

Relationship between social support and social stigma among AIDS patients in Shiraz

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Abstract

Introduction: Acquired immunodeficiency syndrome (AIDS) is one of the most significant diseases that often carry social stigma due to its' association with addiction and behavioral disorders. This study aimed to investigate the relationship between social support and social stigma among AIDS patients in Shiraz.

Material and methods: For this cross-sectional study, hundred patients of Shiraz Behavioral Diseases Counseling Center were selected using regular random method. After data collection with demographic questionnaire, including Wax *et al.* social support questionnaire and Burger stigma scale, data were analyzed using SPSS 21 version with descriptive statistics (frequency, mean) and analytical statistics (*t*-test, ANOVA, χ^2 , and univariate linear regression).

Results: The mean age of participants was 40.4 ± 9.5 . There were 73 (73%) male patients, and fifty-five patients (55%) were married. In correlation between social support and social stigma, relationship was inverse ($r = -0.025$) but was not statistically significant ($p = 0.803$). A relationship between disclosed sub-scale and social support was significant ($p = 0.039$). The results of this study showed that there was a statistically significant relationship between number of children and level of social stigma ($p = 0.024$). Moreover, a statistically significant relationship between mode of disease transmission and level of social stigma was observed ($p = 0.001$).

Conclusions: This study concluded that there is an inverse relationship between social support and social stigma. By increasing social support, it is possible to reduce perceived social stigma of AIDS patients and increase their self-esteem.

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Introduction

Acquired immunodeficiency syndrome (AIDS) is caused by human immunodeficiency virus (HIV) infection, and results from injecting drug use, unemployment, poverty, and prostitution; it has been established as the second most im-

portant infection leading to death in the world [1]. According to the Ministry of Health of Iran, annual growth rate of HIV infection in Iran is considered to be 10%. The World Health Organization estimated that actual number of people living with HIV in Iran is between 100,000 and 120,000.

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It is believed that more than 70,000 people infected with HIV virus in the country are not aware of their disease, and are the cause of transmission of this infection to others [2]. People with this disease suffer from psychological and emotional problems as well as social difficulties, including stigma [3].

Stigma has been defined as 'a very discrediting trait', and biased, disrespectful, and discriminatory behavior, which is directly perceived by people living with HIV, and is not considered a new issue in public health, especially HIV patients [4, 5]. Stigma can take two forms: perceived or enacted. Perceived (or felt) stigma occurs when there is a real fear or perception of society's attitudes about a particular situation, and there is a concern that this will lead to discrimination against people with those conditions. Enacted (or actual) stigma refers to a person's discriminatory experiences caused by their particular characteristics or circumstances [2, 22]. Stigma of HIV also affects quality of life of caregivers and individuals living with HIV patients, especially in areas where HIV/AIDS is prevalent [6]. HIV-related stigma and discrimination are now recognized as the main barriers to provision of services, such as counseling, voluntary testing, and treatment by healthcare providers, and their use by community members, which ultimately increases morbidity and mortality rates in HIV/AIDS patients [7, 8]. HIV/AIDS patients are affected by negative community thoughts, stigma, and social stigma in terms of physical, mental, and social health. More than half of these patients suffer from recognizable emotional and psychological disorders, including depression, psychosis, and anxiety [2, 9]. HIV/AIDS is a chronic disease that increases psychological, behavioral, emotional, and stress-related problems; therefore, considering the mechanisms of adjustment and social support in this group of patients is very important [10].

According to Lazarus and Folkman *et al.*, social support is a psychological resource that defines one's perceptions according to quality of one's social relationships. Social support is a part of environmental resources and predicts coping strategies [11].

A review of literature suggests that social support can affect health and the use of health services [12]. Functional aspect of social support contributes to a variety of emotional, informational, and tangible needs [13, 14]. Information support may help people with low health literacy, who have difficulty accessing and understanding medical conditions [12]. Positive sources of social support are essential in facilitating attitude change, creating healthy behavior, increasing the use of preventive medical visits, and improving community health [15].

HIV-positive patients suffer from a variety of problems, such as personal problems (physical and mental) and social difficulties (rejection and social stigma). Social stigma in HIV/AIDS patients can deprive them from individual and social rights, including healthcare, counseling, and treatment. Social support can be a powerful solution and tool to help patients solve HIV/AIDS-related problems, especially complications and difficulties caused by social stigma.

Therefore, this study was designed to investigate the relationship between social stigma and social support among patients with HIV in Shiraz.

