Research Square

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Exploring the social participation needs and peer support engagement willingness of stroke patients: a qualitative study

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Research Article

Keywords: Stroke, Social participation, Peer support, Qualitative research, Maslow's hierarchy of needs theory, Rehabilitation

Posted Date: November 12th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11173112/v1

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Additional Declarations: No competing interests reported.

Abstract

Background

Stroke survivors face restricted social participation, yet their hierarchical needs and acceptance of peer support have been insufficiently explored.

Aims

This qualitative study sought to examine the social participation difficulties, hierarchical rehabilitation needs, and willingness to engage in peer support among stroke patients, grounded in Maslow's hierarchy of needs theory.

Methods

Semi-structured interviews were conducted with 15 stable-phase stroke patients (mean age 68.5 years; 73% aged ≥ 65 years) recruited from a hospital between March and May 2026. Data were analysed using Colaizzi's seven-step phenomenological method.

Results

Five themes and 19 subthemes emerged: (1) changes in and adaptation to social roles; (2) multidimensional barriers to social participation; (3) ways and strategies for overcoming difficulties; (4) diversified social participation needs; (5) perceptions, willingness, and preferences regarding peer support. Eleven of 15 participants expressed willingness to join peer support, though preferences for format, content, and peer characteristics varied.

Conclusions

Based on Maslow’s hierarchy of needs, this qualitative study shows stroke survivors’ social participation needs are complex, hierarchical and dynamic. Intertwined physical, psychological, environmental and socioeconomic barriers limit their social engagement, while their rehabilitation needs advance from basic safety and physiological needs to higher-level needs of belonging, self-esteem and self-actualisation. Peer support was broadly acceptable but requires individualization in format, content, and peer matching. A patient-centred hierarchical intervention combining peer support with family and community care is suggested. Better policies and community environments can narrow disparities to promote survivors’ community reintegration and quality of life.

Background

Stroke is characterized by high incidence, high disability rate, and high recurrence rate. Patients often develop persistent multidimensional functional impairments involving motor, speech, cognitive, and emotional domains, which seriously compromise long-term prognosis [1, 2]. With the popularization of the biopsychosocial medical model, contemporary stroke rehabilitation philosophy has transcended the traditional focus on isolated physical function restoration, shifting instead toward holistic rehabilitation centred on facilitating patients' social reintegration, rebuilding social roles, and improving overall quality of life [3]. Social participation has become a key outcome indicator for evaluating rehabilitation effectiveness. However, a considerable gap remains between clinical practice and this ideal goal; more than half of stroke survivors experience restricted social participation one year after onset [4].

Current post-discharge rehabilitation services for stroke patients exhibit significant structural deficiencies. Services predominantly concentrate on fundamental medical management, including blood pressure control, standardised medication, and physical therapy [5–7], while insufficient attention has been given to psychosocial support such as psychological counselling, social skills reconstruction, and guidance for community re-engagement. A systematic service mechanism has not yet been established. After leaving professional rehabilitation settings, patients generally lack continuous individualised guidance.

Stroke rehabilitation is a prolonged and dynamic process. Due to shortened hospital stays, most patients are discharged with incomplete functional recovery, resulting in a disconnection between inpatient and community-based rehabilitation [8]. The abrupt shift in rehabilitation settings transforms patients from independent workers and family caregivers into individuals dependent on others for care; this identity discrepancy serves as a critical psychological trigger that limits their social participation [9, 10]. Furthermore, restricted social participation arises from multiple barriers at the individual, environmental, economic, and family levels. To cope with these multidimensional difficulties, patients typically adopt self-management strategies, such as medication adherence and home-based exercise [11–13]. However, these approaches vary considerably in quality, lack professional supervision, and fail to deliver the unique empathetic experience that peer support can provide.

In this context, peer support—a supplementary rehabilitation model relying on mutual assistance among patients with shared illness experiences—offers natural emotional resonance, experience-based guidance, and psychological support that align with the long-term needs of chronic disease rehabilitation[14–16]. It has been shown to alleviate negative emotions, enhance disease adaptability, and improve rehabilitation self-efficacy in various chronic conditions, thus holding broad application prospects in stroke rehabilitation [17, 18]. Nevertheless, existing research predominantly focuses on quantitative verification of intervention effects, whereas systematic qualitative investigations from patients' subjective perspectives—regarding their awareness, acceptance, and differentiated preferences for intervention formats, service content, and peer characteristics—remain scarce. Such subjective information is essential for designing acceptable, attractive, and effective peer support programmes.

To systematically interpret the hierarchical disparities in rehabilitation needs, this study introduces Maslow's hierarchy of needs as the analytical framework, categorising patient needs into seven ascending tiers: physiological, safety, love and belonging, esteem, cognitive, aesthetic, and self-actualisationp [19]. This framework provides theoretical guidance for constructing progressive, precisely tailored stratified peer support interventions.

