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Current Status and Influencing Factors of Social Alienation Among Young and Middle-Aged Stroke Patients in Dali

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Abstract: *Objective*: To explore the current status of social alienation and its influencing factors among young and middle-aged stroke patients in Dali. *Methods*: A convenience sampling method was used to survey 385 young and middle-aged stroke patients in a tertiary hospital in Dali from December 2024 to July 2025. Questionnaires including general demographic information, the General Alienation Scale, the Athens insomnia scale, and others were administered. *Results*: The social alienation score of young and middle-aged stroke patients in Dali was (35.67 ± 3.46). Univariate analysis showed that general demographic factors [education level, monthly household income, whether it was the first onset, presence of sequelae, disease duration, activities of daily living (ADL, Barthel Index)], social support, stigma, self-perceived burden, anxiety and depression, and sleep status were influencing factors of social alienation ($P < 0.05$). Regression analysis indicated that social support, anxiety and depression, disease duration, stigma, presence of sequelae, and self-care ability were significant influencing factors of social alienation ($P < 0.01$), explaining 65.3% of the total variance. *Conclusion*: The level of social alienation among young and middle-aged stroke patients in Dali is relatively low. Special attention should be paid to patients with a disease duration of < 7 days, those with sequelae, moderate-to-severe dependence in self-care, low social support, high stigma, and high levels of anxiety and depression, to effectively reduce their social alienation.

Keywords: Young and middle-aged stroke; Influencing factors; Social alienation

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1. Introduction

Stroke, as a major public health issue in China, is characterized by its “four highs” (high incidence, mortality, disability, and recurrence rates), which not only threaten national health but also impose a heavy socioeconomic burden. According to the “China Stroke Report 2019,” the incidence of stroke in China has reached 1114.8 per

100,000, and the mortality rate has reached 149.49 per 100,000 in 2020, highlighting the urgency of disease prevention and control [1, 2]. In recent years, there has been a significant trend of younger onset, with young and middle-aged groups (aged 18–59) accounting for 31% of stroke patients [3]. Young and middle-aged stroke patients face a dual health crisis: on the one hand, 70%–80% of patients suffer from sequelae such as physical dysfunction, leading to a decreased ability to live independently and increased risk of recurrence [4, 5]. On the other hand, this group is in a critical period of career development and peak family responsibilities, and sudden health impairments not only affect physiological functions but also easily lead to psychosocial adaptation disorders. Studies have shown that approximately 40% of young and middle-aged stroke patients exhibit social alienation behaviors such as reduced social participation and interpersonal withdrawal [6]. This "physiological-psychological-social" multidimensional functional impairment forms a vicious cycle, further exacerbating the difficulty of rehabilitation. The occurrence of social alienation has significant regional differences. As a border prefecture-level city in Yunnan Province, Dali City has a relatively lagging economic development level, and socioeconomic status has been proven to have a significant negative correlation with social alienation. Currently, there are few reports on social alienation among young and middle-aged stroke patients in underdeveloped areas of southwest China. Therefore, this study explores the current situation and influencing factors of social alienation among young and middle-aged stroke patients in Dali City, aiming to construct an intervention model suitable for this region and provide a scientific basis for improving China's stroke rehabilitation service system.

2. Research objects and methods

2.1. Research objects

Using convenience sampling, 385 young and middle-aged stroke patients are selected from a tertiary hospital in Dali City from December 2024 to July 2025. The inclusion criteria of the study are: (1) Diagnosed with various types of "stroke" according to the diagnostic criteria established by the Chinese Medical Association based on craniocerebral CT or MRI examination [7, 8]; (2) Age: 18–59 years old; (3) Informed consent, possessing a certain level of reading and comprehension skills, and willing to participate in the questionnaire survey; (4) Conscious, without mental illness or cognitive impairment; (5) Aware of their own condition and in a stable condition.

