

An empowerment program on self-management and functional recovery among stroke survivors:

Empirical effects and translational challenges

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 - Departmental Research Fund, The Nethersole School of Nursing
- Research Team
- Stroke participants
- The authors declare that there is no conflict of interest

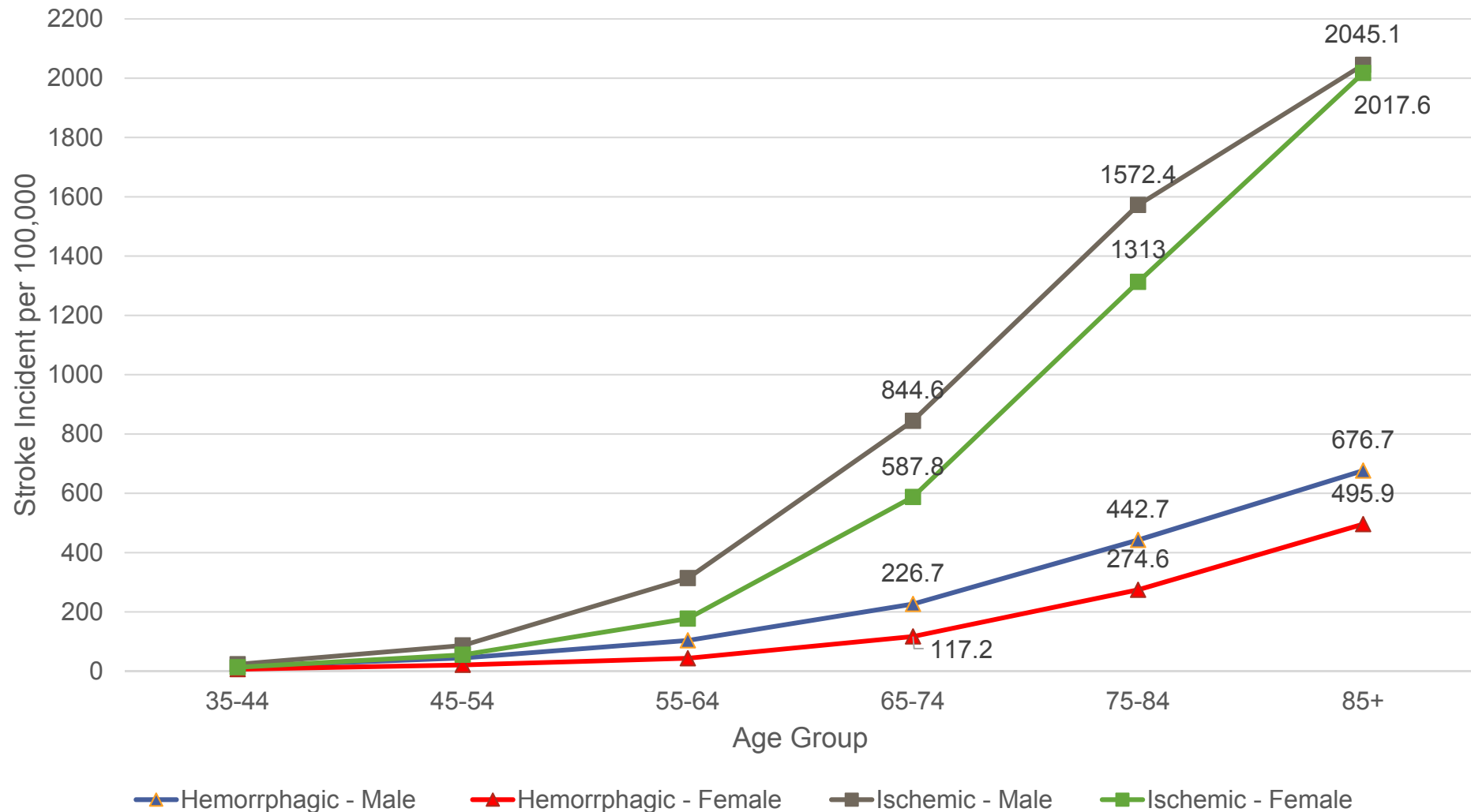


Background

Woo, et al., Hong Kong Medical Journal.
2014; 20(Suppl): S24-29

- Stroke incidence increases with age

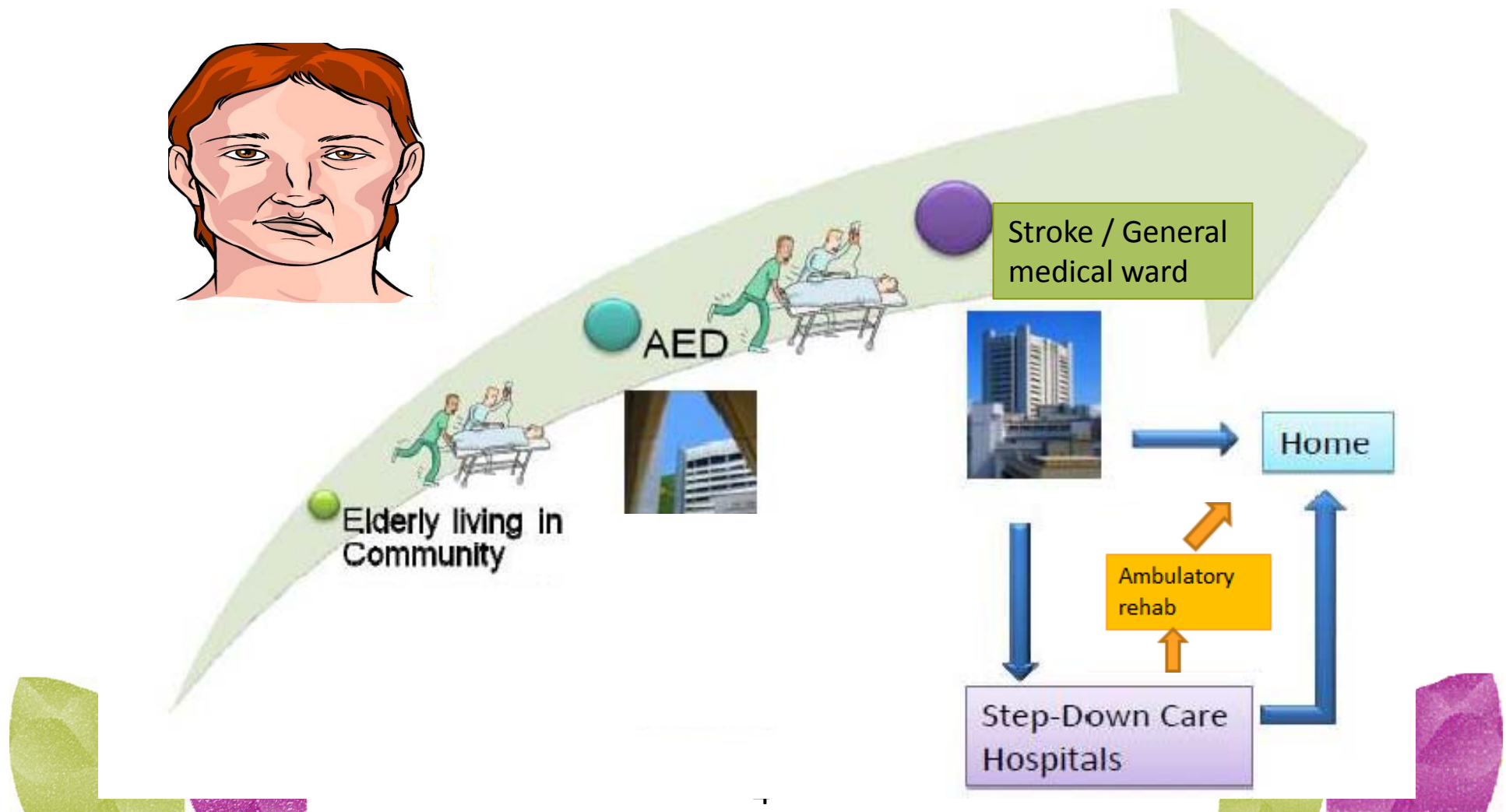
Incidence rates of stroke in Hong Kong
by age group, sex and subtype from



