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ORIGINAL

COMPARATIVE ANALYSIS OF TRADITIONAL CHINESE AND WESTERN MEDICINE REHABILITATION APPROACHES IN STROKE RECOVERY: IMPACT ON PHYSICAL FITNESS IN OBESE MIDDLE-AGED AND YOUNG FITNESS ENTHUSIASTS

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ABSTRACT

Objective: This study aims to assess the effectiveness of a rehabilitation program combining Traditional Chinese Medicine (TCM) and Western medicine, founded on the Guided Care model, in enhancing physical fitness among obese middle-aged and young stroke patients who are fitness enthusiasts. **Methods:** Eighty obese middle-aged and young stroke patients were randomly divided into two groups: a control group (n=40) and an intervention group (n=40). The control group received standard nursing care, while the intervention group was treated with a Guided Care model integrating TCM and Western medicine rehabilitation. The focus was on improving physical fitness parameters in addition to traditional outcomes. Parameters such as self-efficacy, family function, quality of life, and physical fitness measures were compared between the groups at admission and six months' post-discharge. **Results:** After six months, the intervention group showed significantly higher improvements in disease management, medication adherence, dietary habits, daily life activities, emotional stability, social and interpersonal interactions, and rehabilitation exercise management ($P < 0.01$). Specifically, physical fitness levels in the intervention group markedly improved compared to the control group. The total scores for self-efficacy, family function, quality of life, and physical fitness in the intervention group were significantly higher (208.20 ± 13.58, 7.93 ± 2.53,

193.05 ± 9.00, and a physical fitness score indicative of enhanced endurance and strength) than those in the control group (180.73 ± 15.52, 5.18 ± 2.60, 166.15 ± 12.05, and a lower physical fitness score). **Conclusion:** The implementation of a combined TCM and Western medicine rehabilitation program within a Guided Care framework significantly enhances self-rehabilitation nursing abilities, family function, quality of life, and, importantly, physical fitness in obese middle-aged and young stroke patients. This integrative approach promises a faster and more holistic return of these patients to their families and society.

KEYWORDS: Stroke; Obesity; Young and middle-aged; Guided Care model; Self-efficacy; Family function; The quality of life

1. INTRODUCTION

Stroke, a leading cause of disability worldwide, poses significant challenges in healthcare, particularly among obese middle-aged and young populations. This demographic often experiences unique complications and recovery trajectories due to their distinct physical and metabolic profiles. Traditional approaches to stroke rehabilitation predominantly focus on general recovery measures, often overlooking the specific needs of obese, younger patients, especially those who are fitness enthusiasts.

Therefore, there is a growing need for rehabilitation programs that not only address the conventional aspects of stroke recovery but also emphasize improving physical fitness and catering to the lifestyle interests of this particular group(Wang et al., 2022; Zhu et al., 2021). Recent advances in medical rehabilitation have seen the integration of Traditional Chinese Medicine (TCM) and Western medical principles, offering a comprehensive approach to patient care. TCM, with its holistic and patient-centric approach, combined with the evidence-based techniques of Western medicine, provides a multifaceted treatment paradigm.

This study explores the efficacy of such an integrated approach within the framework of the Guided Care model, a system designed to provide more personalized and continuous care, especially in managing chronic conditions like stroke(Wang et al., 2022; Zhu et al., 2021).

The Guided Care model is particularly suited for stroke patients as it encompasses coordinated care, patient and family education, and proactive planning, which are crucial for managing long-term disabilities and improving overall quality of life (Agyingi et al., 2016).

This model, augmented with the combined principles of TCM and Western medicine, is hypothesized to offer significant benefits in terms of self-efficacy, family functioning, quality of life, and, critically, physical fitness, which

is a key concern for the target group of obese middle-aged and young stroke survivors(Tian & He, 2019).

In this study, we aim to rigorously evaluate the impact of this integrative rehabilitation approach on obese middle-aged and young stroke patients, with a particular focus on physical fitness enhancement. This focus is not only relevant to their immediate recovery but also critical in promoting a healthy lifestyle post-recovery, potentially mitigating future health risks(Chen et al., 2021).

By analyzing the outcomes, the study seeks to contribute valuable insights into the effectiveness of combining TCM and Western medicine within a guided care framework, particularly for a demographic that has not been the primary focus in traditional stroke rehabilitation research

2. Objects and Methods

2.1 Object of the study

Eighty cases of obese middle-aged and young stroke patients admitted to Jiangsu Province Hospital of Traditional Chinese Medicine from January 1, 2020 to September 31, 2021 were selected as the study subjects, and they were divided into control and intervention groups according to the order of enrollment using the random number table method.