The exclusion criteria included: (1) Patients with mental illness; patients with unstable vital signs; (2) Patients with malignant tumors; (3) Patients with severe cardiac, liver, kidney, or pulmonary insufficiency; (4) Patients who refuse to participate in the study; (5) Patients who have experienced major family events in the past six months.

The elimination criteria are: (1) Missing data exceeding 10% of the total; (2) Selecting only one answer option; (3) Treating multiple-choice questions as single-choice questions or selecting all options.

2.2. Research tools

2.2.1. General information questionnaire

Developed based on literature review and group discussions, it mainly includes general patient information such as age, gender, disease information, and other relevant indicators.

2.2.2. Athens Insomnia Scale (AIS)

This scale, developed by Professor Dan Sedmark, the Vice Dean of the Ohio State University Medical School in 1985, is used to evaluate patients' sleep status. It consists of 8 items rated on a 4-point scale from 0 (no problem) to

3 (severe impact). A score of < 4 indicates no sleep disturbance, 4–6 suggests possible insomnia, and > 6 indicates insomnia [9, 10].

2.2.3. Self-perceived Burden Scale (SPBS)

Developed by Cousineau *et al.*, this scale assesses the self-perceived burden (SPB) of patients with chronic diseases [11]. It contains 25 items across three dimensions, with a Cronbach's α coefficient of 0.85.

2.2.4. Hospital Anxiety and Depression Scale (HADS)

Adapted by Chinese scholars such as Ye, this scale includes 14 items divided into anxiety and depression subscales. Each subscale has 7 items rated on a Likert scale from 0 to 3. The scoring ranges for both subscales are as follows: 0–7 indicates no symptoms, 8–10 suggests possible symptoms, and 11–21 indicates significant symptoms. The Cronbach's α coefficient for the Chinese version is 0.879 [12].

2.2.5. Social Support Rating Scale (SSRS)

Revised by Xiao and first applied in clinical research in 1986, this scale has good reliability and validity (Cronbach's α = 0.78, test-retest reliability = 0.81) [13]. It consists of 10 items divided into three dimensions: objective support, subjective support, and utilization of social support. The total score ranges from 12 to 66. Scores ≤ 22 indicate a low level of social support, 23–44 indicate a moderate level, and 45–66 indicate a high level [14].

2.2.6. Stroke stigma scale

Developed by Zhu *et al.*, this scale assesses stigma among stroke patients [15]. It contains 16 items divided into four dimensions: "physical obstacles" (4 items), "experience of discrimination" (3 items), "social interaction" (4 items), and "self-perception" (5 items). It uses a Likert 5-point rating scale (1–5). The total score ranges from 16 to 80, with 16–32 indicating a low level of stigma, 33–48 indicating a moderate level, and ≥ 49 indicating a high level. The Cronbach's α is 0.916.

2.2.7. Generalized Social Alienation Scale (GSAS)

Developed by Jessor and Jessor in 1977 and later adapted into Chinese by domestic scholar Wu, this scale consists of 15 items divided into four dimensions: self-alienation, alienation from others, skepticism, and sense of meaninglessness [16, 17]. It uses a Likert 4-point rating scale (1–4, ranging from "strongly disagree" to "strongly agree"). A social alienation score of ≥ 35 indicates the presence of social alienation. This scale is widely used to measure the level of social alienation among stroke patients, with a Cronbach's α coefficient of 0.77.

2.3. Sample size calculation

Using the Kendall sample size calculation method, the included sample size should be 5–10 times the number of independent variables. With a total of 35 variables and considering a 20% survey missing rate, the minimum sample size is 210 cases. The final sample size is determined to be 385 cases.

2.4. Data collection

This study has been approved by the hospital ethics committee (Review No.: DFY20241129005). Researchers are uniformly trained before the survey to avoid subjective and inductive language that could influence patients. The

completeness of the questionnaire is also checked. A total of 385 questionnaires are distributed and collected, with a valid recovery rate of 100%.