In summary, the rational design of peer support programmes must be grounded in an accurate understanding of patients' hierarchical needs and individual preferences. Qualitative research can deeply explore patients' genuine subjective experiences and is well-suited to address such complex person-centred questions [20]. Therefore, this study adopts a qualitative paradigm to systematically investigate barriers to social participation, hierarchical need structures, and willingness to engage in peer support among stroke survivors, aiming to provide scientific evidence and practical references for establishing stratified, individualised peer support intervention systems for this population.

Research question

What are the barriers to social participation and hierarchical needs among stroke patients?

What are the perceptions and willingness of stroke patients regarding peer support programmes?

What format, content, and peer characteristics do stroke patients prefer in peer support interventions?

Method

A qualitative phenomenological study design was used to explore the lived experiences of stroke survivors [21]. This approach is well-suited to exploring stroke patients' perceived barriers to social participation, hierarchical needs, and willingness to engage in peer support in China. This study was reviewed and approved by the Ethics Committee of Xiangnan University Affiliated Hospital (Approval No. K2025-034-01). All participants were fully informed about the study's purpose, data handling, anonymization, and their right to withdraw at any time without consequences. Written informed consent was obtained from every participant.

Participants

Participants were recruited from the Department of Neurology of a tertiary hospital in Chenzhou, China. Eligible participants were individuals aged 18 years or above who had been diagnosed with stroke confirmed by CT or MRI according to the Chinese Guidelines for the Clinical Management of Cerebrovascular Diseases (2019), and who were in a stable recovery phase. Patients who were unable to provide consent or who had severe communication disorders precluding interview completion were excluded.

The inclusion criteria were: (1) diagnosis of stroke confirmed by CT or MRI; (2) National Institutes of Health Stroke Scale (NIHSS) score change ≤ 2 points, or clinically judged to be in a stable recovery phase by the attending physician; (3) age ≥ 18 years; (4) conscious, with no documented intellectual impairment and able to communicate orally; (5) continuous home residence for at least 2 weeks post-stroke; (6) provided written informed consent. Exclusion criteria were: (1) transient ischemic attack; (2) severe cardiac, hepatic, renal insufficiency, respiratory failure, or malignant tumours; (3) severe communication disorders precluding interview completion; (4) history of psychiatric illness; (5) currently participating in other stroke-related research projects.

This study primarily targeted stroke patients, with a predominant focus on older adults. Although four participants under 65 years of age (range 51–60 years) were included to maximise sample variation and capture the continuity of post-stroke trajectories across the adult lifespan, the core study population remained older adults (mean age 68.5 years; 73% aged ≥ 65 years). The inclusion of younger participants provided complementary perspectives on disease course continuity and served as a reference point for interpreting the predominant findings from the older cohort.

Recruitment

To ensure efficient recruitment, we collaborated with medical professionals in the Department of Neurology to facilitate direct contact with potential participants. Specifically, neurology staff assisted in identifying patients who met the inclusion criteria during their follow-up visits or hospital stays and informed them about the study. After screening, eligible participants were invited to take part in the study. Written informed consent was obtained from all participants prior to data collection. Participants were explicitly informed of their right to withdraw from the study at any time, and that doing so would not affect their medical care in any way.

Sampling and sample size

Purposive sampling was used to recruit participants with variation in age, gender, stroke type, and disease duration. All eligible patients who volunteered during the recruitment window were included until data saturation was reached. We planned to recruit up to 20 participants and continued until data saturation was reached; ultimately, 15 participants were interviewed, at which point no new themes emerged [22].

Data Collection

Based on a literature review and team discussions, we developed a semi-structured interview guide. Pilot testing was performed with two stroke patients to refine the guide. The finalized semi-structured individual interview guide included six core questions (Table 1), aiming to elicit participants' authentic views.

All interviews were conducted face-to-face in a dedicated meeting room of the neurology department, with no other personnel present. Interviews were carried out by two female researchers: Both researchers were postgraduate nursing students trained in qualitative research methods, and both had completed a 10-hour training course in qualitative interviewing techniques.Interviews lasted between 30 and 60 minutes. Prior to each interview, participants received an information sheet written in plain language that outlined the purpose of the interview, the expected duration, and the audio-recording procedure. They were also informed that all data would be used exclusively for research purposes and kept strictly confidential. After each session, recordings were transcribed verbatim within 24 hours.

Table 1
Semi-structured individual interview questions

1	**How has your life changed since your illness?**
2	What barriers have you faced when participating, and how do you deal with them?
3	What types of support do you most desire to help you leave home and reintegrate into social life?
4	What are your views on peer support programs?
5	Are you willing to participate in such programs?
6	What content and formats would you expect this activity to adopt, and do you have any specific recommendations?

Data Analysis

NVivo 15.0 software was used to conduct data analysis following Colaizzi's seven-step phenomenological method [23]. The analytical procedures consist of seven successive steps: (1) repeatedly reading all interview transcripts to gain an overall understanding of the content; (2) extracting significant statements relevant to the investigated phenomenon; (3) formulating meanings for each extracted significant statement; (4) grouping these constructed meanings into themes and theme clusters; (5) synthesising themes to develop an integrated description of the phenomenon; (6) identifying the essential structure of the phenomenon; (7) returning the analytical findings to participants for member validation.

