

The Relationship Between Self-stigma and Interpersonal Sensitivity in Patients with Schizophrenia: A Latent Profile Analysis

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Abstract

Objective

This study identified latent profiles of self-stigma among patients with schizophrenia and examined their demographic and clinical correlates, with a focus on interpersonal sensitivity.

Methods

Using purposive sampling, patients with schizophrenia were recruited from a mental health center in Henan Province between November 2025 and June 2026. Data were collected using a general information questionnaire, the Self-Stigma Scale for Mental Illness (SSMI), and the Interpersonal Sensitivity Measure (IPSM). The three dimensions of the SSMI were used as manifest indicators, and Mplus 8.3 was employed to identify latent profiles of self-stigma. Univariate analyses and multinomial logistic regression were then conducted to examine factors associated with different latent profiles of self-stigma.

Results

Four latent profiles were identified: high self-stigma group (19.8%), moderate self-stigma group (57.0%), low self-stigma–low positivity group (15.0%), and low self-stigma group (8.2%). Higher IPSM scores were associated with a greater likelihood of membership in the high self-stigma group ($OR = 1.105$, 95% $CI = 1.065 \sim 1.146$). Longer illness duration was associated with a greater likelihood of membership in the high self-stigma group ($OR = 3.622$, 95% $CI = 1.739 \sim 7.543$), whereas hospitalization for > 3 months was associated with a lower likelihood of membership in this group ($OR = 0.324$, 95% $CI = 0.160 \sim 0.658$).

Conclusion

Self-stigma among patients with schizophrenia exhibits notable heterogeneity. These findings suggest that clinical nursing interventions should be stratified according to different self-stigma profiles to promote psychological recovery and the restoration of social functioning in this population.

1 Background

Schizophrenia is a severe mental disorder characterized primarily by impairments in perception, thinking, emotion, volition, behavior, and social functioning. It is marked by a prolonged illness course, a high risk of relapse, and slow recovery of social functioning(1, 2). According to the latest data from the World Health Organization, schizophrenia affects approximately 23 million people worldwide, causing substantial functional impairment, family burden, and social costs(3). In the context of China's mental health services gradually extending from inpatient treatment to community-based rehabilitation and long-term management, patients with schizophrenia require not only pharmacological treatment and symptom management, but also continuous support for social functioning recovery, psychological adaptation, and stigma reduction.

Stigma is one of the core psychosocial factors that hinders recovery among patients with schizophrenia. Goffman defined stigma as a social process through which an individual is reduced from a "whole person" to a "tainted person"(4). In the field of mental disorders, stigma encompasses both public stigma—manifested in stereotypes, prejudice, exclusion, and discrimination toward patients—and personal stigma, manifested in patients' experienced

stigma, anticipated stigma, and internalization of negative social evaluations(5). Unlike general psychological distress, stigma has a distinct relational and social nature. It originates from the external social environment and may be transformed into patients' negative evaluations of their self-identity and the value of their illness, thereby affecting treatment adherence, social interaction, and confidence in recovery(6).

Self-stigma is a central concept in stigma research concerning mental disorders. It generally refers to the process by which patients absorb negative stereotypes and discriminatory attitudes toward mental illness into their self-concept, leading to psychological and behavioral responses such as self-devaluation, concealment of illness, and social avoidance(7, 8). The Self-Stigma Scale for Mental Illness (SSMI) developed by King et al. conceptualizes self-stigma as the stigma subjectively experienced by patients, covering dimensions such as experiences of discrimination, concealment of illness, and positive coping attitudes(9). Multiple studies have shown that self-stigma is closely associated with depression, anxiety, low self-esteem, impaired social functioning, decreased treatment adherence, and reduced quality of life among patients with schizophrenia(10–12). Therefore, reducing self-stigma has become an important goal of psychological nursing and community-based rehabilitation for patients with schizophrenia.

Interpersonal sensitivity refers to an unnecessary and excessive awareness of and responsiveness to the feelings and behaviors of others(13). It is typically manifested as heightened sensitivity to others' evaluations and negative feedback in interpersonal interactions, often accompanied by discomfort, tension, or withdrawal(14). For patients with schizophrenia, illness experiences, hospitalization, and social labeling may make them more vigilant in interpersonal relationships(15). When patients repeatedly perceive discrimination, they may become more likely to interpret ordinary interpersonal interactions as rejection or disapproval, thereby developing a persistent perception of interpersonal threat(16). High interpersonal sensitivity may not only increase social anxiety and avoidance, but also reinforce patients' self-confirmation that "I am not accepted," ultimately contributing to the development of self-stigma.

