Validity and Reliability of the Iranian Version of the HIV/AIDS Stigma Instrument–PLWHA (HASI-P)

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ARTICLE INFO

ABSTRACT

Background: HIV/AIDS disease has remained highly stigmatized all over the world even though the increasing accessibility of its treatment. This study was designed to adapt the HIV/AIDS Stigma Instrument (HASI) to the Iranian People Living with HIV/AIDS (PLWHA).

Methods: Translation –back translation of the scale into Persian was done. Then, the validity and reliability of the instrument were evaluated. The validity of the translated scale was assessed in three ways: evaluating its linguistic validity, assessing its content validity by a panel of nine experts, and exploring its construct validity by factor analysis. The internal consistency of the translated scale was evaluated by Cronbach's Alpha.

Results: HASI showed a good Content Validity Index (CVI value >0.75) and Content Validity Ratio (CVR >0.78). The internal consistency of the instrument regarding the total score was $\alpha=0.89$. The three stigma subscales that were distancing and blaming (8 items, $\alpha=0.87$), fear (3 items, $\alpha=0.82$), and discrimination (5 items, $\alpha=0.83$).

Conclusion: This article reports the development and validation of a new measure of stigma, i.e. HIV/AIDS Stigma Instrument in PLWHA (HASI-P), and provides evidence to support its content validity and internal consistency.

Introduction

Since the HIV/AIDS epidemic began in the 1980s, fear, stigma, and discrimination (SAD) have been identified as the most important barrier to effective responses to HIV[1, 2]. Consequently, the Joint United Nations Program on HIV/AIDS (UNAIDS) Report on the Global AIDS epidemic in 2012 by 2015, one of the goals is to "Eliminate stigma and discrimination against people living with and affected by HIV by promoting laws and policies that ensure the full realization of all human rights and fundamental freedoms"[3]. Now, the literature shows the significant and universal effects of HIV/AIDS-related stigma on

the lives of PLWHA and the habits in which stigma may lead to further extension of the HIV/AIDS epidemic[4-8].

HIV/AIDS-related SAD known as an intricate social process that influences and reinforces pre-existing SAD connected with sexuality, gender, race, and poor quality [2]. The problem of HIV/AIDS stigma was reflected in the 2002-2003 theme for the UNAIDS campaign as a main public health concern[9].

HIV/AIDS-related stigma is a commonly cited impediment to adopt HIV/AIDS precautionary behaviors, such as HIV voluntary counseling testing (VCT) [10], which most likely compromises both treatment and prevention[11, 12]. A small number of studies have focused on the measurement of stigma among PLWHA[13]. The measurement of HIV-related stigma has been the focus of an increasing number of research studies. However, the majority instruments (even in interventional studies) have focused on the stigmatizing attitudes of HIV-uninfected people [14]. "Based on information of WHO "the prevalence of HIV/AIDS in Iran has risen from low to concentrate"[15]. In the general population the prevalence of HIV/AIDS is less than 1%, nevertheless, in some high-risk groups such as Intravenous Drug Users (IVDU) prevalence is more than 5%[16, 17]. According to the data registry system, 23497 PLWHA were identified in Iran until 21 September 2011, totally, 91.3 % were men and 8.7% were women. From these statistics, 46.4% of the HIV-infected cases were aged between 25 and 34 years old, meaning that this age group had the highest frequency among all other age groups[18]. Despite the fact that only 15% of the PLWHA in Iran have been infected as a result of sexual contact, the rate of sexually-transmitted HIV infection is swiftly increasing, which represents a shift in the form of transmission from drug use to sexual behaviors[19]. In the HIV area, stigma is considered as a greatest obstacle to prevent further infections, fine care, and an advocate for PLWHA[2, 4]. Varieties of measures have been introduced for the measurement of HIV/AIDS-related stigma[20, 21].

As a phenomenon, stigma has been expansively measured in HIV/AIDS[22-27]. A large amount of studies has been qualitative in nature. However, efforts have been made to develop a reliable and valid scale to measure stigma. The scale developed by Sowell et al (1997) was used in this study[20].