To reduce bias, two researchers independently coded the data. They subsequently worked together to resolve any discrepancies and refine thematic analysis. Constant comparison across transcripts was undertaken to identify patterns and variations, ensuring the robustness and comprehensiveness of the thematic framework. Themes were labelled in English, and quotations were translated into English only at the reporting stage. Data analysis was conducted by the lead researcher, with ongoing discussions of the emerging themes with supervisors to ensure rigour and credibility.

Reflexivity

The researcher kept a reflexive journal throughout the study to document thoughts, emotional reactions and potential biases after each interview. During coding, regular peer debriefing was conducted to challenge the researcher's interpretations and reduce subjectivity.

Positionality statement

The research team consisted of academic staff specialising in chronic disease nursing and postgraduate students. The corresponding author has extensive experience in chronic disease nursing and qualitative research. Interviewers had no prior clinical collaborations with participants, which helped minimise social desirability bias. All researchers acknowledged their pre-existing understandings and assumptions regarding stroke rehabilitation and actively documented these throughout data collection and analysis.

Results

The participants

A total of 15 participants were interviewed across 15 sessions: all were one-on-one interviews. All interviews were conducted face-to-face in a dedicated meeting room of the neurology department. All interviews were conducted in the participants' first language (Mandarin or local dialect). Interviews took place from March to May 2026.

Participant characteristics are presented in Table 2. The 15 participants (mean age = 68.5 years, range: 51–85) were mostly male (67%) and married (80%). The majority had an ischemic stroke (93%), with one case of hemorrhagic stroke. Disease duration ranged from 4 to 204 months (mean = 64.8 months). In terms of education, most had completed junior middle school or below (67%), while one had a university undergraduate degree. Regarding living arrangements, most lived with a spouse (60%) or with both spouse and children (20%). Social activity frequency varied: 33% reported almost no social activity, 47% occasionally participated in social activities, and 20% regularly participated.

Table 2
Demographic and clinical characteristics of participants (N = 15)

number	Type of Stroke	Course of Disease (months)	Living Arrangements	Degree of Education	Social Activity Frequency
P1	Cerebral arterial thrombosis	48	Living with one's spouse and children	Junior middle school	Almost none
P2	Cerebral arterial thrombosis	204	Living with a spouse	Junior middle school	Occasionally participate
P3	Cerebral arterial thrombosis	5	Living with a spouse	Special school	Regular participation
P4	Cerebral arterial thrombosis	7	Living with one's spouse and children	Primary school	Occasionally participate
P5	Cerebral arterial thrombosis	34	Living with a spouse	Junior middle school	Occasionally participate
P6	Cerebral arterial thrombosis	96	Living with a spouse	Junior middle school	Regular participation
P7	Cerebral arterial thrombosis	168	Living with a spouse	Primary school	Occasionally participate
P8	Cerebral arterial thrombosis	144	To strangers (Nanny) Residence	University undergraduate course	Almost none
P9	Cerebral arterial thrombosis	26	Living with one's spouse and children	Primary school	Almost none
P10	Cerebral arterial thrombosis	84	Living with a spouse	Junior middle school	Occasionally participate
P11	Cerebral arterial thrombosis	36	living alone	special school	Regular participation
P12	Cerebral arterial thrombosis	6	Living with a spouse	primary school	Almost none
P13	Cerebral arterial thrombosis	16	Living with a spouse	junior middle school	Almost none

number	Type of Stroke	Course of Disease (months)	Living Arrangements	Degree of Education	Social Activity Frequency
P14	Cerebral arterial thrombosis	4	Living with a spouse	primary school	Occasionally participate
P15	Hemorrhagic stroke	36	Living with a spouse	Primary school	Occasionally participate

Interview findings

Guided by Maslow's hierarchy of needs theory, interview data from 15 stroke survivors were analysed. Five core themes and 19 subthemes were extracted (Table 3): (1) changes in and adaptation to social roles; (2) multidimensional barriers to social participation; (3) ways and strategies for overcoming difficulties; (4) diversified social participation needs; and (5) perceptions, willingness, and preferences regarding peer support. These themes are presented below, supported by illustrative quotations.

Table 3
Themes and sub-themes

Themes	Sub-themes
Changes in and Adaptation to Social Roles	Passive changes in social roles
	Active Adaptation to New Roles
Multidimensional Barriers to Social Participation	Intrapersonal Barriers
	Environmental Barriers
	Socioeconomic Barriers
Ways and strategies for overcoming difficulties	Self-Directed Coping
	Utilisation of Environmental Resources
	Reliance on Social Support
Diversified Social Participation Needs	Physiological Needs
	Safety Needs
	Belonging and Love Needs
	Esteem Needs
	Cognitive Needs
	Aesthetic Needs
	Self-Actualisation Needs
Perceptions, Willingness, and Preferences Regarding Peer Support	Perceptions of Peer Support
	Willingness to Participate
	Preferences regarding the format and content of the project
	Expectations of Peer Characteristics

