Neuropsychiatric Disease and Treatment Dovepress

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Path Analysis of Health Literacy, Social Support, and Self-Efficacy on Decisional Conflict in Patients with Stable Schizophrenia

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Purpose: Constructing a multiple mediation model based on two mediating variables, social support and self-efficacy, to explore the mechanism of health literacy's effect on decisional conflict in patients with stable schizophrenia.

Patients and Methods: A total of 205 patients with stable schizophrenia who were hospitalized in a psychiatric hospital in Guangdong Province, China, were selected for the study. The All Aspects of Health Literacy Scale (AAHLS), Decisional Conflict Scale (DCS), Social Support Rating Scale (SSRS) and General Self-Efficacy Scale (GSES) were used to evaluate health literacy, decisional conflict, social support and self-efficacy. Path analysis was performed by constructing a structural equation model, and the mediating effect between variables was validated by the bias-corrected nonparametric percentile bootstrap method.

Results: Health literacy, social support, and self-efficacy together explained 20.4% of the variance in decisional conflict. (1) Severe decisional conflict group accounted for 82% of overall patients with stable schizophrenia. (2) there were strong and significant negative relationships between decisional conflict and health literacy, social support, self-efficacy and each of their dimensions (r= −0.14–0.27, P<0.01 or P<0.05). (3) The path analysis showed that health literacy directly affects decisional conflict (β=−0.282); additionally, health literacy indirectly affects decisional conflict through social support (β=−0.319), self-efficacy (β=−0.010) and through the chain mediating effect of social support and self-efficacy (β=−0.008).

Conclusion: Patients with stable schizophrenia have serious decisional conflict in China, and necessary interventions have to be made. This study found that social support and self-efficacy mediate the relationship between health literacy and decisional conflict in patients with stable schizophrenia in China. Healthcare professionals should emphasize health literacy education for patients, and implement pathway-based targeted interventions to improve health literacy, reduce decisional conflict, and promote the recovery of patients with stable schizophrenia.

Keywords: stable schizophrenia, decisional conflict, health literacy, mediating role, structural equation model

Introduction

Schizophrenia is a severe and persistent mental illness that is recognized as a major public health challenge worldwide, with prevalence ranging from 0.4% to 1.6%. This disease not only presents a variety of mental symptoms, behavioral disorders, negative symptoms and cognitive disorders, but also seriously impairs the social function of patients in clinical practice.[1,2] The main treatment for schizophrenia is medication, but patients with schizophrenia do not respond well to conventional medication, so non-invasive brain stimulation techniques such as transcranial magnetic stimulation (TMS) are being explored as adjunctive therapy that has shown potential to improve symptoms and cognition.[3–5] However, in this process of treatment exploration, we also need to pay attention to the needs of patients with schizophrenia in terms of access to health information and participation in decision-making. Studies have shown that[6,7] patients with schizophrenia have extensive health information and decision-making needs. However, patients with schizophrenia have impaired

Received: 17 June 2024
Accepted: 9 December 2024
Published: 20 December 2024

communication skills, inadequate ability to seek and use health information, and a lack of interaction with their doctors, which hinder shared decision-making in determining the goals of targeted treatment, and their needs for decision-making are ignored.[8,9] In the field of mental illness, paternalistic decision-making dominated by healthcare professionals is still the norm, with little or no patient involvement in medication choices.[10,11] As a result, patients often experience decisional conflict or overlooked decision-making needs when faced with complex decisions, such as drug selection and adjuvant treatment decisions.[12,13] Decisional conflict is a situation in which patients are involved in the healthcare decision-making process, where uncertainty and distress are exacerbated by the fear of an undesired outcome, which affects the development and implementation of decision-making.[14] Decisional conflict can cause decision-makers to suffer from depression and anxiety, and can trigger low self-esteem, which can reduce their quality of life. Decisional conflict between inpatients and outpatients is very common when making major medical decisions. Inpatients' decisional conflict is mainly manifested in whether their current situation is suitable for discharge or which treatment to choose, while outpatients' decisional conflict is manifested in whether they still need to see doctors when they feel well. Relevant studies show that when decisional conflict occurs, giving a brief hope intervention and using decision aids can effectively alleviate decisional conflict and improve the quality of life.[15,16] Health information refers to health-related information sought by individuals, including health and disease, health promotion activities, health risks, etc. The corresponding behavior is called health information-seeking behavior,[17] which is one of the connotations of health literacy. Patients with schizophrenia are often deficient in seeking and applying health information, which does not support them in making informed choices at the many moments when they are faced with the need to make decisions. Consequently, treatment delays and relapses may occur. Researches considering the impact of health information on decision-making are limited, so the path between health information and decisional conflict is worth investigating. Chinese patients with stable schizophrenia often receive psychological interventions and skills training from professionals, which leads to the alleviation of their cognitive functioning and negative symptoms, and thus they have higher emotional stability and cooperation.[18] Patients with stable schizophrenia were selected because of the difficulty in completing the scale information in patients with acute schizophrenia.