Scale validation is considered as an essential part of the development of science and knowledge[28]. This might be due to the importance of developing a new yardstick for determining stigma in chronic disease such as HIV/AIDS; it can also be due to the enormous dependency of the measurement of HIV/AIDS-related stigma upon the national and international cultural differences. In Iran, a limited number of studies have been conducted to measure stigma in PLWHA[29]. One of the most important reasons could be the lack of valid tools to measure stigma in the society.

The aim of the present study was to translate and validate the Iranian Version of HIV/AIDS-related stigma Instrument (HASI) for Iranian people living with HIV/AIDS. The following questions were addressed:

1. Is the content validity of HASI confirmed?

2. Is the HASI internally consistent and stable over time?

3. Does a factor model for the HASI confirm its construct validity, based on the results of exploratory factor analysis (EFA) and confirmatory factor analysis (CFA)?

Materials and Methods

Study design

A cross-sectional study was conducted in two consulting clinics of behavioral disorders in Tehran and Tabriz, Iran from 15 May 2012 to 30 December 2012.

Participants, Setting, and Sampling

The number of samples is essential for explanatory factor analysis is at least 200 observations[30]. This research involved a sample of 230 Persons Living with HIV/AIDS (PLWHA). The research was performed in seven months in two HIV care clinics (consulting clinics of behavioral disorders) in Tehran and Tabriz, Iran. One of the clinics was

affiliated with Tehran University of Medical Sciences (Consulting Clinic of Imam Khomeini Hospital), while the other one was affiliated with Tabriz University of Medical Sciences. The Consulting Clinic of behavioral disorders of Imam Khomeini Hospital is one of the largest centers that provides services for people living with HIV/AIDS and makes it possible for patients to use specialized medical services as it is located next to Imam Khomeini Hospital. There is a behavioral clinic in Tabriz City that provides similar services for PLWHA. The studied sample in this research only included PLWHA. Considering the limited access to PLWHA and the limitations of investigation, the convenience sampling method was applied and the referees (PLWHA) to these clinics were included. Finally, it was decided to apply the theoretical sampling with a maximum variation from the two HIV Care Behavioral Clinics.

Inclusion and Exclusion Criteria

The inclusion criteria for the study were individuals aged 18 years who had been diagnosed with HIV (HIV Positive). During the initial contact with the respondents, the study was briefly described to them, and an appointment was set for a personal interview with the research junior. Exclusion criteria included the death of the patient, discontent to participate in the study, and the presence of a major psychotic illness in the participant.

Selection of HIV/AIDS Related Instrument

The 13-item stigma scale was developed by Sowell et al (1997)[20]. The preliminary development of the scale grew out of qualitative research with HIV-positive women in the southeastern parts of the United States[31]. After that, also Emlet et al. (2005) used this instrument for old and young PLWHA. However, item 13, i.e. "people who know I am HIV positive treat me with kid gloves", was removed because it was not easy to translate it into Persian; in addition, it did not fit into any of the three subscales of the instrument[26]. The instrument is short and measures three important subscales in HIV-related stigma. Be-

sides, compared to the other 10-item revised stigma scale, the items here are put in a way that is more personalized (e.g. I felt…, I feared…, I avoided…). The scale also contains items related to losing jobs, losing friends, being rejected by the family members, and being denied good health care, which are very important factors in the Iranian society.

Procedures

Patients themselves filled out questionnaires; however, the interviewer remained close to the patients to answer questions and receive the returned questionnaires face-to-face. For participants that could not read questionnaires questions, the interviewer completed their questionnaires. The duration of each data collection session was approximately 20–30 min. The stigma scale was developed using a 4-point Likert type scale ranging from 1 to 4 and evaluating thoughts and feelings of being stigmatized or put in hazardous because of the illness. The response choices were 1= not at all, 2= rarely, 3= sometimes, and 4= often.

Socio-demographic characteristics

During the interview, participants answered questions related to demographic characteristics, including age, gender, education, marital status, number of children, employment, income, residence status, history of imprisonment, history of addiction, age of injecting drug use, language, insurance coverage, date of diagnosis, ART, starting date of ART, history of other diseases, rout of infection, and the type of the patient's status (HIV versus AIDS) based on the count of CD4 cells[32].

