Statistical Analysis Plan:

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Comprehensive Management of High-Risk Populations for Stroke Based on Social Networks in China: A Multicenter Randomized Clinical Trial (COMPLIANCE-MT)

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Sponsor:

Changhai Hospital Affiliated to Naval Medical University

Signature Page

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Principal investigator

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Changhai Hospital Affiliated to Naval Medical University	

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LIST OF ABBREVIATIONS AND DEFINITIONS OF TERMS

Abbreviation	Definition of terms
AE	Adverse Event
CI	Confidence Interval
CRF	Case Report Form
DSMB	Data and Safety Monitoring Board
eCRF	Electronic Case Report Form
EQ-5D	EuroQol-5 Dimensions
eTICI	Extended Thrombolysis in Cerebral Infarction
ITT	Intention-to-Treat Population
MedDRA	Medical Dictionary for Drug Regulatory Activities
MMAS-8	Morisky Medication Adherence Scale-8
mRS	Modified Rankin Scale
OR	Odds Ratio
PPS	Per-protocol Set
PT	Preferred Term
SAE	Serious Adverse Event
SAP	Statistical Analysis Plan
SOC	System Organ Class

1 INTRODUCTION

This Statistical Analysis Plan (SAP) is developed based on the most recent study protocol (Version 4.0, 21-June-2024), and details the statistical analysis strategies and methods for the study.

The SAP predefines the statistical analysis population, analysis variables and analysis methods before database lock to ensure the reliability of the study results.

1.1 Study Design

This is a prospective, multicenter, randomized controlled, open-label, blinded outcome assessment trial involving 738 eligible subjects with high-risk population for stroke to be recruited from 33 hospitals in China. Subjects who meet the eligibility criteria will be randomized to either intervention group (receiving social networks and conventional care) or control group (receiving conventional care). Follow up visits will be conducted at 1 month, 3 months, 6 months and 12 months after discharge. Study design is presented as below (Figure 1):

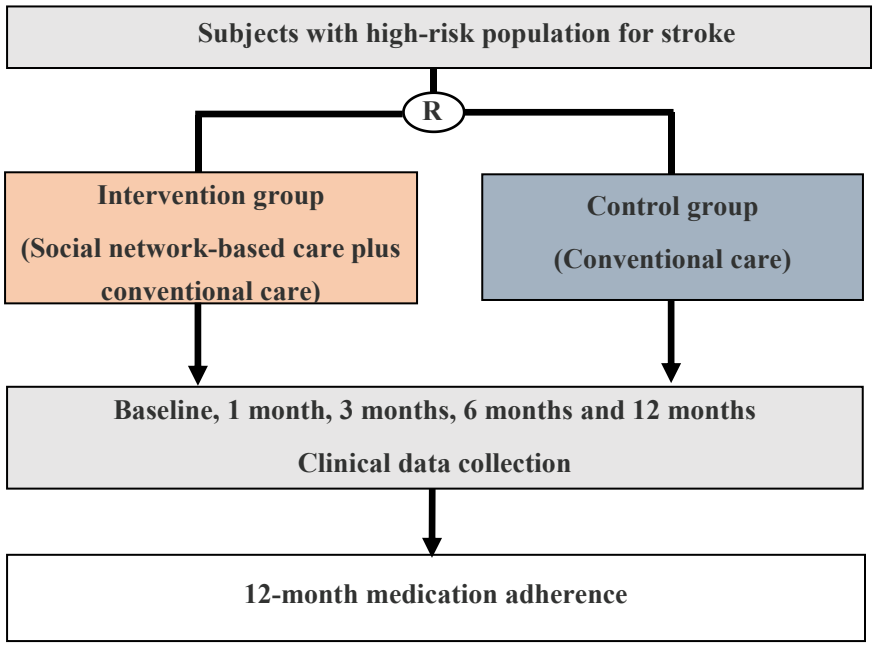

Figure 1. Study schema

1.2 Study Objectives

The objective of this study is to evaluate the effectiveness of social network-based interventions in improving medication adherence and risk factor management rates among high-risk stroke patients after hospital discharge.

1.3 Study outcomes

Primary efficacy outcome: Proportion of patients with "Good Medication Adherence" to all guideline-recommended vascular prevention medications at 12 months post-discharge

Definition: Good adherence is defined as a Proportion of Days Covered (PDC) >=80% (equivalent to >=24/30 days) for each drug class prescribed at discharge (Antihypertensive, Hypoglycemic, Lipid-lowering, Anticoagulant, and Antiplatelet).