Latent profile analysis (LPA) is a statistical method that classifies individuals based on differences in response patterns across continuous variables and identifies heterogeneity within a population(17). In contrast to variable-centered methods that examine relationships among variables, LPA adopts a person-centered perspective to identify qualitatively distinct subgroups based on shared response patterns across self-stigma dimensions. This approach facilitates a more fine-grained characterization of patient heterogeneity. Accordingly, this study employed LPA to explore latent self-stigma profiles in patients with schizophrenia and to investigate clinical and demographic correlates of profile membership. These results could serve as an empirical basis for nurses to design differentiated interventions tailored to specific profile features.

2 Methods

2.1 Study design

This study adopted a cross-sectional survey design to explore the factors associated with self-stigma among patients with schizophrenia and its relationship with interpersonal sensitivity.

2.2 Participants

Using purposive sampling, patients with schizophrenia were recruited from a tertiary psychiatric hospital in Henan Province, China, between November 2025 and May 2026. The inclusion criteria were as follows: (1) aged 18 years or older, regardless of sex; (2) diagnosed with schizophrenia by a psychiatrist according to the diagnostic criteria of the International Classification of Illnesses, 11th Revision (ICD-11); (3) currently in a relatively stable clinical condition, with the ability to engage in basic verbal communication and understand the questionnaire content; (4) possessing basic reading ability, or able to respond independently after the items were read aloud; and (5) providing informed consent to

participate in this study. The exclusion criteria were as follows: (1) comorbid severe cognitive impairment, intellectual disability, or neurological illness that could affect questionnaire comprehension and response; (2) acute-stage severe physical illness that prevented completion of the survey; and (3) severe risk of suicide, self-harm, or aggression.

According to Kendall's rule of thumb for multivariate analysis, the required sample size is generally recommended to be at least 5 to 10 times the number of variables(18). Therefore, to ensure the stability of the scale structure in reliability and validity testing, the minimum sample size was calculated based on this criterion. In addition, an attrition rate of 15% to 20% should be considered. A total of 28 variables were included in this study; therefore, the minimum required sample size was determined to be 322 to 336 participants.

2.3 Measures

2.3.1 General information questionnaire

The general information questionnaire was developed by the research team based on a review of the literature. It included nine items: sex, age, educational level, marital status, employment status, living arrangement before admission, length of hospital stay, duration of illness, and presence of comorbidities.

2.3.2 Self-Stigma Scale for Mental Illness

The Chinese version of the Stigma Scale for Mental Illness (SSMI-C), originally developed by King et al. (2007)(9) and translated into Chinese with cross-cultural adaptation by Geng et al. (2010)(19), was used to assess participants' level of self-stigma. The scale consists of 28 items across three dimensions: Discrimination, Disclosure, and Positive Aspects. Each item is rated on a 5-point Likert scale, with response options ranging from "strongly agree" to "strongly disagree" and scored from 0 to 4. The discrimination and disclosure dimensions are scored positively, whereas the positive aspects dimension is reverse-scored. A higher total score indicates a higher level of self-stigma among patients. Previous studies have demonstrated that the Chinese version of this scale has good reliability and validity. In the present study, the Cronbach's α coefficient of the scale was 0.886.

2.3.3 Interpersonal Sensitivity Measure

The Interpersonal Sensitivity Measure (IPSM), developed by Boyce and Parker (1989)(20), was used to assess participants' interpersonal sensitivity. The scale consists of 19 items across five dimensions: interpersonal awareness, need for approval, separation anxiety, fragile inner self, and timidity. Items are rated on a 4-point Likert scale, with 1 indicating "very unlike me" and 4 indicating "very like me." A higher total score indicates a higher level of interpersonal sensitivity. In the present study, the Cronbach's α coefficient of the scale was 0.913.

2.4 Data collection

After obtaining institutional permission, the researchers used standardized instructions to explain the study purpose and confidentiality to participants. Upon obtaining written informed consent, participants completed the survey; the responses were then reviewed on-site for completeness and validity. Illness-related information was obtained by the researchers from the electronic medical records. During the study period, 430 questionnaires were distributed. After excluding invalid questionnaires, 407 valid questionnaires were retained, yielding an effective response rate of 94.7%.

2.5 Data analysis

Latent profile analysis was conducted using Mplus 8.3. Given the exploratory aim and to ensure model parsimony and stable parameter estimation, we initially specified a diagonal model with equal variances across profiles and zero covariances (i.e., local independence). Model fitting began with a single-class initial model, and the number of latent profiles was then gradually increased to examine the fit of each model. To avoid convergence to a local optimal

solution, 1,300 random sets of starting values and 250 final-stage optimizations were specified during model estimation (STARTS = 1300 250). The optimal latent profile model was ultimately selected based on model fit and classification accuracy indicators, including the Akaike information criterion (AIC), Bayesian information criterion (BIC), and sample-size-adjusted BIC (aBIC). Smaller values indicate better model fit. Entropy values closer to 1 indicate more accurate classification, and an Entropy value greater than 0.80 is generally considered to indicate good classification accuracy(21). The Lo–Mendell–Rubin likelihood ratio test (LMRT) and the bootstrapped likelihood ratio test (BLRT) were used to compare differences in model fit across models with different numbers of classes. A *P* value less than 0.05 for the LMRT or BLRT indicates that the *k*-class model fits the data better than the *k* – 1 class model.