Theme 1: Changes in and Adaptation to Social Roles

Theme 1.1 Passive changes in social roles

Stroke onset was often sudden, forcing patients to withdraw abruptly from multiple roles—as family members, workers, caregivers, and community members. Their identity shifted from "independent" to "dependent", from "carer" to "cared-for", and from "worker" to "patient". This disruption caused profound disorientation. One participant described total dependence on his spouse: "I depend entirely on my wife; she takes care of everything" (P1). Another reflected on the loss of his former capabilities: "I used to be

able to do everything, but now I can do nothing—I need others to care for me" (P10). For those who had been engaged in physically demanding work, the loss was particularly acute. A participant who had worked in agriculture stated, "I can't do farm work anymore" (P13), while another, who had been employed at the time of his stroke, lamented, "I was still working when I had the stroke, but now I can't work at all" (P15).

Theme 1.2 Active Adaptation to New Roles

Despite these forced changes, some patients gradually accepted their situation and attempted to reestablish a sense of purpose. They engaged in household tasks or rehabilitation exercises, demonstrating proactive adaptation. One participant found satisfaction in contributing to household chores: "When my husband takes out the rubbish, I help him with the bin bag" (P12). Another incorporated physical activity into daily routines: "Every day I walk about five or six li (2–3 km); on the way I buy groceries, and that counts as exercise" (P4).

Theme 2: Multidimensional Barriers to Social Participation

Theme 2.1 Intrapersonal Barriers

Physical impairments—limb weakness, gait instability, slurred speech, and memory loss—were the most common barriers reported by participants. These were frequently described in vivid terms. One participant explained, "Walking feels like stepping on cotton; I get dizzy, and I can't speak clearly" (P7). Another described the combined effect of physical and cognitive difficulties: "My right hand has no strength, I do things in the wrong order, and my mind is clear one moment and confused the next" (P10). Memory problems and slow reactions were also mentioned: "I get headaches, my memory is poor, and my reactions are slow" (P4).

Beyond physical limitations, psychological factors such as low mood, lack of confidence, and introversion led to active social avoidance. One participant described unexplained emotional distress: "Sometimes I just feel like crying for no reason" (P1). Fear of judgment by others was another barrier: "At my age, if I go looking for others to chat with, I'm afraid they might look down on me" (P8). For some, lifelong introversion was reinforced by the stroke: "I don't like going out; I never have. I'm not used to chatting with people—I'm quite introverted" (P13).

Theme 2.2 Environmental Barriers

Environmental obstacles included poor transportation infrastructure, a lack of accessible facilities, and the absence of peer companionship. Rural patients particularly noted uneven roads, a lack of exercise equipment, and long distances to hospitals, making outings difficult without family accompaniment. One participant described the distance to the hospital: "It's too far from here. It takes me over three hours to come from my home to your hospital" (P4). Another highlighted the inaccessibility of rural paths: "We live in a rural area; some paths are so rough that a wheelchair can't get through" (P1). Social isolation was compounded by the absence of other stroke survivors in the community: "I'm the only one in my village

who has had a stroke. There are no recreational activities, no exercise equipment—most of the time I just stay at home" (P6). For some, the lack of family accompaniment further restricted outings: "My husband is too old to walk far, and my children don't want to accompany me to the hospital for check-ups" (P3).

Theme 2.3 Socioeconomic Barriers

Stroke rehabilitation is costly and prolonged. Regular medication, repeated consultations, and rehabilitation fees placed a heavy financial burden on patients, affecting both treatment adherence and participation in social activities. One participant described the monthly costs as "a huge expense" (P1), while another provided specific figures: "I spend six to seven hundred yuan a month on medicine, and hospitalisation costs are not a small sum either" (P12).

Theme 3: Ways and strategies for overcoming difficulties

Theme 3.1 Self-Directed Coping

Many patients showed strong self-management abilities, including medication adherence, dietary control, home-based exercise, psychological adjustment, and active learning about their condition. One participant emphasised his commitment to medication: "I take my medicine on time, for sure" (P11). Another described dietary changes: "I've been controlling my diet since I got this illness" (P9). Home-based exercise was common: "When the weather is fine in the afternoon, I walk two or three kilometres" (P4). Psychological adjustment strategies were also employed: "I try to keep an open mind and not let worries get to me" (P14). Some took a proactive approach to learning about their condition: "I actively seek to understand this disease" (P11).

Theme 3.2 Utilisation of Environmental Resources

Patients used both online and offline resources for support. Online, they engaged in WeChat groups and used AI apps (e.g., Doubao, Qwen, Yuanbao) for information, and watched exercise videos. Offline, some attended rehabilitation centres. One participant described his online social engagement: "I have a small WeChat group for chatting, and another for investment discussions" (P5). Another used AI tools for health information: "I use AI tools like Doubao or Qwen to look up disease information" (P11). Self-directed online learning was also reported: "I learned a whole set of whole-body exercises online by myself" (P6). Some accessed formal rehabilitation services: "I had rehabilitation for half a month at a Chinese-Western medicine hospital" (P12).