Note: Adherence will be calculated only for the specific drug classes indicated for the individual patient's risk profile.

Medical Adjustment: Discontinuation or dosage changes confirmed by medical records or physician advice will not be penalized; adherence calculations will be adjusted based on the updated regimen.

Secondary efficacy outcomes:

1) **Subjective Adherence:**

- Proportion of good medication adherence to stroke prevention drugs at 1-, 3-, 6-, and 12-months post-discharge (assessed using the Morisky-8 Medication Adherence Scale [MMAS-8]). Good adherence is defined as an MMAS-8 score greater than 6.

2) **Clinical outcomes**

- Risk Factor Control, including including glycosylated hemoglobin , systolic blood pressure, lipid profile, body mass index (BMI), waist-to-hip circumference, heavy drinking, and smoking status (Smoking status was categorized as never smoker, current smoker [smoking in the past 30 days], or former smoker [quit smoking for≥30 days]), at 1, 3, 6, and 12 months post-discharge.

- Incidence of major adverse cerebrovascular and cardiovascular events, including stroke, acute coronary syndrome, and vascular death, at 1-, 3-, 6-, and 12-months post-discharge.

3) Quality of Life & Physiological outcomes

- Health-related quality of life (HRQoL) assessed using the EuroQol Five-Dimension Five-Level Scale (EQ-5D-5L) at 1-, 3-, 6-, and 12-month post-discharge.
- Anxiety symptom severity assessed using the 7-item Generalized Anxiety Disorder Scale (GAD-7) at 1-, 3-, 6-, and 12-months post-discharge.
- Depressive symptom severity assessed using the 9-item Patient Health Questionnaire (PHQ-9) at 1-, 3-, 6-, and 12-months post-discharge.
- Personal motivation for stroke prevention, assessed using the Stroke Attitude Questionnaire at 1-, 3-, 6-, and 12-months post-discharge.
- Perceived social support, assessed using the Perceived Social Support Scale (PSSS) at 1-, 3-, 6-, and 12-month post-discharge.
- Self-efficacy for chronic disease management, assessed using the Chronic Disease Self-Efficacy Scale at 1-, 3-, 6-, and 12-month post-discharge.

4) **Behavioral & Knowledge**

- Stroke prevention-related health behavior scores, assessed using the Stroke Prevention Health Behavior Scale at 1-, 3-, 6-, and 12-months post-discharge.
- Intentions regarding prehospital delay in stroke emergency care, assessed using the Prehospital Delay Behavior Intention Scale for Stroke at 1-, 3-, 6-, and 12-month post-discharge.
- Stroke prevention knowledge assessed using the Stroke Prevention Knowledge Questionnaire at 1-, 3-, 6-, and 12-months post-discharge.

1.4 Estimation of Sample Size

The sample size for this trial was determined based on a cohort study in China evaluating medication adherence, which reported that 77.3% of patients achieved good adherence at 12 months under routine management. We hypothesized a clinically meaningful absolute improvement of 10% in adherence rates with a social network-

based coordinated care intervention (from 77.3% in the control group to 87.3% in the intervention group), an effect size consistent with recent cardiovascular digital health trials showing moderate improvements in adherence through remote or community-based strategies .

Using PASS 11.0 software and Fisher's exact test, a sample of 648 patients (324 per group) was calculated to provide 90% power to detect this difference at a two-sided significance level of 0.05. To account for an anticipated 10% attrition rate over the 12-month follow-up in this high-risk stroke population, the target recruitment was inflated to 720 participants (360 per group).

1.5 Randomization and Treatment allocation

Participants were randomized (1:1) via a central internet-based system to treatment with social network-based intervention group or standard care group. Stratified randomization with permuted blocks will be performed to ensure balance across key prognostic factors, including clinical center and prevention Type (Primary vs. Secondary Prevention)

- **Intervention group**: Subjects treated with social network-based care and conventional care.
- **Control group**: Subjects treated with conventional care.

1.6 Study Procedure

Before starting the study, patients or their guardians must read and sign the informed consent approved by the current Ethics Committee (EC). All research steps should be carried out within the time specified in the study protocol.

The study consists of a total of 5 visits per subject, including: visits at baseline (at discharge), 1 months (± 7 days), 3 months (± 14 days), 6 months (± 14 days), and 12 months (± 14 days) post discharge.