The scale development process: Translation and back-translation

To develop this part, two self-governing official translators translated the instrument from English to Persian; then, one researcher who mastered both languages revised the final version. Another official translator translated the instrument into English. Finally, it was forwarded to the authors who approved the new version.

Content validity

Content validity was analyzed to determine the extent to which an instrument reflects a particular content domain of what is being measured. Based on the responses given to each item, content validity index (CVI) and content validity ratio (CVR) were computed using the fourth item. Nine experts participated in this part. Experts' panel confirmed the values of higher than 0.75 (for CVI) and 0.78 (for CVR)[33] .

Reliability

Reliability is a fundamental property every measuring instrument should have. Additionally, it enables the researchers to conduct an error-free investigation with an instrument. The property proves the research is replicable[34].

One may say that reliability is a measure of the error an instrument can generate when it is unsteady and applied on different occasions. To determine the instrument's internal consistency, Cronbach's alpha was determined and the corrected item-total correlation was also assessed. These two psychometric parameters point toward the conceptual adaptation of the scale items. Cronbach's Alpha is the most regular method used to measure internal consistency. The Range of 0.7 to 0.9 (70% to 90%) was considered as an expected appropriate level for this coefficient[35].

The constancy of the scale overtime (or test-retest reliability) was assessed in a sample of 30 PLWHA after a period of 2-4 weeks by intra-class correlation coefficient (ICC). ICCs≤0. 4 was considered poor to fair, 0.41–0.60 moderate, 0.61–0.80 fine, and >0.80 excellent[36].

Ethical considerations

Approval for the study was obtained from the ethics committees of Tehran University of Medical Science and those of the clinics where data were collected. Participants received guarantees of anonymity and the possibility of abandonment from the study when they signed the informed consent.

Data analysis

Summarize of data was performed by mean (SD) and frequency (%) for quantitative and qualitative variables, respectively. To settle on existing correlations between the stigma instrument items and whether they had a basic structure called stigma, besides the analysis of whether the general factors or main components could explain the groups or dimensions that comprise the instrument, Exploratory Factor Analysis (EFA) was used through the main components method and Direct Oblimin rotation, with a view for further data interpretation. Factorial loadings of ≥ 0.35 [30] were accepted. If an item was loaded in two or more factors, it was placed in the factor with the highest factorial loading, i.e. closer to 1 or -1, and with a mathematical difference of more than 0.01 in the factorial loading when compared with other factors. We used Bartlett's Test of Sphericity to determine whether the factor analysis appropriated the data or not. At first, the analysis was developed without restraint and resulted in three main factors: Blaming and Distancing, Discrimination, and Fear. In order to assess how well the EFA-extracted model fitted the observed data, we conducted a Confirmatory Factor Analysis (CFA). The technique of estimation was a robust maximum likelihood. The asymptomatic covariance matrix was considered as a weighted matrix. Input matrix was the covariance matrix of data. On top form indices and rational values of these indices for CFA were considered as Chi-squared/df< 5, Root Mean Square Error of Approximation (RMSEA) < 0.08, and also Comparative Fit Index (CFI), Goodness of Fit Index (GFI), and Adjusted Goodness of Fit Index (AGFI) > 0.9[37]. We used SPSS 13 (SPSS Inc. IL, Chicago, USA) and LISREL 8.80 (Scientific Software International Inc, 2007) for statistical analysis. *P*-values of fewer than 0.05 were considered as significant.

Results

Socio-demographic characteristics

Overall, 200 PLWHA, including 154 (77%) men and 46 (23%) women, participated in this

study. The median age of the patients was 35 and ranged from 18 to 60 years. Most participants were educated at the high school level (from 10 to 12 years of education); while 5 (2.5%) participants reported no formal education and 41 (20.5%) had received college education. Table1 illustrates the socio-demographic characteristics of the participants. Of all participants, 80 (40%) had no history of suffering from other diseases, while 26 (13%) had Tuberculosis, 18 (9%) had hepatitis B, 87 (43.5%) had hepatitis C, and 10 (5%) had Gonorrhea; some of the participants had more than one history of diseases (120 individuals equal to 60%).