Health literacy refers to an individual's ability to seek, understand and apply health information in order to make the right health decision-making to protect and promote one's own health.[19,20] Health literacy is primarily expressed in the ability to use and evaluate health information, but also in the ability to communicate with health information providers. Research has shown that health literacy plays an important role in preventing and mitigating decisional conflict when faced with major healthcare decisions.[21] At the same time, the relationship between health literacy and social support, health management self-efficacy, and health management attitudes proved to be effective.[22,23] Social support refers to the material and spiritual support received from family, social groups and other social networks. Patients with a high level of social support are able to make use of adequate social resources to solve emergencies and actively participate in decision-making when they perceive physical illnesses and psychological symptoms. Related studies have shown that social support is significantly associated with decisional conflict and mediates the relationship between hope and decisional conflict.[24] Self-efficacy refers to an individual's judgement and beliefs about his or her ability to perform tasks, including the ability to mobilize motivation, cognition and action. Research has shown that decision self-efficacy moderates the effect of negative emotions on decisional conflict and helps to mitigate the emergence of decisional conflict in decision-making populations.[25] We hypothesise that social support and self-efficacy play an important role in the pathways of health literacy's influence on decisional conflict. However, previous studies have mostly examined the correlation between the variables, but not the mechanism of their influence.[26–28]

We know that a large body of research shows that social support and self-efficacy are related to health literacy and decisional conflict. However, it is not clear which pathogenesis of health literacy influences decisional conflict or whether there is a chain-mediated effect between the two. Our hypotheses were that (1) social support and self-efficacy may mediate the relationship between health literacy and decisional conflict and (2) social support and self-efficacy may play a chain mediating role in the relationship between health literacy and decisional conflict. In addition, the prevalence and extent of decisional conflict among patients with stable schizophrenia in China are unknown. Therefore, the aim of this study was to investigate (1) the prevalence and extent of decisional conflict in Chinese patients with stable schizophrenia; (2) the correlations between social support, self-efficacy, health literacy, and decisional conflict in patients with stable

schizophrenia; (3) a path analysis of social support, self-efficacy and health literacy to decisional conflict in patients with stable schizophrenia. This study provides some reference and basis for improving the health literacy level and reducing the incidence of decisional conflict in patients with stable schizophrenia.

Materials and Methods

Study Design and Participants

A research team including experts in the field of mental health, clinical nursing experts, and psychiatric-psychological specialist nurses was established. One-on-one surveys were conducted by the staff of the research team using paper-based questionnaires, with the purpose and significance of the study explained to the study participants using a standardized guideline prior to the survey, and collected on-site after completion. From August 2023 to September 2023, 205 patients with stable schizophrenia were recruited from the Third People's Hospital of Meizhou City, Guangdong Province, China. Participants met the following criteria: (1) diagnosis of schizophrenia according to ICD-11;[29] (2) assessment by a psychiatrist using the positive and negative syndrome scale (PANSS), the score less than 60 points, similar to the approach used by Zhang et al, and based on medical records, clinical judgement, stable symptoms for 4 weeks or more, and in terms of medication, participants were on a stable dose of an antipsychotic regimen for 4 weeks or more prior to the start of the trial;[18,30,31] and (3) informed and cooperative participation in this study. Exclusion criteria encompass patients with acute schizophrenia, individuals with mental disorders other than schizophrenia (such as schizoaffective disorder, depressive disorder, bipolar disorder, and organic brain disorders), as well as those suffering from serious physical ailments such as cerebral embolism, cerebral infarction, gastric ulcer, coronary heart disease, liver and kidney failure, and cancer. Additionally excluded are patients who have communication disorders that may impact the validity of the test. After completing the questionnaire, the participants indicated that they were aware of and voluntarily participated in the study and it had been reviewed by the Ethics Committee of the Third People's Hospital of Meizhou City, Guangdong Province, China. The questionnaires that were complete and logically structured were deemed to be valid. In the end, 205 of the 212 questionnaires distributed were considered valid, with an efficacious response rate of 96.7%. According to the formula: $n= (U_{\alpha/2}\sigma/\delta)^2$, among ($\alpha$=0.05, $U_{\alpha/2}$=1.96, σ=14.38 which is from a preliminary investigation, δ=2.5), then $n= (U_{\alpha/2}\sigma/\delta)^2$=128. Considering that 20% of the questionnaires are invalid, the estimated sample size is 160, and the actual sample size included in this study is 205.