The study procedure is shown in **Table 1** below.

Table 1. Schedule of the study procedures

Procedure/Time Window	Baseline	1 month post discharge	3 months post discharge	6 months post discharge	12 months post discharge
	At discharge	± 7 days	± 14 days	± 14 days	± 14 days
Informed consent	X				
Demographics	X				
Medical history	X				
Inclusion/exclusion criteria evaluation	X				
Vital signs	X	X	X	X	X
Blood biochemistry	X	X	X	X	X
Prescribed medication	X	X	X	X	X
MMAS-8	X	X	X	X	X
EQ-5D-5L	X	X	X	X	X
GAD-7	X	X	X	X	X
Stroke Attitude Questionnaire	X	X	X	X	X
Perceived Social Support Scale	X	X	X	X	X
Chronic Disease Self-Efficacy Scale	X	X	X	X	X
Stroke Prevention Health Behavior Scale	X	X	X	X	X
Prehospital Delay Behavior Intention Scale	X	X	X	X	X

Procedure/Time Window	Baseline	1 month post discharge	3 months post discharge	6 months post discharge	12 months post discharge
Stroke Prevention Knowledge Questionnaire	X	X	X	X	X
Major adverse cerebrovascular and cardiovascular events	X	X	X	X	X
Proportion of patients with "Good Medication Adherence"					X

2. STATISTICAL ANALYSIS METHODOLOGY

2.1 Statistical Analysis Variables

This statistical analysis plan (SAP) will include variables to be analyzed as follows: demographics, baseline characteristics, and treatment efficacy.

2.1.1 Demographics and baseline characteristics

The demographic and baseline information will include age (years), sex, nationality, height (cm), weight (kg), medical history, smoking and drinking history, baseline medication et al.

2.1.2 Efficacy outcomes

2.1.2.1 Primary efficacy outcome

Proportion of patients with "Good Medication Adherence" to all guideline-recommended vascular prevention medications at 12 months post-discharge. Good adherence is defined as a Proportion of Days Covered (PDC) >=80% (equivalent to >=24/30 days) for each drug class prescribed at discharge (Antihypertensive, Hypoglycemic, Lipid-lowering, Anticoagulant, and Antiplatelet). Adherence will be calculated only for the specific drug classes indicated for the individual patient's risk profile. Discontinuation or dosage changes confirmed by medical records or physician advice will not be penalized; adherence calculations will be adjusted based on the updated regimen.

2.2.2.2 Secondary efficacy outcomes:

- Subjective Adherence, defined as proportion of good medication adherence to stroke prevention drugs at 1-, 3-, 6-, and 12-months post-discharge (assessed using the Morisky-8 Medication Adherence Scale [MMAS-8]). Good adherence is defined as an MMAS-8 score greater than 6.
- Risk Factor Control, including glycosylated hemoglobin , systolic blood pressure, lipid profile, body mass index (BMI), waist-to-hip circumference, heavy drinking, and smoking status(Smoking status was categorized as never smoker, current

smoker [smoking in the past 30 days], or former smoker [quit smoking for≥30 days]）at 1, 3, 6, and 12 months post-discharge.

- Incidence of major adverse cerebrovascular and cardiovascular events, including stroke, acute coronary syndrome, and vascular death, at 1-, 3-, 6-, and 12-months post-discharge.
- Health-related quality of life (HRQoL) assessed using the EuroQol Five-Dimension Five-Level Scale (EQ-5D-5L) at 1-, 3-, 6-, and 12-months post-discharge.
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- Stroke prevention knowledge assessed using the Stroke Prevention Knowledge Questionnaire at 1-, 3-, 6-, and 12-months post-discharge.

2.1.2.2 Vital signs

The following vital signs measurement will be collected and recorded in the electronic CRF (eCRF): systolic blood pressure (mmHg), diastolic blood pressure (mmHg).

The vital signs assessment will be collected at baseline, 1 month, 3 months, 6 months and 12 months after discharge.

2.1.2.3 Laboratory test

Glucose: Fasting venous blood glucose (mmol/L), glycosylated hemoglobin (%);

Blood lipids: triglyceride (mmol/L), cholesterol (mmol/L), low density lipoprotein cholesterol (mmol/L) and high-density lipoprotein cholesterol (mmol/L);

The laboratory test assessment will be collected at baseline, 1 month, 3 months, 6 months and 12 months after discharge.