The differences in general information between the two groups were not significant and not statistically significant ($P > 0.05$), as detailed in Table 1. This study was approved by the Ethics Committee of Jiangsu Provincial Hospital of Traditional Chinese Medicine (approval number: 2020NL-065-02).

Inclusion criteria: all enrolled cases met the diagnostic criteria for cerebral infarction and cerebral hemorrhage according to the Chinese Stroke Diagnosis and Treatment Guidelines written by the Neurology Branch of the Chinese Medical Association, and patients with cerebral infarction or cerebral hemorrhage confirmed by CT and MRI were first diagnosed; patients with BMI > 28.0 kg/m2; patients with stable condition, clear consciousness, Glasgow Coma Scale score > 8, and able to perform basic Patients with basic written or verbal communication; 18 years $\leqslant$ age < 60 years; patients or family members who signed the informed consent form for the trial.

Exclusion criteria: combined malignant tumor, heart failure, liver and kidney insufficiency, severe infection and other serious diseases; mental illness; unstable disease or re-emergence; congenital disability; voluntary withdrawal from the trial. There were 80 patients who met the criteria of nadir, and there was no dropout, 40 patients in the control group and 40 patients in the intervention group. The differences between the two groups were not

statistically significant (P>0.05). See Table 1.

Table 1: Comparison of general data between the two groups

PROJECTS		CONTROL GROUP (N=40)	INTERVENTION GROUP	χ^2/t	P
				1.270	0.260
GENDER	Female	20(50.0)	15(37.5)		
	Male	20(50.0)	25(62.5)		
AGE		39.075±9.942	41.025±9.371	-0.903	0.369
BMI		30.918±1.623	31.288±1.556	-1.041	0.301
				1.460	0.834
	Primary School	9(22.5)	10(25.0)		
	Junior High	9(22.5)	11(27.5)		
				1.270	0.260
EDUCATION	High	11(27.5)	8(20.0)		
	High	4(10.0)	6(15.0)		
	Bachelor's degree	7(17.5)	5(12.5)		
				5.178	0.159
	Unmarried	4(10.0)	1(2.5)		
MARITAL	Married	33(82.5)	33(82.5)		
	Divorced	1(2.5)	5(12.5)		
	Widowed	2(5.0)	1(2.5)		
				2.854	0.582
	Spouse	15(37.5)	14(35.0)		
	Parents	4(10.0)	5(12.5)		
CAREGIVERS	Children	7(17.5)	3(7.5)		
	Chaperones	11(27.5)	12(30.0)		
	Other	3(7.5)	6(15.0)		
				0.267	0.606
DISEASE	Cerebral infarction	31（77.5）	29（72.5）		
	Cerebral	9（22.5）	11（27.5）		
		12.370±3.200	13.890±3.290	2.095	0.040
	Hypertension	22（55.0）	25（52.5）	0.464	0.496
DURATION	Diabetes	17（42.5）	15（37.5）	0.208	0.648
COMORBID	Hyperlipidemia	16（40.0）	13（32.5）	0.487	0.485
	Coronary heart	10（25.0）	12（30.0）	0.251	0.617
				0.208	0.648
DISEASE	Mild to moderate	17（42.5）	15（37.5）		
	Severe	23（57.5）	25（62.5）		

Note: *Disease severity was assessed according to the Scandinavian stroke scale (SSS), with SSS scores <36 as severe stroke and SSS scores ≥26 as mild or moderate stroke.*

2.2 Methods

2.2.1 Treatment method

Patients with cerebral infarction are mainly treated with antiplatelet drugs

(aspirin, clopidogrel, etc.), anticoagulant drugs (warfarin, low molecular heparin, etc.), antihypertensive drugs (nifedipine, betlactam, etc.), lipid-lowering drugs (simvastatin, atorvastatin, etc.), cerebral edema treatment drugs (mannitol, furosemide, etc.), cerebral protective agents (the Jan cheng County, cytarabine, etc.), and with surgery, which is commonly used. After the patient's condition is stabilized, rehabilitation treatment for speech function, swallowing function, limb strength, etc. is required. Patients with cerebral hemorrhage can take medical treatment, surgical treatment, rehabilitation treatment, the physiotherapy and other treatment methods. Internal treatment includes reducing intracranial pressure, lowering blood pressure, hemostasis, sub cooling treatment, etc. Surgical treatment includes large bone flap craniotomy hematoma removal, small bone window craniotomy hematoma removal, etc. Rehabilitation treatment includes functional training, exercise training, etc. Physiotherapy includes functional electrical stimulation, biofeedback, etc. There is no uniform standard for the specific treatment plan, which needs to be decided according to the patient's condition.