Theme 3.3 Reliance on Social Support

Family members—spouses, children, siblings—provided essential emotional and practical support. Patients valued their understanding and encouragement, and some used phone or video calls to reduce loneliness. One participant described her husband's role: "My husband takes care of all the household chores; I don't have to worry about anything" (P12). Another relied on a hired caregiver: "A hired caregiver looks after my daily needs" (P8). For those with extended family, regular communication provided

emotional sustenance: "I have several siblings—I chat with one sister, then my brother, and then call my sister in the US—an afternoon can easily be two or three hours of talking" (P3).

Theme 4: Diversified Social Participation Needs

Theme 4.1 Physiological Needs

Patients prioritised physical recovery, pain relief, improved sleep, fatigue control, and swallowing function. Without symptom control, social participation was nearly impossible. One participant described multiple physical symptoms: "My hands and feet are numb—the numbness in my right foot goes all the way from the sole to the buttock. Walking feels heavy, I get tired quickly, and I often have headaches" (P5). Sleep disruption was another concern: "Sometimes the pain at night keeps me awake; if only it would stop" (P12). Swallowing difficulties affected daily life: "I used to like eating dry rice. Now, even slightly dry rice is hard to swallow" (P1).

Theme 4.2 Safety Needs

Patients emphasised the need for physical safety during activities—fall prevention, fear of recurrent stroke, and medication safety. Insecurity led them to avoid going out. One participant expressed fear of falling: "I can't walk steadily; I'm afraid of falling" (P1). Another worried about recurrence: "I worry a lot about having another stroke, with worse symptoms like facial or mouth numbness" (P5). The need for professional medication guidance was also expressed: "I need doctors to guide my medication and tell me if the prescription is right" (P4).

Theme 4.3 Belonging and Love Needs

Most patients longed to be accepted by family, friends, and the community. They wanted to remain part of their social circles rather than be marginalised. One participant described the lack of understanding from family: "My mother doesn't understand me—she asks why nobody scolds me. I cry. Only people who've been through it can understand" (P1). Another felt misunderstood by her spouse: "My shoulder hurts, and I really don't want to wear the arm sling, but my husband says I'm not cooperating with rehab. He doesn't feel the pain, so he can't understand" (P12). The desire for social connection was evident: "I like lively places; I want to chat with people in the neighbourhood" (P10). One participant mourned the loss of previous social activities: "I really want to go square dancing with my former friends, but I can't dance anymore—I used to love it" (P15). Another described the pain of watching from the sidelines: "I just stand at the edge of the square and watch others chat and dance—I wish I could join" (P10).

Theme 4.4 Esteem Needs

Patients desired dignity, freedom from stigma, and equal treatment. They did not want to be seen solely as patients or burdens. One participant asserted his continued capability: "I still want to drive my car, but my family doesn't believe I can—my driving skills are excellent" (P1). Another expressed embarrassment about visible signs of disability: "I don't want to use a walking stick; I feel embarrassed" (P8).

Theme 4.5 Cognitive Needs

Patients wanted to learn about disease management, medication, rehabilitation techniques, prevention of recurrence, and how to return to society. One participant expressed a broad learning desire: "I want to learn about the disease, medications, and rehabilitation" (P14). Another emphasised the importance of sharing prevention knowledge: "We should teach others how to prevent stroke—share prevention knowledge" (P1). Peer learning was also valued: "We can talk about treatment, medication, and maintenance experience" (P6).

Theme 4.6 Aesthetic Needs

Some patients expressed preferences for entertaining, enjoyable activities and maintained concerns about personal appearance. One participant described his leisure interests: "I like listening to music and watching TV—especially old war movies" (P13). Another linked appearance to self-esteem: "I don't want to use a walking stick—it's not just embarrassing, it's also ugly" (P8).

Theme 4.7 Self-ActualiAsation Needs

As recovery progressed, some patients aspired to contribute to others, work meaningfully, or achieve personal growth. They moved from being passive recipients to active givers. One participant expressed a desire to teach others: "I want to take on two apprentices. I have a certificate in acupuncture—I can teach them to treat minor ailments like headaches" (P1). Another reflected on personal growth through adversity: "This stroke has trained my cognitive ability, my knowledge application, and my ability to maintain a positive mindset in adversity" (P11). The desire to return to work was also expressed: "If I weren't sick, I would still want to work" (P15).

Theme 5: Perceptions, Willingness, and Preferences Regarding Peer Support

Theme 5.1 Perceptions of Peer Support

Most patients had positive views. They believed that peers with similar experiences could communicate more effectively and offer genuine empathy and practical advice. One participant emphasised the unique understanding between stroke survivors: "Only those who have experienced it can truly understand and feel the same" (P1). Another echoed this sentiment: "We are all stroke survivors; we can understand each other's physical feelings, unlike others who don't get it" (P15). The programme was seen as particularly suitable for those with adequate mobility: "This programme is indeed good—especially suitable for stroke survivors with adequate mobility" (P8). One participant viewed the initiative positively: "Your project feels like a public welfare initiative, and doing good is always good" (P6).