2.2 Statistical Analysis Population

The analysis populations include intention-to-treat (ITT) population and per-protocol analysis set (PPS) for this study.

2.2.1 Intention-to-treat Population

The ITT population will include all randomized subjects, regardless of their eligibility and any protocol deviations according to ITT principles, in which subjects will be analyzed according to the group assigned by randomization. ITT is the primary efficacy analysis set for this study.

2.2.2 Per-protocol Analysis Set

The PPS is a subset of ITT population, including all randomized subjects who have been treated in the study without major protocol deviations that may significantly impact the interpretation of efficacy results. Detailed protocol deviation criteria will be determined at the latest before database lock. PPS will be used for the primary efficacy outcome. Subjects entering PPS need to satisfy all the following basic criteria:

(1) Meet all the eligibility criteria specified in the study protocol.

(2) The subjects were randomized and received the assigned treatment.

(3) Have a blind assessment of the 12-months outcome.

2.3 Statistical Methods

For continuous data, the following statistics will be provided: number, mean, standard deviation (SD), median, lower quartile (Q1), upper quartile (Q3), minimum and maximum will be provided, unless otherwise stated. Categorical data will be summarized in terms of the number of patients and percentages.

For summary statistics, mean, standard deviation, median and quartiles will be reported to one more decimal place than the original data, while the 95% confidence interval (CI) will be reported to 2 more decimal places. Minimum and maximum values will be reported to the same number of significant digits as the original data. In the frequency table, the percentages will keep one decimal and the p values will keep 4 decimal or will be displayed as "<0.0001".

2.3.1 Subject disposition

The number of screened subjects and the number and proportion of subjects by treatment group who were randomized, received study treatment, completed the study, and stopped the study, will be provided. The number and proportion of subjects according to reasons for withdrawal from the trial were summarized descriptically, and also summarized for each analysis population by treatment group. Where necessary, the CONSORT flow chart will be presented to describe the study subject disposition in the statistical analysis report.

2.3.2 Demography and baseline characteristics

Demographic data and other baseline characteristics will be summarized by treatment group. The following demographic and other baseline characteristics will be summarized and as appropriate listed for this study:

- Age (years);
- Sex (female vs. male);
- Race (The Han Nationality, and Other);
- Marriage status;
- Education level;
- Household income

Demographic and other baseline characteristics will be summarized by treatment groups for ITT population. Data listings will be provided where necessary.

2.3.3 Risk factors

Risk factors would be obtained via medical history inquiry, including medical history of stroke, carotid artery disease, cardiac disorders, hypertension, diabetes mellitus, hypercholesterolaemia and allergy history et al.
Medical history will be summarized by treatment groups for ITT population.

2.3.4 Baseline blood test results

Baseline blood test including blood glucose level, HbA1c, TG, TC, LDL, HDL, et al.

Baseline blood test results will be summarized by treatment groups for ITT population.

2.3.5 Prescribed medication

Prescribed medication at discharge include antiplatelets, blood pressure/lipid and blood glucose control medications， anticoagulants and other medications taken by the subjects during the study.

Prescribed medication will be summarized by treatment group for ITT population.

2.3.6 Analysis of efficacy outcomes

All efficacy data analyses will be conducted based on ITT population; for primary and secondary outcome analysis, PPS will also be used as a supportive role.

2.3.6.1 Primary efficacy outcome

The proportion of patients with "Good Medication Adherence" to all guideline-recommended vascular prevention medications at 12 months post-discharge will be reported for each treatment group. Primary efficacy outcome analysis will be done using binary logistic regression analysis adjusted for prognostic factors, including site as a random effect, age, sex, prevention type (primary vs. secondary prevention), education level, medication Burden as fixed covariates. Adjusted and unadjusted odds ratio (OR) will be derived from this model as treatment effect size (intervention group vs. control group) with their corresponding 95% confidence interval (CI).

Sensitivity analyses will be done for the primary efficacy outcome, including analysis in PPS population, and different assumptions regarding missing data at last follow-up.

2.3.6.2 Secondary efficacy outcomes

For the binary efficacy outcomes, between-group comparisons will be done using a Chi-square test or Fisher's exact test when applicable. These binary secondary efficacy outcomes also will be analyzed by logistic regression analysis to provide a common odds ratio and its 95% CI, if applicable. The adjustment factors are the same as these in the primary outcome analysis.