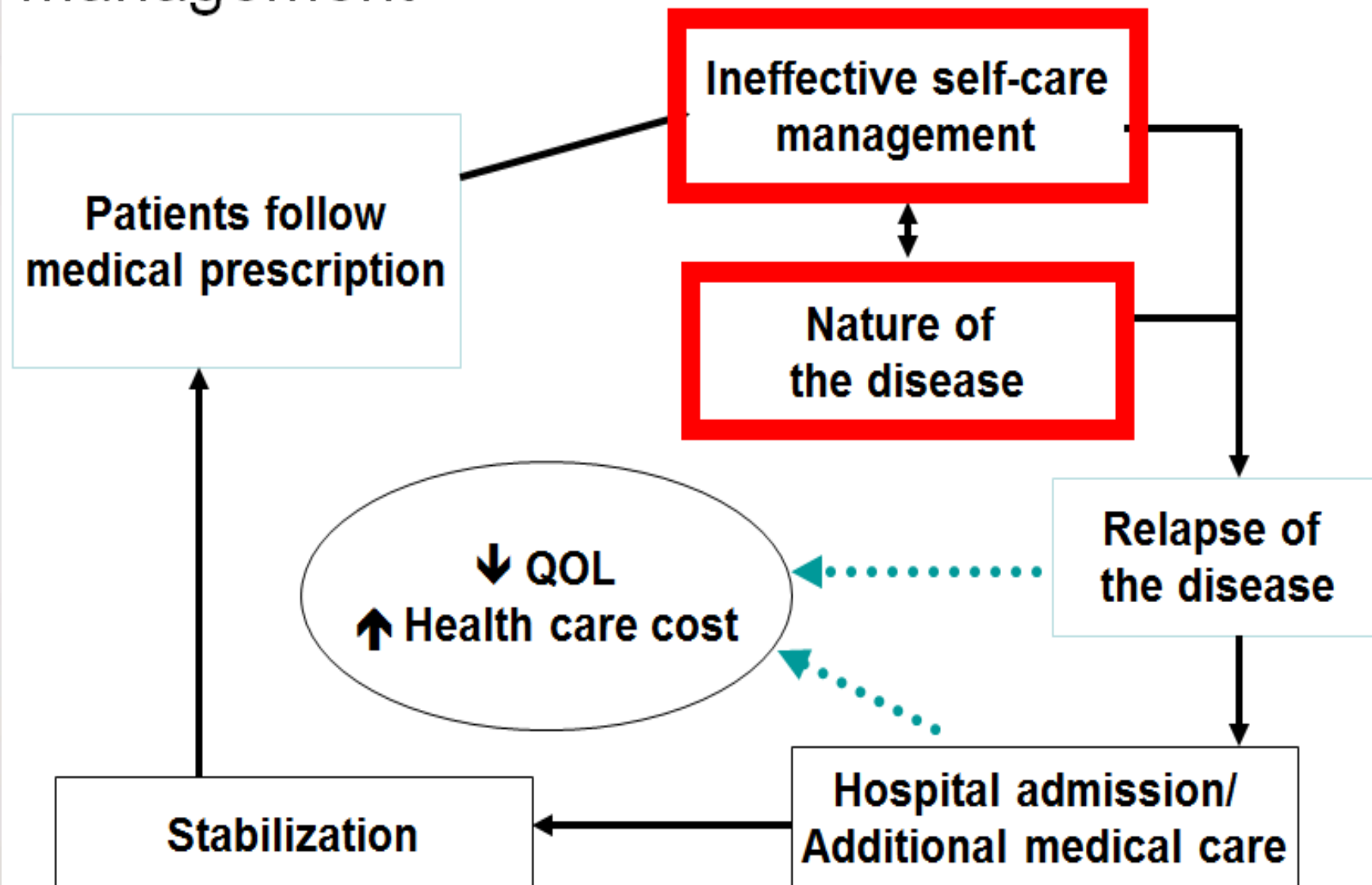
Background



Stroke patients rehabilitation journey in Hong Kong



Traditional approach to chronic disease management



Stroke Patient Empowerment Intervention (SPEI) for self-management

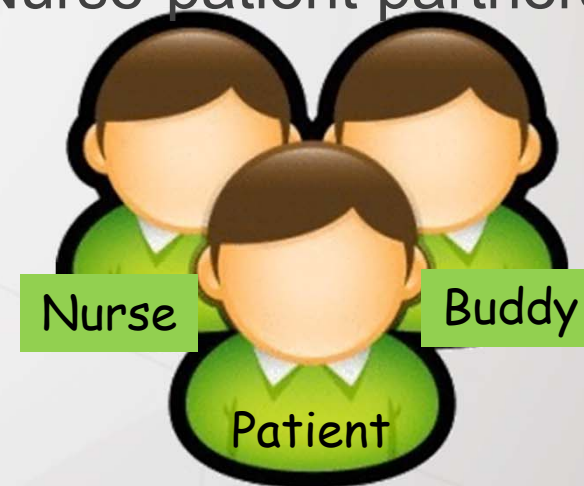


Aim:

- To **empower** stroke patients with the **‘knowing how’** knowledge and skills to practice **self-management** in the stroke rehabilitation journey

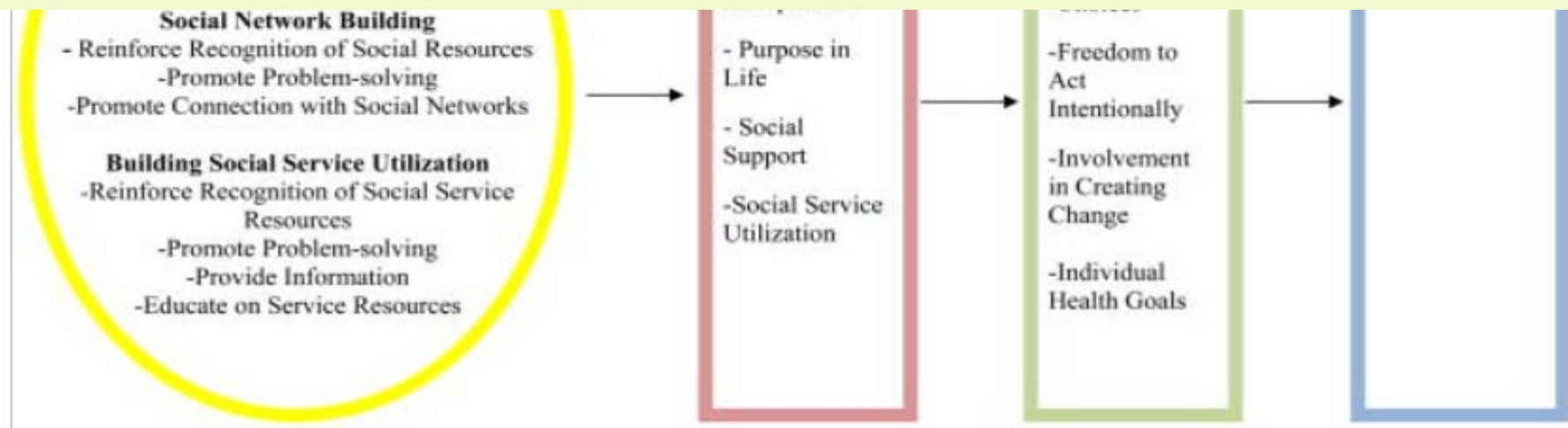
Characteristics:

- Conducted in parallel with ambulatory stroke rehabilitation programme
- Nurse-patient partnership