Content Validity

To validate the instrument, a panel of nine experts who set free lectures and conduct research at Iranian universities, including three specialists in infectious disease, two epidemiologists, three psychologists, and a PhD of health education, collaborated with us. This phase of the study was in both qualitative and quantitative manners. Earlier than this phase, based on recommendations of three experts, we added three questions to the original instrument for the cultural adaptation purposes. In the qualitative evaluation, a questionnaire involving questions in general sections was administrated for each expert panel. In the first section, questions were asked about relevancy and clarity. After that, the necessity of each item was assessed based on a four-point scale response to each question. The content validity of the HASI was approved based on both qualitative (comments from panel reviewers) and quantitative results (the level of agreement among expert board members, i.e. CVI values >0.75 and CVR values >0.78).

Reliability

To assess the internal consistency of the HIV/AIDS Stigma-Related Instrument (HASI), Cronbach's alpha was calculated for all 16 items in 30 PLWHA who participated in the pilot study. The reliability coefficient for the overall scale was 0.89. Reliability coefficients were also calculated for the three subscales. The coefficients for the three subscales

were as follows: distancing and blaming (8 items, α=0.87); discrimination (5 items, α=0.83); and fear (3 items, α=0.82). Test–retest reliability (assessed by ICC) was also acceptable (ICC = 0.88).

Explanatory Factor analysis

The Explanatory Factor Analysis (EFA) was conducted using data from the 200 PLWHA. Test of the rotated factor loadings showed cross-loading and indistinctness for a three-factor solution. Based on the analysis of the Scree Plot, it was determined that a three-factor solution was optimal for distinctive the underlying factors. These three factors accounted for 60.05% of the variance. The three factors consisted of the distancing and blaming factor (variance explained= 51.2), the discrimination factor (variance explained = 3.61), and the fear factor (variance explained= 5.19). The Kaiser-Meyer-Olkin (KMO) measure of sampling sufficiency was applied, resulting in a value of 0.915. This indicates that the variables measure common factors when the index value is upper than 0.6. Bartlett's Test of Sphericity was also significant with χ (120) = 1838.2, $P<0.001$, and significance (P 0.000; 406 gl; Chi 2702.03). This permits the statistical definition that, in this case, the correlation matrix is not an identity matrix and, that's why, factor analysis can be developed.

Table 2 presents the factor loadings for the 16 items from the HIV Stigma Scale. The EFA loadings for the three subscales were identified as: (1) blaming and distancing factor including items 1, 2, 3, 5, 6, 7, 9, and 12; (2) discrimination factor including items 10, 13, 14, 15, and 16; and (3) fear factor including items 8, 4, and 11. Each of the subscales contains four items for a score ranging from 4 to 16. As for the factor loading per item, the arrangement of the first factor, called blaming and distancing, consisted of six items, which included questions related to people being uncomfortable with the respondent, avoiding their respondent because of their illness, being rejected by the family, avoiding receiving treatment, being blamed by others for their illness, and being accused of having immorality. Ques-

tion one (avoiding receiving treatment because someone might find out about his or her illness) suggested that the respondent had initiated distancing, similar to the original instrument[26]. The alpha for this factor

was 0.806.The second factor, called discrimination, consisted of five items. However, it was observed that one of the questions (Q10), which is close to the factor of discrimination, is presented in this part.

Table1: Characteristics of the study population (N=200)

