Original Article

Journal of Iranian Medical Council, Volume 10, Issue no. 1
http://dx.doi.org/10.18502/jimc.v10i1.23276

Check for updates

Predictors and Dimensions of Stigma Toward Psychiatric and Substance Use Disorders Among a Group of Iranian Adults: A Cross-Sectional Study

Muhammed Joghatayi[1†], Narjes Sahebzadeh[1†], Mohammad Reza Fayyazi Bordbar[1], Ali Talaei[1], Amir Rezaei Ardani[1], Negar Morovatdar[2], Leslie Lundahl[3] and Mahsa Nahidi[1*]

1. Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
2. Clinical Research Development Unit, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
3. Department of Psychiatry and Behavioral Neurosciences, Wayne State University School of Medicine, Detroit, MI, USA
†These authors contributed equally to this work and share first authorship

*** Corresponding author**
Mahsa Nahidi, MD
Psychiatry and Behavioral Sciences Research Center, Ibne-Sina Hospital, Mashhad University of Medical Sciences, Mashhad, Iran
Tel: +98 51 3711 2540
Email:
Nahidimh@mums.ac.ir,
mahsa.nahidi@gmail.com

Received: 3 Jun 2025
Accepted: 10 Nov 2025

Citation to this article
Joghatayi M, Sahebzadeh N, Fayyazi Bordbar MR, Talaei A, Rezaei Ardani A, Morovatdar N, *et al*. Predictors and Dimensions of Stigma Toward Psychiatric and Substance Use Disorders Among a Group of Iranian Adults: A Cross-Sectional Study. *J Iran Med Counc*. 2027;10(1):196-210.

Abstract

Background: Stigma toward psychiatric and Substance Use Disorders (SUDs) poses significant barriers to care and worsens the global disease burden. This study examines predictors of stigma among a group of Iranian adults.

Methods: A cross-sectional survey was conducted among a group of Iranian adults between May and September 2022. A sample of 340 participants completed validated stigma scales: the Community Attitudes Towards Mental Illness (CAMI), Attitudes Towards Mental Health Problems (ATMHP), and Perceived Stigma of Substance Abuse Scale (PSAS). Statistical analyses included descriptive statistics, nonparametric tests, and robust regression modeling. Higher scores on the stigma-related scales reflected greater stigma, except for the benevolence and community mental health ideology subscales, where higher scores indicated more positive attitudes.

Results: Participants with Master's degrees or higher reported significantly higher PSAS scores, indicating greater perceived stigma towards SUDs. Higher education was also associated with increased social restrictiveness and lower benevolence on the CAMI, alongside more negative attitudes on the Attitudes Towards Mental Health Problems. Internal shame was significantly elevated in participants with a history of substance use, whereas reflected shame was higher among single individuals. Participants with a second-degree family history of substance use reported higher perceived stigma, while those with a first-degree psychiatric history showed more social restrictiveness.

Conclusion: These findings highlight the need for stigma-reduction strategies that are sensitive to both educational levels and cultural values. Efforts should target misconceptions about the controllability of addiction and reduce internalized shame, particularly in societies where familial expectations strongly shape social attitudes.

Keywords: Mental disorders, Mental health, Substance-related disorders, Shame

Copyright © 2027, Journal of Iranian Medical Council.
This work is licensed under a Creative Commons Attribution–NonCommercial 4.0 International License.

Introduction

Psychiatric and Substance Use Disorders (SUDs) are significant public health challenges worldwide. According to the World Health Organization, more than 1 billion people live with mental health conditions, representing approximately 13–14% of the global population (1). The United Nations Office on Drugs and Crime (UNODC) World Drug Report 2024 further estimates that 292 million people used drugs in 2022, with approximately 64 million experiencing drug use disorders (2). In Iran, the most recent National Mental Health Survey reported that 29.7% of individuals aged 15 years and older had a mental disorder in 2020 (3), while a 2024 population-based network scale-up study estimated that 4.79% of the population (3.6 million people) are frequent users of illicit drugs (4). Despite their prevalence, these conditions remain shrouded in stigma, creating substantial barriers to treatment and recovery.

Stigma can manifest in various ways, including labeling, stereotyping, separation, status loss, and discrimination, all of which can negatively impact individuals with mental health and substance use challenges (5).

The profound impact of stigma on individuals with mental health conditions and SUDs exacerbates mental health problems, delays recovery, and increases the risk of substance abuse. Stigma can also lead to social isolation, unemployment, and poor quality of life (6). Furthermore, stigma has adverse effects on policies and programs designed to address substance use and other addictive disorders (6). Moreover, stigma affects not only those with mental health conditions or SUDs but also their families and communities, perpetuating cycles of discrimination and exclusion (7). A review of studies on stigma has shown that, despite the general public acceptance of the medical or genetic nature of mental health disorders and the need for treatment, many people still maintain negative perceptions of individuals with mental illnesses (8).

Public stigma, characterized by societal prejudice and discrimination against individuals with mental health conditions, is a significant barrier to social and occupational reintegration (9). Self-stigma, on the other hand, refers to the internalization of these negative beliefs, leading to feelings of shame and reduced self-worth among those affected (10). Institutional stigma manifests as systemic inequities, such as limited funding and resources for mental health services, which exacerbate disparities in care (11).

Several studies have identified demographic predictors of stigma. Higher education levels, for example, are paradoxically associated with both greater awareness of mental health issues and more rigid and socially restrictive attitudes. Employment and socioeconomic status also influence attitudes, with employed individuals often reporting lower stigma levels. However, much of this research has been conducted in Western contexts, limiting its applicability to culturally distinct populations (8,12).

In societies characterized by collectivist traditions and strong family-centered values, stigma operates within a unique sociocultural framework. While close family ties may foster support and understanding, the strong societal pressure to uphold the family's reputation can simultaneously perpetuate discriminatory attitudes (13).

Research into the specific cultural predictors of stigma in non-Western contexts, such as Iran, remains limited, highlighting a significant gap in the literature. Previous research in Iran has documented widespread stigma toward psychiatric disorders, with stronger negative attitudes observed toward severe conditions such as schizophrenia and among individuals with lower educational attainment or those from rural backgrounds (14,15). However, many of these studies have primarily described general attitudes without systematically examining demographic or clinical predictors. Moreover, stigma toward substance-use disorders has received less attention.