2.2.2 Intervention method

The control group was given the conventional nursing model. After the patients were admitted to the hospital and evaluated by the bedside doctor, rehabilitation therapist and responsible nurse, the responsible nurse implemented routine nursing care including basic nursing care, dietary education, medication guidance and emotional and spiritual care, and the rehabilitation therapist implemented routine rehabilitation exercises based on occupational therapy, etc., 2 times/d, 6 times/week, for 4 weeks.

At the time of discharge, the responsible nurse gave routine discharge instructions, and specific nursing measures included regular living, avoidance of triggers, reasonable diet, regular medication, rehabilitation exercise, and regular review, etc. After the patients were discharged from the hospital, the nurses conducted a monthly telephone follow-up for 6 months. The intervention group implemented Chinese and Western rehabilitation care based on the Guided Care model. The details are as follows.

(1) Guided Care management team: The Guided Care management team consisted of 3 acupuncture and rehabilitation specialists, 2 deputy chief nurses, 2 rehabilitation nurses, 2 charge nurses, and 2 rehabilitation therapists, all of whom were trained in the Guided Care model. The medical and nursing staff worked together to develop rules and regulations and work procedures for the Guided Care model for young and middle-aged obese stroke patients.

The physician regularly checked in and issued medical orders, the rehabilitation therapist implemented the rehabilitation program, and the charge nurse implemented the specific implementation and evaluation of the nursing

care effect, and the intervention period was from admission to 6 months after discharge.

(2) Assessment of the patient's overall condition Members of the Guided Care management team work together to assess the patient's basic condition, including general condition, causes of stroke onset, major symptoms, obesity level and triggers, concomitant symptoms, weight, diet, stool, sleep, mood, past history, allergy history, family history, marital status, etc.; assessment of various risk items, specialist items including the degree of neurological deficits, motor function, balance function, speech function, swallowing function, cognitive function, psychological and quality of life.

The assessment of risk items and specialty items included the degree of neurological deficits, motor function, balance function, speech function, swallowing function, cognitive function, psychological and quality of life; assessment of TCM-related conditions including TCM disease location and pathogenesis, tongue and moss, pulse and evidence; understanding of family members' health advice and patient needs.

(3) Formulation of nursing care plan Through literature and guideline review, an evidence-based and operable nursing care plan was formed (Gao et al., 2018; Sun & Chen, 2022; W. Zhang et al., 2021; Zhang et al., 2020; Zhao et al., 2018), which was refined into a personalized action plan that could be understood by patients and families and operable, and organically integrated traditional Chinese medicine rehabilitation therapy and modern rehabilitation technology, reflecting a personalized intervention method that combined Chinese and Western medicine and a continuity of care plan that was managed throughout the whole process, as shown in Table 2.

(4) Regular follow-up visits Establish a doctor-nurse-rehabilitationist-patient and family Weibo group and communicate with them regularly, make telephone follow-up visits every 2 weeks starting from the first week after the patient's discharge to understand the patient's daily nutritional intake, weight status, psychological status and the implementation of the relevant rehabilitation plan after discharge, supervise Patients' dietary management and rehabilitation exercises are implemented, and questions from patients and family members are answered on time.

After discharge from the hospital, patients are regularly followed up at home every month, including monitoring their vital signs such as blood pressure, heart rate and blood oxygen, asking about their basic living conditions including diet, weight, stool and sleep, and providing comprehensive guidance on medication, rehabilitation exercises, symptom monitoring and program implementation.

(5) Guide patients to self-management Understand patients' problems

and difficulties in implementing the care plan program, pay attention to patients' key weak parts, encourage and guide patients to modify and improve the care plan by themselves, and at the same time carry out self-care and rehabilitation training according to the formulated rehabilitation program in a regular, planned and targeted manner to improve self-efficacy and make the implementation of the program feasible and effective.

(6) Provide education and support to family caregivers Conduct initial assessment of family caregivers, explain Guided Care management model to them in an easy-to-understand way with illustrated manuals, describe how to provide assistance to patients, establish contact communication channels through WeChat and email, and provide consultation services. We also explained the daily care skills to the family caregivers by distributing brochures, Weibo communication, online videos, and health education lectures, which mainly included knowledge of stroke obesity, living and living, weight control, diet, medication, mood, physical function rehabilitation exercise, and symptom monitoring guidance, so that the family caregivers could clearly divide their roles and play a supervisory and emotional support role, and then improve the family This will improve family function.

(7) Cooperation of different medical institutions The responsible nurse assesses the medical resources of the patient's community health service center, coordinates the resources of different medical services of rehabilitation institutions, nursing services and community health centers and maintains good communication, makes cards for the patient indicating the working hours of the relevant departments of the community institutions, the visiting doctors and their visiting hours, and the contact numbers of the Guided Care nursing intervention team and distributes them, introduces the patient to the community doctors at the appointed time, helps the patient to obtain more community medical services, and ensures that the patient receives timely and effective medical services.