Material and methods

A descriptive cross-sectional study was conducted among hundred stage-two HIV-positive patients, older than 18 years, who were referred to the Behavioral Diseases Counseling Center in Shiraz from August to October 2020. All patients in this study were individuals who have been diagnosed with HIV infection and early symptoms but have not yet entered AIDS stage. In other words, these patients were considered as a category of patients with stage-two diseases that could generally be treated. We had a list of all patients in Shiraz patients' system. Information on HIV patients is kept completely confidential at the Behavioral Disease Control Center and within relevant experts. Each patient has an electronic file, in which their physical and mental health status is regularly checked and recorded by doctors. Only by maintaining the principles of confidentiality and coordination of Shiraz University of Medical Sciences, it is possible to access patients' information through relevant experts. In addition, information were providing anonymously, and a code was assigned for each participant. The number of sample was determined using following formula:

$$\alpha \text{ (two-tailed)} = 0.05$$

$$\beta = 0.20$$

$$r = 0.34 \text{ (expected correlation coefficient between emotional social support and HIV patient) [16]}$$

$$\text{Sample size} = N = [(Z_{\alpha} + Z_{\beta})/C]^2 + 3 = 102,$$

$$\text{where standard normal deviate for } \alpha = Z_{\alpha} = 1.96, \text{ standard normal deviate for } \beta = Z_{\beta} = 1.28, \text{ and } C = 0.5 \times \ln [(1 + 0.34)/(1 - 0.34)] = 0.354.$$

Total samples were selected by simple random sampling. After obtaining consent forms, literate patients completed questionnaires, and for illiterate people, the researcher filled them.

Inclusion criteria for the study were definitive diagnosis of HIV for at least 1 year, age over 18 years, no mental or physical disability, and written informed consent to participate in the study. As mentioned, every patient has a fully confidential electronic file. Each electronic file has a unique code and only relevant expert has access to the file. Therefore, the selected codes were first reviewed by the relevant expert based on inclusion criteria of the study. Exclusion criteria were cognitive illnesses or other chronic diseases, such as epilepsy or hepatitis, which may carry burden of social stigma on its own.

Data collection tool

Social support questionnaire was used for data collection, which was developed by Wax *et al.* in 1986, based on Kobe's definition of social support. According to Kobe, social

support refers to the amount of love, help, and attention of family members, friends, and others. This questionnaire measures social support perceptions at three resource levels, including family, friends, and important others. In this questionnaire, questions No. 1, 6, 10, 13, 15, 16, 19, and 23 refer support of friends, questions No. 2, 4, 7, 9, 11, 18, and 22 consider support of family, and questions No. 3, 5, 8, 12, 14, 17, 20, and 21 refer to support of others important to the individual. This questionnaire was consisted of 23 questions with five-point Likert scale ranging from very low (1), low (2), moderate (3), high (4) to very high (5); minimum and maximum scores were 23 and 115, respectively. Scores 3, 10, 13, 21, and 22 were inverted. The social support questionnaire has already been translated into Persian by Khabaz *et al.*, and psychometric process has been completed. In a study by Khabaz *et al.*, Cronbach's α of social support was 0.74 [17], whereas Cronbach's α of social support for this study was 0.78.

Stigma burden scale examines psychological aspects of HIV stigma in HIV-positive patients. This questionnaire has four sub-scales, including personalized stigma, which examines experiences of rejection, job loss, discrimination, severance of social relations. Personalized stigma consist of 18 items (13, 16, 18, 24, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 38, 39, and 40), with a range from 18 to 72. Disclosure concerns related to fear and anxiety about detection of the disease includes 10 items (1, 4, 6, 11, 17, 19, 21, 22, 25, and 37), with a range from 10 to 40. Negative self-image is fear of stigma and people's reaction to it, and guilt, which includes 13 items (2, 3, 6, 7, 8, 11, 12, 13, 15, 23, 27, 38, and 39). It ranges from 13 to 52. Finally, public attitudes are the attitude of people towards HIV people, of which patients think how others know them, and includes 20 items (4, 5, 9, 10, 13, 14, 16, 19, 20, 22, 27, 28, 30, 32, 33, 34, 38, and 40), with a range from 20 to 80. This scale consists of 40 questions scored from 1 to 4 on Likert scale: 'strongly disagree', 'disagree', 'agree', and 'strongly disagree'. The scoring of questions 8 and 11 is reversed. Therefore, the score range is 40-160 (Table 1). In previous studies, the validity and reliability coefficients of this questionnaire were 0.83 and 0.81, respectively [18]. Cronbach's α of the questionnaire in the target population of this study was 0.80. Scoring of the sub-scales is shown in Table 1.

Statistical analysis

SPSS version 20.0 was used for statistical analysis of the data. Descriptive statistical methods were applied to show characteristics of the population studied. For statistical analysis, independent *t*-test and one-way ANOVA were used to determine the relationship between demographic variables with social stigma related to aids and social support. In order to examine the relationship between stigma and demographic data, the variables were entered into linear regression model separately, with social stigma to examine the significance of relationships between them. A *p*-value of less than 0.05 was considered statistically significant.

Table 1. Social stigma scoring and its sub-scales

Social stigma sub-scales/Status	Score range
Personalized stigma	
Low	18-36
Medium	37-54
High	55-72
Disclosure concerns	
Low	10-20
Medium	21-30
High	31-40
Negative self-image	
Low	13-26
Medium	27-39
High	40-52
Public attitudes	
Low	20-40
Medium	41-60
High	61-80
Total social stigma	
Low	40-80
Medium	81-120
High	121-160

Results

In this study, the mean age of male participants was 40.4 ± 9.5. The average number of family members was 3.2 ± 1.5 (*n* = 73, 73%), the average number of children was 1.5 ± 1.3 (Table 2). The results showed no statistically significant relationship between drug abuse and mean score of social stigma (*p* = 0.147).