2.5. Statistical methods

Data is processed using SPSS 22.0 software. Normally distributed data is presented as mean ± standard deviation (±s). Count data is expressed as the number of cases (n) and percentage (%). Quantitative data is analyzed using t-test or q-test for single-factor analysis. Qualitative data is analyzed using the chi-square test. Pearson correlation analysis and multiple linear regression analysis were performed. A p-value < 0.05 is considered statistically significant.

3. Results

3.1. Single-factor analysis of social alienation scores among young and middle-aged stroke patients with different demographic and disease characteristics

There were statistically significant differences in social alienation scores among young and middle-aged stroke patients with different levels of education, monthly income, residual sequelae, disease duration, self-care ability, and whether it was the first onset ($P < 0.05$), as shown in **Table 1**.

Table 1. Univariate analysis of scores of social alienation among young and middle-aged stroke patients with different demographics and disease profiles (±S, $n = 385$)

Item	Cases [n (%)]	Social alienation score (points)	$t/q/\chi^2$	P
Age			1.358	0.351
18–44 years	164 (43.6)	35.95 ± 3.545		
45–59 years	221 (57.4)	35.46 ± 3.389		
Gender			1.422	0.157
Male	264 (68.6)	35.84 ± 3.472		
Female	121 (31.4)	35.30 ± 3.420		
Education level			28.677	< 0.001
Illiterate	26 (6.8)	37.27 ± 4.006		
Primary school	162 (42.0)	36.58 ± 3.642		
Junior high/ Vocational	171 (44.4)	34.84 ± 3.040		
High school	21 (5.5)	33.90 ± 1.998		
College	5 (1.3)	33.60 ± 0.894		
Bachelor's or above	0 (0)	0 [None]		
Marital status			0.632	0.73
Unmarried	1 (0.3)	34		
Married	381 (99.0)	35.66 ± 3.462		
Divorced	3 (0.7)	37.33 ± 4.041		

Table 1 (Continued)

Item	Cases [n (%)]	Social alienation score (points)	$t/q/\chi^2$	*P*
Widowed	0 (0)	0 [None]		
Residence			-3.339	0.414
Rural	256 (66.5)	35.63 ± 3.538		
Urban	129 (33.5)	35.75 ± 3.312		
Occupation			6.226	0.101
Farmer	319 (82.9)	35.84 ± 3.508		
Company employee	7 (1.8)	33.71 ± 2.138		
Public institution	7 (1.8)	33.86 ± 2.268		
Other	52 (13.5)	35.13 ± 3.290		
Monthly income (¥)			8.399	0.015
< 3000	17 (4.4)	35.18 ± 3.127		
3000–6000	312 (81.0)	35.89 ± 3.514		
> 6000	56 (14.6)	34.59 ± 3.062		
Sequelae			57.158	< 0.001
1 type	78 (20.3)	38.14 ± 3.758		
2 types	10 (2.6)	39.25 ± 2.150		
> 2 types	4 (1.0)	36.25 ± 3.775		
None	293 (76.1)	34.88 ± 3.007		
Disease course			90.813	< 0.001
< 7 days	122 (31.7)	38.11 ± 3.356		
7–14 days	257 (66.8)	34.49 ± 2.849		
15 days–1 month	6 (1.5)	36.17 ± 3.764		
>1 month to 6 months	0 (0)	0 [None]		
> 6 months	0 (0)	0 [None]		
Self-care ability			103.77	< 0.001
No dependency	108 (28.0)	34.28 ± 2.657		
Mild dependency	161 (41.8)	34.82 ± 3.263		
Moderate dependency	100 (26.0)	38.50 ± 2.983		
Severe dependency	16 (4.2)	35.88 ± 2.941		
First episode?			-2.249	< 0.001
Yes	282 (73.2)	35.43 ± 3.289		
No	103 (26.8)	36.32 ± 3.833		

3.2. Scores related to psychosocial and emotional factors in young and middle-aged stroke patients

In this study, the score for social support was (30.31 ± 5.243), indicating a moderate level. The score for stroke

stigma was (35.44 ± 11.815), also at a moderate level. The score for hospital anxiety and depression was (13.21 ± 8.194), suggesting significant symptoms. The score for Athens insomnia was (6.99 ± 4.716), indicating the presence of symptoms and the score for self-burden was (28.63 ± 7.343), which was at a mild level.