| Characteristics		Summary statistics
Age (yr) Mean (SD)		35.45 (8.49), Range: 18-60,n=200
Gender		76.5% (n=153)Male, 23.5% (n=47)Female
Education level	No formal education	2.5% (n=5)
	Primary	10.0% (n=20)
	Secondary	26.5% (n=53)
	Senior high school	40.5% (n=81)
	College or academic	20.5% (n=41)
Marital status	Married	33.5% (n=67)
	Single	53.5% (n=107)
	Widowed	3.0% (n=6)
	Divorced	10.0% (n=20)
	Occupation	51.5% (n=103) Employed, 48.5 (n=97) Unemployed
Income (Rial)	<20000000	48.0% (n=96)
	20000000-80000000	18.0% (n=36)
	>80000000	32.5% (n=65)
	No answer	1.5% (n=3)
Residency	Urbane	87.5% (n=175)
	Suburb	10.5% (n=21)
	Rural	2.0% (n=4)
History of imprisonment		45.5% (n=91) yes, 54.5% (n=108) no
History of addiction		50.5% (n=101) yes, 49.5% (n=99) no
Speaking language		74.5% Persian, 15 % Turkey, 10.5% Others
Insurance coverage		65.5% (n=131) yes, 34.5%(n=69) yes
Diagnosis Date	Before 2001	11.0% (n=22)
	Between 2001-2006	26.0% (n=52)
	After 2006	63.0% (n=126)
Suffer from via	IVDU	41.0 %(n=82)
	Sex	42.0%(n=84)
	Received blood	12.5% (n=25)
	Others	4.0% (n=8)
	Don't know	0.5% (n=1)
ARV medication		67.0% (n=134)
Start ART(Date)	Before 2001	3.0% (n=6)
	Between 2001 to 2011	51.0% (n=102)
	After 2011	15.5% (n=31)
CD4 cell count/mm³	< 300	31%(n=63)
	300-500	50.5%(n=101)
	>500	18% (n=36)
AIDS diagnosis		31.0% (n=63) yes
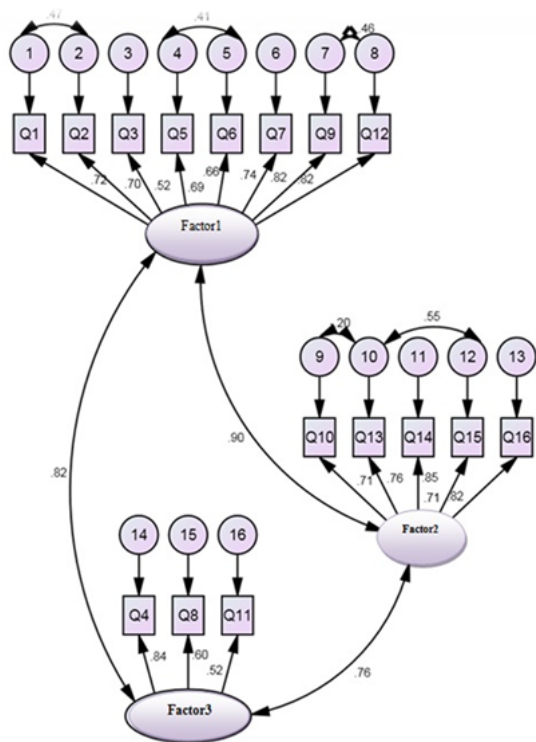
Fig. 1: Path diagram revealing the standardized parameters relating items to the relevant factor. Complicit: complication of stigma factor; distancing and blaming, fear and discrimination follow-up factor; effect of stigma factor. All parameters were statistically significant and all of the three factors were correlated significantly (all *P*< 0.05). Factors names are blaming and distancing (Factor 1), discrimination (Factor 2), and fear (Factor 3)

This factor included questions related to discrimination between them and other patients, obligation to change their residence because of their illness, people would hurt their family if they learned about their illness, people would fear if they were informed about my illness, and people would behave cautiously if they were aware of my illness. The alpha for this factor was 0.880.

The third factor, called fear, comprised three items, which included questions related to fearing the loss friends, if health care workers are aware of their disease they cannot receive good quality service and the thought that their illness is a punishment for things they have done in the past. This factor is different from the original scale and had an Alpha coefficient of 0.705.

Confirmatory Factor Analyses(CFA)

The results of the CFA for three-factor models indicated a satisfactory fit of the proposed model ($X^2/$ df = 2.516< 5, RMSR = 0.076, RMSEA (90% CI) = .087 (.074; .101), CFI = 0.86, PGFI = 0.61, and AGFI = 0.81). Moreover, all parameters relating the items to the factors and all correlations existing among the three factors (Fig. 1) were statistically significant (P< 0.05).