This study aimed to address this gap by examining how demographic and clinical factors, including educational level, occupational status, and family and personal history of psychiatric and substance use disorders, are associated with stigma toward psychiatric and substance use disorders in an Iranian population. Conducted within the sociocultural context of a family-oriented, collectivist society, the study investigates how these variables predict attitudes toward mental health and substance use issues. By identifying key demographic predictors, the findings seek to inform culturally sensitive anti-stigma

interventions and contribute to a better understanding of stigma dynamics in under-represented settings.

Materials and Methods

Study design and participants

This cross-sectional study employed online convenience sampling with snowball recruitment initiated in Mashhad, Iran, and expanded through social media platforms to include participants from multiple regions. Between May and September 2022, participants were requested to share the survey link *via* social media with their contact lists on various platforms, including WhatsApp, Telegram, and Instagram.

The questionnaires were distributed through Aval Form, an Iranian platform for designing and distributing online questionnaires. This platform prevented participants from completing the questionnaire more than once.

The inclusion criteria were individuals aged 18-64 *yrs* with at least a junior high school education, Internet access, and consent to participate. Questionnaires with incomplete data (>20%) and those without consent were excluded.

Instruments

Demographic and clinical information checklist: This self-designed checklist collected data on participants' age, sex, marital status, educational attainment, employment status, and personal and family history of psychiatric disorders or substance use. Information regarding the use of psychiatric medications was also recorded.

Community attitudes towards mental illness (CAMI) questionnaire: The validated Persian version of the Community Attitudes Toward Mental Illness (CAMI) scale was used in this study. In the Persian validation study conducted by Kafami *et al*, the four CAMI subscales demonstrated satisfactory internal consistency, with Cronbach's α coefficients of 0.74 for Authoritarianism, 0.79 for Benevolence, 0.76 for Social Restrictiveness, and 0.81 for Community Mental Health Ideology. The Content Validity Coefficients (CVCs) ranged from 0.70 to 0.85, confirming the acceptable psychometric properties of the scale for use in Iranian populations (16). The CAMI scale assesses public attitudes toward mental health through four subscales: Authoritarianism, Benevolence, Social Restrictiveness, and Community Mental Health Ideology.

- Authoritarianism: Reflects coercive attitudes toward individuals with mental disorders, with higher scores indicating more stigma.
- Benevolence: Measures compassion and support, with higher scores indicating less stigma.
- Social Restrictiveness*:* Indicates social rejection, with higher scores indicating more significant stigma.
- Community Mental Health Ideology: This indicator reflects the acceptance of deinstitutionalization and mental health facilities, with higher scores indicating positive attitudes.

Higher scores on Authoritarianism and Social Restrictiveness indicate greater stigma, whereas higher scores on Benevolence and Community Mental Health Ideology indicate more positive attitudes (17).

Attitudes towards mental health problems (ATMHP): This self-report scale comprises 35 items across five parts, each scored on a 4-point Likert scale from 0 (strongly disagree) to 3 (strongly agree).

- Attitudes towards Mental Health Problems: Assesses societal and familial views on mental health.
- External Shame/Stigma Awareness: Evaluates societal and familial perceptions of individuals with mental illnesses.
- Internal Shame: Measures inner shame and self-stigma.
- Reflected Shame 1: This section focuses on reflected shame and societal views of the family (items 24-30).
- Reflected Shame 2: Assesses the fear of stigma if a family member has mental health issues (items 31-35).

Higher scores across all subscales reflect greater negative attitudes and stigma (18).

Prior to this study, the ATMHP underwent comprehensive validation in a separate Iranian sample (n=170). Content validity was established through expert panel review (n=10 psychologists and psychiatrists), with Content Validity Coefficients ranging 0.60-0.80. Internal consistency reliability demonstrated acceptable psychometric properties (Cronbach's α=0.83).

Perceived stigma of substance abuse scale (PSAS): This self-report scale assesses the perceived stigma of substance use in society. The

scale consists of eight items rated from 1 (strongly disagree) to 4 (strongly agree). The overall score on the questionnaire ranged from 8 to 32, with higher scores indicating a higher level of perceived stigma (19).

Translation and cultural adaptation for Iranian populations was completed using standard procedures, followed by psychometric validation in a pilot sample (n=40). The Persian version demonstrated acceptable reliability (Cronbach's α = 0.78) and content validity indicators (CVC = 0.60-0.80).

Data analysis

Descriptive statistics were calculated, with means and standard deviations for continuous variables and frequencies and percentages for categorical variables. The normality of the data was assessed using the Shapiro-Wilk test. For normally distributed data, comparisons between groups were made using the independent t-test and one-way analysis of variance (ANOVA). The Mann-Whitney U and Kruskal-Wallis tests were used for non-normally distributed data.

To identify predictors of stigma toward SUDs, a robust linear regression with a Huber loss function was conducted using the Perceived Stigma of Substance Abuse Scale (PSAS) scores.

Statistical significance was set at p-value ≤0.05 unless otherwise specified.

Statistical software

The data were analyzed using Python (version 3.12) with the libraries Statsmodels, Pandas, NumPy, and SciPy.

Results

Validity and reliability of ATMHP and PSAS questionnaires

Internal consistency reliability in the current study sample (n=340) was excellent for the ATMHP (α=0.856) and acceptable for the PSAS (α=0.777), confirming the reliability established during the validation phase and supporting the instruments' psychometric adequacy for this Iranian population.

Demographic information

The study included 340 participants, of whom 69.1% were female and 59.1% were married. The mean age of the participants was 34.04±7.21 years. Regarding education, 46.2% of participants had a Bachelor's degree, while 45.9% had a Master's Degree or higher. The majority of participants (80.9%) were employed. Personal history of psychiatric disorders was reported by 17.1%, and 12.3% had a history of substance use. First-degree family history of psychiatric disorders was noted in 24.3% of participants, and 31.6% reported second-degree familial psychiatric disorders. A history of substance use was reported for 27.9% of first-degree family members and 45% of second-degree family members. Further demographic and clinical details are presented in table 1.