The results of this study showed that there was a statistically significant relationship between the number of children and level of social stigma (*p* = 0.024) (Table 3). The relationship between the number of children and social stigma was not statistically significant (*p* = 0.464) as well as between the number of children and social support (*p* = 0.856) (Table 4). However, the relationship between the number of children and personalized stigma sub-scale (*p* = 0.049) was statistically significant (Table 5).

In our study, while examining the relationship between gender and social stigma sub-scales, there was only a statistically significant relationship between gender and disclosure of stigma (*p* = 0.001) and negative self-image (*p* = 0.015). In simple linear regression, for a standard unit of change in the score of gender, 0.234 units' increase was observed in the social stigma variable, which was statistically significant (*p* = 0.019). Also, the results of our study indicated that the mean score of social support in men was 77.22 ± 14.70 and in women was 65.93 ± 8.04, which was a statistically significant difference (*p* = 0.001).

Table 2. Percentage and frequency of demographic variables

Variable	n (%)
Gender	
Male	27 (27)
Female	73 (73)
Marital status	
Single	12 (12)
Married	55 (55)
Other	31 (31)
Job	
Housewife	55 (55)
Employee	8 (8)
Unemployed	13 (13)
Self-employed	20 (20)
Worker	4 (4)
Residential place	
Urban	75 (75)
Rural	25 (25)
Education level	
Illiterate	45 (45)
Under diploma	34 (34)
Diploma	14 (14)
Academic	7 (7)
Insurance kind	
Health	28 (28)
Social security	30 (30)
Other	42 (42)
Income (USD)	
More than 475	19 (19)
Between 237-475	39 (39)
Less than 237	26 (26)
No income	13 (13)
No answer	3 (3)
Smoking	
Yes	26 (26)
No	74 (74)
Drug abuse	
Yes	29 (29)
No	71 (71)
Disease diagnosis period	
2003-2008	26 (26)
2009-2014	49 (49)
2015-2019	25 (25)

The results showed no statistically significant relationship between drug abuse and mean score of social stigma

Table 2. Cont.

Variable	n (%)
Way of disease transmission	
Infectious syringe	20 (20)
Mother-to-child	2 (2)
Unsafe sex	50 (50)
Blood	1 (1)
Unknown	27 (27)

($p = 0.147$). However, the relationship between drug abuse history and negative self-image sub-scale was statistically significant ($p = 0.031$). Simple linear regression demonstrated that for a standard unit of change in mean score of drug abuse, -182 units' decrease was observed in the social stigma variable, which was not statistically significant ($p = 0.069$). Also, the relationship between mean score of social support in drug users was 72.48 ± 15.38 and in non-drug users was 67.45 ± 9.03 , which was statistically significant ($p = 0.046$).

In the current study, a statistically significant relationship between disease transmission way and level of social stigma ($p = 0.001$) was noted. Additionally, only a statistically significant relationship was observed between disease transmission way and disclosure stigma sub-scales ($p = 0.013$) and public attitude ($p = 0.008$). The average score of social support among different ways of disease transmission included infected syringe (74.35 ± 16.21), mother-to-child (75.00 ± 1.41), unsafe sex (67.38 ± 8.35), blood (63.00 ± 0.00), unknown (67.56 ± 12.10), and other possible paths (70.00 ± 0.00); the observed differences were not statistically significant ($p = 0.245$).

Simple linear regression showed a standard unit changing the mean score of income, and -0.132 units' decrease in the social stigma variable was observed, which was statistically significant ($p = 0.007$). The results showed the average score of social support in people with more than 475 dollars income as 75.15 ± 12.07 , in those with income between 237-475 dollars was 71.15 ± 11.70 , less than 237 dollars was 64.00 ± 8.69 , without income was 66.07 ± 7.97 , and in those who did not want to answer, it was 57.33 ± 11.15 ; the observed differences were statistically significant ($p = 0.002$).

In the present study, there was an inverse relationship between social support and social stigma ($r = -0.025$), which was not statistically significant ($p = 0.803$). Also, there was no statistically significant relationship between social support and social stigma sub-scales ($p = 0.931$). Simple linear regression showed that a standard unit changing the mean score of social support, and -0.25 units' decrease was observed in the social stigma variable, which was not statistically significant ($p = 0.803$).

In studying the relationship between the number of family members and sub-scales of social stigma, there was not a statistically significant relationship ($p = 0.091$) (Table 2). Moreover, an inverse relationship between the number of

Table 3. Relationship between demographic variables and sub-scales of social stigma