Theme 5.2 Willingness to Participate

Eleven out of 15 patients expressed willingness to join a peer support programme. Reasons included finding "similar others" for experience exchange and emotional resonance. One participant expressed enthusiasm: "I think it's great for fellow patients to support each other, chat, and share experiences" (P5). Another noted the mood-lifting effect: "When my mental state is good, I do enjoy communicating with others—it lifts my mood" (P2).

Four patients were unwilling. Their concerns included poor physical condition, time constraints, communication difficulties, and perceived low value. One participant feared emotional distress from seeing others in poor condition: "If I attend a patient meeting and see so many sick people in bad states, I'd feel very depressed" (P3). Another cited lack of energy: "I don't have the energy to attend; I'm too old" (P7). Communication barriers were also a concern: "Usually I don't participate—because they can't understand me, and I can't understand them" (P8). One participant questioned the cost-benefit balance: "I don't think the benefits justify the time and effort. I can't learn systematic knowledge, and scheduling conflicts arise" (P11).

Theme 5.3 Preferences regarding the format and content of the project

Preferences varied. Some favoured WeChat groups, others preferred offline group meetings, and many liked a blended model. One participant expressed interest in online knowledge sharing: "I would gladly join a WeChat group that shares stroke prevention knowledge" (P1). Another preferred face-to-face interaction: "I prefer offline group communication" (P6). A blended approach was also suggested: "We can have an online group chat and also meet offline to sit and talk—that feels good" (P15).

Many explicitly desired involvement of healthcare professionals, valuing their expertise and trustworthiness. One participant stated, "If I join, I'd like to talk with a doctor" (P4), while another suggested, "Doctors and nurses can be part of this project too" (P10).

In terms of content, patients wanted rehabilitation experience sharing, health education, psychological support, recreational activities, and even incentive rewards. One participant suggested discussing treatment and maintenance: "Talk about treatment, medication, and maintenance tips" (P6). Another proposed incorporating exercise: "Add exercise—like finger exercises I can do at home" (P9). Prevention education was also important: "Prevent stroke—share prevention knowledge. Most importantly, we need to spread awareness" (P1). Psychological themes were suggested: "We can have a special section on 'gains and losses after stroke'—a psychology theme" (P11). Recreational activities were also mentioned: "I like playing cards; we could add that kind of fun activity to exercise the brain" (P5). One participant mentioned incentives: "I wouldn't mind small gifts or prizes" (P14).

Theme 5.4 Expectations of Peer Characteristics

Patients preferred peers who were cheerful, talkative, and easy to communicate with. One participant emphasised the importance of an outgoing partner: "I hope my chat partner is outgoing and talkative; if they are too introverted, we won't have much conversation" (P2). Another highlighted the need for a positive atmosphere: "Definitely someone cheerful—otherwise the atmosphere won't take off" (P12). Open-mindedness was also valued: "I hope peers are open-minded and easy to talk to" (P10).

Discussion

Using Maslow's hierarchy of needs as an analytical framework, this study examined the barriers to social participation among stroke patients, their hierarchical rehabilitation needs, and their willingness to participate in peer support. Interviews with 15 participants revealed that the extent to which patients' social participation was restricted was determined by complex interactions among physiological, psychological, environmental, and socioeconomic factors. Moreover, patients' needs were not static but evolved hierarchically—from basic physiological and safety needs to higher-level needs for belonging, self-esteem, cognition, aesthetics, and self-actualisation. These findings provide practical empirical evidence for designing stratified and individualized peer support programs for stroke survivors.

The Hierarchy and Dynamism of Social Participation Needs

The most important theoretical finding of this study is that patients' needs are not a simple list of demands but a hierarchically structured and dynamically evolving system that closely aligns with Maslow's hierarchy of needs. In the early or severe stages of rehabilitation, patients focus almost entirely on pain, sleep disturbance, fatigue, dysphagia, and fear of falling—all of which correspond to basic physiological and safety needs. Only after these needs are relatively satisfied do they begin to express demands for belonging, self-esteem, cognitive understanding, aesthetic enjoyment, and ultimately self-actualisation.

This hierarchical rehabilitation pathway is significant, but its implications are often overlooked in conventional stroke rehabilitation practice. Existing rehabilitation services usually focus on the recovery of physical function—including pharmacological treatment, mobility training, and fall prevention—which primarily corresponds to physiological and safety levels [6]. Although such measures are undoubtedly essential, our findings indicate that once patients' basic needs are met, they do not automatically reintegrate into social life; instead, they encounter a second wave of barriers at higher levels: feeling misunderstood by family members, worrying about social stigma, lacking knowledge about how to return to society, and grieving the loss of previously enjoyed activities. These higher-order needs are rarely assessed or valued in routine stroke care, leaving many patients trapped in a situation of "physical function recovered but social function not recovered."