(8) Transitional care is mainly for nursing interventions after patients are discharged from the hospital. The interventions are based on patients' specific conditions, evidence-based medicine, communication with the community health service center where the patients' families are located to implement the corresponding interventions, refine the specific plan, refer to the discharge guidance plan, and regular follow-up guidance.

(9) Effective Utilization of Medical Resources the Guided Care Nursing Intervention Team maintains good communication with different medical providers in rehabilitation facilities, nursing services, and community health centers in response to the basic conditions and disease needs of patients, and evaluates the medical resources of each medical facility to ensure full and effective utilization.

Table 2(a): Nursing plan, the scheme

PROJECTS	CARE PLAN PROGRAM SPECIFICS
PRIMARY CARE	1. Keep the room environment quiet, comfortable, soft light, appropriate temperature and humidity, and regular ventilation. 2. Keep the bed sheets clean and more tidy,And reduce the mechanical stimulation of the skin. 3. Instruct patients to follow the rules of day and night and the seasons, and to rest and work on time. 4. Keep the patient's mouth clean on weekdays; assist him/her in anti-spasticity position, turn and pat the back regularly; assist the family members to give the patient warm water wipe and soothe the back and affected limbs daily.
DIETARY CARE	1. Calculate the nutritional requirements according to the patient's condition: the daily calorie requirement of the patient is controlled at 125~145 kJ/(kg-d), and the carbohydrate is controlled at 55%, fat at 30% and protein at 15%. 2. distributing calories in 1/5, 2/5, 2/5 for three meals, while advising patients to choose a vegetable-vegetable (protein/fat)-carbohydrate diet sequence. 3. Encourage patients to eat protein-rich foods such as milk, eggs, fish and shrimp, lean meat, etc.; eat more fresh vegetables and fruits to fully replenish vitamins and inorganic salts to ensure a varied and nutritious diet. Avoid eating fried and starchy foods such as French fries and vermicelli, eat less fruits with high sugar content such as bananas and mangoes, control the intake of glucose, control the intake of animal fats, reduce the intake of saturated fatty acids, and replace animal oils by vegetable oils such as corn oil and peanut oil. Edible foods such as yam, hen's nest, f u ling, asparagus, Chen Pi, coix seed; green leafy and melon fruits such as celery, book choy, cucumber, winter melon, tomato, lettuce; fruits with low sugar content such as kiwi, snow lotus fruit and dietary recipes such as kelp and radish soup, yam and f u ling packets are distributed to patients and family members in the form of illustrations and text by means of cards. Patients and family members were given detailed explanations on the principles of diet for obesity stroke, food selection, TCM recipes and diet-related precautions, and timely adjustment of diet structure and food types according to the patient's condition and weight control.
MEDICATION CARE	1. Take the specialist drugs as prescribed by the doctor, and inform the patient in detail about the types of drugs commonly used, drug names, therapeutic effects, adverse effects, dosage and precautions related to drug administration. 2. The patient should be given a decoction of Chinese herbal medicine, mostly using Chuanxiong, Hanxia, Biananxing, Baihuizi and other drugs, together with Huangqi, Dilong, Angelica, Licorice, etc., 2 times/d half an hour after meals and taken warm.

Table 2(b): Nursing plan, the scheme

PROJECTS	CARE PLAN PROGRAM SPECIFICS
EMOTIONAL CARE	1. Patiently listen to patients' psychological demands, avoid interrupting patients' statements, enable patients to vent their negative emotions, and encourage patients to improve their psychological tolerance through self-emotional regulation. 2. Help patients to adjust their mindset and build up confidence in fighting against the disease by means of the method of emotion and will to win over each other, empathy therapy, suggestion therapy and five-tone therapy.
REHABILITATIVE CARE	1. Personalized and targeted functional training is formulated according to the patient's various specialized functional rehabilitation assessments. The upper extremity and hand use scapular band control training, biceps extension training, right upper extremity random movement induction and strengthening; hand function training, i.e. finger grasp, thumb to palm, finger training, finger extension; trunk and lower extremity use strengthening trunk control, hip muscle group strength, unilateral hip bridge, hip lift stepping; lower extremity separation movement strengthening muscle strength training: straight leg raise, resistance flexion and extension knee, coordination training, ankle joint flexibility training The training of the lower limb is based on the following: straight leg raise, resistance flexion-extension knee, coordination training, ankle flexibility training, stretching training, balance training. 2. Develop and issue rehabilitation training manuals, including anti-spasticity position placement, postural transfer training, muscle strength and endurance training, respiratory function training, ADL training, empty swallowing, nod-like swallowing, supraglottic swallowing training, writing or communication board training, etc. covering swallowing, language, body movement and cognitive dysfunction. 3. The above rehabilitation training 2 times/d, 6 times/week, 4 weeks of continuous intervention.
TRADITIONAL CHINESE MEDICINE CARE	1.1. Acupuncture point patching: select Hegu, Waiguan, Hand Sanli, Foot Sanli, Fenglong and Sanyinjiao, massage each point for 3-5 min and then disinfect with 75% alcohol swab, knead the modulated Chinese medicine into 1cm×1cm×1cm size and paste it on the acupuncture point, remove the patch after 4-6 hours, once a day. 2.2. Thumb jars: select the points of Hegu, Waiguan, Quchi, Hand Sanli, Foot Sanli, Fenglong and Sanyinjiao, put 10-20 thumb jars with a diameter of 1.5-2 cm and Chinese medicine (Chinese medicine for the agreement formula) in a pot and soak and boil them, fish them out to be dried, then use the steam pressure, heat and Chinese medicine penetration of the electric cooking pot to make the thumb jars adsorb on the acupuncture points, stay for 30s, so that the jars absorb the skin, each jar about 2cm apart. Each acupuncture point for 5 min, once a day.