Variable	n	Social support	Mean of social stigma (SD)		
			Low	Medium	High
Age		-0.132	41.00 (7.02%)	40.09 (9.99%)	41.52 (8.67%)
		<i>p</i> = 0.192	<i>p</i> = 0.821		
Family number		-0.059	4.75 (3.09%)	3.08 (1.33%)	3.34 (1.69%)
		<i>p</i> = 0.559	<i>p</i> = 0.091		
Number of children		-0.018	3.25 (3.30%)	1.41 (1.12%)	1.78 (1.56%)
		<i>p</i> = 0.856	<i>p</i> = 0.024		
Gender					
Male	27	77.22 (14.70)	1 (3.70%)	15 (55.55%)	11 (40.7%)
Female	73	65.93 (8.04)	3 (4.10%)	58 (79.45%)	12 (16.43%)
		<i>p</i> = 0.001	<i>p</i> = 0.037		
Marital status					
Single	13	72.46 (11.17)	1 (7.69%)	8 (61.53%)	4 (30.76%)
Married	56	69.00 (1.67)	2 (3.57%)	39 (69.64%)	15 (26.78%)
Other	31	67.48 (1.63)	1 (3.22%)	26 (83.87%)	4 (12.90%)
		<i>p</i> = 0.420	<i>p</i> = 0.493		
Residential place					
Urban	75	68.92 (11.18)	3 (4.00%)	55 (73.33%)	17 (22.66%)
Rural	25	69.16 (12.15)	1 (4.00%)	18 (72.0%)	6 (24.00%)
		<i>p</i> = 0.931	<i>p</i> = 0.991		
Smoking					
Yes	26	71.46 (71.46)	2 (7.69%)	9 (34.61%)	15 (57.69%)
No	74	68.10 (9.42)	2 (2.70%)	14 (18.91%)	58 (78.37%)
		<i>p</i> = 0.197	<i>p</i> = 0.112		
Drug abuse					
Yes	29	67.45 (9.03)	2 (6.89%)	16 (55.17%)	11 (37.93%)
No	71	72.482(15.38)	2 (2.81%)	56 (78.87%)	12 (16.90%)
		<i>p</i> = 0.046	<i>p</i> = 0.147		
Way of transmission					
Infectious syringe	20	74.35 (16.21)	1 (5.00%)	11 (55.00%)	8 (40.00%)
Mother-to-child	2	75.00 (1.41)	0 (0.00%)	1 (50.00%)	1 (50.00%)
Unsafe sex	50	67.38 (8.35)	1 (2.00%)	44 (88.00%)	5 (10.00%)
Blood	1	63.00 (.00)	1 (100.0%)	0 (.00%)	0 (0.00%)
Unknown	25	67.56 (12.10)	1 (4.00%)	15 (60.0%)	9 (36.00%)
Infectious syringe	2	70.00 (.00)	1 (50.00%)	1 (50.00%)	0 (0.00%)
		<i>p</i> = 0.245	<i>p</i> = 0.000		
Income (USD)					
More than 475	19	75.15 (12.07)	1 (5.26%)	11 (57.89%)	7 (36.84%)
Between 237-475	39	71.15 (11.70)	0 (0.00%)	32 (82.05%)	7 (17.94%)
Less than 237	26	64.00 (8.69)	1 (3.84%)	21 (80.76%)	4 (15.38%)
No income	13	66.07 (7.97)	1 (7.69%)	7 (53.84%)	5 (38.46%)
No answer	3	57.33 (11.15)	1 (33.33%)	2 (66.66%)	0 (0.00%)
		<i>p</i> = 0.002	<i>p</i> = 0.054		

p-value < 0.05

Table 4. Univariable linear regression of demographic variables and social stigma

Model	Unstandardized coefficients		Standardized coefficients	t-value	p-value	Adjusted R ²
	B	Std. error	Beta			
Age	-0.055	0.167	-0.033	-0.329	0.743	-0.009
Gender	8.325	3.487	0.234	2.388	0.019	0.045
Marital status	4.282	3.179	0.135	1.347	0.181	0.008
Family number	-0.906	1.045	-0.087	-0.867	0.388	-0.003
Number of children	-0.841	1.145	-0.074	-0.734	0.464	-0.005
Residential place	-1.187	3.676	-0.033	-0.323	0.747	-0.009
Income	-4.222	3.198	-0.132	-1.320	0.190	0.007
Smoking	-2.569	3.621	-0.071	-0.709	0.480	-0.005
Drug abuse	-6.335	3.450	-0.182	-1.836	0.069	0.023
Way of disease transmission	6.097	3.181	0.192	1.916	0.058	0.027
Social support	-0.035	0.141	-0.025	-0.251	0.803	-0.010

p-value < 0.05

family members and social support ($r = -0.059$) was observed, which was not statistically significant ($p = 0.559$). The results of this study did not show a statistically significant relationship between marital status and level of social stigma ($p = 0.493$). In studying the relationship between social support and marital status, the mean score of social support in single people was 72.46 ± 11.17 , in married people was 69.00 ± 1.67 , and in other groups was 67.48 ± 1.63 , which was not statistically significant ($p = 0.420$).

Discussion

This cross-sectional study was performed among hundred HIV-positive patients, to investigate the relationship between social support and social stigma in Shiraz. The results showed that there was no statistically significant relationship between the overall score of social stigma with the variable of place of residence. In this study, the relationship between substance use and mean total score of social stigma was not significant. However, there was a significant relationship between history of substance use and negative self-image sub-scale. Stutterheim *et al.* stated that HIV-addicted patients have two important problems in a relationship increase of stigma perceived and received by the community. On the other hand, people believe that a person may be innocent of contracting HIV, but other have the authority to accuse of using drugs [19]. Drug use lowers self-esteem and confidence of consumers, and increases their negative self-image, which is exacerbated by HIV infection. In general, these people have low social support due to exclusion from family and friends and low self-esteem. Since most patients are females and about 27% of them have reported addiction, it can be concluded that given the shape of Iranian families, the spouse is also likely to be addicted, which minimizes family support.