Measures

Individuals' Characteristics

The general information questionnaire consists of two dimensions: (1) Social demographic information such as age, sex, education, marital status, residence, and (2) Disease-related information such as duration of the disease, number of hospitalizations, complications, etc.

All Aspects of Health Literacy Scale (AAHLS)

This scale was developed by Chinn et al[32] in 2013 to quickly and comprehensively assess patients' health literacy. The scale was sinicized by Wu et al[33] in 2017 and applied to quickly measure the health literacy level of patients in China, with an overall Cronbach's alpha of 0.811. The AAHLS scale included ability to use written health information (4 items), ability to communicate with health care providers (3 items) and competence in the evaluation and application of health information (4 items).[34] Each option of "hardly ever", "sometimes", "often" is worth 1, 2 or 3 points, with items 1 and 4 being reversed. Higher scores indicate higher levels of health literacy. In this research, Cronbach's alpha was 0.820.

Social Support Rating Scale (SSRS)

The SSRS was developed by Xiao ShuiYuan[35] in 1994 to evaluate the level of individual social support. The Cronbach's alpha for this scale ranged from 0.890 to 0.940. The scale included Objective support (3 items), Subjective support (4 items) and Utilization of support (3 items). Items 1 to 4 and 8 to 10 are scored as 1 to 4 points respectively. Items 5 is scored from 1 to 4 points for each option according to "none" to "full support". Items 6 to 7 are scored if there are several

sources, but zero if there are none.[36] Higher scores indicate higher levels of social support. In this research, Cronbach's alpha was 0.870.

General Self-Efficacy Scale (GSES)

The GSES was compiled by Schwartzel[37] to assess an individual's ability to deal with various stressors in life. The scale was sinicized by Wang et al[38] in 2001 with Cronbach's alpha of 0.870. The scale is unidimensional and consists of 10 items, each item was scored of 1 to 4 points, according to "completely incorrect" to "completely correct". Higher scores indicate higher levels of self-efficacy. In this research, Cronbach's alpha was 0.831.

Decisional Conflict Scale (DCS)

The DCS was compiled by O'Connor[39] in 1995 to evaluate the level of decisional conflict among decision makers in different contexts. The scale was sinicized by Wang et al[40] in 2019 with Cronbach's alpha of 0.886. The scale has 3 dimensions, including decision uncertainty (3 items), Uncertainty impact factors (9 items), and Decision effectiveness (4 items), for a total of 16 items. Each item was assigned a score from 0 to 4 points for "Strongly Agree" to "Strongly Disagree" respectively. The scale scoring criteria were transformed into a score of 0 to 100 according to the formula (raw score / 16 * 25). A total score below 25 points is no decisional conflict, 25–37.5 points suggests moderate decisional conflict, and more than 37.5 points suggests severe decisional conflict.[41] In this research, Cronbach's alpha was 0.795.

Data Analysis

All statistical analyses were performed using SPSS 21.0 and AMOS 24.0. Patients were divided into three groups according to their decisional conflict: no decisional conflict group, moderate decisional conflict group, and severe decisional conflict group. A one-way ANOVA was used to compare the differences in health literacy levels among the three decisional conflict groups. Spearman correlation was used to analyze the correlation between the variables, and then multiple stepwise regression was used to analyze the extent to which the variables explained the variance in decisional conflict. Path analysis was performed by constructing a structural equation model (SEM). The bias-corrected nonparametric percentile bootstrap method was used to validate mediating effects between variables. The model fit was estimated using the Maximum likelihood method. Bilateral $\boldsymbol{\alpha}$= 0.05 and 95% confidence intervals were calculated to validate the level of testing. $P<0.05$ was statistically significant.

Results

General Characteristics of Patients with Stable Schizophrenia

In total, 205 patients with stable schizophrenia participated in the study. Social demographic information and disease-related information are shown in Table 1.

Comparison of Health Literacy Levels of Decisional Conflict Across Groups

The health literacy levels of decisional conflict across groups are shown in Figure 1.

(1) A total of 205 patients with stable schizophrenia had decisional conflict (95%), of which 26 patients with moderate decisional conflict and 168 patients with severe decisional conflict (82%), indicating that a high severity of decisional conflict in patients with stable schizophrenia.