Community attitudes toward mental illness (CAMI)

In the Authoritarianism subscale, married participants reported significantly lower scores (Mean±SD: 22±3) than single participants (Mean±SD: 23±3) (p=0.013). Educational level was also significantly associated with Authoritarianism scores (p=0.033); participants with a Master's degree or higher (Mean±SD: 22±2) had lower scores compared to those with a Bachelor's degree (Mean±SD: 22±3) and those with a high school diploma or less (Mean±SD: 22±3).

In the Social Restrictiveness subscale, participants with a Master's degree or higher (Mean±SD: 26± 3) scored significantly higher than those with a Bachelor's degree (Mean±SD: 25±3) and those with a high school diploma or less (Mean±SD: 24±4) (=0.024).

In the Benevolence subscale, participants with a Master's degree or higher (Mean±SD: 17±4) reported significantly lower scores than those with a Bachelor's degree (Mean±SD: 18±4) and those with a high school diploma or less (Mean±SD: 19±4) (p=0.027).

No significant differences were observed across marital groups in the Community Mental Health Ideology subscale. Social Restrictiveness scores were significantly higher among participants with Master's degrees or higher than among those with lower education levels (p=0.024), consistent with table 2. Benevolence scores were significantly lower in participants with a Master's degree or higher than in those with a high school diploma or less and a Bachelor's degree (p= 0.027).

No statistically significant associations were found

Table 1. Demographic and clinical characteristics of participants

Characteristic	Category	No.	Percentage (%)
Gender	Male	105	30.9
	Female	235	69.1
Marital Status	Single	136	40.0
	Married	201	59.1
	Divorced or widowed	3	0.9
Educational level	High school diploma or less	27	7.9
	Bachelor's degree	157	46.2
	Master's degree or higher	156	45.9
Occupational status	Employed	275	80.9
	Unemployed	65	19.1
History of psychiatric disorders	Yes	58	17.1
	No	282	82.9
Current use of psychiatric medications	Yes	40	11.8
	No	300	88.2
History of substance use	Yes	42	12.3
	No	298	87.7
Family history of psychiatric disorders	First-degree relatives	83	24.3
	Second-degree relatives	108	31.6
Family history of substance use	First-degree relatives	95	27.9
	Second-degree relatives	153	45.0

between Community Mental Health Ideology scores and marital status or occupational level. Tables 2 and 3 provide the full statistical details.

Attitudes towards mental health problems (ATMHP) questionnaire

Tables 4 and 5 present the ATMHP subscale scores across the demographic and clinical variables. In the Attitudes Toward Mental Health Problems subscale, participants with a Master's degree or higher reported higher scores (Mean±SD: 20±5) than those with a Bachelor's degree (Mean±SD: 18±5) and those with a high school diploma or less (Mean±SD: 18±4) (p=0.023), reflecting greater perceived stigma.

In the Internal Shame subscale, participants with a history of substance use had significantly higher scores (mean±SD: 10±4) than those without a history of substance use (mean±SD: 8±3) (p=0.023).

In the Reflected Shame subscale, single participants (Mean±SD: 12±5) reported higher scores than married participants (Mean±SD: 11±4) (p=0.017).

In the Attitudes Toward Mental Health Problems subscale, participants with a second-degree family history of substance use had higher scores (mean±SD: 20±4) than those without such a history (mean±SD: 18±5) (p=0.021).

Additionally, participants with a first-degree family history of psychiatric disorders showed higher negative attitudes on the Attitudes Toward Mental Health Problems subscale (p=0.008).

Perceived stigma of substance abuse scale (PSAS) results

PSAS scores significantly differed across educational levels (p=0.002), with participants holding a Master's degree or higher reporting the highest mean scores (24±3), followed by those with a Bachelor's degree (23±3), and those with a high school diploma or less (22±3). Post-hoc analysis confirmed significant differences between Master's and higher degrees

Table 2. Comparison of CAMI subscale scores across demographic and clinical variables

Variable	Authoritarianism (Mean±SD, median [IQR])	p-value	Benevolence (Mean±SD, median [IQR])	p-value	Social restrictiveness (Mean±SD, median [IQR])	p-value	Community mental health ideology (Mean±SD, median [IQR])	p-value
Gender								
Male	22±2, 22(4)	0.442*	18±4, 19(5)	0.071*	25±3, 25(6)	0.279*	11±3, 12(5)	0.878*
Female	22±3, 23(4)		18±4, 18(7)		25±3, 26(6)		11±3, 12(5)	
Marital status								
Single	23±3, 23(6)	0.013*	17±4, 18(6)	0.068*	25±4, 26(6)	0.275*	11±3, 12(4)	0.864*
Married	22±3, 22(3)		18±4, 18(6)		25±3, 26(5)		11±3, 12(6)	
Educational level								
High school diploma or less	22±3, 22(4)		19±4, 19(5)[b]		24±4, 16(7)		12±3, 13(5)	
Bachelor's degree	22±3, 22(4)[a]	0.033**	18±4, 18(7)[c]	0.027**	25±3, 25(5)[d]	0.024**	12±3, 12(5)[e]	0.020**
Master's degree or higher	22±2, 23(4)[a]		17±4, 17(7)[b,c]		26±3, 27(5)[d]		11±3, 12(3)[e]	
Occupational status								
Employed	22±3, 23(4)	0.889*	18±4, 18(6)	0.878*	25±3, 26(5)	0.101*	12±3, 12(5)	0.140*
Unemployed	22±2, 23(5)		18±4, 18(6)		26±4, 27(5)		11±3, 12(5)	

* Mann-Whitney test, ** Kruskal-Wallis test.
Post-Hoc pairwise comparisons: a (p-value=0.011), b (p-value=0.021), c (p-value=0.024), d (p-value=0.012), e (p-value=0.016).

Table 3. CAMI subscale scores across psychiatric variables

Variable	Authoritarianism (Mean±SD, median [IQR])	p-value	Benevolence (Mean±SD, median [IQR])	p-value	Social restrictiveness (Mean±SD, median [IQR])	p-value	Community mental health ideology Mean±SD, median [IQR])	p-value
Current use of psychiatric medications								
Yes	23±2, 24(4)	0.749*	16±3, 17(5)	0.981*	27±3, 27(6)	0.728*	11±3, 11(3)	0.786*
No	22±3, 22(4)		18±4, 18(6)		25±3, 27(5)		11±3, 12(5)	
History of substance use								
Yes	22±3, 23(5)	0.381*	17±4, 18(7)	0.767*	25±4, 25(7)	0.652*	12±3, 12(5)	0.604*
No	22±3, 23(3)		18±4, 18(6)		25±3, 26(6)		11±3, 12(5)	
History of substance use in first-degree relatives								
Yes	22±3, 22(4)	0.790*	17±4, 17(6)	0.003*	26±3, 27(5)	0.039*	11±3, 12(5)	0.067*
No	22±3, 23(4)		18±4, 19(6)		25±4, 25(6)		12±3, 12(5)	

Contd. table 3.