In our study, there was a significant relationship between the number of children and sub-scales of social stigma, so that people with more children reported more general social stigma. First, some studies have reported a decrease in perceived social support by increasing the number of family members, which could potentially increase perceived social stigma. Also, married people report higher social stigma than single individuals [20]. Based on socio-cultural norms of Iranian society, married people are expected to accept the norms and adhere to moral principles and marriage. In such a society, people living with HIV are often considered guilty, so these patients are more likely to experience higher levels of social stigma than others.

The results of the present study showed that there was a statistically significant relationship between gender and total score of social stigma as well as two sub-scales of disclosed and negative self-image, as these rates were reported higher in females than males [21]. Results of a study by Serica *et al.* also showed that women perceived and reported a higher social stigma [22]. But results of Arshi *et al.*'s study did not show any difference in bisexuality [20]. Contradictory results can be due to cultural differences. Women have a valuable position in Islamic society. HIV infection reinforces the suspicion of moral problems in infected women, which is in stark contrast to religious beliefs and socio-cultural contexts of the society, which makes social stigma of this gender more unpleasant.

In the present study, the relationship between social support and gender was statistically significant. Men reported higher perceived social support than women. Stoke and Wilson stated that although men and women did not differ in overall support scores, perceived emotional support was greater for women than men [23]. Results of Arshi *et al.*'s study were inconsistent with results of this study, and others have reported contradictory results [24, 25]. Existing contra-

Table 5. Relationship between the studied variables and social stigma sub-scales

Variable	Personalized stigma, mean (SD)			Disclosure stigma, mean (SD)			Negative self-image, mean (SD)			Public attitudes, mean (SD)		
	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Social support	77.50 (20.80)	69.19 (11.20)	66.45 (9.35)	64.66 (3.72)	67.55 (11.40)	73.69 (11.10)	67.81 (13.80)	68.50 (10.60)	71.93 (12.80)	70.42 (14.10)	69.50 (10.30)	67.65 (12.80)
<i>p</i> -value	0.931											
Age	29.75 (20.10)	40.86 (8.72)	41.05 (9.25)	41.66 (8.01)	41.25 (7.91)	38.11 (13.10)	44.81 (8.87)	39.47 (9.70)	9.77 (8.37)	39.14 (6.93)	40.11 (10.50)	41.40 (8.00)
<i>p</i> -value	0.071											
Family number	4.00 (3.36)	3.02 (1.32)	3.75 (1.68)	4.50 (2.42)	3.13 (1.48)	3.11 (1.30)	3.72 (2.53)	3.10 (1.20)	3.31 (1.85)	4.14 (2.41)	3.03 (1.30)	3.34 (1.50)
<i>p</i> -value	0.101											
Number of children	2.75 (3.50)	1.39 (1.15)	2.00 (1.52)	2.33 (3.01)	1.50 (1.23)	1.57 (1.27)	2.00 (2.28)	1.45 (1.10)	1.81 (1.79)	2.42 (2.57)	1.39 (1.10)	1.71 (1.41)
<i>p</i> -value	0.377											
Gender	0.568											
Male	2 (7.40)	20 (74.10)	5 (18.50)	0 (0.00)	12 (44.40)	15 (55.60)	2 (7.40)	16 (59.30)	9 (33.30)	1 (3.70)	13 (48.10)	13 (48.10)
Female	2 (2.70)	56 (76.70)	15 (20.50)	6 (8.20)	56 (76.70)	11 (15.10)	9 (12.30)	57 (78.10)	7 (9.60)	6 (8.20)	48 (65.80)	19 (26.00)
<i>p</i> -value	0.001											
Marital status	0.131											
Single	1 (7.70)	11 (84.60)	1 (7.70)	2 (15.40)	7 (53.80)	4 (30.80)	1 (7.70)	9 (69.20)	3 (23.10)	1 (7.70)	8 (61.50)	4 (30.80)
Married	2 (3.60)	41 (73.20)	13 (23.20)	3 (5.40)	35 (62.50)	18 (32.10)	3 (5.40)	43 (76.80)	10 (17.90)	4 (7.10)	32 (57.10)	20 (35.70)
Other	1 (3.20)	24 (77.40)	6 (19.40)	1 (3.20)	26 (83.90)	4 (12.90)	7 (22.60)	21 (67.70)	3 (9.70)	2 (6.50)	21 (67.70)	8 (25.80)
<i>p</i> -value	0.738											
Residential place	0.131											
Urban	3 (4.00)	55 (73.30)	17 (22.70)	2 (2.70)	53 (70.70)	20 (26.70)	8 (10.70)	55 (73.30)	12 (16.00)	5 (6.70)	46 (61.30)	24 (32.00)
Rural	1 (4.00)	21 (84.00)	3 (12.00)	4 (16.00)	15 (60.00)	6 (24.00)	3 (12.00)	18 (72.00)	4 (16.00)	2 (8.00)	15 (60.00)	8 (32.00)
<i>p</i> -value	0.510											
Smoking	0.974											
Yes	1 (3.80)	20 (76.90)	5 (19.20)	2 (7.70)	15 (57.70)	9 (34.60)	4 (15.40)	16 (61.50)	6 (23.10)	2 (7.70)	13 (50.00)	11 (42.30)
No	3 (4.10)	56 (75.70)	15 (20.30)	4 (5.40)	53 (71.60)	17 (23.00)	7 (9.50)	57 (77.00)	10 (13.50)	5 (6.80)	48 (64.90)	21 (28.40)
<i>p</i> -value	0.992											

Table 5. Cont.