For the continuous efficacy outcomes, between group comparisons will be done using a linear model adjusted for the prognostic factors considered in the randomization, as appropriate; the adjusted mean difference will be derived from a linear model as treatment effect sizes. In case of deviation from normality of the model residuals (except if a logarithmic transformation or other common transformation could be applied), a non-parametric analysis with the Mann-Whitney U test will be used and standardized differences will be calculated. Rank-transformed data will be provided as treatment effect size.

2.3.6.3 Subgroup analyses

For the primary outcome, pre-specified subgroup analyses will be performed by examining the interaction between specific baseline characteristics and treatment. Subgroups are defined as follows:

- Age (<65 vs. ≥65 years)
- Sex (male vs. female participants);
- Prevention Type (Primary vs. Secondary Prevention);
- Education level (College or above vs. High school or below);
- Household Income (≤5000, 5000-10000, >10000 RMB per month);
- Medication Burden (<3 vs. ≥ 3 classes at discharge)

The analysis for each subgroup will be performed by adding the subgroup variable as well as its interaction with the intervention as fixed effects to the main logistic regression model. Within each subgroup, summary measures will include raw counts

and percentages within each treatment arm, as well as the OR for treatment effect with a 95% CI. The results will be displayed on a forest plot, including the p-value for heterogeneity corresponding to the interaction term between the intervention and subgroup variable.

2.4 DATA PROCESSING CONEVENTIONS

2.4.1 Baseline definition

In this study, baseline values are defined as those data collected before intervention (e.g. at baseline visit). When multiple data collections occur during the baseline period, the final data shall prevail in principle, unless explicitly stated.

2.4.2 Missing data

We will report proportions of missing values for all collected variables where needed.

Baseline characteristics missing data will be imputed by regression interpolation as appropriate.

For the primary outcome, two sensitive analyses regarding the data missingness will be conducted: 1). Handling of Missing Data via Multiple Imputation (MI), Missing primary outcome data will be addressed based on the nature of the missingness. For participants lost to follow-up, Multiple Imputation (MI) using fully conditional specification will be employed to estimate 12-month adherence. These analyses will be conducted under the Missing at Random (MAR) assumption to evaluate the stability of the treatment effect across different missing data scenarios. 2). Competing Risk and Mortality Adjustment, to account for competing risks during the 12-month study period, any participant who expires prior to the final follow-up will be conservatively categorized as "Non-Adherent" in the primary analysis. This approach ensures that the intervention’s efficacy is evaluated within the context of overall survival and prevents the overestimation of benefit.

Secondary outcome analyses will be considered exploratory. The main analysis for these endpoints will utilize a complete case approach under the assumption of a missing-completely-at-random (MCAR) mechanism.

2.4.3 Time Window

Not applicable.

2.4.4 Unscheduled visits

Not applicable.

3 CHANGES TO PLANNED ANALYSES FROM THE PROTOCOL

No changes of planned analyses in the protocol are made in this statistical analysis plan.

4 INTERIM ANALYSIS

No interim analysis was conducted.

5 STATISTICAL ANALYSIS SOFTWARE

All statistical analysis and data summary will be carried out using SAS® 9.4 in this study. Software R 4.4.3 or higher version will be used for drawing plots if applicable.

6 REFERENCES

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7 APPENDIX

1) EQ-5D Health-Related Quality of Life Scale

Date of score: |__|__|/|__|__|/|__|__|__|__| (DD/MM/YYYY)	
Item	**Score**
Mobility	□ I have no problems in walking about □ I have slight problems in walking about □ I have moderate problems in walking about □ I have severe problems in walking about □ I am unable to walk about
Self-care	□ I have no problems washing or dressing myself □ I have slight problems washing or dressing myself □ I have moderate problems washing or dressing myself □ I have severe problems washing or dressing myself □ I am unable to wash or dress myself
Usual activities	□ I have no problems doing my usual activities □ I have slight problems doing my usual activities □ I have moderate problems doing my usual activities □ I have severe problems doing my usual activities □ I am unable to do my usual activities
Pain/Discomfort	□ I have no pain or discomfort □ I have slight pain or discomfort □ I have moderate pain or discomfort □ I have severe pain or discomfort □ I have extreme pain or discomfort
Anxiety/Depression	□ I am not anxious or depressed □ I am slightly anxious or depressed □ I am moderately anxious or depressed □ I am severely anxious or depressed □ I am severely anxious or depressed
Status that best describes your health	Score _____ (0-100)