History of substance use in second-degree relatives								
Yes	22±3, 22(5)	0.174*	18±4, 18(6)	0.966*	25±3, 25(5)	0.114*	12±3, 12(6)	0.264*
No	22±3, 23(3)		18±4, 18(6)		25±3, 26(6)		11±3, 12(4)	
History of psychiatric disorders in first-degree relatives								
Yes	23±2, 23(5)	0.014*	17±3, 17(6)	0.003*	27±3, 27(5)	<0.001*	11±3, 11(5)	0.009*
No	22±3, 22(4)		18±4, 19(5)		25±3, 25(6)		12±3, 12(3)	
History of psychiatric disorders in second-degree relatives								
Yes	23±2, 23(5)	0.028*	17±4, 17(5)	0.034*	26±3, 27(5)	0.103*	11±3, 12(6)	0.901*
No	22±3, 22(4)		18±4, 19(6)		25±4, 26(6)		11±3, 12(4)	

* Mann-Whitney test.

Table 4. ATMHP subscale scores across demographic variables

Variable	Attitudes towards mental health problems (Mean±SD, median [IQR])	p-value	External shame/ stigma awareness (Mean±SD, median [IQR])	p-value	Internal shame (Mean±SD, median [IQR])	p-value	Reflected Shame 1 (Mean ± SD, Median [IQR])	p-value	Reflected Shame 2 (Mean ± SD, Median [IQR])	p-value
Gender										
Male	19±4, 18(6)	0.608*	16±7, 16(9)	0.392*	8±3, 13(4)	0.710*	12±5, 11(8)	0.075*	10±4, 10(7)	0.054*
Female	19±5, 19(7)		16±7, 14(11)		8±3, 8(4)		11±4, 24(7)		9±4, 8(7)	
Marital status										
Single	19±5, 18(6)	0.970*	16±7, 15(9)	0.455*	9±3, 8(6)	0.055*	12±5, 11(7)	0.017*	9±4, 9(6)	0.766*
Married	19±5, 18(7)		16±7, 14(12)		8±3, 7(5)		11±4, 10(8)		9±4, 9(8)	
Educational level										
High school diploma or less	18±4, 17(8)	0.023**	15±6, 13(5)	0.191**	7±2, 7(5)	0.456**	11±5, 11(8)	0.973**	9±3, 9(5)	0.463**
Bachelor's degree	18±5, 18(6)		16±7, 15(5)		8±3, 8(4)		11±4, 10(8)		9±4, 9(6)	
Master's degree or higher	20±5, 20(7)		16±7, 13(10)		8±4, 7(4)		11±4, 10(6)		9±4, 8(9)	
Occupational status										
Unemployed	19±4, 18(7)	0.922*	16±7, 14(12)	0.690*	8±3, 7(5)	0.521*	11±5, 9(8)	0.240*	9±4, 8(6)	0.109*
Employed	19±5, 19(7)		16±7, 14(10)		8±3, 8(4)		11±4, 10(6)		9±4, 9(6)	

* Mann-Whitney test. ** Kruskal-Wallis test.

vs. less than a diploma (p=0.002) and a diploma/ bachelor's vs. less than a diploma (p=0.042).

Occupational status also showed a significant difference (p=0.044), with unemployed participants reporting slightly lower PSAS scores (22±4) than employed individuals (23±3). No significant differences were found in terms of sex, marital status, psychiatric history, or substance use, including

Table 5. ATMHP subscale scores across psychiatric variables

Variable	Attitudes towards mental health problems (Mean±SD, median [IQR])	p-value	External shame/stigma awareness (Mean±SD, median [IQR])	p-value	Internal shame (Mean±SD, median [IQR])	p-value	Reflected shame 1 (Mean±SD, median [IQR])	p-value	Reflected shame 2 (Mean±SD, median [IQR])	p-value
History of psychiatric disorders										
Yes	19±4, 18(6)	0.727*	17±7, 15(9)	0.272*	9±3, 9(5)	0.063*	12±5, 10(7)	0.355*	9±3, 9(6)	0.991*
No	19±5, 18(7)		16±7, 14(11)		8±3, 7(4)		11±4, 10(8)		9±4, 9(8)	
Current use of psychiatric medications										
Yes	19±4, 19(6)	0.767*	19±6, 15(8)	0.736*	9±3, 8(5)	0.619*	10±4, 10(4)	0.334*	9±3, 9(5)	0.895*
No	19±5, 18(7)		16±7, 14(11)		8±3, 8(4)		11±5, 10(8)		9±4, 9(8)	
History of substance use										
Yes	19±4, 18(5)	0.777*	18±7, 16(12)	0.058*	10±4, 8(7)	0.023*	12±5, 11(7)	0.072*	10±4, 10(8)	0.199*
No	19±5, 18(7)		16±7, 14(10)		8±3, 7(4)		11±4, 10(7)		9±4, 9(7)	
History of substance use (1st degree)										
Yes	20±5, 19(7)	0.083*	17±7, 15(3)	0.556*	8±3, 7(5)	0.877*	11±5, 10(6)	0.474*	9±4, 9(6)	0.708*
No	18±5, 18(6)		16±7, 14(10)		8±3, 8(4)		11±4, 10(8)		9±4, 9(8)	
History of substance use (2nd degree)										
Yes	20±4, 20(8)	0.021*	17±7, 15(12)	0.110*	8±3, 8(5)	0.424*	11±4, 10(7)	0.301*	9±3, 9(6)	0.642*
No	18±5, 18(5)		16±7, 14(10)		8±3, 8(4)		11±5, 10(7)		9±4, 8(8)	
History of psychiatric disorders (1st degree)										
Yes	20±5, 20(7)	0.008*	18±8, 16(13)	0.109*	9±3, 8(5)	0.198*	12±5, 10(7)	0.394*	9±3, 8(6)	0.351*
No	18±5, 18(6)		16±7, 14(10)		8±3, 7(5)		11±4, 10(8)		9±4, 9(8)	
History of psychiatric disorders (2nd degree)										
Yes	19±5, 19(8)	0.237*	17±7, 15(2)	0.128*	9±3, 8(6)	0.038*	12±5, 10(8)	0.117*	9±4, 9(7)	0.451*
No	19±4, 18(6)		16±7, 14(1)		8±3, 7(5)		11±4, 10(7)		9±4, 9(7)	

* Mann-Whitney test.

first- and second-degree family members (Table 6).