SPSS 26.0 was used for statistical analysis. Categorical variables were described as frequencies and percentages, whereas continuous variables were described as means and standard deviations. In univariate analyses comparing the identified latent profiles, continuous variables were compared using one-way ANOVA or the Kruskal-Wallis H test, depending on the results of normality and homogeneity of variance tests; categorical variables were compared using the chi-square test. Variables showing significant differences in the univariate analyses were entered into the multinomial logistic regression model. The latent profiles of self-stigma were treated as the dependent variable, with the moderate self-stigma group specified as the reference category. Duration of illness and length of hospital stay were entered as categorical factors, and the IPSM score was entered as a continuous covariate. Statistical significance was set at *P* < 0.05.

3 Results

3.1 Participant characteristics

Among the 407 participants, 274 were male (67.3%) and 133 were female (32.7%). Regarding age, 209 participants were aged 18–30 years (51.4%), 125 were aged 31–40 years (30.7%), and 73 were older than 40 years (17.9%). In terms of educational level, 14 participants had primary school education or below (3.4%), 116 had junior high school education (28.5%), 134 had senior high school education (32.9%), 79 had junior college education (19.4%), and 64 had undergraduate education or above (15.7%). Regarding employment status, 66 participants were employed (16.2%), 218 were unemployed (53.6%), 39 were students (9.6%), and 84 were classified as other employment status (20.6%). With respect to marital status, 267 participants were unmarried (65.6%), 100 were married (24.6%), 37 were divorced (9.1%), and 3 were widowed (0.7%). Regarding living arrangement before admission, 78 participants lived with their spouse or children (19.2%), 254 lived with their parents (62.4%), 57 lived alone (14.0%), and 18 lived with other relatives (4.4%). In terms of duration of illness, 151 participants had been ill for less than 1 year (37.1%), 59 for 1 to 3 years (14.5%), and 197 for more than 3 years (48.4%). Regarding length of hospital stay, 157 participants had been hospitalized for less than 1 month (38.6%), 187 for 1–3 months (45.9%), and 63 for more than 3 months (15.5%). A total of 332 participants had no comorbidities (81.6%), whereas 75 had comorbidities (18.4%).

3.2 Latent profile analysis of self-stigma

Because the dimensions of the SSMI contain different numbers of items, the mean score of each dimension was used as the manifest indicator in the latent profile analysis to avoid the influence of unequal item numbers on dimensional total scores. The positive aspects dimension was included in the analysis after reverse scoring; thus, a higher score indicated a lower level of positive attitude. In this study, one- to five-profile models were fitted sequentially, and the results are shown in Table 1. As the number of latent profiles increased from one to five, the AIC, BIC, and aBIC generally showed a decreasing trend, suggesting gradual improvement in model fit. The BLRT results for the two- to five-profile models were statistically significant, indicating significant differences between adjacent profile models. Further comparison showed that the AIC, BIC, and aBIC values of the four-profile model were 2444.563, 2516.722, and

2459.605, respectively, all of which were lower than those of the three-profile model. In addition, the Entropy value of the four-profile model was 0.813, higher than that of the three-profile model (0.784), indicating good classification accuracy. Although the AIC, BIC, and aBIC values further decreased in the five-profile model, its Entropy value decreased to 0.762, indicating lower classification clarity than the four-profile model, and the class proportions became more dispersed. Considering model fit indices, Entropy, class proportions, and substantive interpretability, the four-profile model was ultimately selected as the optimal latent profile model.

Table 1
Fitting information of the class 1–5 latent profile analysis models

Group	AIC	BIC	aBIC	Entropy	LMRT(P)	BLRT(P)	Proportions
1	2791.151	2815.204	2796.165	-	-	-	-
2	2591.333	2631.421	2599.690	0.704	<0.001	<0.001	0.436/0.564
3	2487.501	2543.624	2499.200	0.784	0.0015	<0.001	0.199/0.226/0.575
4	2444.563	2516.722	2459.605	0.813	<0.001	<0.001	0.198/0.570/0.150/0.082
5	2415.970	2504.164	2434.354	0.762	0.0024	<0.001	0.071/0.092/0.397/0.175/0.264

Note: AIC=Akaike information criterion; BIC=Bayesian information criterion; aBIC=adjusted Bayesian information criterion; LMR = Lo–Mendell–Rubin adjusted likelihood ratio test; BLRT=bootstrapped likelihood ratio test.