2) Morisky-8 Medication Adherence Scale

You indicated that you are taking medication(s) for your (identify health concern, such as "high blood pressure"). Individuals have identified several issues regarding their medication-taking behavior, and we are interested in your experiences. There is no right or wrong answer. Please answer each question based on your personal experience with your [health concern] medication.		
	Yes	**No**
1. Do you sometimes forget to take your [health concern] medication(s)?		
2. People sometimes miss taking their medications for reasons other than forgetting. Thinking over the past two weeks, were there any days when you did not take your [health concern] medication(s)?		
3. Have you ever cut back or stopped taking your medication(s) without telling your doctor, because you felt worse when you took it?		
4. When you travel or leave home, do you sometimes forget to bring along your [health concern] medication(s)?		
5. Did you take your [health concern] medication(s) yesterday? (or the last time you were supposed to take it?)		
6. When you feel like your [health concern] is under control, do you sometimes stop taking your medication(s)?		
7. Taking medication(s) every day is a real inconvenience for some people. Do you ever feel hassled about sticking to your [health concern] treatment plan?		
8. How often do you have difficulty remembering to take all your medication(s)?		

(Please circle your answer below)

Never/Rarely……..a

Once in a while……..b

Sometimes……..c

Usually……d

All the time……..e

Codes:

No = 1; Yes = 0

Re-codes:

If Item5 = 0 Item5r = 1 (high adherence)

If Item8=a Item8r = 1 (highest adherence)

If Item8=b Item8r = .75 (high adherence)

If Item8=c Item8r = .50 (moderate adherence)

If Item8=d Item8r = .25 (low adherence)

Baseline Adherence: 3- Level Likert Scale

Low Adherence (< 6)

Medium Adherence (6 to <8)

High Adherence (= 8)

Morisky DE, Ang A, Krousel-Wood M, et al.Predictive validity of a medication adherence measure in an outpatient setting[J].J Clin Hypertens (Greenwich) , 2008, 10 (5) :348-354.

3) UK (English) EQ-5D-5L Paper Self-Complete

(sample version, v1.3)

Under each heading, please choose the ONE answer that

best describes your health TODAY

MOBILITY

I have no problems in walking about	❑
I have slight problems in walking about	❑
I have moderate problems in walking about	❑
I have severe problems in walking about	❑
I am unable to walk about	❑

SELF-CARE

I have no problems washing or dressing myself	❑
I have slight problems washing or dressing myself	❑
I have moderate problems washing or dressing myself	❑
I have severe problems washing or dressing myself	❑
I am unable to wash or dress myself	❑

USUAL ACTIVITIES (e.g. work, study, housework, family or leisure activities)

I have no problems doing my usual activities	❑
I have slight problems doing my usual activities	❑
I have moderate problems doing my usual activities	❑
I have severe problems doing my usual activities	❑
I am unable to do my usual activities	❑

PAIN/DISCOMFORT

I have no pain or discomfort	❑

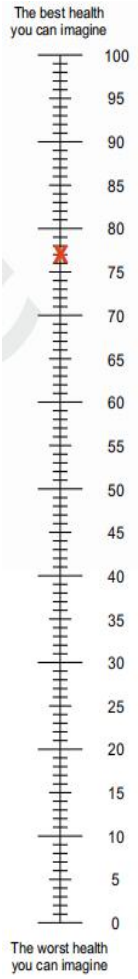
I have slight pain or discomfort ❑

I have moderate pain or discomfort ❑

I have severe pain or discomfort ❑

I have extreme pain or discomfort ❑

This example from the EQ-5D-5L Paper Self-Complete version shows how the EQ VAS is scored.



We would like to know how good or bad your health is TODAY.

This line is numbered from 0 to 100.

100 means the best health you can imagine.

0 means the worst health you can imagine.

Please mark an X on the line to show how your health is TODAY.

Now, write the number you marked on the line in the box below.

YOUR HEALTH TODAY= ☐

EuroQol Research Foundation. EQ-5D-5L User Guide, Version 4.0[EB/OL]. (2025-08).