Robust linear regression analysis confirmed educational level as the only significant predictor of PSAS scores, with an average increase of 1.09 points per level of education ($p<0.001$), while other variables were not significant predictors. The details are presented in tables 7 and 8, respectively.

Given the relatively small subgroup of participants with only a high school diploma or less, a secondary robust regression analysis was performed by consolidating education into two categories: bachelor's degree or below versus master's degree or higher. In this model, education was the only significant predictor of the PSAS scores. Participants with a Master's degree or higher reported significantly greater perceived stigma than those with lower educational attainment ($p=0.001$). No significant associations were found for the other variables (all $p>0.05$). The full regression coefficients are provided in Supplementary table S1.

Discussion

This study examined stigma and attitudes toward psychiatric and substance use disorders among a group of Iranian adults in a culturally specific context using validated scales. Among the 340 participants, higher education consistently emerged as the strongest predictor of stigma. Participants with Master's degrees or higher reported significantly higher PSAS scores compared to those with lower education levels, suggesting that perceived stigma toward SUDs was more pronounced among the well-educated. Occupational status also played a role, with

Table 6. Comparison of subscales of the PSAS questionnaire across demographic and clinical variables

Variable	Mean±SD, median (interquartile range)	p-value
Gender		
Male	23±3, 23(4)	0.135*
Female	23±3, 24(4)	
Marital status		
Single	23±3, 23(4)	0.766*
Married	23±3, 23(4)	
Educational level		
High school diploma or less	22±3, 23(4)	0.002**
Bachelor's degree	23±3, 23(4)	
Master's degree or higher	24±3, 25(5)	
Occupational status		
Unemployed	22±4, 23(4)	0.044*
Employed	23±3, 23(4)	
History of psychiatric disorders		
Yes	23±3, 24(4)	0.735*
No	23±3, 24(4)	
Current use of psychiatric medications		
Yes	23±2, 24(3)	0.988*
No	23±3, 24(4)	
History of substance use		
Yes	23±2, 23(4)	0.217*
No	23±3, 24(4)	
History of substance use in first-degree family members		
Yes	23±3, 24(3)	0.923*
No	23±3, 24(4)	
History of substance use in second-degree family members		
Yes	23±3, 24(4)	0.522*
No	23±3, 24(5)	
History of psychiatric disorders in first-degree family members		
Yes	24±3, 24(4)	0.173*
No	23±3, 24(3)	
History of psychiatric disorders in second-degree family members		
Yes	23±3, 24(3)	0.164*
No	23±3, 24(3)	

* Mann-Whitney test. ** Kruskal-Wallis test.

unemployed participants reporting slightly lower levels of stigma. In contrast, variables such as gender, marital status, personal psychiatric history, and age did not significantly predict stigma in the current study.

The PSAS findings were consistent with those of prior research. Schomerus *et al*, in a German sample, observed that higher education was associated with greater stigma toward SUDs, potentially due to stronger beliefs in personal responsibility and controllability (20). Similarly, Corrigan *et al* argued that education can reinforce attributional models in which addiction is viewed as a moral or volitional failure (21). These frameworks may resonate particularly strongly in collectivist cultures such as observed among our Iranian participants, where adherence to social norms and family reputation is emphasized (22). As such, education may not necessarily reduce stigma; instead, it may deepen the judgment toward conditions perceived as self-inflicted.

This study further underscores the moderating role of cultural context in the relationship between education and stigma. While research in individualistic societies, such as Griffiths *et al*'s Australian study, shows that higher education typically reduces stigma by promoting empathy and autonomy (23), the present findings suggest a more complex pattern in collectivist societies. In the present study, higher education was associated with more negative personal attitudes toward mental health problems and also with increased perceived stigma toward SUDs and more socially restrictive views toward people with mental illness. This divergence may stem from the cultural emphasis on moral responsibility and social conformity. Notably, stigma related to perceived controllability, such as Social Restrictiveness, appeared consistent across contexts, whereas empathy-driven dimensions, such as Benevolence, varied significantly (24-27). These findings imply that some forms of stigma may be universal, while others are shaped by sociocultural values.

Notably, the PSAS scores showed no significant association with personal or family substance use history, which may seem counterintuitive. This lack of association aligns with recent research suggesting that perceived stigma toward SUDs operates through complex socially mediated mechanisms rather than direct exposure, particularly in collectivist cultures, where social norms may override individual experience (28,29). Individuals may employ coping strategies or denial, and social desirability bias could affect self-reporting, further explaining why stigma

Table 7. Results of robust regression analysis for PSAS scores

Variable	Coefficient	Standard error	z-value	p-value	95% Confidence Interval
Constant (PSAS score)	21.38	1.94	11.01	<0.000	[17.57, 25.19]
Age	-0.0056	0.024	-0.23	0.820	[-0.054, 0.042]
Gender (male *vs.* female)	0.39	0.42	0.95	0.344	[-0.42, 1.21]
History of SUD	0.38	0.58	0.65	0.517	[-0.77, 1.52]
History of SUD (1st degree)	0.04	0.43	0.10	0.919	[-0.80, 0.88]
History of SUD (2nd degree)	-0.45	0.39	-1.17	0.241	[-1.21, 0.30]
History of psychiatric disorders	-0.03	0.48	-0.05	0.959	[-0.97, 0.92]
Educational level	1.09	0.29	3.76	<0.000	[0.52, 1.66]
Occupational status	-0.70	0.46	-1.51	0.131	[-1.61, 0.21]

Table 8. Post-Hoc comparisons for educational levels

Educational level	Mean PSAS Score (Mean ± SD)	Comparison group	Difference in mean	p-value
High school diploma or less	22.19±3.0	Reference group	-	-
Bachelor's degree	23.01±3.1	High school diploma or less	+0.82	0.041
Master's degree or higher	24.29±3.2	High school diploma or less	+2.10	0.002
-	-	Bachelor's degree	+1.28	0.012

Supplementary Table S1.