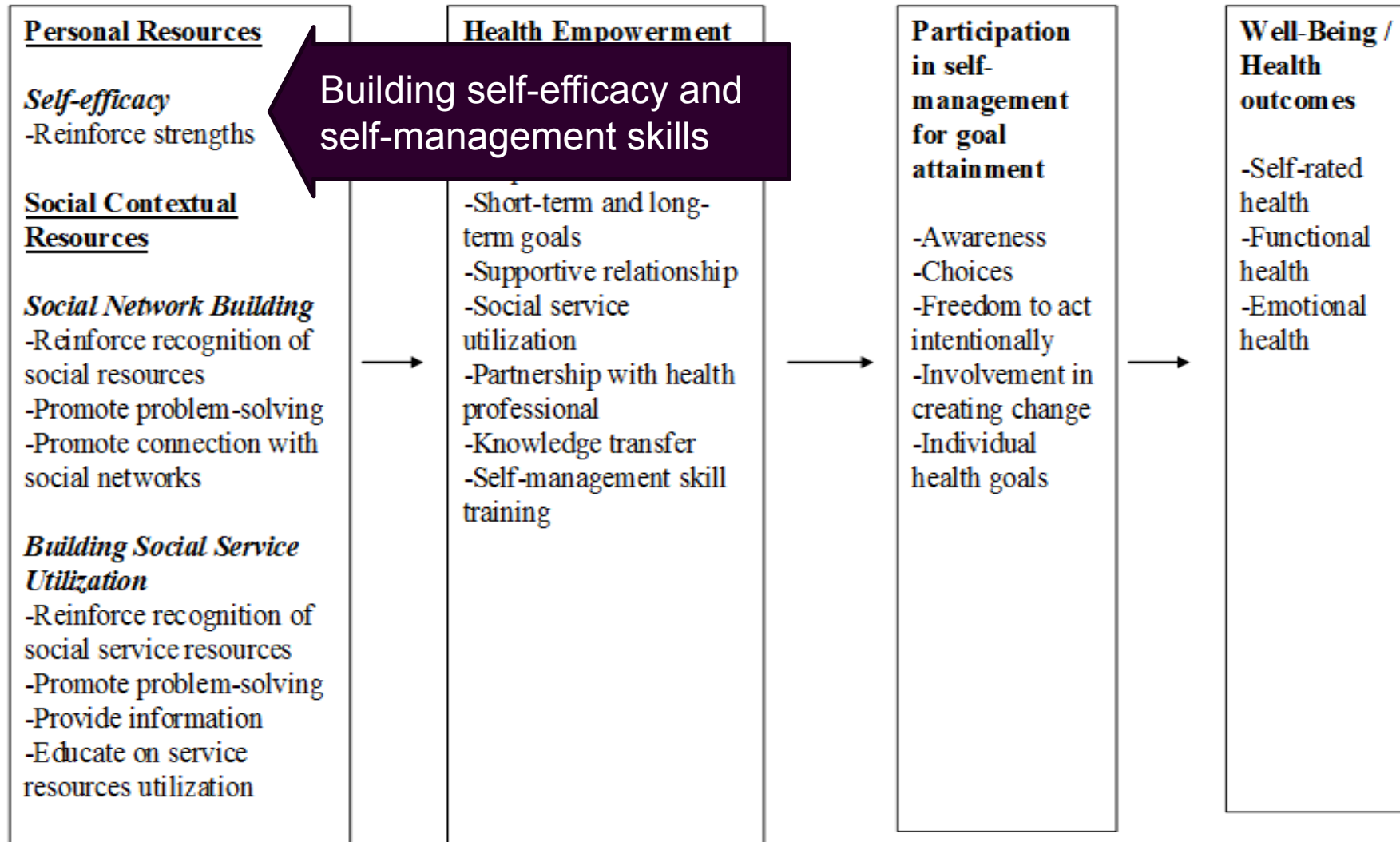
Theory of Health Empowerment (Shearer, 2009)

Health empowerment is viewed as *a relational process* that emerges from the recognition of *personal and social-contextual resources*, facilitating purposeful participation in the attainment of health goals and the promotion of individual well-being



