV and the general population to both decreases the internalized level of stigma among

affected individuals and their negative perception of the people surrounding them, for example, providing training programs for the general population to increase their awareness in national AIDS day and other similar days": it is too long.
5) "It might be hard to explain the reasons for such significant differences between men and women about HIV-related stigma levels in the current cross-sectional study". Before the sentence, you talked about the higher level of HIV-related stigma among females. So, such a long sentence is not necessary.
6) You repeatedly used long sentences, especially in the discussion and the conclusion sections.
7) Lifetime having HIV test??? Do you mean lifetime HIV testing?
8) with 13.6% (38) and 13.1% in another study (21) ??? or in other studies??
Thanks.

REFEREE: Associate Editor | **Revision (1)** 2 Dec 2019

Dear EIC
The reviewer(s) have recommended publication, but also suggest some minor revisions to the manuscript. Therefore, I invite the author to respond to the reviewer(s)' comments and revise his manuscript.
Kind regards,

REFEREE: EIC | **Revision (1)** 6 Dec 2019

Dear Author,
Your article is reviewed by the reviewers carefully. According to their comments, this document needs minor revision. Please follow their comments as requested.
Thanks.

OPEN PEER REVIEW

Revision (2)

Reply to Reviewers

Ideally, the reviewing process can significantly improve the submitted manuscripts by allowing the authors to take into account the advice of reviewers. Author(s) must reply to all reviewers' comments in a separate Word file, point by point. A "**Reply to Reviewers**" document is submitted along with revised manuscript during submission of revised files, summarizing the changes that the authors made in response to the reviewers' comments. The responses to reviewers' comments specifies how the authors addressed each comment the reviewers made.

You can read the authors' responses to the reviewers' comments in the next page.

Reply to the Reviewers' Comments

:Reviewer 2

This is an attractive population-based stud, which is done in Kerman city of Iran and the results could be beneficial for other cities. Overall, the article is written well, but needs some .corrections

- Thank you for your valuable comments. We tried the best to revise the manuscript accordingly.

Tile and Abstract

.Please follow capitalization rules in the title (1

- It has done.

"…Instead of factors associated with them, it is better to say "and associated factors (2

- It has done.

Please refer to the information analysis software (3

- It has added.

population-level in phrase "various population-level gender-sensitive educational " (4 .interventions…" is not necessary

- It has deleted.

Background

??…HIV-related stigma is considered one of??? Or as one of (1

- It had edited.

You mentioned "Previous stigma studies have mainly investigated the lived experiences of (2 PLHIV". In the similar context of Iran, HIV-related stigma among healthcare providers is also ;studied a lot. Please refer to below articles

Religious beliefs and HIV-related stigma: Considerations for healthcare providers -

Stigmatized attitude of healthcare providers: a barrier for delivering health services to HIV - positive patients

- The references were used in the background.

Methods

".Please omit "to" in "answered to the questions (1

- It has edited.

Discussion

…The uppercase is used in the middle of the sentence; … A study on Stigma (1

- It has edited.

… However, the fact that moderate levels of stigma were frequent????? You mean the fact is (2

- It has edited.

??The government-based media? Do you mean national media (3

- Yes, we revised it.

Such approaches should also enhance communications between individuals with HIV and " (4 the general population to both decreases the internalized level of stigma among affected individuals and their negative perception of the people surrounding them, for example, providing training programs for the general population to increase their awareness in national .AIDS day and other similar days": it is too long

- It has edited.

It might be hard to explain the reasons for such significant differences between men and " (5 women about HIV-related stigma levels in the current cross-sectional study". Before the sentence, you talked about the higher level of HIV-related stigma among females. So, such a .long sentence is not necessary

- It has edited.

.You repeatedly used long sentences, especially in the discussion and the conclusion sections (6

- We revised these sections.

?Lifetime having HIV test??? Do you mean lifetime HIV testing (7

- It has edited.

??with 13.6% (38) and 13.1% in another study (21) ??? or in other studies (8

- It has edited.

OPEN PEER REVIEW

Revision (2)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

REFEREE: Associate Editor | **Revision** (2) 7 Jan 2020

Dear EIC
Based on the authors' answers to the reviewers' comments, the reviewer(s) have recommended publication.
Kind regards.

REFEREE: EIC | **Revision** (2) 10 Jan 2020

Dear Author,
The document is reviewed carefully by the reviewers. According to their comments and your revisions as requested, this manuscript is accepted.
Thanks.