In addition, the hierarchical nature of needs means that timing is crucial. For patients still troubled by pain or fear of falling, a rehabilitation program offering advanced self-actualisation activities (such as volunteering or peer mentoring) is likely to be rejected—not because patients do not value such activities,

but because their basic needs have not yet been met. Conversely, for patients in the long-term rehabilitation stage, a rehabilitation program that addresses only their basic needs will struggle to maintain their engagement, because such patients have moved upward in the hierarchy of needs and are now seeking meaning, connection, and purpose in life. This finding is consistent with previous studies that have applied Maslow's hierarchy of needs in stroke rehabilitation [24, 25], and it highlights the importance of continuous, dynamic needs assessment rather than a one-time assessment at discharge.

Furthermore, it is noteworthy that some needs expressed by patients in this study have rarely received attention in stroke care—for example, the desire to maintain a dignified appearance without using a walking aid, to enjoy music and old movies, or to teach their skills to others. These aesthetic and self-actualisation needs are not trivial luxuries; they are indispensable components of preserving a sense of dignity and identity and enhancing quality of life. The neglect of these needs in conventional rehabilitation practice reflects a broader tendency to reduce stroke survivors to "patients" rather than viewing them as whole individuals with aspirations beyond mere functional recovery.

The Role of Peer Support in Meeting Needs at Multiple Levels

Given that professional rehabilitation services largely fail to meet patients' higher-level needs, peer support emerges as a potentially highly effective supplementary approach [26]. Our findings show that 73% of participants were willing to participate in peer support activities; their willingness was closely related to the aforementioned unmet needs. Patients emphasised that other stroke survivors can truly understand the physiological and psychological states they experience—an empathy that cannot be fully replicated no matter how skilled professional healthcare providers are. Thus, peer support has a unique advantage in addressing the "belonging" and "self-esteem" levels in Maslow's hierarchy of needs—precisely the levels at which professional care often gradually diminishes after discharge.

Peer support can also help meet patients' cognitive and aesthetic needs. Participants indicated that they desired practical knowledge—such as how to manage medication, prevent recurrence, and return to daily life—and that such knowledge could be shared by peers in an accessible, experience-based manner. In addition, they wished to engage in enjoyable activities, such as singing, playing cards, or group exercise—activities that create opportunities for them to build social connections. These findings are consistent with previous research showing that peer support can enhance self-efficacy, reduce depressive symptoms, and improve quality of life among stroke survivors [27–29].

However, our findings also reveal important limitations and contradictions in the peer support system. Among participants unwilling to participate, 27% mentioned concerns that warrant attention: for example, fear of seeing others deteriorate, lack of energy, communication difficulties, and skepticism about the benefits of peer support. These concerns indicate that peer support is not universally accepted and should not be imposed; instead, participation should be voluntary, and other forms of social participation should be provided for those who decline. Moreover, the preference for professional

medical involvement expressed by many participants suggests that peer support is not viewed as a substitute for professional healthcare but ratherr as a complement to it. Therefore, it is necessary to develop a hybrid model in which trained peer supporters work collaboratively with nurses, physicians, and therapists, with clearly defined role boundaries and professional supervision.

The finding that patients prefer outgoing, talkative, and open-minded peers also merits attention. Individuals are more likely to be motivated by upward comparisons with similar others who are slightly better off than themselves, rather than by those who are worse off [30]. This finding has practical implications for peer selection and training—peer supporters should not only share similar experiences but also possess effective communication skills and a constructive mindset [31]. However, this preference also raises an ethical consideration: if only the most optimistic and articulate survivors serve as peer supporters, the diversity of the stroke patient population may not be adequately represented, and patients who identify with peers whose emotional states are less positive may feel excluded.

The Influence of Cultural and Contextual Factors on Social Participation

The barriers and needs identified in this study cannot be fully understood without considering China's cultural and socioeconomic context. Several culturally specific factors shaped patients' perceptions of restricted social participation and their responses to peer support. First, family obligations and filial piety played a complex role: on the one hand, family support from spouses and children was a key factor facilitating rehabilitation and social participation; on the other hand, many patients reported that caregiving responsibilities (such as caring for grandchildren or helping run a family business) limited their time for social activities. Some patients also expressed a strong desire not to become a burden to their families; although this desire motivated active rehabilitation, it also created psychological pressure. These findings are consistent with previous studies on Chinese family values and their influence on health behaviors [32, 33]. Second, stigma and concerns about saving face were evident in patients' reluctance to use a cane, participate in square dancing, or interact with people outside their social circles. This fear of discrimination or being perceived as "disabled" reflects broader social attitudes toward disability in Chinese society [34]. Peer support programs may help mitigate stigma by normalizing the stroke experience and providing a mutually accepting safe space for patients. Third, environmental and economic disparities were particularly prominent, especially for patients in rural areas. Poor transportation infrastructure, lack of accessibility facilities, and long distances to medical institutions together constitute an environment that can be described as a "participation desert." These structural barriers cannot be resolved through peer support alone; policy-level interventions are needed to enhance community rehabilitation capacity and reduce the economic burden on patients and their families. Finally, the preference for WeChat-based and blended learning models reflects the growing importance of digital technology in the lives of Chinese adults, including older adults. Although some participants actively used online resources and artificial intelligence tools, others—especially the oldest and least educated—still faced difficulties in digital literacy. When designing peer support programs, it is essential to fully consider this digital divide within the stroke patient population and to ensure that offline and low-tech support methods remain accessible.