4) GAD-7

Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1.Feeling nervous, anxious or on edge	0	1	2	3
2.Not being able to stop or control worrying	0	1	2	3
3.Worrying too much about different things	0	1	2	3
4.Trouble relaxing	0	1	2	3
5.Being so restless that it is hard to sit still	0	1	2	3
6.Becoming easily annoyed or irritable	0	1	2	3
7.Feeling afraid as if something awful might happen	0	1	2	3

Total Score _____ = Add Columns____ + ____ + ____ + ____

Spitzer RL,Kroenke K,Williams JB,et al.A brief measure for assessing generalized anxiety disorder:The GAD-7[J].Arch Intern Med,2006,166(10):1092-1097.

5) Nine-symptom Checklist

Name _____ Date _____

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3
(For office coding: Total Score ____ = ____ + ____ + ____)				

Kroenke K,Spitzer RL,Williams JB.The PHQ-9:validity of a brief depression severity measure.J Gen Intern Med,2001,16(9):606-613

6) Stroke Prevention and Treatment Knowledge Questionnaire

Category	Question	Yes	No
Daily Living	1. Should maintain regular bowel movements		
	2. Should maintain a positive and optimistic attitude		
	3. Should maintain regular daily routines and adequate sleep		
	4. Should avoid excessive fatigue		
	5. Should avoid extreme joy or sorrow		
	6. Cold weather can easily induce stroke; should replenish water in a timely manner		
	7. Hot weather can easily induce stroke; should replenish water in a timely manner		
	8. Should not take long hot baths or soak for extended periods		
Exercise	9.Maintaining appropriate physical activity can prevent stroke		
	10. Rehabilitation exercises can improve activities of daily living function		
	11. Should not exercise on an empty stomach in the morning or over-exercise		
	12. Should not move too quickly or suddenly; should get up slowly to avoid dizziness		
Diet	13. Should limit salt intake		
	14.Should reduce intake of fatty and high-sugar foods to prevent and control obesity		
	15. Should quit smoking		
	16.Should limit alcohol consumption		
Risk Factors	17.Effectively controlling stroke risk factors (hypertension, hyperlipidemia, diabetes mellitus) is an important measure for preventing stroke, among which hypertension is the most significant risk factor for stroke		
	18.The key for hypertensive patients to prevent and control stroke is to maintain long-term stable control of hypertension		
	19.Individuals with atherosclerosis who have normal or low blood pressure may also experience ischemic stroke		

	20.Stroke tends to occur in middle-aged and elderly people, but in recent years, there has been a trend of younger onset		
	21.Patients with a family history of cardiovascular and cerebrovascular diseases have a higher likelihood of experiencing stroke		
Medication	22.Should take antihypertensive drugs as prescribed by doctors; antihypertensive drugs should not be taken before bedtime to prevent excessively low blood pressure and bradycardia, which may lead to cerebral thrombosis formation		
	23.Blood pressure should not be lowered as quickly as possible		
	24.Most hypertensive patients need to take maintenance doses of antihypertensive drugs for a long time and should not stop, reduce or change medications arbitrarily		
	25.Taking additional antithrombotic drugs (such as Aspirin Enteric-coated Tablets) before bedtime can help prevent cerebral apoplexy		
	26.If suffering from diabetes, blood glucose should be controlled as prescribed by the doctor		
Blood pressure monitoring	27.The standard for blood pressure control is ≤140/90 mmHg (≤150/90 mmHg for elderly patients, and ≤130/90 mmHg for patients with diabetes, kidney disease, or a history of stroke)		
	28.Hypertensive patients cannot estimate blood pressure based on feelings and should monitor blood pressure regularly		
Precursors of stroke occurrence	29. Deviation of the corner of the mouth and drooling		
	30. Numbness on one side of the face, numbness, weakness or inflexible movement of one side of the limbs		
	31. Sudden inability to speak, slurred speech, or inability to express meaning correctly		
	32. Transient blackness in front of the eyes, blurred vision, visual field defect, or diplopia		
	33. Sudden onset of severe headache, dizziness of unknown cause, even accompanied by nausea and vomiting		
	34. Choking when eating or drinking, or even difficulty swallowing		
Management	35. Seek medical attention within 3 hours once any sign of stroke occurs		
	36. When a stroke is suspected, the patient should immediately rest in bed; if vomiting occurs, keep the head turned to one side and immediately		

	call "120"		

Wan LH, Zhang XP, Hong H, et al. Health behaviors of stroke patients and their influencing factors[J]. Chinese Nursing Research, 2010, 24(1):1-4.