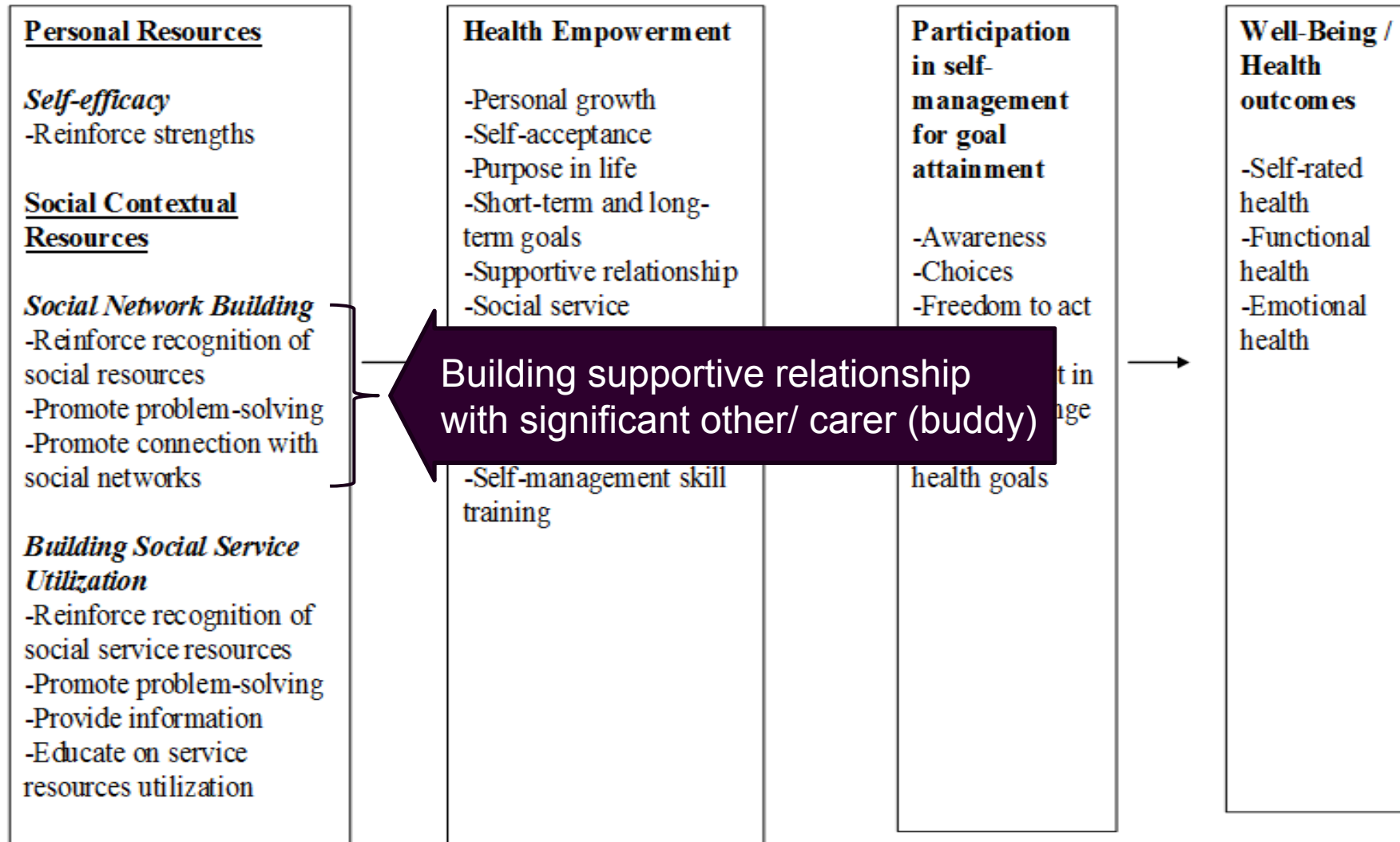
Health Empowerment Intervention Framework

Theoretical application in SPEI



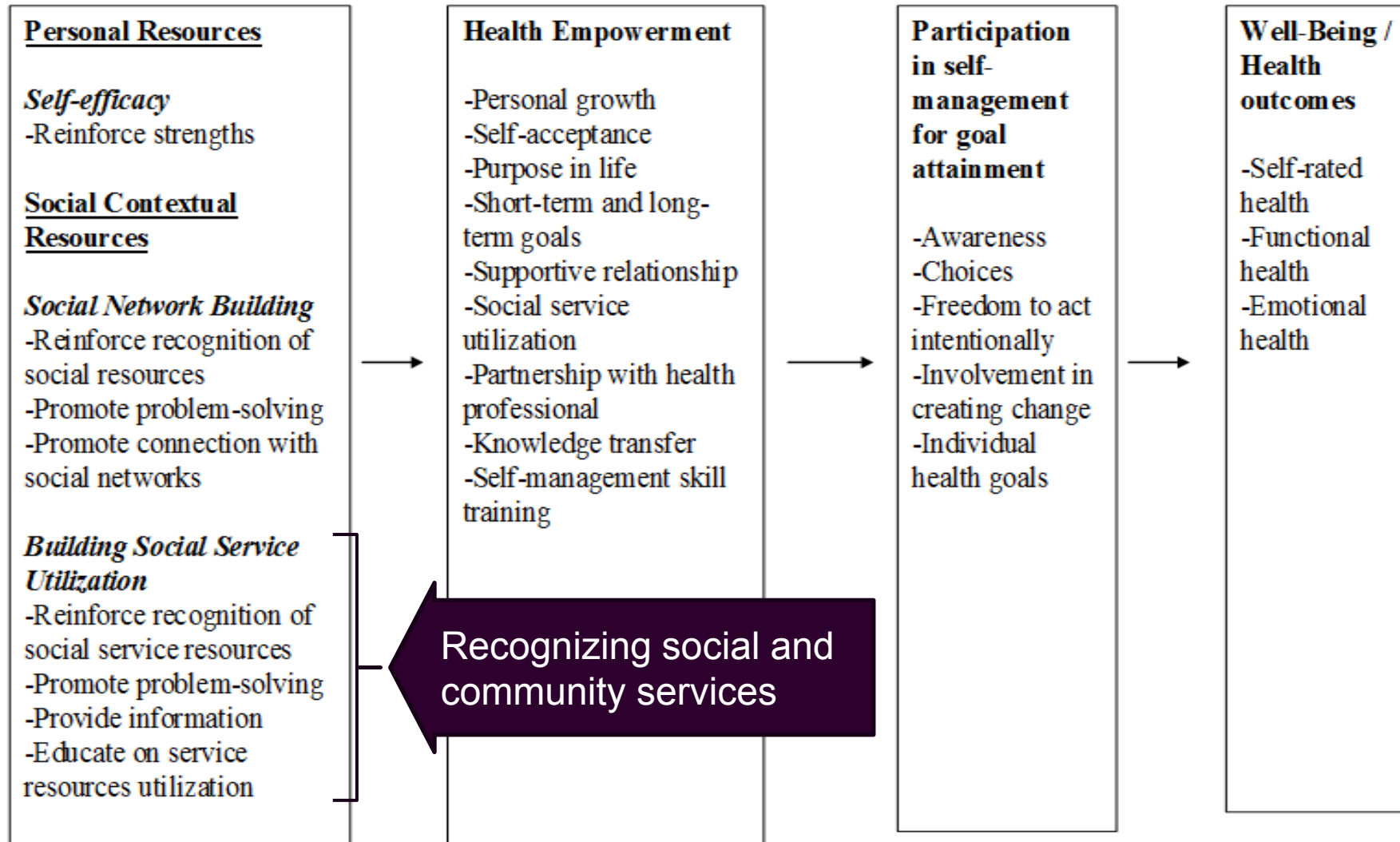
Shearer (2009)