Discussion

Crucial operators of HIV/AIDS-related stigmatization and discrimination at all levels considered as structural and institutional facets of stigma, from the person, family, and social levels to occupation and health services access[38-39]. Scales are needed to quantitatively measure the distribution and predictors of HIV/AIDS-related stigma, thus providing a means to inform and evaluate stigma interventions[11]. The research that explores stigma and HIV/AIDS to date has suggested numerous negative psychological, interpersonal, and societal consequences. Green and Platt suggested HIV stigma may be enacted or felt. Enacted stigma refers to individually or collectively applied sanctions, such as discrimination or prejudice[40]. Felt stigma, on the other hand, is related to the feeling of shame, guilt, and the cruel fear of enacted stigma. This conceptualization of HIV stigma suggests the existence of various components that may manifest differently from individual to individual. Thus, using a measure that only consists of one or two items but attempts to identify the multidimensional constructs of stigma, will likely fall short of the desired goal[26]. In this study, we used both types of stigma, i.e. enacted and felt stigma (enacted stigma as a discrimination and felt stigma as blaming, distancing, and fear). Moreover, it will become more and more important to examine this significant psychosocial phenomenon among PLWHA to find out the types and levels of stigma among different subpopulations.

Table 2: EFA Pattern Matrix Loadings for 16 HIV Stigma Scale Items

Items	Questions	Factor 1	Factor 2	Factor3
Q2	I thought I thought other people will be uncomfortable with me.	*.811*	-.600	.447
Q1	I thought because do not want someone to found out about my illness, I avoid treatment.	*.780*	-.624	.437
Q9	I thought, if anyone found out about my illness they will accuse me of being a moral corruption.	*.767*	-.755	.559
Q5	I worried, if my family found out about my condition, they will reject me.	*.766*	-.547	.570
Q12	I worried that I might lose my job if someone found out about my illness.	*.760*	-.738	.584
Q6	I felt blamed by others for my illness.	*.686*	-.486	.670
Q7	I felt ashamed of my illness.	*.679*	-.589	.675
Q3	I felt people avoid me because of my illness.	*.646*	-.397	.343
Q10	I thought health care personnel discriminate between me and other patients.	.630	*-.615*	.609
Q13	I felt obliged to change my residence because of my illness.	.523	*-.853*	.391
Q14	I concerned that people would hurt my family if they learned about my illness.	.611	*-.812*	.560
Q15	I thought, if someone found out about my illness would be afraid of me.	.532	*-.804*	.395
Q16	People who are aware of my illness, they cautiously treat with me.	.653	*-.778*	.447
Q8	I felt I wouldn't get as good health care if people knew about my illness.	.429	-.368	*.686*
Q4	I feared I would lose my friends if they learned about my illness.	.636	-.656	*.662*
Q11	I thought my illness was a punishment for things I've done in the past.	.319	-.313	*.643*

EFA using PAF extraction method and Direct Oblimin rotation with Kaser normalization /Bold numbers indicate the items related to the corresponding factor//Factor 1 (blaming and distancing), Factor2 (discrimination), Factor3 (fear)

In order to examine the internal reliability and construct validity of the Internalized HIV/AIDS-Related Stigma Scale (HASI), our analyses included PLWHA data from the two Iranian clinics.

The HASI developed in this research demonstrated vigorous evidence for its reliability as well as indicators for its validity. The HASI has a benefit of being a moderately brief multi-item scale that may be used in the district - and clinic-based research. Nevertheless, the scale's briefness probably makes it appear as a one-dimensional scaling, while HIV/AIDS stigma is normally considered to be a multi-dimensional construct[21, 41].

Content validity

Content validity of our instrument (i.e. HASI) was accepted based on both qualitative (comments from panel reviewers) and quantitative results (the level of agreement among specialist group members, i.e. CVR values >0.78 and CVI values >0.75). In the original study in which the measure was developed, the list of the items was reviewed by nine experts with HIV/AIDS background. The original instrument did not use either CVR for the essentiality of the items or CVI for simplicity, relativity, and clarity of the subscales[20]. Neither did another study by Emlet[26] use these methods in their study. In spite of these limitations for comparison, since we added many questions to the original instrument for cultural adaptation purposes, we had to use CVI and CVR for assessing its content validity.