(2) The differences in health literacy levels among the decisional conflict groups were statistically significant ($P<0.05$). The health literacy scores were higher in the no decisional conflict group than in the decisional conflict group. The health literacy scores were higher in the moderate decisional conflict group than in the severe decisional conflict group. The above results indicate that the level of health literacy is significantly and negatively correlated with the severity of decisional conflict, and that improving health literacy can reduce the level of decisional conflict.

(3) The correlations of the variables are shown in Table 2. Decisional conflict in patients with stable schizophrenia was strong significantly and negatively correlated with social support, self-efficacy, health literacy, and each of their dimensions (r=−0.14–0.27, $P<0.01$ or $P<0.05$).

Table 1 Social Demographic Information and Disease-Related Information of Patients with Stable Schizophrenia (N=205)

Variables	Patients (N=205)	t value	p value
Age	32.77±8.17	0.489	0.625
Sex		−1.678	0.095
Male	143(69.8%)		
Female	62(30.2%)		
Education		0.293	0.774
High school or below	193(94.1%)		
Above high school	12(5.9%)		
Having spouse		1.548	0.123
Yes	119(58%)		
No	86(42%)		
Residence		0.095	0.924
Urban areas	163(79.5%)		
Rural areas	42(20.5%)		
Duration of the disease		1.133	0.259
< 10	186(90.7%)		
≥ 10	19(9.3%)		
Number of hospitalizations		1.444	0.150
< 3	156(76.1%)		
≥ 3	49(23.9%)		
Complications		0.379	0.705
Yes	28(13.7%)		
No	177(86.3%)		

Multiple Regression Analysis of Health Literacy, Social Support, Self-Efficacy on Decisional Conflict

Multiple regression analysis with health literacy, social demographic information and disease-related information as the independent variables and decisional conflict as the dependent variable (F=3.013, P=0.002). The results are shown in Table 3. Health literacy entered the regression equation, and the change in R^2 showed that health literacy contributes 12.2% to the variance of decisional conflict, with a statistically significant difference (P<0.001).

Multiple stepwise regression analysis was conducted with health literacy, social support, and self-efficacy as independent variables and decisional conflict as the dependent variable (F = 17.177, P< 0.001, DW = 1.371, $VIF \approx$ 1.1). The first step is social support, the second step is health literacy, and the third step is self-efficacy. The results are shown in Table 4. The change in R^2 showed that the resulting regression equation explained 20.4% of the variance in decisional conflict, and the differences were all statistically significant (P<0.05).

Measurement Model and Hypothesis Model of Health Literacy, Social Support, and Self-Efficacy for Decisional Conflict

Measurement model was tested using validated factor analysis. Decisional conflict, social support, self-efficacy, and health literacy were all latent variables. Corrections were made after the measurement model was ran. The goodness-of-fit index was χ^2/ df <5, comparative fit index (CFI), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), Tucker- Lewis index (TLI)>0.90, and root mean square error of approximation (RMSEA) <0.08, indicated compliance with SEM standards. The results showed the fitting level was good, and the fitting results were χ^2 / df=1.005 (χ^2=28.149, df=28), GFI=0.973, AGFI=0.947, TLI=0.998, CFI=0.999, and RMSEA=0.005. Based on current theories and studies, this study hypothesized that the health literacy of patients with stable schizophrenia affects decisional conflict through three mediating effects (model shown in Figure 2): (1) health literacy affects decisional conflict through social support, health literacy → social support → decisional conflict, a1*b1; (2) health literacy affects decisional conflict through self-

