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A Qualitative Study on Preferences and Needs of Post-Stroke Fatigue Patients Following Holographic Copper Scraping Therapy on the Scalp

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Abstract: *This study aims to investigate the subjective experiences, preferences, and needs of patients with post-stroke fatigue who undergo holographic copper scraping therapy on the scalp. Semi-structured interviews were conducted with 15 patients with post-stroke fatigue, and the raw interview content was recorded. The collected data were analyzed and organized using Braun & Clarke's thematic analysis method to identify and describe key themes. Four main themes were identified: patients' overall perception and acceptance of the scraping therapy; their specific experiences during the intervention; perceived physical and psychological changes resulting from the treatment; and patient suggestions for optimizing the intervention protocol. Holographic copper scraping therapy on the scalp can help mitigate physical symptoms, improve emotional state and sleep quality, and enhance rehabilitation confidence and daily activity capacity in patients with post-stroke fatigue, demonstrating good overall acceptability. Future interventions should prioritize personalized patient experiences, optimize the treatment environment and procedural details, and strengthen continued family support to improve overall intervention effectiveness and nursing quality.*

Keywords: *Post-stroke fatigue; Scalp scraping therapy; Holographic therapy; Copper scraping therapy; Needs; Qualitative research*

1. Introduction

Stroke, known in Traditional Chinese Medicine (TCM) as "wind stroke," represents the leading cause of mortality and disability among adults in China[1]. Globally, approximately 17 million new stroke cases are reported annually, with about 6 million deaths, making it the second leading cause of death worldwide after heart disease[2-3]. Stroke not only results in physical dysfunction[4] but is also commonly accompanied by symptoms such as post-stroke depression, sleep disorders, and fatigue[5]. Among these, post-stroke fatigue (PSF) is often overlooked due to its nonspecific clinical presentation and has now been incorporated as a routine assessment and management item in international clinical guidelines[6-7]. PSF is a multidimensional experience involving motor perception, emotion, and cognition[8], characterized by persistent pathological fatigue that is not easily relieved by rest[9-10]. The global prevalence of PSF is 46.8%, while in China it is 43.5%[11-12]. The exact pathogenesis of PSF remains unclear, and current treatments are mainly categorized into pharmacological and non-pharmacological approaches. Non-pharmacological interventions—such as fatigue management education, psychological counseling, and exercise therapy—have demonstrated certain efficacy[13], though further evidence is needed to substantiate their effects. Pharmacological treatments often involve antidepressants[14]; however, their therapeutic outcomes remain controversial. Therefore, non-pharmacological interventions are currently recommended as the primary management strategy[15].

TCM emphasizes a holistic concept and treatment based on syndrome differentiation, offering distinctive advantages in the management of PSF. Gua sha, as a characteristic TCM nursing technique, comprises two main branches: traditional meridian Gua sha and holographic Gua sha. The latter is founded on the biological holographic theory proposed by Professor Zhang Yingqing, which posits that local regions of the body reflect the integrity of the whole organism[16-17]. Professor Zhang Xiuqin[18] further developed this concept and established the "holographic meridian Gua sha" method, which achieves systemic regulation by scraping specific acupoint zones. The head is regarded as a fully

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developed holographic unit capable of regulating the flow of Yang Qi throughout the body. Therefore, this study selected the head as the intervention site, embodying the TCM holistic principle that local treatment can influence the entire body.The Tiger-Design Copper Gua Sha Therapy, developed by Mr. Li Daozheng, integrates the essence of Qigong massage, acupressure, and traditional Gua sha, proposing "promoting free flow as the core therapeutic principle." The brass tool used in this therapy exhibits favorable thermal conductivity and resonance properties, which are believed to enhance the penetration of Qi, promote the resolution of stasis, and facilitate the circulation of Qi to deeper regions of the body[19-20]. To investigate the interventional effects of this therapy on PSF, this study adopted a qualitative research approach, using holographic head copper Gua sha to explore patients' subjective experiences and needs in depth. The study is reported as follows.