Variable	Personalized stigma, mean (SD)			Disclosure stigma, mean (SD)			Negative self-image, Mean (SD)			Public attitudes, mean (SD)		
	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Drug abuse												
Yes	1 (3.40)	23 (79.30)	5 (17.20)	2 (6.90)	15 (51.70)	12 (41.40)	3 (10.30)	17 (58.60)	9 (31.00)	2 (6.90)	14 (48.30)	13 (44.80)
No	3 (4.20)	53 (74.60)	15 (21.10)	4 (5.60)	53 (74.60)	14 (19.70)	8 (11.30)	56 (78.90)	7 (9.90)	5 (7.00)	47 (66.20)	19 (26.80)
<i>p</i> -value	0.885			0.069			0.031			0.203		
Way of disease transmission												
Infectious syringe	1 (5.00)	14 (70.00)	5 (25.00)	1 (5.00)	10 (50.00)	9 (45.00)	1 (5.00)	6 (30.00)	6 (30.00)	1 (5.00)	9 (45.00)	10 (50.00)
Mother-to-child	0 (0.00)	1 (50.00)	1 (50.00)	0 (0.00)	2 (100.00)	0 (0.00)	0 (0.00)	1 (50.00)	1 (50.00)	0 (0.00)	1 (50.00)	1 (50.00)
Unsafe sex	2 (4.00)	41 (82.00)	7 (14.00)	2 (4.00)	37 (74.00)	11 (22.00)	6 (12.00)	40 (80.00)	4 (8.00)	2 (4.00)	38 (76.00)	10 (20.00)
Blood	0 (0.00)	1 (100.00)	0 (0.00)	1 (100.00)	0 (0.00)	0 (0.00)	1 (100.00)	0 (0.00)	0 (0.00)	1 (100.00)	0 (0.00)	0 (0.00)
Unknown	1 (4.00)	18 (72.00)	6 (24.00)	2 (8.00)	18 (72.00)	5 (20.00)	3 (12.00)	17 (68.00)	5 (20.00)	3 (12.00)	12 (48.00)	10 (40.00)
Infectious syringe	0 (0.00)	1 (50.00)	1 (50.00)	0 (0.00)	1 (50.00)	1 (50.00)	0 (0.00)	2 (100.00)	0 (0.00)	0 (0.00)	1 (50.00)	1 (50.00)
<i>p</i> -value	0.927			0.013			0.082			0.008		
Income (USD)												
More than 475	1 (5.30)	12 (63.20)	6 (31.60)	0 (0.00)	12 (63.20)	7 (36.80)	3 (15.80)	12 (63.20)	4 (21.10)	1 (5.30)	10 (52.60)	19 (42.10)
Between 237-475	1 (2.60)	33 (84.60)	5 (12.80)	0 (0.00)	27 (69.20)	12 (30.80)	3 (7.70)	29 (74.40)	7 (17.90)	0 (0.00)	28 (71.80)	11 (28.20)
Less than 237	1 (3.80)	21 (80.80)	4 (15.40)	5 (19.20)	17 (65.40)	4 (15.40)	2 (7.70)	20 (76.90)	4 (15.40)	3 (11.50)	17 (65.40)	6 (23.10)
No income	0 (0.00)	8 (61.50)	5 (38.50)	1 (7.70)	9 (69.20)	3 (23.10)	2 (15.40)	10 (76.90)	1 (7.70)	2 (15.40)	4 (30.80)	7 (53.80)
No answer	1 (33.30)	2 (66.70)	0 (0.00)	0 (0.00)	3 (100.00)	0 (0.00)	1 (33.30)	3 (66.70)	0 (0.00)	1 (33.30)	2 (66.70)	0 (0.00)
<i>p</i> -value	0.085			0.059			0.816			0.056		
<i>p</i> -value < 0.05												

differences can be attributed to differences in intrinsic characteristics of the studies, such as sample size, and socio-economic differences.

In this study, there was a statistically significant relationship between disease transmission way and social stigma sub-scales, and it was also significant in both sub-scales of disclosure and public attitude. The rate of social stigma in unsafe sexual behavior was higher than other ways of transmission. Previous findings were consistent with the results of our study [26-28], and others had conflicting results [20]. Herrick *et al.* reported that high-risk behaviors, especially sexual relationships, bear the brunt of social stigma in society [29]. AIDS-related stigma is very closely associated with the way of infection [30]. In this study, most patients were married and stated that they had contracted the disease through sexual intercourse with their spouse. It should be noted that due to socio-cultural conditions of the society that condemn extramarital sex, many people deny having such relationships. However, despite some misconceptions in the society that the possibility of having an illicit relationship with people living with HIV, especially married people, can cause these people to experience more social stigma than others. On the other hand, it should be noted that there is a possibility of sexual deviations, especially in drug users, and because its disclosure in the context of society intensifies exclusion of HIV patients, it can be the reason for patients' lack of expression.