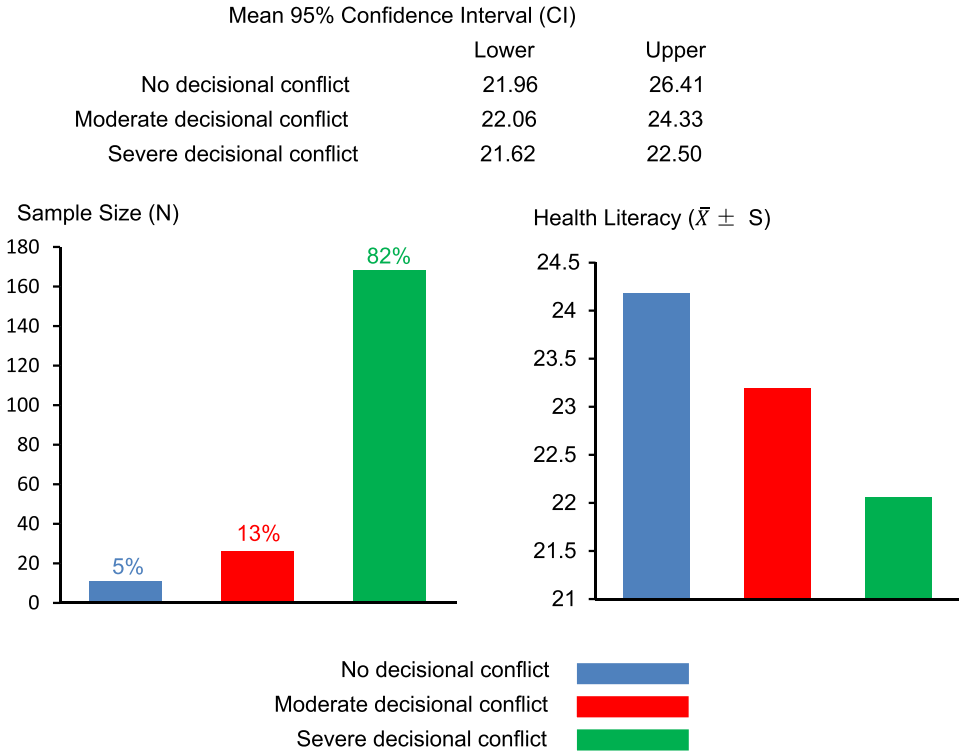

Figure 1 The Health Literacy Levels of Decisional conflict in Different Groups. ($P<0.05$).

efficacy, health literacy → self-efficacy → decisional conflict, a2*b2; (3) health literacy affects decisional conflict through social support and self-efficacy, health literacy → social support → self-efficacy → decisional conflict, a1*d*b2. In addition, the direct effect of health literacy on decisional conflict is c.

The Structural Equation Model of Health Literacy, Social Support and Self-Efficacy on Decisional Conflict

After fitting test and multiple regression analysis, the structural equation model is derived as shown in Figure 3. Path analysis revealed that health literacy directly affected decisional conflict (β=−0.282) and indirectly affected decisional conflict through three mediating pathways. (1) Ind1: health literacy →social support → decisional conflict (β=−0.319, 0.442*(−0.722)), with a relative effect value of 51.53% (−0.319 /-0.619) (2) Ind2: health literacy → self-efficacy →decisional conflict (β=−0.010, 0.169*(−0.060)), with a relative effect value of 1.62% (−0.010 /-0.619) (3) Ind3: health literacy →social support → self-efficacy → decisional conflict (β=−0.008, 0.442*0.293*(−0.060)), with a relative effect value of 1.29% (−0.008 /-0.619).

The bias-corrected nonparametric percentile bootstrap method was adopted to inspect the mediating effect of decisional conflict. 5000 bootstrap samples were randomly selected from the original data and their 95% CI were calculated. The results are shown in Table 5. The intervals of 95% CI between the total mediating effect and the 3 mediating pathway effects of health literacy on decisional conflict do not include 0, indicating that the mediating effect of social support and self-efficacy on decisional conflict was established, and subpaths are also statistically significant. The total effect value of health literacy on decisional conflict was 61.9%. The value of the direct effect of health literacy on decisional conflict is 45.56% of the total effect value. After introducing the mediating variables of social support and self-efficacy, the total mediating effect value was 54.44%.

Table 2 Correlation Analysis of Decisional Conflict with Social Support, Self-Efficacy and Health Literacy in Patients with Stable Schizophrenia

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Decisional conflict	1												
2. Decision uncertainty	0.388**	1											
3. Uncertainty impact factors	0.794**	0.036	1										
4. Decision effectiveness	0.458**	−0.010	0.061	1									
5. Social support	−0.176*	−0.054	−0.208**	−0.073	1								
6. Objective support	−0.138*	−0.074	−0.216**	0.043	0.626**	1							
7. Subjective support	−0.175*	0.052	−0.211**	−0.123	0.689**	0.128	1						
8. Utilization of support	−0.169*	−0.152*	−0.091	−0.131	0.617**	0.154*	0.248**	1					
9. Self-efficacy	−0.248**	−0.127	−0.216**	−0.034	0.122	0.205**	0.048	0.091	1				
10. Health literacy	−0.265**	−0.164*	−0.221**	−0.026	0.108	0.195**	0.083	0.051	0.151*	1			
11. Ability to use written health information	−0.189**	−0.120	−0.220**	0.091	0.066	0.088	0.059	0.039	0.131	0.657**	1		
12. Ability to communicate with health care providers	−0.202**	−0.193**	−0.109	−0.080	0.033	0.160*	−0.020	0.030	0.023	0.611**	0.078	1	
13. Competence in the evaluation and application of health information	−0.159*	−0.046	−0.118	−0.102	0.100	0.167*	0.087	0.060	0.179*	0.686*	0.215**	0.209**	1