Practical implications of the findings

This study has practical implications for nursing, programme design and policy. First, nurses and rehabilitation professionals should conduct dynamic, multi-level needs assessments guided by Maslow's hierarchy across patients' physical, social, psychological and self-actualisation needs. Reassessment is needed at key transition points, and a simple checklist can be integrated into routine stroke care. Second, stratified, flexible peer support should replace one-size-fits-all programmes to match patients' recovery priorities, with online, offline or hybrid delivery options. Third, peer support complements rather than replaces professional care. Nurses coordinate and supervise trained peer supporters, with clinicians managing complex physical and psychological concerns; hybrid care models are more effective. Fourth, community interventions should tackle environmental and economic barriers, improving accessible transport, public spaces and community rehabilitation services. Policies should expand rehabilitation insurance and reduce patients' out-of-pocket costs, especially for rural and low-income groups. Finally, peer support programmes require cultural adaptation for Chinese patients. Involving families as partners and trusted community organisations improves programme acceptability and sustainability.

Strengths and limitations

This study has several strengths. It is among the first to apply Maslow's hierarchy of needs theory to comprehensively explore stroke survivors' social participation needs and peer support preferences using qualitative methods, addressing an important research gap. A key strength lies in its exploratory design, which allowed themes to emerge inductively and ultimately aligned well with Maslow's model, reinforcing its relevance for understanding social participation behaviours in this population. Another strength is the inclusion of a diverse sample, comprising participants with varying ages, genders, stroke types, and disease durations. Data saturation was reached, and the involvement of multiple researchers in coding and member checking enhanced trustworthiness.

However, several limitations should be acknowledged. The study was conducted in a single tertiary hospital in one city in China, which may limit its transferability to other regions or healthcare systems. Most participants had ischemic stroke, and hemorrhagic patients were underrepresented. The sample was relatively small, although appropriate for qualitative research. Additionally, the study relied on self-report, and social desirability bias cannot be completely ruled out. Future studies should use targeted recruitment strategies to better engage less active and more socially isolated stroke survivors.

Conclusion

This qualitative study, grounded in Maslow's hierarchy of needs, has illuminated the complex, hierarchical, and dynamic nature of social participation needs in stroke survivors. Patients face multidimensional barriers—physical, psychological, environmental, and socioeconomic—that interact to restrict their social engagement. Their rehabilitation needs evolve from basic physiological and safety concerns to higher-level belonging, esteem, cognitive, aesthetic, and self-actualisation pursuits. Peer

support is broadly acceptable but requires individualisation in format, content, and peer matching, with professional oversight to ensure safety and efficacy.

To foster meaningful social participation and comprehensive recovery, healthcare systems must adopt a holistic, patient-centred, and stratified approach. Nurses and rehabilitation professionals should assess needs at every level, collaborate with families and communities, and integrate peer support into routine care pathways. Policy reforms are needed to address financial and geographical inequities and to build supportive community environments. By attending to the full spectrum of human needs, we can help stroke survivors not only to live longer but to live better—as active, valued members of their communities.

Abbreviations

NIHSS
National Institutes of Health Stroke Scale
CT
Computed Tomography
MRI
Magnetic Resonance Imaging

Declarations

Acknowledgements

We would like to thank all the participants for their time and contribution in sharing their social participation experiences. Special thanks to the support of the nursing staff in the Department of Neurology of Xiangnan University Affiliated Hospital for assisting with recruitment.

Authors' contributions

All authors made substantial contributions to the development of the study protocol. WWL leads the project and holds primary responsibility for overall study management, including recruitment, data collection, and analysis. WJC, WHY, SMG, XCP, JH, and WCL provided assistance with investigation and data collection. SC provided supervisory oversight throughout the study. All authors contributed to the critical review of the manuscript and approved the final version for submission.

CRediT authorship contribution statement

Weiwei Leng: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing – original draft, Visualization.

Wenjing Cao: Validation, Formal analysis, Investigation, Writing-review & editing.

Wenhui Yang: Investigation, Data curation.

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Funding

This work is supported by the Natural Science Foundation of Hunan Province (Grant No. 2025JJ60659).

Data availability

The data that support the findings of this study are available upon reasonable request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions. Examples in the form of quotations from the generated and analysed data during this study are included in this published article.

Ethics approval and consent to participate

This study was reviewed and approved by the Ethics Committee of Xiangnan University Affiliated Hospital (Approval No. K2025-034-01). This study was conducted in accordance with the Declaration of Helsinki. All participants received written and verbal information regarding the study. Informed consent was obtained from all participants prior to data collection. Participant anonymity was maintained throughout the study.

Consent for publication

Not applicable.

Clinical trial number

Not applicable.

Competing interests

The authors declare no competing interests.

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