3.3 Participant characteristics of the latent profiles

Based on the four-profile model, the score patterns of the three dimensions of self-stigma across the latent profiles are shown in Fig. 1. Because the positive aspects of mental illness dimension were reverse-scored, a higher score on this dimension indicated a lower level of positive attitude toward mental illness.

C1 accounted for 19.8% of the sample. Patients in this profile had relatively high mean scores for discrimination and disclosure, at 2.589 and 2.697, respectively, whereas the mean score for the reverse-scored positive aspects of mental illness dimension was 1.448, which was lower than those of C2 and C3. This profile was characterized mainly by high levels of perceived discrimination and illness concealment, while the reduction in positive attitudes toward mental illness was relatively less pronounced. Therefore, this profile was named the “high self-stigma group.”

C2 accounted for 57.0% of the sample and represented the largest profile. The mean scores for discrimination, disclosure, and the reverse-scored positive aspects of mental illness dimension were 1.515, 1.960, and 1.876, respectively, indicating an overall moderate level. This suggests that patients in this profile showed relatively balanced manifestations across the three dimensions of self-stigma, without any marked extreme pattern. Therefore, this profile was named the “moderate self-stigma group.”

C3 accounted for 15.0% of the sample. Patients in this profile had relatively low mean scores for discrimination and disclosure, at 0.689 and 0.891, respectively, but the highest mean score for the reverse-scored positive aspects of mental illness dimension, at 2.887. This indicates that although overt experiences of discrimination and illness concealment were not prominent in this profile, positive attitudes toward mental illness were markedly reduced. Therefore, this profile was named the “low self-stigma–low positivity group.”

C4 accounted for 8.2% of the sample. Patients in this profile had low mean scores across all three dimensions, with scores of 0.785 for discrimination, 1.080 for disclosure, and 1.039 for the reverse-scored positive aspects of mental illness dimension. This profile was characterized by an overall low level of self-stigma and relatively preserved positive attitudes toward mental illness. Therefore, this profile was named the “low self-stigma group.”

3.4 Univariate analysis of latent characteristics of self-stigma

As shown in Table 2, significant differences were observed in the latent characteristics of self-stigma among patients with schizophrenia in terms of duration of illness, length of hospital stay and IPSM scores ($P < 0.05$).

Table 2
Univariate analysis of different self-stigma profiles[n = 407, n(%)]

Variable	Category	High self-stigma group(n = 80)	Moderate self-stigma group(n = 236)	Low self-stigma-low positivity group(n = 62)	Low self-stigma group(n = 29)	χ^2	P
Gender	Male	58(72.5)	149(63.1)	46(74.2)	21(72.4)	4.528	0.210
	Female	22(27.5)	87(36.9)	16(25.8)	8(27.6)		
Age (years)	18–30	34(42.5)	128(54.2)	29(46.8)	18(62.1)	10.955	0.090
	31–40	23(28.7)	71(30.1)	22(35.5)	9(31.0)		
	>40	23(28.7)	37(15.7)	11(17.7)	2(6.9)		
Educational level	Primary school and below	3(3.8)	8(3.4)	3(4.8)	0(0.0)	11.445	0.491
	Junior high school	22(27.5)	76(32.2)	15(24.2)	3(10.3)		
	Senior high school	31(38.8)	71(30.1)	20(32.3)	12(41.4)		
	College	13(16.3)	44(18.6)	15(24.2)	7(24.1)		
	Bachelor's degree and above	11(13.8)	37(15.7)	9(14.5)	7(24.1)		
Occupation	Employed	10(12.5)	39(16.5)	13(21.0)	4(13.8)	15.120	0.088
	Unemployed	49(61.3)	123(52.1)	30(48.4)	16(55.2)		
	Student	3(3.8)	23(9.7)	6(9.7)	7(24.1)		
	Others	18(22.5)	51(21.6)	13(21.0)	2(6.9)		
Marital status	Unmarried	46(57.5)	157(66.5)	43(69.4)	21(72.4)	8.739	0.462
	Married	21(26.3)	59(25.0)	14(22.6)	6(20.7)		
	Divorced	13(16.3)	18(7.6)	4(6.5)	2(6.9)		
	Widowed	0(0.0)	2(0.8)	1(1.6)	0(0.0)		
Pre-admission residence	Spouse/ Children	15(18.8)	51(21.6)	8(12.9)	4(13.8)	16.097	0.065
	Parents	46(57.5)	144(61.0)	46(74.2)	18(62.1)		
	Living alone	11(13.8)	34(14.4)	8(12.9)	4(13.8)		
	Other relatives	8(10.0)	7(3.0)	0(0.0)	3(10.3)		
Duration of illness	<1 year	12(15.0)	91(38.6)	34(54.8)	14(48.3)	28.045	<0.001
	1–3 years	13(16.3)	36(15.3)	6(9.7)	4(13.8)		