Notes: *P<0.05, **P<0.01.

https://doi.org/10.2147/NDT.S482994

Table 3 Multiple Regression Analysis of Health Literacy, Social Demographic Information and Disease-Related Information on Decisional Conflict

Independent Variables	B	SE	β	t	P	R^2	Adjusted R^2
Health literacy	−1.001	0.231	−0.299	−4.328	<0.001	0.122	0.082
Age	−0.035	0.103	−0.029	−0.339	0.735		
Sex	2.224	1.529	0.105	1.454	0.147		
Education	−0.179	0.910	−0.015	−0.197	0.844		
Having spouse	−0.404	0.942	−0.031	−0.429	0.669		
Residence	−0.101	1.015	−0.008	−0.099	0.921		
Duration of the disease	−0.186	0.287	−0.065	−0.649	0.517		
Number of hospitalizations	−1.234	1.165	−0.094	−1.059	0.291		
Complications	−0.467	0.523	−0.064	−0.893	0.373		

Abbreviations: B, regression coefficient; SE, standard error; β, standardized regression coefficient; R^2, coefficient of determination.

Table 4 Multiple Stepwise Regression Analysis of Health Literacy, Social Support, and Self-Efficacy on Decisional Conflict

Steps	Independent Variable	B	SE	β	t	P	R^2	Adjusted R^2
First step	Social support	−0.652	0.137	−0.313	−4.761	0.000	0.146	0.142
Second step	Health literacy	−0.624	0.218	−0.186	−2.864	0.005	0.188	0.180
Third step	Self-efficacy	−0.336	0.169	−0.132	−1.996	0.047	0.204	0.192

Abbreviations: B, regression coefficient; SE, standard error; β, standardized regression coefficient; R^2, coefficient of determination.

Discussion

This study is the first to conduct a path analysis of the relationship between health literacy, social support, self-efficacy and decisional conflict in patients with stable schizophrenia by constructing a structural equation model. Health literacy can directly or indirectly influence decisional conflict, and this study also analysed the mechanism of social support and