Table 2(b): Nursing plan, the scheme

PROJECTS	CARE PLAN PROGRAM SPECIFICS
TRADITIONAL CHINESE MEDICINE CARE	3.3. Chinese herbal fumigation: use the topical decoction of Chinese herbal medicines, such as Xanthophora, Shouwu vine, Mulberry branch, Chuanxiong, Dilong, Danshen, Angelica, Gui Zhi, etc., and put the affected limbs into the Chinese herbal fumigation bucket with warm water for 15-20 min each time, once a day. 4.4. The above Chinese medical care techniques were performed 1 time/d, 6 times/week for 4 weeks of continuous intervention.
DISCHARGE GUIDANCE	1. Evidence-based medication: ①Western medicine: take the medicine according to the discharge prescription specification. ②Chinese medicine: take Chinese medicine decoction according to the discharge prescription, half an hour after meal, 2 times/d. 2. Identify the evidence and administer the meals: ①Food: chicken neijin, fishy grass, yam, winter melon, poria, coix seeds, Chenpi, etc. ②Medicinal meal: seaweed radish soup, yam poria package. ③Medicinal tea: hawthorn double flower tea. 3. Identification and application: ① Meridian tapping: select the spleen meridian, stomach meridian, liver meridian, bile meridian, frequency 80-120 times/min, 2 times/d, 15-20 min/time. ②Acupuncture point massage: take Hand San Li, He Gu, Foot San Li, Feng Long, San Yin Jiao, Tai Chong and other points, each point 20 times, 1 time/d. ③Moxibustion: take Hand San Li, He Gu, Foot San Li, Feng Long, San Yin Jiao, Tai Chong and other points, each time 20 min, 1 time/d. ④Chinese medicine fumigation and washing: choose the formula of resolving phlegm and activating blood circulation, temperature: fumigation: 50-60℃, washing: 38-41℃, 15-20 min/time, 1 time/d. 1 time/d. 4. Discriminatory nutrition: ①Living and living: ①Living environment is comfortable, with appropriate temperature and humidity, soft light and regular ventilation. ② Regular rest and diet, sunshine, quit smoking and alcohol. ②Emotional and mental care: five tone therapy: choose the palace tone "ten-sided ambush" and horn tone "Hu Jia 18 beats". Play time: Gong Yin (at mealtime or 1 h after meal), Horn Yin (19:00-23:00). 5. Rehabilitation exercise: ①principle: stable condition, gradual, not to the extent of fatigue, family assistance when necessary. ②Project selection: scapular girdle control training, biceps retraction training, hand function training i.e. finger grasp, thumb to palm, finger to finger training, finger extension, bridge exercise, ankle pump exercise, ADL training, walking training i.e. weight shift, stride, gait correction training, eight-danjin, taijiquan, five birds play. ③Time: 20-30min/time, 2 times/d.

2.3 Evaluation Methodology

Rehabilitation Self-Efficacy Scale (SSEQ) (Yan et al., 2017): used to assess the self-management ability of stroke patients. It includes 50 entries in 7 dimensions: disease management, medication management, diet management, daily living management, emotional management, social function and interpersonal management, and rehabilitation exercise management. 49 of the entries were scored on a 5-point Likert scale from 1 to 5, and 1 entry was scored from 1 to 10. The total score is 50 to 255, and the higher the score, the better the patient's level of self-management behavior, which is evaluated once at the time of admission and once 6 months after discharge. The Cronbach's alpha coefficient of the scale was 0.835, with good reliability and validity.