Variable	Category	High self-stigma group(n = 80)	Moderate self-stigma group(n = 236)	Low self-stigma–low positivity group(n = 62)	Low self-stigma group(n = 29)	χ^2	P
	>3 years	55(68.8)	109(46.2)	22(35.5)	11(37.9)		
Length of hospital stay	<1 month	29(36.3)	89(37.7)	25(40.3)	14(48.3)	13.297	0.039
	1–3 months	29(36.3)	117(49.6)	28(45.2)	13(44.8)		
	>3 months	22(27.5)	30(12.7)	9(14.5)	2(6.9)		
Comorbidities	None	62(77.5)	190(80.5)	53(85.5)	27(93.1)	4.257	0.235
	Yes	18(22.5)	46(19.5)	9(14.5)	2(6.9)		
IPSM score ($\bar{x} \pm s$)		50.37 $\pm$ 8.99	44.13 $\pm$ 7.93	34.60 $\pm$ 8.41	33.93 $\pm$ 7.38	279.698	<0.001

3.5 Multinomial logistic regression analysis of latent profiles of self-stigma

The four latent profiles of self-stigma were used as the dependent variable, with the moderate self-stigma group specified as the reference category. Variables showing statistically significant differences in the univariate analyses were entered into the multinomial logistic regression model. Duration of illness and length of hospital stay were entered as categorical factors, and IPSM score was entered as a continuous covariate.

As shown in Table 3, IPSM score, duration of illness, and length of hospital stay were associated with latent profile membership. Compared with the moderate self-stigma group, higher IPSM scores were associated with a greater likelihood of membership in the high self-stigma group and a lower likelihood of membership in the low self-stigma–low positivity group or the low self-stigma group. Patients with an illness duration of 1–3 years or > 3 years were more likely to be classified into the high self-stigma group than those with an illness duration of < 1 year. In addition, patients with an illness duration of > 3 years were less likely to be classified into the low self-stigma–low positivity group. Patients hospitalized for > 3 months were less likely to be classified into the high self-stigma group than those hospitalized for < 1 month.

Table 3
Multinomial logistic regression analysis of latent profiles of self-stigma (n = 407)

Comparison	Variable	β	SE	Wald χ^2	P	OR	95%CI
C1 vs.C2*	Duration of illness (1–3 years)	1.058	0.475	4.962	0.026	2.880	1.135 ~ 7.304
	Duration of illness (>3 years)	1.287	0.374	11.826	0.001	3.622	1.739 ~ 7.543
	Length of hospital stay (1–3 month)	-0.735	0.383	3.682	0.055	0.479	0.226 ~ 1.016
	Length of hospital stay(>3 month)	-1.127	0.362	9.708	0.002	0.324	0.160 ~ 0.658
	IPSM score	0.100	0.019	28.250	<0.001	1.105	1.065 ~ 1.146
C3 vs.C2*	Duration of illness (1–3 years)	-0.621	0.526	1.395	0.238	0.538	0.192 ~ 1.506
	Duration of illness (>3 years)	-0.802	0.347	5.342	0.021	0.448	0.227 ~ 0.885
	Length of hospital stay (1–3 month)	-0.193	0.453	0.182	0.670	0.824	0.339 ~ 2.004
	Length of hospital stay (>3 month)	-0.099	0.430	0.053	0.818	0.906	0.390 ~ 2.105
	IPSM score	-0.145	0.021	47.536	<0.001	0.865	0.830 ~ 0.901
C4vs.C2*	Duration of illness (1–3 years)	-0.101	0.640	0.025	0.874	0.904	0.258 ~ 3.169
	Duration of illness (>3 years)	-0.626	0.465	1.812	0.178	0.535	0.215 ~ 1.330
	Length of hospital stay (1–3 month)	0.792	0.703	1.271	0.260	2.208	0.557 ~ 8.750
	Length of hospital stay (>3 month)	0.576	0.698	0.682	0.409	1.779	0.453 ~ 6.986
	IPSM score	-0.155	0.027	32.582	<0.001	0.857	0.812 ~ 0.903
Note: C1 = high self-stigma group; C2 = moderate self-stigma group; C3 = low self-stigma–low positivity group; C4 = low self-stigma group. *C2 was the reference category. The reference categories for illness duration and length of hospital stay were < 1 year and < 1 month, respectively. IPSM score was entered as a continuous variable.							