3.3. Relationship between social alienation and social support, stigma, psychological distress, insomnia, and self-burden in stroke patients

Correlation analysis showed a significant negative correlation between social support and total social alienation score ($P < 0.01$). Stroke stigma, hospital anxiety and depression, Athens insomnia, and self-burden were significantly positively correlated with total social alienation score ($P < 0.01$) as shown in **Table 2**.

Table 2. Correlation analysis between social alienation and social support, stroke stigma, hospital anxiety and depression, Athens insomnia, and self-burden

Variable	Social support score	Stroke stigma score	Hospital anxiety and depression score	Athens insomnia scale	Self-perceived burden score
Social alienation score	-0.716**	0.521**	0.715**	0.472**	0.600**
P-value	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Note: ** indicates $P < 0.01$ (two-tailed); * indicates $P < 0.05$ (one-tailed)

3.4. Regression analysis of social alienation in relation to demographics, support, stigma, psychological distress, insomnia, and self-burden among young and middle-aged stroke patients

In this study, social alienation was used as the dependent variable, and multiple linear regression analysis was performed using statistically significant independent variables from the univariate analysis (education level, monthly income, residual sequelae, disease duration, self-care ability, whether it was the first onset, social support, stroke stigma, hospital anxiety and depression, Athens insomnia, and self-burden). The results showed that self-care ability, disease duration, residual sequelae, anxiety and depression, stigma, and social support were significant predictors of social alienation ($P < 0.01$), explaining 65.3% of the total variation as shown in **Table 3**.

Table 3. Multiple linear regression analysis of social alienation among young and middle-aged stroke patients (n=385)

Independent variable	Unstandardized coefficient (B)	Standard error (SE)	Standardized coefficient (β)	t-statistic	*p*-value	95% CI
Constant	40.141	2.563		25.641	< 0.001	35.1–45.182
Self-care ability	0.383	0.139	0.093	2.761	0.006	0.11–0.656
Disease course	-0.616	0.253	-0.088	-2.435	0.015	-1.113– -0.119
Sequelae	-0.310	0.095	-0.110	-3.273	0.001	-0.497– -0.124
Anxiety and depression	0.107	0.021	0.254	4.990	< 0.001	0.065–0.149
Stigma	0.038	0.011	0.129	3.567	< 0.001	0.017–0.059
Social support	-0.210	0.030	-0.318	-7.098	< 0.001	-0.268– -0.152

Note: R^2=0.668; Adjusted R^2 = 0.653; F = 46.216; $P < 0.001$

4. Discussion

4.1. Scores of social support, stroke-related stigma, and hospital anxiety and depression among young and middle-aged stroke patients in Dali

The social support score in this study (30.31 ± 5.243) is at a moderate level, consistent with the research by Zhuo *et al.* [18]. On one hand, due to responsibilities and dignity, young and middle-aged stroke patients, most of whom are experiencing their first stroke in this study, tend to avoid communication with family and friends because of the panic caused by the disease, hindering the sustainable utilization of social support [19]. On the other hand, patients' families have a low level of health literacy regarding stroke, leading to a lower level of support [20]. The stroke-related stigma score (35.44 ± 11.815) is also at a moderate level. Compared to elderly stroke patients, young and middle-aged stroke patients may experience greater guilt and shame due to social and family responsibilities. Additionally, due to the high disability rate of stroke, changes in appearance can also bring varying degrees of shame to these patients. The hospital anxiety and depression score (13.21 ± 8.194) indicates significant symptoms. Young and middle-aged stroke patients experience more negative emotions due to changes in physical activity, appearance, family and social responsibilities, as well as economic obstacles caused by difficulties returning to work [21].