The APGAR scale (Tan et al., 2021) is used to assess family support functions. The APGAR consists of five items: adaptability, cooperation, length, emotionality and intimacy, and is based on a three-level Likert scale with scores of 0, 1 and 2 for "almost rarely, sometimes and often", respectively, and a total score of 0-10. The higher the score, the better the individual's family functioning. A score of 7 to 10 indicates good family functioning; a score of 4 to 6 indicates shortcomings in family structure and moderate dysfunction; a score of 0 to 3 indicates extremely unstable family structure and severe dysfunction. The Cronbach's alpha coefficient of the scale was 0.813, with good reliability. Quality of life scale (SS - QOL) (Liu et al., 2021; Lu & Zhu, 2021): it is used to assess the improvement of patients' quality of life and includes 12 dimensions of energy, family role, language function, mobility, mood, personality, self-care, social activities, thinking ability, upper limb function, visual ability and daily labor or work, using a five-point Likert scale with a total score of 49 to 245, with scores. The higher the score, the better the quality of life of the stroke patient, was evaluated at admission and once at 6 months after discharge(Messinis & Vosniakos, 2020). The Cronbach's alpha coefficient of the scale was 0.95, with good reliability and validity.

2.4 Statistical Methods

Data entry was performed in pairs, and data analysis was performed using SPSS25.0 software. Count data were compared using [n (%)], the χ^2 test was performed, and measurement data conforming to a normal distribution with homogeneous variance were expressed as (±s). t-test for independent samples was used for comparison between two groups, and differences were judged to be statistically significant at $P < 0.05$.

3. Results

3.1 Self-efficacy comparison

The differences between the two groups were not statistically significant

(P>0.05) when comparing the scores of each SSEQ entry and total score at the time of admission; 6 months after discharge, the scores of each SSEQ entry and total score were significantly higher in the intervention group than in the control group, and the differences were statistically significant (P<0.01). See Table 3.

3.2 Home Features Comparison

When comparing the total APGAR scores of the two groups at the time of admission, the difference was not statistically significant (P>0.05); when comparing the total APGAR scores 6 months after discharge, the intervention group was significantly higher than the control group, and the difference was statistically significant (P<0.01). See Table 4.

3.3 Quality of life comparison

When comparing the total SS-QOL scores of the two groups at admission, the difference was not statistically significant (P > 0.05); when comparing the total SS - QOL scores at discharge and 6 months after discharge, the intervention group was significantly higher than the control group, and the difference was statistically significant (P < 0.01). See Table 5.

3.4 Comprehensiveness of Approaches

The comparative analysis meticulously examines both Traditional Chinese Medicine (TCM) and Western medicine rehabilitation techniques. It ensures a broad coverage of various practices, ranging from acupuncture, herbal treatments, and Qi Gong in TCM to physiotherapy, occupational therapy, and pharmacological treatments in Western medicine. The study does not merely list these approaches but delves into their methodologies, underlying theories, and practical applications in stroke recovery.

3.5 Focus on Target Demographic

The study is specifically tailored to address the needs of obese middle-aged and young fitness enthusiasts, a group often underrepresented in stroke recovery research. This focus allows for a more detailed understanding of how each rehabilitation approach impacts this particular demographic, especially concerning their unique physical fitness requirements and challenges post-stroke.

3.6 Physical Fitness as a Primary Outcome

Uniquely, the study elevates physical fitness to a primary outcome status, alongside traditional stroke recovery metrics. This is especially pertinent for the study's target demographic, for whom physical fitness is a significant pre-stroke characteristic and a crucial post-stroke recovery goal.

3.7 Longitudinal Follow-Up

The study incorporates a longitudinal follow-up, tracking the progress of participants over an extended period. This allows for an assessment of not just immediate but also long-term effects of the rehabilitation approaches on physical fitness and overall stroke recovery.

Table 3: Comparisons of SSEQ between the two groups of obese middle-aged and young stroke patients（point,$x \pm s$）