4 Discussion

4.1 Heterogeneity in self-stigma among patients with schizophrenia

In this study, latent profile analysis was used to classify self-stigma among patients with schizophrenia. The results showed that the four-profile model provided the best fit, identifying four latent profiles: the high self-stigma group (19.8%), the moderate self-stigma group (57.0%), the low self-stigma–low positivity group (15.0%), and the low self-

stigma group (8.2%). Unlike traditional variable-centered analyses, which focus only on overall mean levels, latent profile analysis can identify heterogeneity within the patient population and more accurately reveal differences in patterns of stigma experience across patients(17).

The results showed that the moderate self-stigma group accounted for the largest proportion of the sample (57.0%), suggesting that although most patients with schizophrenia did not exhibit extremely high levels of self-stigma, they were still affected to some extent by perceived discrimination, illness concealment, and negative self-evaluation. This finding is consistent with the meta-analysis by Fond et al., which indicated that self-stigma is a common psychological problem among patients with schizophrenia and may not be fully eliminated even when symptoms are stable(11). As a negative cognition shaped through a long-term socialization process, persistent stigma may hinder the recovery of social functioning and community integration among patients.

Notably, self-stigma among patients showed different combinations across dimensions, indicating that stigma is not a unitary construct but a complex psychological phenomenon composed of multiple dimensions, including experiences of discrimination, illness concealment, and Positive aspects of mental illness(9). Patients may show prominent difficulties in certain dimensions while maintaining relatively good psychological adaptation in others. Therefore, when assessing self-stigma, nurses should pay attention to patients' specific response patterns rather than relying solely on total scores.

4.2 Characteristics of different latent profiles of self-stigma

Patients in the high self-stigma group accounted for 19.8% of the sample. This group had the highest scores for experiences of discrimination and illness concealment, but a relatively lower score on the reverse-scored Positive aspects of mental illness dimension. This indicates that although these patients frequently perceived negative evaluations from others and tended to conceal information about their illness, they still retained a certain degree of illness acceptance and belief in recovery. This phenomenon may be related to illness-related cognition gradually developed during long-term treatment(22). Some patients may have recognized the objective existence of the illness and maintained a certain degree of hope for treatment; however, because of repeated experiences of discrimination or concerns about being rejected in real life, they may still adopt avoidance and concealment strategies to protect themselves. Previous studies have suggested that patients with schizophrenia often simultaneously experience two contradictory psychological states: illness acceptance and social avoidance(23). The findings of the present study further support this view.

Patients in the low self-stigma–low positivity group accounted for 15.0% of the sample and represented the most distinctive profile in this study. This group had relatively low scores for experiences of discrimination and illness concealment, but the highest score on the reverse-scored positive aspects of mental illness dimension. This suggests that these patients did not clearly perceive external discrimination and were less likely to deliberately conceal their illness, yet they still lacked positive beliefs regarding illness recovery and self-worth. This finding indicates that, for some patients, self-stigma may not primarily originate from social discrimination, but may instead be more closely related to helplessness and low self-efficacy caused by long-term illness(24). Morgades-Bamba et al. noted that self-stigma is not only a process of internalizing external discrimination, but may also affect recovery by reducing hope, self-esteem, and beliefs in recovery(25). For patients in this profile, anti-discrimination education alone may have limited effects. Greater emphasis should be placed on positive psychological development, enhancement of self-efficacy, and recovery-oriented empowerment interventions.

Patients in the low self-stigma group accounted for only 8.2% of the sample and represented the group with the best psychological adaptation. Patients in this profile had low scores for experiences of discrimination, illness concealment, and the reverse-scored positive aspects of mental illness dimension, suggesting that they were better able to accept

their illness and maintain relatively positive self-evaluations. Previous studies have suggested that family support, improved illness-related knowledge, and better social functioning may serve as important protective factors for the development of a positive illness identity(26). Future studies may further explore the protective mechanisms of this group to provide evidence for interventions targeting self-stigma.

4.3 Effects of illness duration and hospitalization length on latent profiles of self-stigma

This study found that duration of illness was associated with latent profiles of self-stigma among patients with schizophrenia. Compared with patients with an illness duration of < 1 year, those with an illness duration of 1–3 years and > 3 years were more likely to be classified into the high self-stigma group. This finding suggests that self-stigma may become more pronounced as the illness course extends. Patients with a longer illness duration may have more repeated experiences of hospitalization, social role disruption, interpersonal rejection, and perceived discrimination(27, 28). Over time, these experiences may gradually be internalized into negative self-evaluations and stronger illness concealment, thereby increasing the likelihood of a high self-stigma profile(29, 30).