2. Objects and Methods

2.1 Research Objects

Using purposive sampling, 15 patients with PSF who received holographic head copper Gua sha therapy were selected for semi-structured interviews. These patients met the study criteria and were hospitalized in the Acupuncture and Moxibustion Ward or Encephalopathy Ward of a Grade A Tertiary hospital in the city between April 2025 and July 2025.Inclusion criteria were as follows:①age ≥ 18 years;②diagnosed with PSF and receiving holographic head copper Gua sha therapy;③conscious and alert;④in stable medical condition;⑤voluntary participation in the study. Exclusion criteria included: ①diagnosis of severe mental illness;②presence of significant cognitive impairment, such as markedly declined memory, orientation, or thinking ability;③inability to communicate verbally. The general clinical characteristics of the 15 patients are presented in Table 1.

Table 1. General Clinical Characteristics of the Interviewees

ID	Gender	Age	Employment Status	Recurrence	Comorbidities	Smoking	Alcohol Drinking	Stroke Duration
P1	Female	44	Employed	Yes	Yes	No	No	1-3months
P2	Male	38	Employed	No	No	Yes	No	<1 month
P3	Male	55	Employed	No	Yes	Yes	No	<1 month
P4	Female	56	Retired	Yes	Yes	No	No	>3 months
P5	Female	68	Retired	No	Yes	No	No	1-3months
P6	Male	56	Employed	Yes	Yes	No	No	>3 months
P7	Male	68	Retired	No	Yes	No	No	>3 months
P8	Male	41	Employed	Yes	Yes	No	No	>3 months
P9	Female	50	Employed	No	Yes	No	No	<1 month
P10	Female	42	Employed	Yes	Yes	Yes	Yes	>3 months
P11	Male	63	Retired	No	Yes	Yes	No	<1 month
P12	Male	67	Retired	No	Yes	No	No	<1 month
P13	Male	61	Retired	Yes	Yes	Yes	Yes	>3 months
P14	Male	56	Employed	No	Yes	No	No	1-3 months
P15	Female	52	Employed	No	No	No	No	<1 month

2.2 Methods

2.2.1 General Information and Interview Outline

Data on patients' demographic characteristics and clinical disease profiles were collected[21].① Demographic characteristics included age, gender, and employment status. ②Clinical disease information covered stroke recurrence, presence of comorbidities, and duration of stroke. In this study, individual semi-structured interviews with open-ended questions were conducted to understand the subjective experiences, willingness, and needs of PSF patients undergoing holographic head copper Gua sha therapy. A semi-structured interview guide was designed based on the research objectives, which included the following questions: "What was your overall experience during the treatment (e.g., comfort level, cooperation, adaptability to the environment)? Were there any parts that felt uncomfortable or difficult to comply with?" "Which aspects of the treatment process do you think could be adjusted (e.g., session length, manipulation techniques)?""What changes have you noticed in your fatigue levels after the treatment (e.g., duration of effects, expected outcomes)?""In your opinion, what factors during the treatment might influence its effectiveness?" "If you were to suggest

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improvements, what aspects of the treatment process do you feel need to be enhanced?" "After the treatment, have there been any changes in your mood, ability to perform daily activities, or confidence in recovery? Please provide examples."

2.2.2 Data Collection Methods

Interviews in this study were conducted face-to-face. Open-ended questions were primarily used during the interviews, and techniques such as paraphrasing, reflecting, clarifying, summarizing, and probing were employed to ensure the accuracy of the information collected. Each interview lasted approximately 20 minutes. Prior to the interview, patients were informed of the purpose of the study and assured of the confidentiality of their responses. The operator performed both the Gua sha procedure and the one-on-one interview. An additional researcher was responsible for audio recording and documenting the patients' subjective feedback. After each interview, gratitude was expressed to the participant. These two researchers jointly established a file for each interviewee. The audio recordings were transcribed verbatim and subsequently verified. The interview data were analyzed iteratively as data collection proceeded. Interviews were concluded when sufficient information had been obtained and no new themes emerged—indicating that data saturation had been achieved.

2.2.3 Data Analysis

Within 24 hours after each interview, the audio recordings were transcribed verbatim, including notations of participants' expressions, pauses, and filler words. The transcripts were repeatedly checked against the recordings to ensure accuracy. The textual data were then imported into NVivo 12 software for organization, storage, categorization, and sequencing. Demographic and clinical information of the participants was entered into an Excel spreadsheet. Two researchers independently analyzed the data following the thematic analysis approach outlined by Braun & Clarke[22], which consisted of the following six steps:①Familiarization with the data: Repeated reading of the raw transcripts to gain in-depth familiarity. ②Generating initial codes: Systematically identifying meaningful features across the data set to develop initial codes. ③Searching for themes: Collating relevant codes into potential themes. ④Reviewing themes: Refining and reviewing candidate themes to ensure they are well-supported by the data, and constructing a thematic map. ⑤Defining and naming themes: Capturing the essence of each theme and assigning clear, concise names. ⑥Producing the report: Compiling a scholarly report that includes vivid and compelling extract examples to illustrate the prevalence and nature of each theme. This involves detailed descriptions of the themes, analytical commentary, and a coherent, logical presentation of data within and across themes.