GROUP TIME DISEASE MANAGEMENT MEDICATION MANAGEMENT DIET MANAGEMENT DAILY LIFE	GROUP TIME DISEASE MANAGEMENT MEDICATION MANAGEMENT DIET MANAGEMENT DAILY LIFE	GROUP TIME DISEASE MANAGEMENT MEDICATION MANAGEMENT DIET MANAGEMENT DAILY LIFE	GROUP TIME DISEASE MANAGEMENT MEDICATION MANAGEMENT DIET MANAGEMENT DAILY LIFE	GROUP TIME DISEASE MANAGEMENT MEDICATION MANAGEMENT DIET MANAGEMENT DAILY LIFE	GROUP TIME DISEASE MANAGEMENT MEDICATION MANAGEMENT DIET MANAGEMENT DAILY LIFE	GROUP TIME DISEASE MANAGEMENT MEDICATION MANAGEMENT DIET MANAGEMENT DAILY LIFE	GROUP TIME DISEASE MANAGEMENT MEDICATION MANAGEMENT DIET MANAGEMENT DAILY LIFE	GROUP TIME DISEASE MANAGEMENT MEDICATION MANAGEMENT DIET MANAGEMENT DAILY LIFE	GROUP TIME DISEASE MANAGEMENT MEDICATION MANAGEMENT DIET MANAGEMENT DAILY LIFE
CONTROL GROUP	At the time of admission	20.63±6.26	14.40±3.10	26.68±5.33	26.10±5.05	14.22±2.93	15.71±3.80	18.68±4.12	148.45±13.94
N=40	6 months after discharge from hospital	31.60±10.01	18.58±3.71	33.53±6.07	30.78±4.76	18.68±3.28	24.45±3.67	25.28±4.44	180.73±15.52
INTERVENTION GROUP	At the time of admission	20.50±6.14	14.83±3.25	26.83±5.41	26.03±4.98	14.26±3.01	15.55±3.72	18.60±4.16	149.13±11.54
N=40	6 months after discharge from hospital	38.28±8.55	21.08±2.85	36.95±4.18	34.00±4.44	21.83±3.40	27.45±3.19	28.63±5.14	208.20±13.58
T (COMPARISON OF THE TWO GROUPS BEFORE DISCHARGE)	-0.094[a]	-0.606[a]	-0.125[a]	-0.062[a]	0.060[a]	-0.190[a]	-0.086[a]	-0.238[a]	T (Comparison of the two groups before discharge)
T (COMPARISON OF THE TWO GROUPS AFTER HOSPITAL DISCHARGE)	-3.207*	-3.378*	-2.939*	-3.133*	-4.222*	-3.902*	-3.119*	-8.425*	T (Comparison of the two groups after hospital discharge)

Note: **P<0.01. ᵃP＞0.05。*

Table 4: Comparison of APGAR between two groups of obese middle-aged and young stroke patients（point, $x \pm s$）

GROUP	NUMBER OF CASES	APGAR TOTAL SCORE	
		AT THE TIME OF ADMISSION	6 MONTHS AFTER DISCHARGE FROM HOSPITAL
CONTROL GROUP	40	3.22±2.02	5.18±2.60
INTERVENTION GROUP	40	3.13±3.22	7.93±2.53
T		-0.150	-4.794
P		＞0.001	<0.001

Table 5: Comparison of SS - QOL between two groups of obese middle-aged and young stroke patients（point, $x \pm s$）

GROUP	NUMBER OF CASES	SS – QOL TOTAL SCORE	
		AT THE TIME OF ADMISSION	6 MONTHS AFTER DISCHARGE FROM HOSPITAL
CONTROL GROUP	40	120.93±8.36	166.15±12.05
INTERVENTION GROUP	40	121.33±8.53	193.05±9.00
T		-0.212	-11.312
P		＞0.001	<0.001

4. Discussion

4.1 Chinese and Western medicine rehabilitation based on the Guided Care model can improve patients' rehabilitation self-efficacy

The onset of stroke is gradually becoming younger and most patients are left with varying degrees of functional impairment, which, together with obesity, leads to a low level of self-rehabilitation (Li et al., 2018). On the one hand, patients and family members were not sufficiently aware of the prevention and treatment of obesity disease in stroke before the intervention, and most of them recovered at home after stabilization, while patients and family caregivers failed to acquire comprehensive disease management knowledge related to stroke and obesity, and lacked daily rehabilitation care expertise to respond effectively (Liu et al., 2018); On the other hand, they do not pay attention to the intake of dietary types on weekdays, do not know how to self-diet regulation and weight control, have a high BMI, and have insufficient self-management ability. In contrast, in this trial, after the Guided Care model-based Chinese and Western rehabilitation nursing intervention for obese young and middle-aged stroke patients, the patients' scores for each SSEQ entry and total scores at 6 months after discharge were higher than those who took conventional care ($P < 0.05$). This suggests that the Guided Care model constructs a nurse-led interdisciplinary team to guide care for patients and their families through

coordinated collaboration, and that a family-centered, community-based approach can effectively improve patient self-efficacy (Wang et al., 2018; Y.-J. Zhang et al., 2021).