Reliability

We modeled our reliability analyses according to those performed in a similar study conducted by Emlet[26]. In general, our

analyses confirmed that the internalized HIV/AIDS-related stigma scale is unidirectional, that the scale items have a high internal consistency, and that the scale can be appropriately interpreted as measuring the construct of internalized stigma. A consistent quantification of HIV/AIDS stigma is of supreme importance in ensuring the human rights of PLWHA along with the effectiveness of HIV prevention and treatment programs.

Standardized sets of stigma measures or indicators that can develop inequalities in community, political, and economic powers are the foundation on which stigmatization is promulgated[42].

The findings of our study suggest that the internalized HIV/AIDS-related stigma scale may be a valuable instrument for social-behavioral HIV research[43].

Explanatory Factor Analysis

The EFA recognized three subscales that can be used to differentiate between various manifestations of HIV stigma. These findings reinforce the work of Emlet[26] and Green and Platt[44], who viewed HIV stigma as multi-dimensional. Although these researchers recommended that stigma can be either felt or enacted, the subscale development undertaken here suggests that the concept of felt stigma can, in fact, be expanded to include feelings of blame and distancing[26]. This phenomenon was observed in our study and, therefore, we named one of the factors as blame and distancing with 8 items. However, in EFA, our subscales were different from the original instrument. The concept of blaming is consistent with finding of Saenini who noted that three-quarters of the respondents blamed themselves for their own HIV infection[44]. One question of discrimination factor is about the avoidance of providing health care services for PLWHA. This item was shown in the study of Rahamti et al in an Iranian health care setting against PLWHA[19], which was essentially because of fear of stigma, nervousness, disappointment, depression, stress, and lower perceived quality of life is among the problems

patients encounter later than their HIV diagnosis[45-47]. We named another factor as fear in which three items pertaining to the feelings of PLWHA existed, including fear of losing their friends, fear of not receiving good quality of health care if people knew about their illness, and the thought that this disease is a punishment for them.

The psychometric evaluation of the HASI supports the validity and reliability of this instrument in Iranian population to evaluate HIV/AIDS-related stigma. Consequently, it can be concluded that the responses to the research questions were all positive:

1. The content validity of HASI was confirmed.

2. The HASI was internally consistent and has stability over time.

3. The factor model for HASI confirmed its construct validity.

In Iran, a majority of the studies have been conducted to find out stigma in PLWHA and providing health care services[19, 48- 49]. We did not find any studies that had localized the stigma questionnaire in conjunction with cultural adaptation in Iran. The shortened questionnaire showed good internal consistency and validity, suggesting that a 16-item measure of stigma is promising for assessing this main construct in PLWHA, resemble to the study of Emlet[27]. In our study, most of the participants reported felt stigma in facet of society and family, which has also been observed in other studies with different methods in Iran[19, 48- 49].

The HIV/AIDS-related stigma scale has the benefit of being a relatively brief multi-item scale that may be used in community and clinic-based research. However, the scale's brevity likely makes it appear as a one-dimensional scale, whereas HIV/AIDS stigma is typically thought to be a multi-dimensional construct[21,43]. Future research may explore longer versions of the stigma scale that may have meaningful subscales. There were extra limitations of our preliminary scale development studies, like use sample without random process, which can be

considered a weakness with respect to the generalization of the gained research results. For this reason, its generalizability to Iranian PLWHA is limited. The findings presented here make available a primary investigation of the development of subscales for the 16-item HIV Stigma Scale. Further research is needed to examine how the items may fit together. The administration of this instrument and its subscales to bigger and more generalizable populations may also serve to improve our understanding of HIV stigma. In future, study with a different sample to assess the CFA is recommended.

Conclusion

This article reports the development and validation of a new measure of stigma, i.e. HIV/AIDS Stigma Instrument PLWA (HASI-P), providing evidence that supports its adequate content and construct validity, its modest coexisting validity, and its acceptable internal consistency for each of the three subscales and for the total score.

Acknowledgements

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