3. Results

3.1 Theme 1: Overall Experience and Acceptability

3.1.1 Initial Attitudes and Perceptions

(1) Curiosity and Novelty

P2: "Overall, it felt quite novel. Honestly, I had never experienced scraping therapy before, let alone on the head."P3: "Initially, I was hesitant when I learned it would be performed on the scalp, as my prior experience was only on the back. However, as you explained the procedure, it sounded increasingly intriguing. I became very curious about the sensation and was eager to try it myself."

(2) Worry and Apprehension

P1: "I was somewhat apprehensive about having my head scraped with that golden tool of yours (the Tiger-Design Copper Scraping Tool). After all, it's the scalp, which is very sensitive."P2: "Initially, I was quite concerned. The scalp is so thin—would the scraping cause any abrasions?"

3.1.2 Acceptance and Adaptation Process

(1) Gradual Alleviation of Initial Discomfort

P3: "Well, during the first few sessions when I was sitting for the treatment, my neck felt a bit sore because I had to sit very upright. Later, when you suggested making slight postural adjustments, it became much more comfortable for me."P5: "That copper scraping tool felt cool, and it was somewhat stimulating when it touched my head, but I adapted after a few strokes. Specifically, during the scalp scraping, I experienced a distending sensation, but I felt particularly relaxed afterward."

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(2) Professional Competence Fosters Trust

P2: "However, the actual procedure was quite gentle. Your technique was very professional, with no use of excessive force."P11: "The technique is meticulous! Starting from the Baihui (GV20) acupoint, you scraped methodically along defined pathways, zone by zone. My spouse has tried this at home, and it was painful. But your approach, beginning lightly and gradually increasing pressure, allowed me to adapt comfortably."

3.2 Theme 2: Specific Experiences during the Intervention

3.2.1 Gua sha Sensations

(1) Sensations of Warmth, Patency, and Mental “Clarity”

P1: "During the scraping, I felt a warming sensation and was very relaxed. The first time, there was a slight tingling at the temples, but it subsided after I adapted."P4: "The warming sensation from the scraping, especially after areas like Baihui (GV20) and the forehead were treated, made my whole body feel as if it had been cleared, leaving me somewhat light and relaxed."

(2) Localized Sensitivity or Discomfort

P9: "When you scraped this part of my scalp (the posterior one-third of the vertex region), it felt particularly sensitive, almost like an electric current passing through. Once, it was so intense I nearly cried out."P12: "The copper scraper felt quite chilly. When the practitioner first placed it on my head, my whole body tensed up. My scalp is somewhat sensitive, but as the doctor gradually increased the pressure, it became much more comfortable. However, scraping this specific area (the middle forehead region) caused some pain, possibly due to localized qi and blood stagnation there."

(3) Enhanced Physical Relaxation and Mental Clarity as Sessions Progressed

P6: "After the first few sessions, my sleep improved noticeably. I used to wake up in the middle of the night and struggled to fall back asleep, but now I wake at most once and can return to sleep easily. The frequency of daytime dizziness has also decreased. Especially after these areas (pointing to the temples and the anterior temporal regions) were scraped, my whole head felt noticeably lighter."

3.2.2 Facility and Environment Experience

External Disturbances Affecting Therapeutic Immersion

P1: "Once, the ward was too noisy with the family member of the next-bed patient constantly on a phone call, and I was genuinely disturbed that time."P2: "The environment is crucial. One day in the room we used before, a dressing change was ongoing, with family members walking back and forth, which honestly hindered my relaxation. Later, when we switched to the demonstration room, the environment was much better. Putting on the headphones allowed me to become fully immersed."

3.3 Theme 3: Perceived Changes and Effects of the Treatment

3.3.1 Improvements at the Physical Level

(1) Reduction in Fatigue

P1: "I do think it was effective. Particularly during the second treatment course, I felt noticeably less drowsy in the afternoons. I used to feel completely drained by 4 or 5 p.m. every day, but now I feel I can still sit up and read or have a video call with my family."