Theoretical application in SPEI



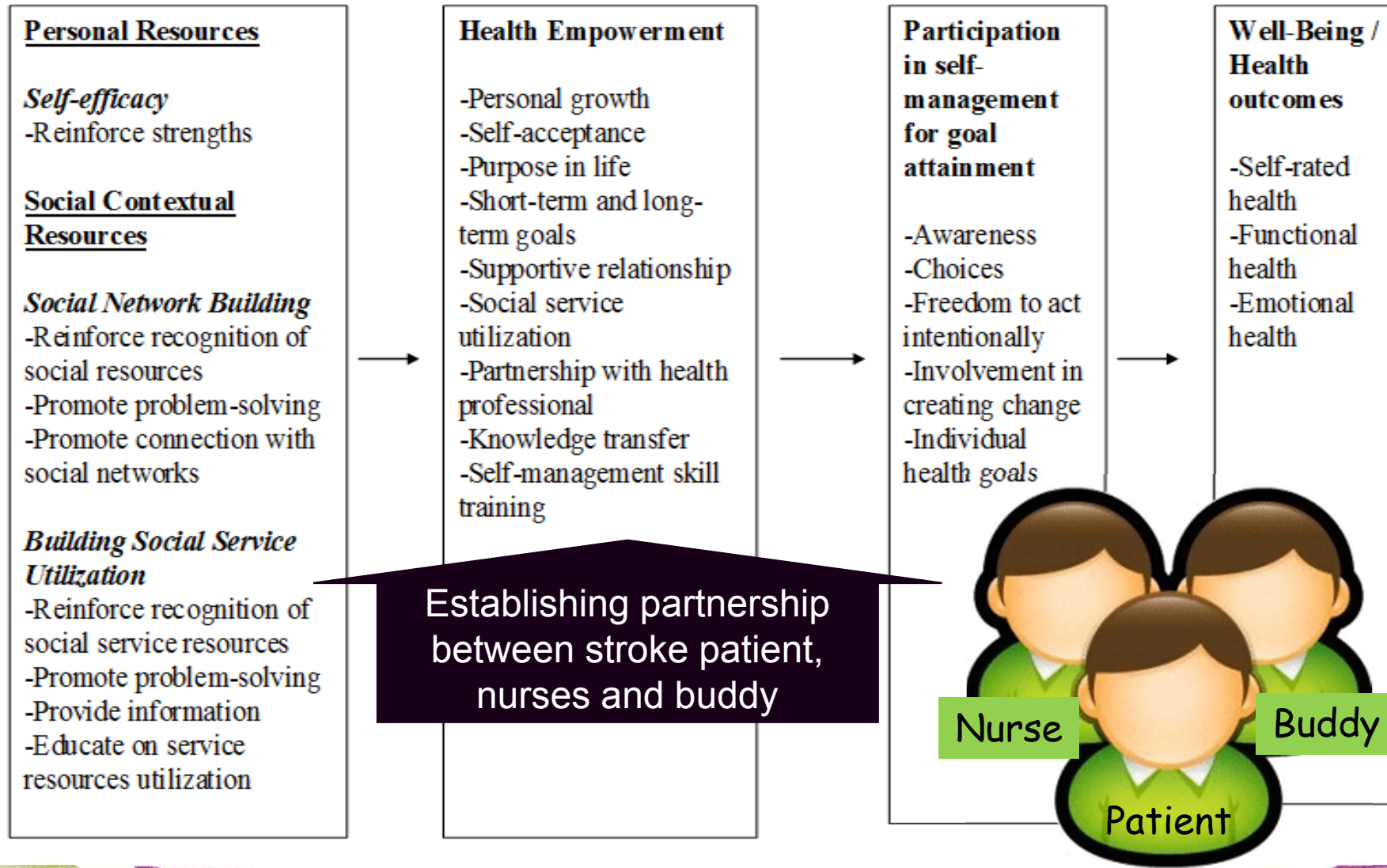
Shearer (2009)