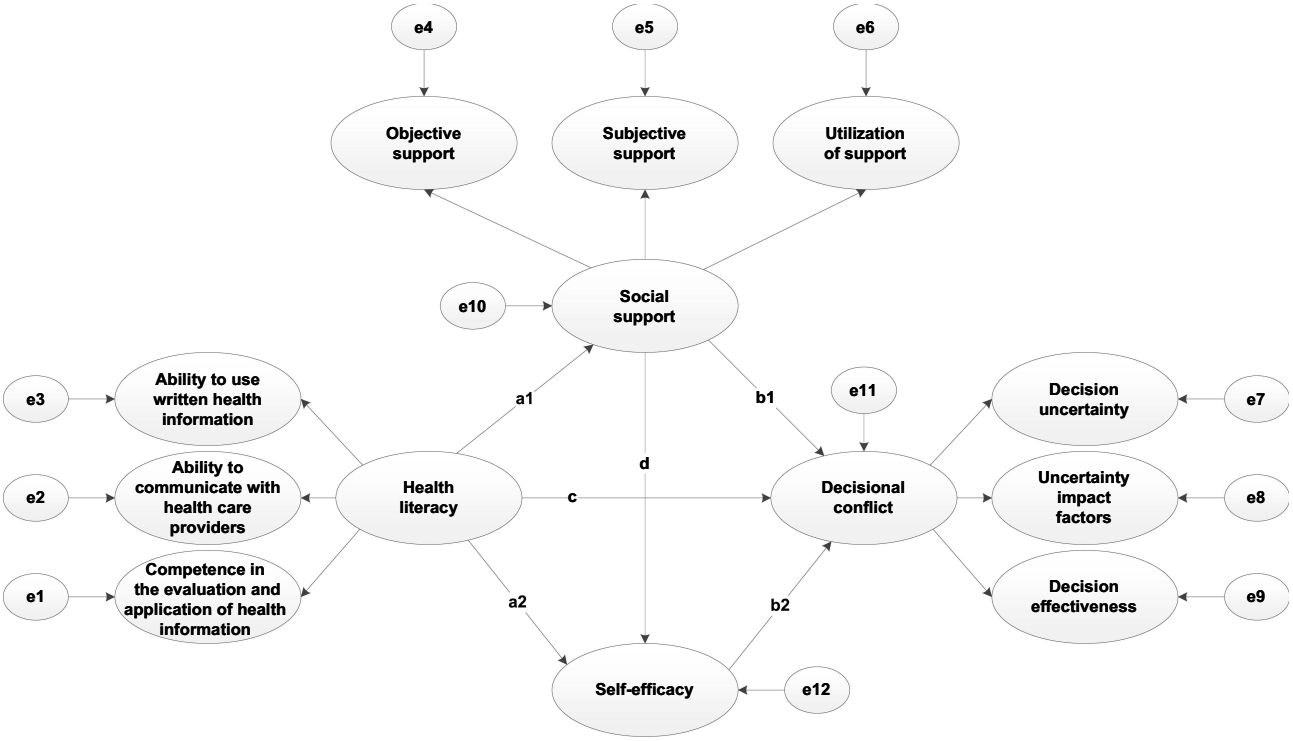

Figure 2 Measurement and Hypothesis Model.

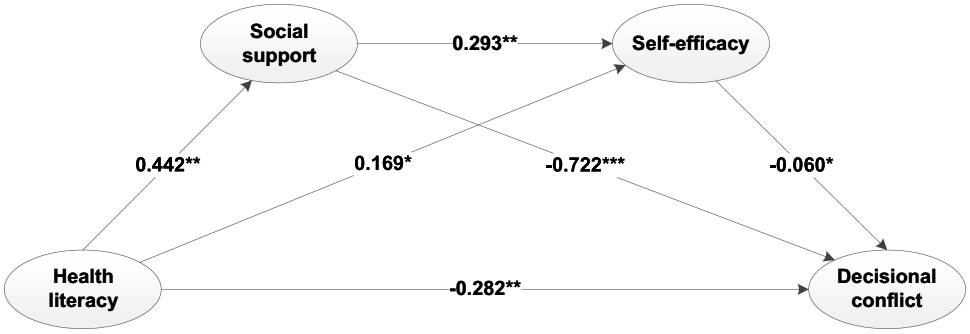

Figure 3 The structural equation model of health literacy, social support and self-efficacy on decisional conflict.
Notes: *P<0.05, **P<0.01, ***P<0.001.

self-efficacy in the impact of health literacy on decisional conflict. The fitness of this structural equation model confirms our hypothesis, implying the addition of a new pathway to reduce the incidence of decisional conflict in patients with stable schizophrenia.

The Direct Effect of Health Literacy on Decisional Conflict in Patients with Stable Schizophrenia

The results of this study showed that the severity of decisional conflict was significantly and negatively correlated with health literacy (β=−0.282), and that health literacy directly affected decisional conflict. The value of the direct effect of health literacy on decisional conflict is 45.56% of the total effect value; indicated that the lower level of health literacy, the higher level of decisional conflict. A high level of health literacy includes the skills to access, understand and share health information with health professionals and to communicate effectively, which facilitates successful participation in decision-making and reduces or eliminates decisional conflict. This is consistent with Muscat[42] and Fleary's[43] findings. The reason for this is that people with schizophrenia have a reduced ability to understand and perceive health information, which leads to a lack of decision-making ability when faced with specific, specialized decisions; they are often at a loss as to what to do and often adopt an avoidant attitude. In addition, public stigma reduces the self-esteem and self-confidence of patients and carers, leading to delayed decision-making by patients or their families, as well as passive behaviour in counseling,[44] which ultimately increases the incidence of decisional conflict. Therefore, it is important to enhance patients' level of health literacy and confidence in participating in decision-making in clinical practice.[45]

Table 5 The Path Analysis Results of Health Literacy, Social Support and Self-Efficacy on Decisional Conflict

Paths	Standardized Effect Value	Bootstrap 95% (CI%)		Relative Effect Value
		Lower Limit	Superior Limit	
Ind1: health literacy → social support → decisional conflict (a1*b1)	−0.319	−0.4792	−0.0356	51.53%
Ind2: health literacy → self-efficacy → decisional conflict (a2*b2)	−0.010	−0.2197	−0.0040	1.62%
Ind3: health literacy → social support → self-efficacy→ decisional conflict (a1*d*b2)	−0.008	−0.0830	−0.0003	1.29%
Indirect total effect value (ind=ind1+ind2+ind3)	−0.337	−0.6354	−0.0670	54.44%
Direct: health literacy → decisional conflict (c)	−0.282	−1.0531	−0.1944	45.56%
Total effect value (total=ind+direct)	−0.619	−1.3639	−0.4735	100%

Note: *Multiplication sign.