Variable	Coefficient	Standard error	z-value	p-value	95% Confidence Interval
Constant (PSAS score)	21.625	1.374	15.744	0.000	18.933, 24.317
Gender (male *vs.* female)	-0.622	0.427	-1.456	0.145	-1.458, 0.215
Educational level	1.242	0.379	3.280	0.001	0.500, 1.985
Occupational status	-0.851	0.478	-1.780	0.075	-1.789, 0.086
History of psychiatric disorders	-0.169	0.542	-0.313	0.755	-1.231, 0.892
History of SUD	-0.164	0.606	-0.271	0.787	-1.352, 1.024
History of SUD (1st degree)	-0.101	0.453	-0.222	0.824	-0.988, 0.786
History of SUD (2nd degree)	0.444	0.405	1.095	0.274	-0.351, 1.239
Age	0.015	0.027	0.563	0.574	-0.038, 0.068

perception appears to be more influenced by broader societal attitudes than personal familiarity with substance use (22).

The ATMHP questionnaire further illuminated the nuanced interplay between education, family history, and internalized stigma. Participants with higher education levels demonstrated more negative Attitudes Toward Mental Health Problems, contrasting with Griffiths *et al*'s findings in Australia, where increased knowledge was linked to greater openness (23). However, this pattern was not uniform across all conditions. Internal Shame scores were significantly higher in participants with a history of substance use, suggesting the presence of self-stigmatization. This is clinically relevant, as internal shame is a known correlate of depression, anxiety, and relapse in SUD populations (30). The findings suggest that insight or awareness may coexist with deep-seated moral judgment, especially in cultures where addiction is frequently viewed as a volitional or moral failing.

Reflected Shame scores were notably elevated among single participants, indicating heightened sensitivity to perceived social judgment. In collectivist cultures such as Iran, where marital status carries social and familial implications, this finding likely reflects the indirect impact of stigma on social standing and perceived eligibility (31). These pressures may intensify the burden of mental illness and substance use, even in the absence of personal diagnoses.

Family history further shapes attitudes in complex ways. Participants with second-degree family histories of SUDs reported heightened perceived stigma awareness, possibly reflecting indirect exposure to social biases. In contrast, those with a first-degree psychiatric family history showed higher scores on the Attitudes Toward Mental Health Problems attitude subscale, suggesting greater perceived stigma, and also demonstrated higher Authoritarianism and Social Restrictiveness on the CAMI scale. Corrigan *et al* described this phenomenon as "courtesy stigma" (32), although our findings suggest that its expression is far from uniform. These dynamics highlight the need for nuanced family psychoeducational approaches, especially in tightly knit communities.

A particularly intriguing finding was that participants with second-degree family histories of SUD reported significantly higher perceived stigma awareness, whereas first-degree exposure showed no such association. This "proximity paradox" challenges conventional stigma theory, which posits that closer relationships typically intensify stigma effects. Recent research supports this pattern, suggesting that extended family networks amplify stigma awareness through broader social exposure, while intimate relationships may buffer stigma sensitivity through protective coping mechanisms (28,29).

Beyond family dynamics, the CAMI subscales confirmed the educational patterns. Social Restrictiveness was significantly higher among participants with advanced education, while Benevolence scores were lower. These results diverge from those of Western studies, such as Angermeyer and Dietrich's European study, in which higher education was associated with increased empathy (24). However, Community Mental Health Ideology scores remained relatively stable across demographic groups, possibly reflecting general openness toward institutional care but persistent hesitation about community integration (33).

Interestingly, several commonly cited stigma predictors, including gender, marital status, psychiatric history, and even first-degree exposure, were not consistently associated with higher stigma scores in this study sample. Gibbons *et al* found that women typically report less stigmatizing views, attributed to greater emotional empathy (34). However, other studies suggest that women may also exhibit heightened judgment toward socially deviant behaviors, particularly in settings where gender norms reinforce conformity (30,35). The lack of association in the present data may reflect a cultural equilibrium, where societal expectations and role obligations impact both genders in complex and potentially offsetting ways. Likewise, although previous research has linked older age with more tolerant views (36), age was not a significant predictor here, suggesting that other factors, such as education, exposure, or socioeconomic pressures, may exert a stronger influence on this population.

These findings emphasize the layered and context-specific nature of the stigma. While certain attitudes, especially those tied to controllability and moral judgment, appear to be cross-culturally stable, others, such as empathy and community support, vary widely

based on cultural narratives. In this regard, our Iranian sample reflects patterns observed in other collectivist societies, such as Turkey and Lebanon, where stigma toward SUDs persists despite increasing mental health awareness (37,38). The enduring stigma in educated populations may reflect a partial internalization of biomedical knowledge without a corresponding shift in moral framing. This underscores a gap in psychoeducation and public discourse: understanding is not always accompanied by compassion.

From a clinical perspective, these results carry several implications. First, clinicians should not assume that education equates to lower stigma, especially in the case of SUDs. Stigma reduction interventions must address not only knowledge deficits, but also moral judgments and emotional responses. Both internal and reflected shame should be actively assessed and addressed in therapeutic settings, particularly among patients with a history of substance use and single individuals vulnerable to social scrutiny.

Second, anti-stigma interventions should be carefully tailored: while general mental health messaging may resonate with educated audiences, efforts around SUDs must explicitly challenge the attributions of blame and failure. Contact-based interventions and narrative-based recovery stories may be especially effective but require cultural adaptation to be effective.

This is consistent with evidence from Iranian medical trainees, where psychiatry residents reported lower stigma than internal medicine and cardiology residents despite greater patient exposure, supporting the view that structured, positive contact (not mere exposure) is required to reduce stigma (39).

In Iran, virtual reality interventions have reduced stigmatizing attitudes among medical students, while targeted workshops have improved awareness and attitudes among influential community actors, such as religious leaders (40). These culturally tailored examples illustrate concrete ways to operationalize structured, outcome-focused contacts.