7) Stroke Attitude Questionnaire

Item	Strongly Necessary	Necessary	Unnecessary
1. Active control of hypertension is essential			
2. Active treatment of heart disease is required			
3. Active management of diabetes mellitus is necessary			
4. Personality modification should be considered for individuals prone to irritability and emotional outbursts			
5.A low-sodium diet should be adopted (e.g., daily salt intake < 6g)			
6.A low-fat diet is recommended (e.g., reducing consumption of fatty meats)			
7.Weight reduction and body weight control should be prioritized			
8.Smoking cessation and alcohol limitation are advisable			
9.Regular cholesterol monitoring should continue after hospital discharge			
10.Regular blood lipid testing should be maintained post-discharge			
11.Periodic medical follow-ups and physical examinations are important			
12.Prompt medical consultation is necessary when experiencing uncomfortable symptoms			
13.Continuous learning about stroke prevention and functional exercise knowledge is recommended			
14. Persisting in functional exercises after onset is equally important as receiving treatment			
15. Stroke patients should maintain light to moderate exercise (e.g., engaging in physical activity at least 3 times per week, with each session lasting more than 30-45 minutes)			
16.Exercise should be incorporated into daily life activities (e.g., practicing grocery shopping, climbing			

stairs, etc.)			

Bei-Lei L.Analysis of the current status and influencing factors of functional exercise compliance among stroke patients in the community[D].Zhengzhou University ,2012.DOI:10.7666/d.y2103175.

8) the Multidimensional Scale of Perceived Social Support

Items	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1. There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2. There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
3. My family really tries to help me.	1	2	3	4	5	6	7
4. I get the emotional help and support I need from my family.	1	2	3	4	5	6	7
5. I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
6.My friends	1	2	3	4	5	6	7

really try to help me.							
7.I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8.I can talk about my problems with my family.	1	2	3	4	5	6	7
9. I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
10.There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
11.My family is willing to help me make decisions.	1	2	3	4	5	6	7
12. I can talk about my problems	1	2	3	4	5	6	7

with my friends.							

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. Journal of Personality Assessment, 52(1), 30 - 41.

9) the Stroke Prevention Health Behavior Scale

Below are statements regarding your lifestyle at home over the past month. Please answer each question accurately and mark "√" in the corresponding box.

	Item	Never	Sometimes	Often	Always
Physical Activity	Exercise according to plan				
	Engage in moderate- to high-intensity exercise for at least 20 minutes, three or more times per week (e.g., brisk walking)				
	Participate in light or moderate physical activities (e.g., continuous walking for 30–40 minutes per session, more than five times per week)				
	Take part in recreational or leisure sports (e.g., dancing)				
	Perform stretching exercises at least three times per week				
	Incorporate physical activity into daily routines				
	Monitor pulse during exercise to reach target heart rate				
Low Fat	Choose low-fat, low-cholesterol foods; daily cooking oil intake < 25 g (about 30 ml, equivalent to 2.5 level tablespoons)				
Low Sugar	Limit consumption of sugar or sugary foods (e.g., candy)				
Nutrition	Consume 250-400 grams (5-8 liang) of grains (e.g., rice, flour) daily				
	Eat at least 100 grams (2 liang) of fruit daily				
	Eat 400-500 grams (8 liang-1 jin) of vegetables daily				

	Consume 1 cup (250 grams) of dairy and 50 grams of soy products daily				
	Eat 125-200 grams (2.5-4 liang) of fish, poultry, meat, or eggs daily				
	Check nutrition, fat, and sodium content by reading food package labels				
	Eat breakfast every day				
Low Salt	Keep daily salt intake below 6 grams (about the amount of one mineral water bottle cap)				
Monitoring	Follow doctor's instructions to monitor blood pressure regularly				
Smoking	Smoking (averaging more than one cigarette per day)				
Alcohol	Excessive drinking (daily intake of ≥50ml of liquor, or ≥100ml of wine, or ≥300ml of beer)				
Medication	Have you ever forgotten to take your medication?				
	Do you sometimes neglect to take your medication?				
	Have you ever stopped taking your medication when you felt your symptoms improved?				
	Have you ever stopped taking your medication when you felt your symptoms worsened?				

Li-Hong W，Xiao-Ni X，Jun-Hao P，et al.Development and reliability and validity testing of the Stroke Patients' Healthy Behavior Scale[J].Journal of Nursing，2017,32 (1):25-29.