The study showed a significant relationship between level of income and social stigma sub-scales. In other words, high income was a predictor of higher social support. Numerous studies have shown that social stigma decreases with increasing income levels [20]. Yang *et al.* showed that AIDS affects social relationships of poor people more than others [31]. This could be due to compensatory role of money in restoring people's social status. Money improves access to facilities and reduces patients' dependency.

In our study, there was an inverse correlation between social support and disclosed sub-scale, so individuals with higher disclosed stigma rates presented higher social support scores, which was consistent with other findings [32-35]. However, contradictory results were obtained in a study [36]. In this case, we can refer to the model of direct impact of support that quickly reduces the stress caused by accidents and increase self-esteem as well as social support buffer hypothesis that is assumed as a moderator [37] to confirm the results of this study. One of the consequences of contracting AIDS is social exclusion, which is a long-term deprivation that leads to separation from the mainstream of society [38]. Social support is perceived and received in the context of social network. The stronger the social network, the greater the likelihood of receiving and understanding social support, which can reduce psychological burden of stigma and help a person to return sooner to social life. Fortunately, in Iranian culture, there are strong social networks and kinship between people, which is very useful in reducing social burden of AIDS, and prevent people from being rejected. One of the most important sources of support in the family is the patient's spouse. Wives of these patients cope well with

the problem, if provided with proper counseling, and women are much more likely than men to fully support their sick husbands.

Additionally, social support was significantly higher in high-income people than in low-income or non-income individuals. Results of Shushtari *et al.* were consistent with the results of the present study [39], and Von Bonsdorff *et al.* observed that income could improve social support [40]. We know that one of the types of social support is instrumental support, which includes money, income, etc. On the other hand, people's income is related to both socio-economic status and their ability to access facilities, all of which can improve both received and perceived social support by individuals.

Conclusions

This study concluded that there is an inverse relationship between social support and social stigma. By increasing social support, it is possible to reduce the perceived social stigma by AIDS-positive patients and increase their self-esteem.

Conflict of interest

The authors report no conflict of interest.

References

1. Seyam S. Survey of women's knowledge about AIDS in Rasht 2006. *J Guilan Univ Med Sci* 2008; 17: 59-67.
2. Keithley JK, Swanson B. Minimizing HIV/AIDS malnutrition. *Medsurg Nurs* 1998; 7: 256-267.
3. Valente SM. Depression and HIV disease. *J Assoc Nurses AIDS Care* 2003; 14: 41-51.
4. Valdiserri RO. HIV/AIDS stigma: an impediment to public health. *Am J Public Health* 2002; 92: 341-342.
5. Holzemer WL, Uys LR, Chirwa ML, et al. Validation of the HIV/AIDS Stigma Instrument – PLWA (HASI-P). *AIDS Care* 2007; 19: 1002-1012.
6. Weiss MG, Ramakrishna J. Conference examines need for more study of AIDS stigma. *AIDS Policy Law* 2001; 16: 4.
7. Nyblade L, Stangl A, Weiss E, Ashburn K. Combating HIV stigma in health care settings: what works? *J Int AIDS Soc* 2009; 12: 15.
8. Newman P, Grusky O, Roberts S, Rivkin I (eds.). *Organizational factors in the early detection of HIV. The XIV International AIDS Conference*; 2002.
9. Colecraft E. HIV/AIDS: nutritional implications and impact on human development. *Proc Nutr Soc* 2008; 67: 109-113.
10. Chitra L, Jayalakshmi L, Vinod R. Stigma in women living with HIV in Coimbatore District of Tamil Nadu. *OSR Journal of Dental and Medical Sciences* 2015; 13: 29-32.
11. Lazarus RS, Kanner AD, Folkman S. Emotions: a cognitive phenomenological analysis. In: Plutchik R, Kellerman H (eds.). *Emotion: Theory, Research and Experience*. New York: Academic Press; 1980. p. 189-217.
12. Antonucci TC. Social relations: an examination of social networks, social support, and sense of control. *Handbook of the Psychology of Aging* 2001; 3: 427-453.
13. Albrecht TL, Adelman MB. Dilemmas of supportive communication. In: Albrecht TL, Adelman MB (eds.). *Communicating Social Support*. Newbury Park: Sage; 1987. p. 240-254.
14. Eisapareh K, Nazari M, Kaveh MH, Ghahremani L. The relationship between job stress and health literacy with the quality of work life