In contrast, patients with an illness duration of > 3 years were less likely to be classified into the low self-stigma–low positivity group. This may indicate that the low self-stigma–low positivity profile is more likely to occur in the relatively early stage of illness. Patients in this profile may not yet have accumulated extensive experiences of social discrimination or illness concealment, but they may still lack positive beliefs about illness recovery and self-worth because of diagnostic shock, uncertainty about prognosis, and disruption of future life plans(31). Therefore, interventions for patients in the early stage of illness should not focus solely on reducing perceived discrimination, but should also emphasize recovery-oriented education, hope enhancement, and self-efficacy building.

Length of hospital stay was also associated with profile membership. Compared with patients hospitalized for < 1 month, those hospitalized for > 3 months were less likely to be classified into the high self-stigma group. A longer hospitalization period may provide patients with more structured treatment, psychoeducation, symptom stabilization, and supportive contact with healthcare professionals, which may help reduce acute stigma-related distress(32). Future studies should include symptom severity, treatment response, and social support variables to further clarify the relationship between hospitalization length and self-stigma profiles.

4.4 Relationship between interpersonal sensitivity and latent profiles of self-stigma

This study found significant differences in total interpersonal sensitivity scores and scores on its dimensions across different latent profiles of self-stigma. The multinomial logistic regression analysis further showed that the total interpersonal sensitivity score was an independent factor associated with latent profiles of self-stigma. Specifically, patients with higher interpersonal sensitivity were more likely to be classified into the high self-stigma group and less likely to be classified into the low self-stigma–low positivity group or the low self-stigma group. These findings indicate that interpersonal sensitivity is closely associated with the high self-stigma profile and may serve as a potential susceptibility factor in the development of self-stigma. According to models of stigma formation, patients first perceive negative social evaluations, then develop anticipated discrimination, and eventually incorporate these negative evaluations into their self-concept(33). Individuals with high interpersonal sensitivity tend to be more vigilant toward others' attitudes and evaluations, making them more likely to develop the belief that they are not accepted by society. Although the cross-sectional design of this study does not allow causal direction to be determined, the findings support a close association between interpersonal sensitivity and self-stigma.

In addition, fragile inner self, interpersonal awareness, and separation anxiety showed higher levels in the high-stigma profile in this study, suggesting that patients’ internal insecurity and excessive concern about interpersonal relationships may constitute important psychological foundations for the development of self-stigma. Georgiades et al. noted that interpersonal sensitivity can enhance patients’ tendency to process social threat-related information, thereby increasing social withdrawal and psychological distress(15). The present findings further suggest that interpersonal sensitivity may serve as an important bridge linking social environmental stress to self-stigma. Therefore, in clinical nursing practice, in addition to conventional stigma-related education, attention should also be paid to patients’ interpersonal sensitivity. Cognitive behavioral training, social skills training, group therapy, and peer support programs may be used to improve patients’ cognitive biases regarding social evaluation and reduce the risk of self-stigma formation.

4.5 Limitations

This study has several limitations. First, the cross-sectional survey design can only reflect associations among variables and does not allow causal inferences. Second, the participants were recruited from inpatients at a single tertiary psychiatric hospital, and the representativeness of the sample and generalizability of the findings require further verification. In addition, this study did not assess the severity of psychiatric symptoms, although symptom severity may influence patients’ experiences of self-stigma and interpersonal sensitivity. Future studies may incorporate variables such as psychiatric symptoms, social support, self-esteem, and illness-related cognition to further elucidate the mechanisms underlying the development of self-stigma.

5 Conclusion

Schizophrenia patients showed marked heterogeneity in self-stigma. Four distinct latent profiles were identified, with the moderate self-stigma group being the most common profile. Duration of illness, length of hospital stay, and interpersonal sensitivity were associated with profile membership, and higher interpersonal sensitivity was consistently related to greater self-stigma. These findings indicate the need for profile-specific nursing assessment and stratified interventions. Tailored interventions targeting interpersonal sensitivity and illness duration-related needs may be particularly beneficial for patients with high self-stigma profiles.

Abbreviations

Self-Stigma Scale for Mental Illness	SSMI
Latent profile analysis	LPA
International Classification of Illnesss, 11th Revision	ICD-11
Interpersonal Sensitivity Measure	IPSM
Akaike information criterion	AIC
Bayesian information criterion	BIC
Sample-size-adjusted BIC	aBIC
Lo–Mendell–Rubin likelihood ratio test	LMRT
Bootstrapped likelihood ratio test	BLRT

Declarations

Ethics approval and consent to participate

This study strictly adhered to the principles of the Declaration of Helsinki (World Medical Association, 2013 revision) for medical research involving human subjects, and complied with the National Ethical Guidelines for Biomedical Research Involving Human Subjects of China. The study protocol was reviewed and approved by the Ethics Committee of Henan Medical University (Reg.No.HYYLL-20260447).