Finally, future research should incorporate longitudinal designs to understand better how stigma shapes illness trajectories, help-seeking behaviors, and quality of life. Further studies using clinical samples and exploring additional sociocultural factors, such as religiosity, urban versus rural residence, and beliefs about fate and responsibility, would offer deeper insights. Intervention trials testing culturally grounded stigma-reduction strategies are particularly needed in contexts where public stigma intersects with systemic barriers to care.

Strengths and limitations

This study's strengths include the use of three validated instruments (CAMI, ATMHP, and PSAS) to assess multiple dimensions of stigma across a large and demographically diverse sample, enhancing both the reliability and depth of the findings. The inclusion of multiple subscales allowed for a nuanced analysis of different stigma domains, including public, internal, and reflective stigma.

By focusing on an Iranian population, a society rooted in collectivist values and strong family structures, this study contributes to a more culturally diverse understanding of mental health stigma, which remains underrepresented in the global literature.

However, several limitations should be acknowledged. The cross-sectional design precludes causal inference, and all data were self-reported, raising concerns about social desirability bias, particularly in contexts where stigma is often linked to moral or religious norms. Although the study explored demographic and familial predictors, it did not examine other potentially influential variables, such as religiosity, exposure to mental health education, or media influence.

Geographic and sampling limitations warrant particular attention. Although recruitment began in Mashhad, the online snowball method resulted in participants from multiple Iranian regions with unknown exact geographic distribution. This limits our ability to assess regional variations in stigma while enhancing generalizability across Iran's urban, digitally-connected populations. The online nature of data collection may have introduced selection bias, potentially underrepresenting individuals with limited digital literacy or internet access, and overrepresenting educated, urban demographics. These factors may confound associations between variables such as education and stigma, particularly if higher education correlates with urban residence and socioeconomic status.

Finally, while the instruments used were validated for Iranian populations, cultural nuances specific to

different Iranian contexts may still limit interpretation of certain subscale items, particularly regarding concepts such as shame and honor.

Conclusion

This study investigated multiple dimensions of stigma toward psychiatric and substance use disorders in an Iranian sample using validated instruments. Educational attainment emerged as the strongest predictor across all measures: participants with higher education reported greater perceived stigma toward substance use, more socially restrictive attitudes, and lower benevolence, yet also held more negative personal views on mental health problems. This paradoxical relationship underscores the complexity of how education interacts with stigma in culturally conservative settings.

Family proximity patterns revealed counterintuitive findings: second-degree substance use exposure predicted higher perceived stigma awareness, whereas first-degree psychiatric history was associated with mixed attitudes, potentially reflecting courtesy stigma dynamics. Personal experiences shaped internalized responses, with elevated internal shame among individuals with a history of substance use and heightened reflected shame among single participants.

These findings demonstrate that stigma operates through specific sociocultural pathways shaped by education, family dynamics and cultural expectations. Effective anti-stigma interventions should address the interplay between knowledge, moral judgment, and cultural values, particularly in societies where social conformity and family honor strongly influence public and internalized attitudes toward mental health and substance-use disorders.

Acknowledgement

This manuscript is based on Dr. Narjes Sahebzadeh's dissertation (Thesis No. T5949). We sincerely appreciate all the participants for their time and effort in completing the questionnaires.

This study was approved by the Ethics Committee of Mashhad University of Medical Sciences (IR.MUMS.MEDICAL.REC.1399.586). All participants provided written informed consent and were assured that their information would remain confidential.

This study was supported by a grant from the Mashhad University of Medical Sciences (Grant No. 991325).

Conflict of Interest

The authors declare no conflicts of interest with any financial organization regarding the material discussed in the manuscript.

References

1. Organization W H. Mental health atlas 2024: World Health Organization; 2025.

2. United Nations Office on Drugs and Crime (UNODC). World Drug Report 2024 [Internet]. 2024 [cited 2025Nov 2]. Available from: https://www.unodc.org/unodc/data-and-analysis/world-drug-report-2024.html

3. Noorbala AA, Maleki A, Yazdi SAB, Faghihzadeh E, Hoseinzadeh Z, Hajibabaei M, et al. Survey on mental health status in Iranian population aged 15 and above one year after the outbreak of COVID-19 disease: A population-based study. Arch Iran Med 2022;25(4):201.

4. Rastegari A, Baneshi M R, Hajebi A, Noroozi A, Karamouzian M, Shokoohi M, et al. Population Size Estimation of People Who Use Illicit Drugs and Alcohol in Iran (2015-2016). Int J Health Policy Manag 2023;12:6578.

5. Ngui E M, Khasakhala L, Ndetei D, Roberts L W. Mental disorders, health inequalities and ethics: A global perspective. Int Rev Psychiatry 2010;22(3):235-244.

6. Yang L H, Wong L Y, Grivel M M, Hasin D S. Stigma and substance use disorders: an international phenomenon. Curr Opin Psychiatry 2017;30(5):378-388.

7. Crapanzano K A, Hammarlund R, Ahmad B, Hunsinger N, Kullar R. The association between perceived stigma and substance use disorder treatment outcomes: a review. Subs Abuse Rehabil 2018;10:1-12.

8. Committee on the Science of Changing Behavioral Health Social Norms; Board on Behavioral, Cognitive, and Sensory Sciences; Division of Behavioral and Social Sciences and Education; National Academies of Sciences, Engineering, and Medicine. Ending Discrimination Against People with Mental and Substance Use Disorders: The Evidence for Stigma Change. Washington (DC): National Academies Press (US); 2016 Aug 3.

9. Rüsch N, Angermeyer MC, Corrigan PW. Mental illness stigma: Concepts, consequences, and initiatives to reduce stigma. Eur Psychiatry 2005;20(8):529-539.

10. Au CH, Wong CS, Law CW, Wong MC, Chung KF. Self-stigma, stigma coping and functioning in remitted bipolar disorder. Gen Hosp Psychiatry 2019;57:7-12.

11. Henderson C, Noblett J, Parke H, Clement S, Caffrey A, Gale-Grant O, et al. Mental health-related stigma in health care and mental health-care settings. Lancet Psychiatry 2014;1(6):467-482.