(2) Clearer Mind and Improved Sleep

P6: "My sleep became much more soundly. I used to wake frequently, but now I can sleep through the night. I also feel less lethargic during the day."P12: "Specifically, my dizziness has somewhat lessened. I can now sit up and read the newspaper during the daytime. A few days ago, I couldn't even bring myself to look at it as my head felt heavy and distended."

(3) Enhanced Mobility

P7: "Now I can actively sit up to watch TV, practice finger exercises, and move my shoulders. When I video-called my grandson, I told him that Grandpa's mind feels a bit clearer now."P12: "That day, I managed to wash my feet by myself. My wife even praised me, saying, 'You're doing great!' It instantly lifted my spirits. Honestly, what we fear most is feeling useless. This treatment made me feel

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that I am still recovering, and that means more than anything."

3.3.2 Emotional and Psychological Changes

(1) Stabilized Mood and Reduced Anxiety

P1: "My mood has indeed stabilized a lot. I used to feel anxious about my slow recovery. But now I feel more hopeful. I remember telling my husband last weekend that I feel I'm recovering better from this stroke than the previous one."P2: "My mood has improved significantly. Having a stroke at just 38 was a big blow this past month; it completely disrupted my previous life rhythm. However, after the hospital intervention, I've gradually regained a sense of control. My emotions are more stable, and I can sleep at night. I used to wake up anxious in the middle of the night, but now, often while listening to music, I practice breathing regulation, which has been genuinely helpful."

(2) Renewed Hope and Reduced Feelings of Worthlessness

P2: "I can now wash my face and brush my teeth by myself, whereas just a few days ago, I needed family assistance. My mindset has also shifted. I used to feel somewhat negative, thinking I was useless. Now, after each daily session, I even walk along the ward corridor, at least telling myself that I am making progress."P12: "I just retired and was looking forward to traveling, but then I fell ill. Sometimes I really wondered if life was playing a joke on me. However, after several treatment sessions over this period, I've become less impatient and feel that gradual recovery is something I can accept."

3.4 Theme 4: Patient Suggestions and Directions for Protocol Optimization

3.4.1 Treatment Arrangement

Family Member Training in Gua Sha and Instructional Video Provision

P8: "I hope the approach could be more technologically integrated. For instance, providing a mobile app with instructional videos for the scraping procedure. Otherwise, younger patients like myself may not always be able to attend hospital sessions regularly."P13: "Could we have a demonstration video for the scraping techniques? My spouse would like to learn but worries about improper application, particularly regarding pressure control. With video guidance, I believe she could perform even more gently than the nurses."P15: "If home-based guidance for head scraping were available, I could have my daughter learn to assist me. She has become much more attentive since my illness began."

3.4.2 Procedural and Experiential Refinements

(1) Personalization of Scraping Areas and Rhythm

P2: "Additionally, the rhythm of scraping needs to be well-controlled—it should be neither too fast nor involve back-and-forth motions. I recall once when the scraping over the top of my head was slightly repetitive, it caused some discomfort."P5: "I sometimes felt pain around my temples, especially during the initial sessions. I'm unsure whether it was due to scalp sensitivity or other factors."

(2) Prior Explanation of Acupoints and Procedures to Reduce Apprehension

P1: "Regarding the scraping therapy, it would be helpful if patients could be informed about which acupoints will be included in each session, allowing for mental preparation."P2: "However, you could provide brief explanations to reassure patients. Otherwise, they might assume it is merely a simple scalp procedure."

4. Discussion

4.1 Changes in Patient Acceptance and Psychological Adaptation

In this study, patients commonly exhibited skepticism, distrust, and even anxiety during the initial phase. They questioned the scientific basis of the intervention, specifically "cranial holographic copper tool scraping," with some expressing concerns about potential discomfort or risks. However, as the treatment sessions progressed, they gradually developed trust in the therapy and began to demonstrate a sense of anticipation. This observation indicates that stroke patients often present with psychological defenses when introduced to innovative rehabilitation measures, requiring a transitional period from hesitation to trust. Throughout this process, the explanations, reassurance, and professional competence

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of the nursing staff played a crucial role in fostering this trust. Therefore, for broader clinical implementation, intervention protocols should not only focus on the scientific rigor of the procedure itself but also emphasize patient education and communication. Ensuring patients have a thorough understanding of the treatment's principles, process, and potential outcomes is essential.