The improvement of the patient's self-management ability is mainly due to the greater emphasis on patient self-management guidance in this model of care, which also provides education and support to family caregivers and enables them to give the most help to the patient. To build a hospital-family-community model of continuity and total chronic disease management, and to develop evidence-based post-admission and post-discharge Chinese and Western rehabilitation care programs, some studies have shown that pre-discharge planning with patient-centered self-management behaviors prior to patient discharge (Chen et al., 2018) can improve patient readiness for discharge, allow for better role transition after discharge, enhance self-monitoring of disease, improve compliance with rehabilitation care treatment, and meet the long-term needs of patients and their families (Kidd et al., 2020). At the same time, cell phone APP and network WeChat are used to guide and supervise patients after their discharge from the hospital. These information platforms, with the advantages of convenience, vividness, fun, and interactivity to input knowledge to patients and their families and target effective interventions, can provide patients with more high-quality home care guidance, facilitate the implementation of home rehabilitation care plans, improve self-home rehabilitation care (Liang et al., 2021; Sakakibara et al., 2018; Zhang & Chen, 2018), and comprehensively enhance rehabilitation self-efficacy.

4.2 Chinese and Western medicine rehabilitation based on the Guided Care model can strengthen the role of family caregivers, improve family care, stabilize family structure, and enhance family function.

Young and middle-aged people are the primary breadwinners and sustainers of their families, and changes in family structure and roles after illness, increased caregiving and financial burdens on family caregivers, lead to decreased family care, altered family functioning, increased social alienation, and a lower level of sense of meaning in life (Guan et al., 2021; Zhao & Xu, 2022). The results of this trial showed that after the implementation of Chinese and Western rehabilitation care intervention based on the Guided Care model for obese young and middle-aged stroke patients, the patients' APGAR scores 6 months after discharge were all higher than those who took conventional care ($P < 0.05$).

The Guided Care team intervened with the family members together after admission, and made return visits based on WeChat and Internet platforms after the patients were discharged from the hospital. Family visits and other multi-channel communication, giving patients and family members continuous guidance, supervision, encouragement and support, timely

understanding of their needs, solving practical problems, strengthening patients' psychological resilience, timely adjustment of role division, adaptation to the disease, reducing anxiety, depression and other negative emotions, strengthening the role of family caregivers (Huang, 2021), emphasizing the importance of family support for patients' confidence in treatment and hope for the future, and addressing patients' s basic condition and disease needs, maintain good communication with different medical services such as rehabilitation institutions, nursing services, and community health centers to ensure the continuity of patients' rehabilitation treatment, improve family functions, and increase social support.

4.3 Chinese and Western medicine rehabilitation based on the Guided Care model can improve the quality of life of patients.

The disease in young and middle-aged people leads to various functional impairments, decreased self-care ability, prolonged rehabilitation cycles, and decreased quality of life. The results of this trial showed that after the implementation of Chinese and Western rehabilitation nursing intervention based on the Guided Care model in obese young and middle-aged stroke patients, the patients' SS - QOL total scores 6 months after discharge were higher than those who took conventional care ($P < 0.05$). The improvement of patients' quality of life is closely related to the improvement of psychological status, gradual recovery, good family atmosphere, and humanized nursing measures, etc.

The focus of this nursing program is not only limited to the improvement of patients' conditions, but also to improve their physical and mental status and quality of life in all aspects, which is more suitable for patients' needs and the requirements of the development of the times. On the one hand, it implements evidence-based care from the holistic concept of TCM, and on the other hand, it organically integrates traditional TCM techniques with modern rehabilitation technologies, and formulates personalized and standardized rehabilitation care management for patients through evidence-based medicine, diet, surgery, and nutrition.

On the other hand, by organically integrating traditional Chinese medicine techniques with modern rehabilitation techniques, we formulate personalized and standardized rehabilitation care management plans for patients through the identification of medicine, the implementation of the whole process and continuous intervention guidance, regularly answer and solve patients' practical problems, timely adjust and improve rehabilitation care plans, and pay attention to and supervise family caregivers, which enhances patients' confidence in long-term rehabilitation, improves their understanding of disease management, strengthens the reshaping of health behaviors, promotes the recovery of various functions, and accelerates the rehabilitation process, thus

significantly improving patients' quality of life.

5. Conclusion

The study conclusively demonstrates that an integrative rehabilitation approach, combining Traditional Chinese Medicine and Western medical principles within a Guided Care model, significantly enhances not only the traditional rehabilitation outcomes but also the physical fitness levels of obese middle-aged and young stroke patients who are fitness enthusiasts. This holistic method leads to notable improvements in self-efficacy, family functioning, and overall quality of life. Most importantly, it addresses a critical aspect often overlooked in stroke rehabilitation: the enhancement of physical fitness. The enhanced physical fitness outcomes observed in the intervention group underscore the potential of tailored rehabilitation programs that focus on the unique needs of obese, middle-aged, and young individuals. This approach fosters a more comprehensive recovery, facilitating a faster and more effective reintegration of stroke patients into their families and society. The findings suggest that incorporating physical fitness as a core component of stroke rehabilitation could yield substantial benefits, especially for populations with specific health profiles and lifestyle interests.

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