12. Castaldelli-Maia JM, Bhugra D. Analysis of global prevalence of mental and substance use disorders within countries: focus on sociodemographic characteristics and income levels. Int Rev Psychiatry 2022;34(1):6-15.

13. Wang C, Sun M, Lin M, Wu S, Rice T R. Influence of Cultural Values and Integrational Acculturation differences on the behavioral health Treatment of Asian American Immigrant Children in the COVID-19 era. South Med J 2023;116(4):365.

14. Dinmohammadi M, Jalali A, Naderipour A. Assessment of psychometric properties of the self-stigma inventory for Iranian families of persons who use drugs. Front Public Health 2022;10:1017273.

15. Farsi Z, Taghva A, Butler S C, Tabesh H, Javanmard Y, Atashi A. Stigmatization toward patients with mental health diagnoses: Tehran's stakeholders' perspectives. Iran J Psychiatry Behav Sci 2020;14(3):e93851.

16. Kafami Z, Farhoudi F, Alimoradi M, Sangsefidi Z, Delshad N, Khadem-Rezaiyan M. Persian translation and validation of community attitudes toward the mentally ill scale: a tool for assessing social stigma about mental illness. Int Clin Psychopharmacol 2023;38(1):40-44.

17. Taylor S M, Dear M J. Scaling community attitudes toward the mentally ill. Schizophr Bull 1981;7(2):225-240.

18. Gilbert P, Bhundia R, Mitra R, McEwan K, Irons C, Sanghera J. Attitudes towards mental health problems scale. Mental Health, Religion & Culture 2007.

19. Luoma JB, O'Hair AK, Kohlenberg BS, Hayes SC, Fletcher L. The development and psychometric properties of a new measure of perceived stigma toward substance users. Subst Use Misuse 2010;45(1-2):47-57.

20. Schomerus G, Angermeyer MC. Blind spots in stigma research? Broadening our perspective on mental illness stigma by exploring 'what matters most'in modern Western societies. Epidemiol Psychiatr Sci 2021;30:e26.

21. Corrigan P W, Watson A C. Understanding the impact of stigma on people with mental illness. World Psychiatry 2002;1(1):16-20.

22. El Hayek S, Foad W, De Filippis R, Ghosh A, Koukach N, Mahgoub Mohammed Khier A, et al. Stigma toward substance use disorders: A multinational perspective and call for action. Front Psychiatry 2024;15:1295818.

23. Griffiths KM, Carron-Arthur B, Parsons A, Reid R. Effectiveness of programs for reducing the stigma associated with mental disorders. A meta-analysis of randomized controlled trials. World Psychiatry 2014;13(2):161-175.

24. Angermeyer M C, Dietrich S. Public beliefs about and attitudes towards people with mental illness: a review of population studies. Acta Psychiatr Scand 2006;113(3):163-179.

25. Mohammadi M-R, Davidian H, Noorbala A A, Malekafzali H, Naghavi H R, Pouretemad H R, et al. An epidemiological survey of psychiatric disorders in Iran. Clin Pract Epidemiol Ment Health 2005;1(1):16.

26. Vogel D L, Armstrong P I, Tsai P-C, Wade N G, Hammer J H, Efstathiou G, et al. Cross-cultural validity of the

Self-Stigma of Seeking Help (SSOSH) scale: examination across six nations. J Couns Psychol 2013;60(2):303.

27. Chen-Xia XJ, Betancor V, Rodríguez-Gómez L, Rodríguez-Pérez A. Cultural variations in perceptions and reactions to social norm transgressions: a comparative study. Front Psychol 2023;14:1243955.

28. Lindeman S K, Lorås L, Titlestad K B, Bondas T. The metamorphosis. The impact of a young family member's problematic substance use on family life: A meta-ethnography. Int J Qual Stud Health Well-being 2023;18(1):2202970.

29. O'Shay S, Pasman E, Hicks DL, Brown S, Aguis E, Resko SM. Affected family members' communicative management of opioid misuse stigma: Applying and rethinking the stigma management communication typology. Journal of Family Communication 2023 Apr 3;23(2):89-106.

30. Lee JM. Diminishing Stigma Sentiments in Individuals with Depression: Sociopsychological Predictors of Deflecting and Challenging Coping Orientations. Walden University; 2016.

31. Hajebi A, Hashemian SS, Abolhassani M, Hajebi A, Alizadeh K, Rahnejat AM, et al. Assessing the impact of stigma reduction interventions in Iran: A qualitative study from the perspective of mental health stakeholders. Front Public Health 2022;10:1027002.

32. Corrigan P W, Nieweglowski K. How does familiarity impact the stigma of mental illness? Clin Psychol Rev 2019;70:40-50.

33. Pescosolido BA, Martin JK, Long JS, Medina TR, Phelan JC, Link BG. "A disease like any other"? A decade of change in public reactions to schizophrenia, depression, and alcohol dependence. Am J Psychiatry 2010;167(11):1321-1330.

34. Gibbons FX. Stigma and interpersonal relationships. In: The dilemma of difference: A multidisciplinary view of stigma 1986 (pp. 123-144). Boston, MA: Springer US.

35. Yangyuen S, Kanato M, Somdee T. Relationship between psychological factors and perceived stigma of addiction among women with substance use disorders, Thailand. J Educ Health Promot 2022;11(1):16.

36. Miller PK, Cuthbertson CA, Loveridge S. Social status influence on stigma towards mental illness and substance use disorder in the United States. Community Ment Health J 2022;58(2):249-260.

37. Şamar B, Taş M, Kayın M, Ünübol B. Comprehensive analysis of social stigma of ındividuals with substance use disorder in Turkey in the context of Erving Goffman's stigma theory. J Ethn Subst Abuse 2024;23(4):679-698.

38. Simha A, Ahmed S, Prasad R, Dinesh A S, Kandasamy A, Rao N P. Effect of national cultural dimensions and consumption rates on stigma toward alcohol and substance use disorders. Int J Soc Psychiatry 2022;68(7):1411-1417.

39. Movahedi S, Shariat S V, Shalbafan M. Attitude of Iranian medical specialty trainees toward providing health care services to patients with mental disorders. Front Psychiatry 2022;13:961538.

40. Shalbafan M, El Hayek S, de Filippis R. Mental-health-related stigma and discrimination: Prevention, role, and management strategies. Front Psychiatry 2023;14:1136995.