4.2 Intervention Effects on Fatigue and Psychological Status

PSF is a common symptom that adversely affects rehabilitation compliance and quality of life. Its reported prevalence is notably high in previous studies, and effective pharmacological treatments are currently lacking, making the exploration of non-pharmacological interventions particularly important. In this study, patients generally reported improvements such as "increased daytime alertness and reduced drowsiness" after a period of intervention. Some even regained the ability to engage in daily activities like reading, conversing, and light physical exercise. These reports suggest that the intervention may hold value in alleviating PSF. Regarding psychological status, patients demonstrated reduced anxiety, stabilized mood, and an enhanced sense of hope towards recovery. Some patients transitioned from passive acceptance to actively cooperating with their rehabilitation regimen. These findings suggest that the combined intervention used in this study may not only effectively relieve fatigue on a physiological level but also promote positive adaptation on psychosocial levels. This is significant for post-stroke recovery, as psychological state and physical functional recovery are often interactive and mutually reinforcing.

4.3 Patient Feedback and Implications for Intervention Optimization

During the interviews, patients provided substantial suggestions for improvement, including greater flexibility in scheduling intervention times, guidance for continuation at home, and enhanced education about the procedure. These suggestions indicate that they were not merely passive recipients of the therapy but also desired to become active participants in refining the program. In recent years, nursing science has increasingly emphasized the patient-centered care model, with patient engagement recognized as a vital component for optimizing interventions[23].Therefore, the intervention protocol can be further refined in the following aspects:

4.3.1 Optimization of the Treatment Environment

To ensure intervention effectiveness, efforts should be made to select a sparsely populated, quiet, and softly lit room or a dedicated treatment space. This helps minimize external distractions and facilitates patient relaxation. When the procedure is conducted in a ward, placing a sign such as "Intervention in Progress, Please Do Not Disturb" or "Quiet, Please" at the door can remind others to reduce movement and keep their voices down, thereby safeguarding the continuity and focus of the treatment session. If the ward environment is noisy or has high foot traffic, it is advisable to relocate the intervention to a more secluded space, such as a TCM demonstration room or rehabilitation therapy room, offering patients better privacy and a more immersive experience. Concurrently, the use of headphones should be incorporated to further block ambient noise, creating a tranquil and comfortable atmosphere for the patient.

4.3.2 Adaptive Adjustment of Scraping Pressure

The scraping process must fully consider individual patient differences and sensitivity to stimulation. For areas where patients are more sensitive or have poorer tolerance, the scraping pressure should be appropriately reduced. Employing gentler, more moderate techniques, or suitably shortening the duration of a single session can help patients gradually adapt to the treatment process. Furthermore, before operating, nursing staff should provide clear reminders, informing patients that they can provide feedback on their sensations and any discomfort at any time during the treatment, allowing for prompt adjustments.

4.3.3 Preparation and Communication Prior to Head Scraping

Prior to performing the head scraping intervention, nursing staff should provide patients with comprehensive explanations and communication. This includes detailing the specific areas to be treated, the anticipated duration of the procedure, and its potential therapeutic effects and functions, thereby helping patients form a clear understanding of the treatment process. Before commencing each operational step, the practitioner should inform the patient about the upcoming actions to alleviate anxiety and unease associated with the unknown. Considering the inherent coolness of the copper scraping tool, the operator should warm the instrument by rubbing it thoroughly with both hands before

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scraping to generate some warmth, thereby reducing the initial discomfort upon patient contact. Simultaneously, patients should be advised in advance that the tool may feel cool upon skin contact, guiding them to prepare mentally and avoid potential adverse reactions resulting from sudden stimulation.

4.3.4 Continuation of Care and Family Support Post-Intervention

After the formal intervention course is completed, for patients requiring ongoing rehabilitation or further treatment, nursing staff can create standardized instructional videos demonstrating the procedure or provide face-to-face training for family members. This training should include detailed demonstrations of key steps and important considerations.

5. Conclusion

This study administered holographic copper scraping therapy to the scalp region in 15 patients and analyzed their subjective experiences through interviews. Results indicated that the intervention alleviated head discomfort, promoted physical and mental relaxation, and improved emotional states in some patients. Positive patient feedback reflects good acceptability and application potential. Future interventions should incorporate patient experiences to provide more targeted treatment and psychological support, thereby enhancing overall care quality.

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