Mediating Effect of Social Support and Self-Efficacy on Decisional Conflict in Patients with Stable Schizophrenia

In this study, social support and self-efficacy were found to play a partial mediating role in the pathway of health literacy on decisional conflict in patients with stable schizophrenia, with an effect value of 54.44%. Several studies have pointed out that when decision makers experience ambivalence, it reduces their use of social support and self-efficacy, and significantly exacerbates decisional conflict.[46,47] Patients with stable schizophrenia in the clinical settings are often faced with target treatment decisions such as the dosage and type of antipsychotic medication, and they often have both a desire for good treatment outcomes and concerns about the side effects of the medication. If they are able to communicate with healthcare professionals, take the initiative to consult and effectively apply health information, they will gain social support, improve self-efficacy, as well as avoid negative emotions such as depression and low self-esteem, which will facilitate decision-making and implementation, increase the effectiveness of decision-making, and have a protective effect against decisional conflict. This is consistent with the research results of Wang et al.[48] Therefore, interventions such as multimedia information tools, health professional training and interactive resources (pill card and booklet), peer support education, mobile healthcare apps[49–52] can effectively improve patients' knowledge of diseases, promote the sharing of information resources, improve health literacy, enhance health self-efficacy, appreciate social support and reduce decisional conflict.

This is the first study in China to examine the mechanisms by which social support and self-efficacy influence the relationship between health literacy and decisional conflict in patients with stable schizophrenia. Moreover, the patients with schizophrenia in our study had severe decisional conflict. A review of studies,[53] most of which were from Europe, showed that more than 70% of patients with schizophrenia were made aware of treatment options when making health care decisions and that they had better decision-making ability, as indicated by a lower level of decisional conflict than in our study.

This not only enriches research on the impact of health literacy on decisional conflict in patients with stable schizophrenia, but also explains the mediating role of social support and self-efficacy. The validity of mediation effect values provides a theoretical basis for how health literacy can reduce the incidence of decisional conflict. However, this study found that the effects of social support and self-efficacy on the relationship between health literacy and decisional conflict were only partially mediated, and that there are unexplored independent variables that warrant further exploration and validation. For example, indicators related to health literacy and decisional conflict such as coping styles, sense of hope, public stigma, capacity to participate, and attitudes towards participation are worthy of research on the mechanisms of influence through the construction of structural equation model.

Limitations

However, this study still has limitations. Inpatients are in a relatively closed environment, which may lead to a high rate of decisional conflict. Only stable schizophrenia inpatients were included in this study, and patients who returned to the community were not investigated, which may also prevent the impact of our generalization on outpatients. This study only recruited patients with schizophrenia in the stable phase, but patients at other phases such as prodromal, acute, relapse of disease were not included, it is unknown whether the results of the study also apply to patients with schizophrenia in these different illness phases. Patients with schizophrenia in different cultural contexts may have different needs for treatment and decision-making, therefore the results of decisional conflict in Chinese inpatients may need to be adjusted and validated in different cultural contexts. The study population was from only one medical institution. The sample size of patients was relatively small. In the future, the sample size and source of study participants should be increased to explore more mediating variables affecting health literacy and decisional conflict.

Conclusion

Patients with stable schizophrenia have serious decisional conflict in China, which will increase the psychological burden of patients and reduce the quality of life, affect the smooth progress of medical work and the treatment outcome, and

cause tense doctor-patient relationship or disputes. Therefore, necessary interventions need to be taken. This study found that social support and self-efficacy mediated the relationship between health literacy and decisional conflict in patients with stable schizophrenia in China. Healthcare professionals should emphasize health literacy education for patients (such as health empowerment for patients, equipping them with the knowledge, skills and resources to make positive decisions that benefit their own health; use multimedia resources such as video, audio, images, to provide a richer, more interesting and attractive learning experience, and improve the effect of knowledge transfer; invite patients who have recovered well to offer emotional support, share health information, and coach life skills for other patients), and implement pathway-based targeted interventions to improve health literacy, reduce decisional conflict (before making decisions, we should fully understand the patient's mastery of health information, provide access to health information and communication opportunities, actively help patients seek social support, connect with social welfare and charity organizations, encourage family members to provide decision-making support, correct the poor cognition of patients with low self-efficacy, enhance confidence in rehabilitation, and minimize the occurrence of decisional conflict), and promote the recovery of patients with stable schizophrenia.

Ethics Statement

This study is in accordance with the Declaration of Helsinki. All patients signed an informed consent form and followed the principle of voluntariness, and the study was approved by the Medical Ethics Committee of the Third People's Hospital of Meizhou City, Guangdong Province, China.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

The authors report no conflicts of interest in this work.

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