4.2. Current situation of social alienation among young and middle-aged stroke patients in Dali

The results of this study show that the social alienation score of young and middle-aged stroke patients in Dali is (35.67 ± 3.46), which is consistent with the research by Chen *et al.* [22]. As the backbone of society and family, young and middle-aged patients may face difficulties returning to work due to post-stroke dysfunction. Additionally, changes in appearance and multiple burdens exacerbate their social avoidance behavior, thereby reducing treatment and rehabilitation compliance. Healthcare professionals should pay attention to patients' social participation, regularly assess their sense of social alienation, strengthen psychological care, and provide social support.

4.3. Influencing factors of social alienation among young and middle-aged stroke patients in Dali

4.3.1. Disease information

The results of this study show that:

(1) Young and middle-aged stroke patients with moderate to severe dependence have a higher sense of social alienation, which is consistent with Wang's research [23]. This may be because moderate to severe dysfunction affects self-care ability, and at the same time, young and middle-aged patients face family, work, and economic pressures, leading to a decrease in social adaptability.

(2) Patients with a disease duration of less than 7 days have the heaviest sense of alienation. This is because they are forced to discontinue work during the early stages of the disease, and they worry about family burdens, dysfunction, and prognosis, leading to social avoidance.

(3) The more sequelae, the heavier the sense of alienation. This is because physical dysfunction or changes in appearance exceed the psychological tolerance of this age group, triggering social avoidance behavior.

4.3.2. Social support

This study confirms that there is a negative correlation between social support and social alienation among young and middle-aged stroke patients, which is consistent with the research by He *et al.* [24]. This group has a high demand for

family and social support [25]. A good support system can enhance treatment confidence and compliance, and reduce social avoidance behavior. Medical staff should actively evaluate patients' social support levels, provide professional guidance to help patients understand treatment plans and rehabilitation processes, promote effective communication between families and society, and develop intervention measures to enhance patients' social enthusiasm. By improving the social support system, patients' social alienation can be significantly reduced [24].

4.3.3. Stigma

The results of this study show that there is a positive correlation between stigma and social alienation among young and middle-aged stroke patients, which is consistent with the research by Jiao *et al.* [26]. The dysfunction (such as hemiplegia, aphasia) and appearance changes caused by stroke can significantly damage the patient's image and exacerbate stigma [27]. Young and middle-aged patients are more sensitive to their appearance, prone to feelings of inferiority, and thus actively reduce or avoid social interaction, further increasing social alienation. Medical staff should strengthen psychological counseling for patients, especially those with impaired physical function, and conduct health lectures to promote communication between patients and their families. Through knowledge popularization, stigma can be reduced, thereby reducing social alienation [26].

4.3.4. Anxiety and depression

This study shows that there is a positive correlation between the level of anxiety and depression and social alienation among young and middle-aged stroke patients, which is consistent with the research by He *et al.* [24]. Negative emotions arise from role changes, economic pressures, job uncertainties, and dysfunction, leading to reduced social interest and avoidance behavior, which exacerbates social alienation and affects treatment compliance and prognosis. It is suggested that medical staff strengthen psychological assessment and intervention to promote social participation and reduce alienation.

5. Conclusion

In summary, social alienation among young and middle-aged stroke patients in Dali City is influenced by patients' self-care ability, disease duration, residual sequelae, social support, stigma, and anxiety and depression. Simultaneously, severe social alienation can affect patients' treatment outcomes and prognosis. Therefore, medical staff should actively evaluate the social alienation scores of young and middle-aged stroke patients, further explore and develop measures to reduce patients' negative emotions, stigma, and improve or enhance patients' family social support and self-care abilities, thereby alleviating patients' social alienation. The limitations of this study include a relatively narrow sampling range and a limited number of influencing factor scales included. Therefore, future research should conduct broader sampling, increase the number of influencing factor scales, and further explore the current situation and influencing factors of social alienation among young and middle-aged stroke patients in Dali, providing a scientific basis for developing effective intervention measures, improving patients' mental health and treatment or rehabilitation enthusiasm, and promoting patients' return to society.

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Disclosure statement

The authors declare no conflict of interest.

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