Clinical trial number

Clinical trial number: not applicable.

Consent for publication

Not applicable.

Availability of data and materials

The datasets generated and analysed during the current study are not publicly available due to confidentiality and privacy considerations.

Competing interests

The authors declare that they have no competing interests.

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Author contributions

J.T. Dong and D.J. Zhang contributed to the conception and design of the study, and were major contributors in writing the manuscript. F. Yan and X. Chen were responsible for data collection. B. Xing, M.Y. Wu, C.F. Ruan, W. Cui and L.N. Wang made substantial revisions to the manuscript. All authors read and approved the final manuscript.

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Figures

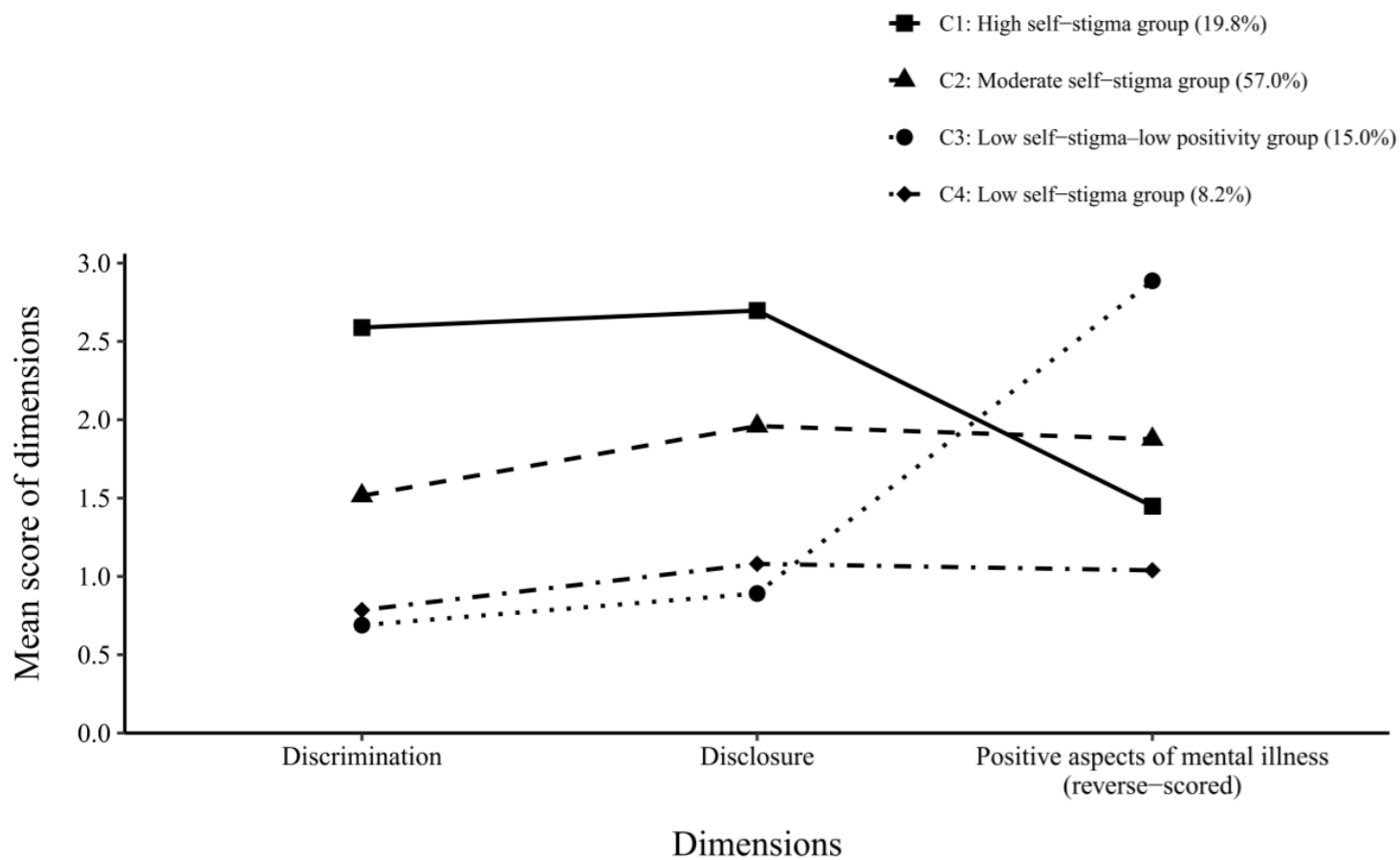


Figure 1

Characteristic distributions of four self-stigma profiles in patients with schizophrenia.