- among Iranian industrial workers: the moderating role of social support. *Curr Psychology* 2020; DOI: 10.1007/s12144-020-00782-5.
15. Lee SYD, Arozullah AM, Cho Y. Health literacy, social support, and health: a research agenda. *Soc Sci Med* 2004; 58: 1309-1321.
 16. Kamen C, Vorasarun C, Canning T, et al. The impact of stigma and social support on development of post-traumatic growth among persons living with HIV. *J Clin Psychol Med Settings* 2016; 23: 126-134.
 17. Khabaz M, Behjati Z, Naseri M. Relationship between social support and coping styles and resiliency in adolescents. *J Appl Psychology* 2012; 5: 108-123.
 18. Nourbala A, Bagheri YS, Mohammad K. The validation of general health questionnaire-28 as a psychiatric screening tool. *Hakim Research Journal* 2009; 11: 47-53.
 19. Stutterheim SE, Baas I, Roberts H, et al. Stigma experiences among substance users with HIV. *Stigma and Health* 2016; 1: 123-145.
 20. Arshi M, Yavari M, Fekr Azad H, Safi MH, Moghanibashi-Mansourieh A, Moshayyedi M. Investigation of relationship between family social support and the level of stigma perceived by PLWHA in Iran. *Soc Work Public Health* 2020; 35: 90-99.
 21. Colbert AM, Kim KH, Sereika SM, Erlen J. An examination of the relationships among gender, health status, social support, and HIV-related stigma. *J Assoc Nurses AIDS Care* 2010; 21: 302-313.
 22. Cunningham SD, Tschann J, Gurvey JE, Fortenberry JD, Ellen JM. Attitudes about sexual disclosure and perceptions of stigma and shame. *Sex Transm Infect* 2002; 78: 334-338.
 23. Stokes JP, Wilson DG. The inventory of socially supportive behaviors: dimensionality, prediction, and gender differences. *Am J Community Psychol* 1984; 12: 53-69.
 24. Charkhian A, Fekrazad H, Sajadi H, Rahgozar M, Abdolbaghi MH, Maddahi S. Relationship between health-related quality of life and social support in HIV-infected people in Tehran, Iran. *Iran J Public Health* 2014; 43: 100-106.
 25. Schulz U, Schwarzer RJ. Long-term effects of spousal support on coping with cancer after surgery. *J Soc Clin Psychol* 2004; 23: 716-732.
 26. Gharacheh M, Ranjbar F. Editorial letter: HIV-related stigma: a dilemma in the prevention of HIV spread. *Iran Journal of Nursing* 2018; 31: 1-5.
 27. Sassanid L, Naji A, Abedi H, Taeri K. The experience of social stigma in AIDS patients: a phenomenological study. *Journal of Sabzevar University of Medical Sciences* 2014; 20: 487-495.
 28. Jiménez J, Puig M, Sala AC, et al. Felt stigma in injection drug users and sex workers: focus group research with HIV-risk populations in Puerto Rico. *Qual Res Psychol* 2011; 8: 26-39.
 29. Herek GM. Thinking about AIDS and stigma: a psychologist's perspective. *J Law Med Ethics* 2002; 30: 594-607.
 30. Torkashvand F, Asadpor M, SheikhFathollahi M, et al. Frequency of high risk behaviour in HIV positive patients referred to centers for behavioural disorders of Rafsanjan and Kerman in 2012. *J Rafsanjan Univ Med Sci* 2015; 14: 587-598.
 31. Zhang Y, Zhang X, Aleong TH, Fuller-Thomson E. Impact of HIV/AIDS on social relationships in rural China. *Open AIDS J* 2011; 5: 67-73.
 32. Masoudi M, Farhadi A. Family social support rate of HIV positive individuals in Khorram Abad. *Yafteh* 2006; 7: 43-47.
 33. Abachi A, Behravan H. The analysis of stigma impact on quality of life in patients with HIV/AIDS: a phenomenological study. *Journal of Qualitative Research in Health Sciences* 2013; 2: 158-172.
 34. Simbayi LC, Kalichman S, Strebel A, et al. Internalized stigma, discrimination, and depression among men and women living with HIV/AIDS in Cape Town, South Africa. *Soc Sci Med* 2007; 64: 1823-1831.
 35. Vyavaharkar M, Moneyham L, Corwin S, Saunders R, Annang L, Tavakoli A. Relationships between stigma, social support, and depression in HIV-infected African American women living in the rural Southeastern United States. *J Assoc Nurses AIDS Care* 2010; 21: 144-152.
 36. Karimli L, Ssewamala FM, Ismayilova L. Extended families and perceived caregiver support to AIDS orphans in Rakai district of Uganda. *Child Youth Serv Rev* 2012; 34: 1351-1358.
 37. Weinman J, Johnston M. Stressful medical procedures: an analysis of the effects of psychological interventions and of the stressfulness of the procedures. In: Maes S, Defares P, Sarason IG, Spielberger CD (eds.). *Topics in Health Psychology*. Chichester: Wiley; 1988. p. 205-217.
 38. Ahmad F, Sadeghi A. *Social exclusion: A sociological approach to deprivation*. Tehran; 2013.
 39. Forouzan AS, Jorjoran Shushtari Z, Sajjadi H, Salimi Y, Dejman M. Social support network among people living with HIV/AIDS in Iran. *AIDS Res Treat* 2013; 2013: 715381.
 40. von Bonsdorff MB, Seitsamo J, Ilmarinen J, Nygård CH, von Bonsdorff ME, Rantanen TJC. Work ability in midlife as a predictor of mortality and disability in later life: a 28-year prospective follow-up study. *CMAJ* 2011; 183: E235-E242.