Theoretical application in SPEI



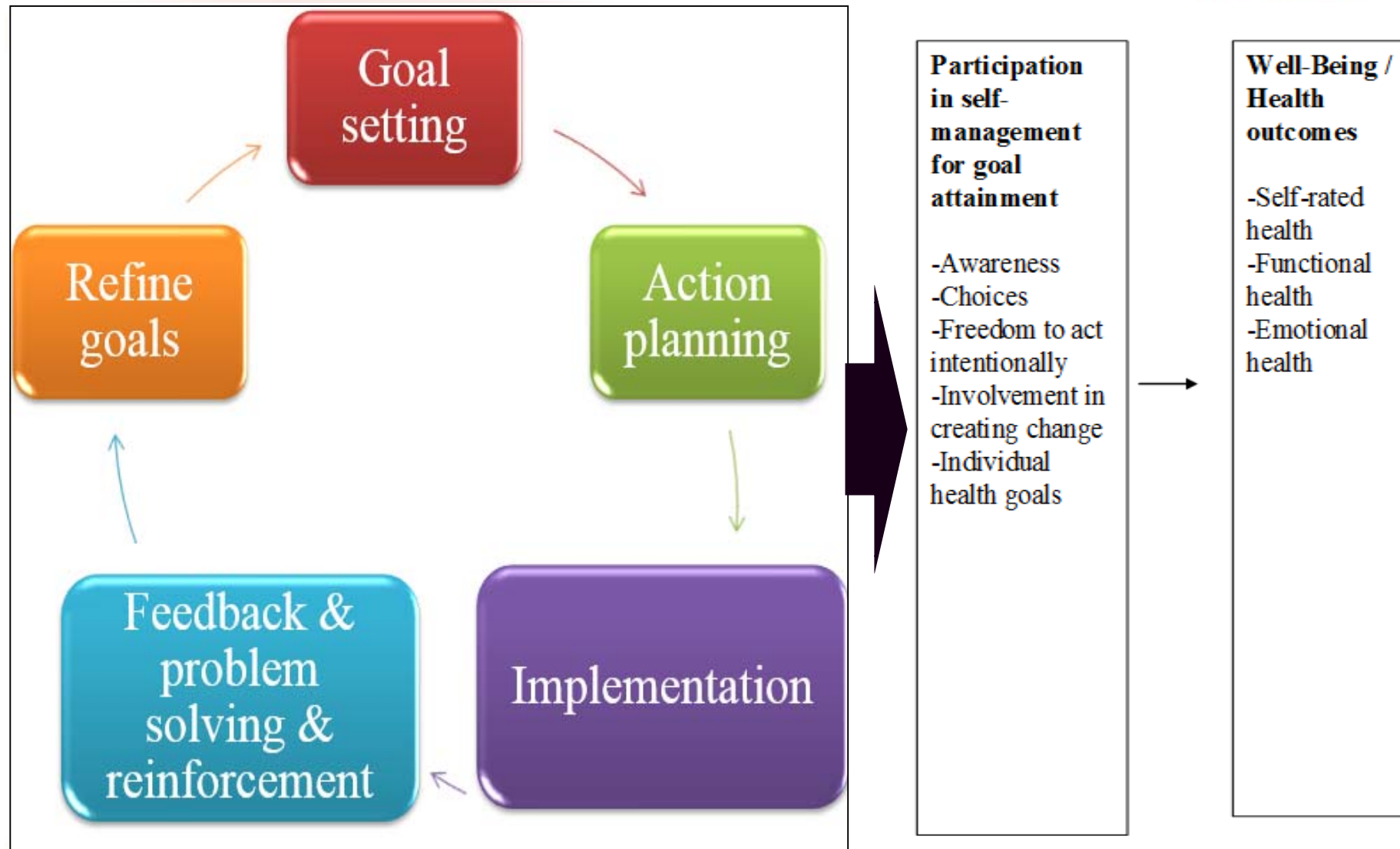
Shearer (2009)

Theoretical application in SPEI



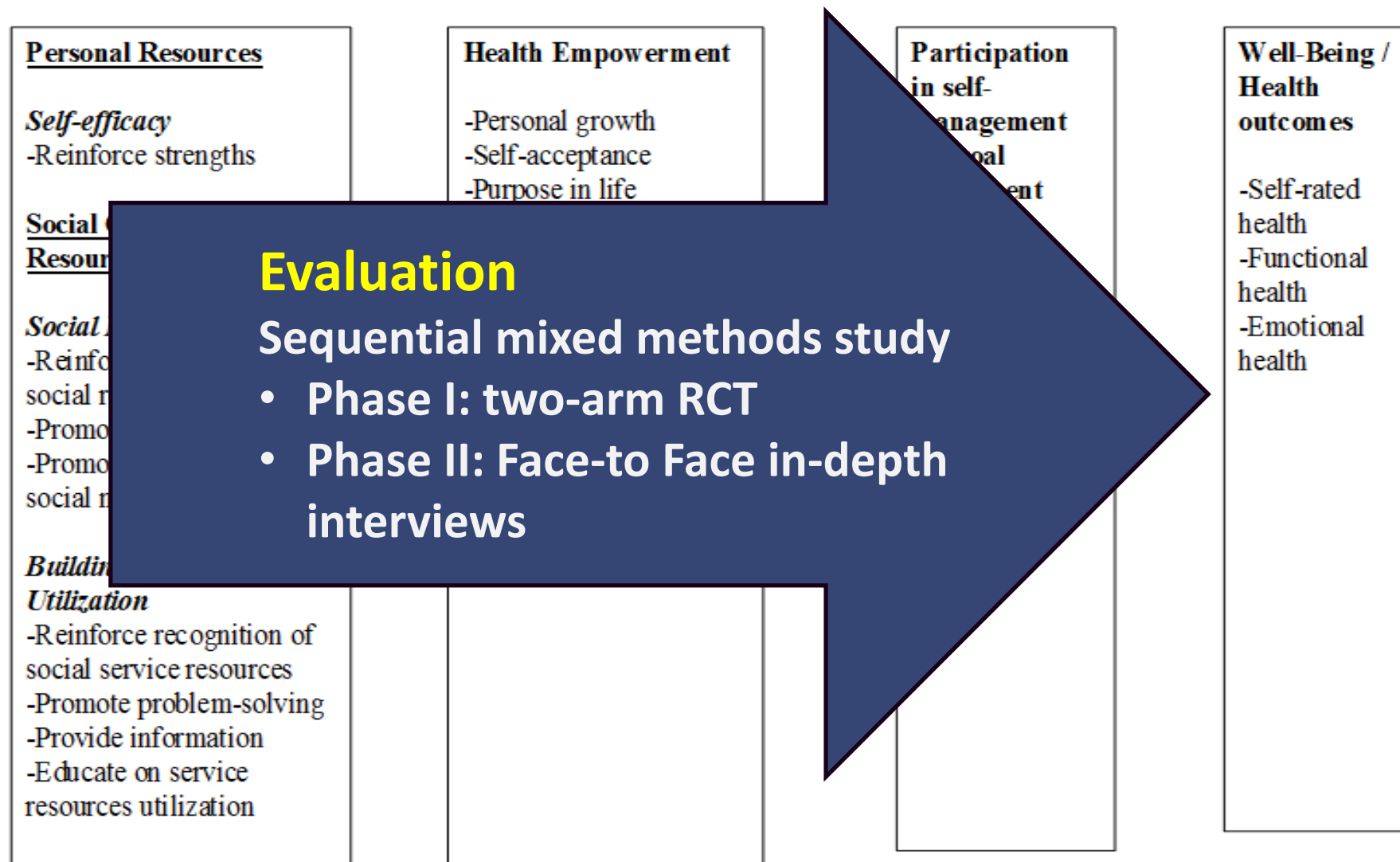
Shearer (2009)

Theoretical application in SPEI



Shearer (2009)

Theoretical application in SPEI



PHASE I : RESEARCH QUESTION:

Is SPEI effective in enhancing stroke patients' self-management behaviors and functional recovery?

HYPOTHESES:

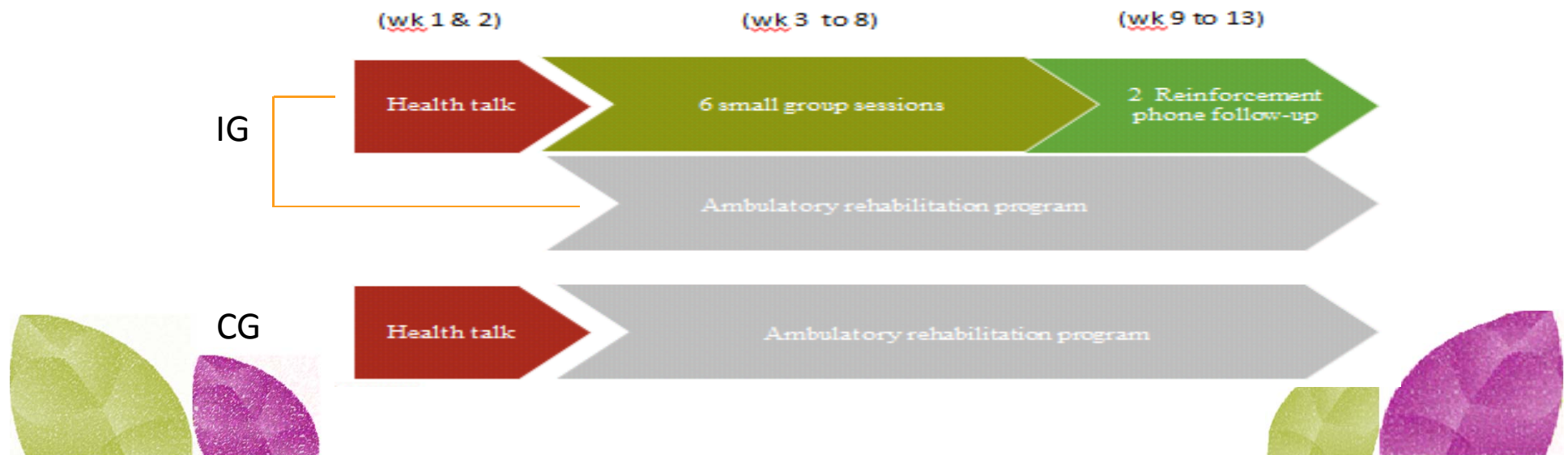
Comparing with the CG, participants in SPEI will have significant improvements in :

1. self-efficacy in illness management
2. Health promoting self-management behaviors
3. Self-care ability in activities of daily living (ADL)

Study method



- Two-arm single-blinded randomized controlled trial
 - CG: Usual care (ambulatory stroke rehabilitation programme)
 - IG: Usual Care + 13-week SPEI
- Computer-generated block randomization
- Study setting: Ambulatory Rehabilitation Centre of an sub-acute hospital



Participants



Consecutive stroke patients who meet the selection criteria will be recruited during hospitalization

Inclusion criteria	Exclusion criteria
<ol style="list-style-type: none">1. ≥ 18 years old;2. Experienced first-time stroke (hemorrhagic or ischemic);3. Slight to moderate neurological deficits with NIHSS score < 15 during admission;4. Experienced post-stroke functional difficulties that limit participation in self-care;5. Able to communicate; MMSE score > 18;6. Currently transiting to the ambulatory stroke rehabilitation phase;7. Able to be reached by telephone;8. Able to sign informed consents.	<ol style="list-style-type: none">1. Aphasia;2. With co-existing severe / life-limiting diseases;3. Diagnosed to have depression and was currently on anti-depressive / psychiatric treatment4. Pre-morbid dependence;5. Currently involving in any other research study.

Data collection procedure



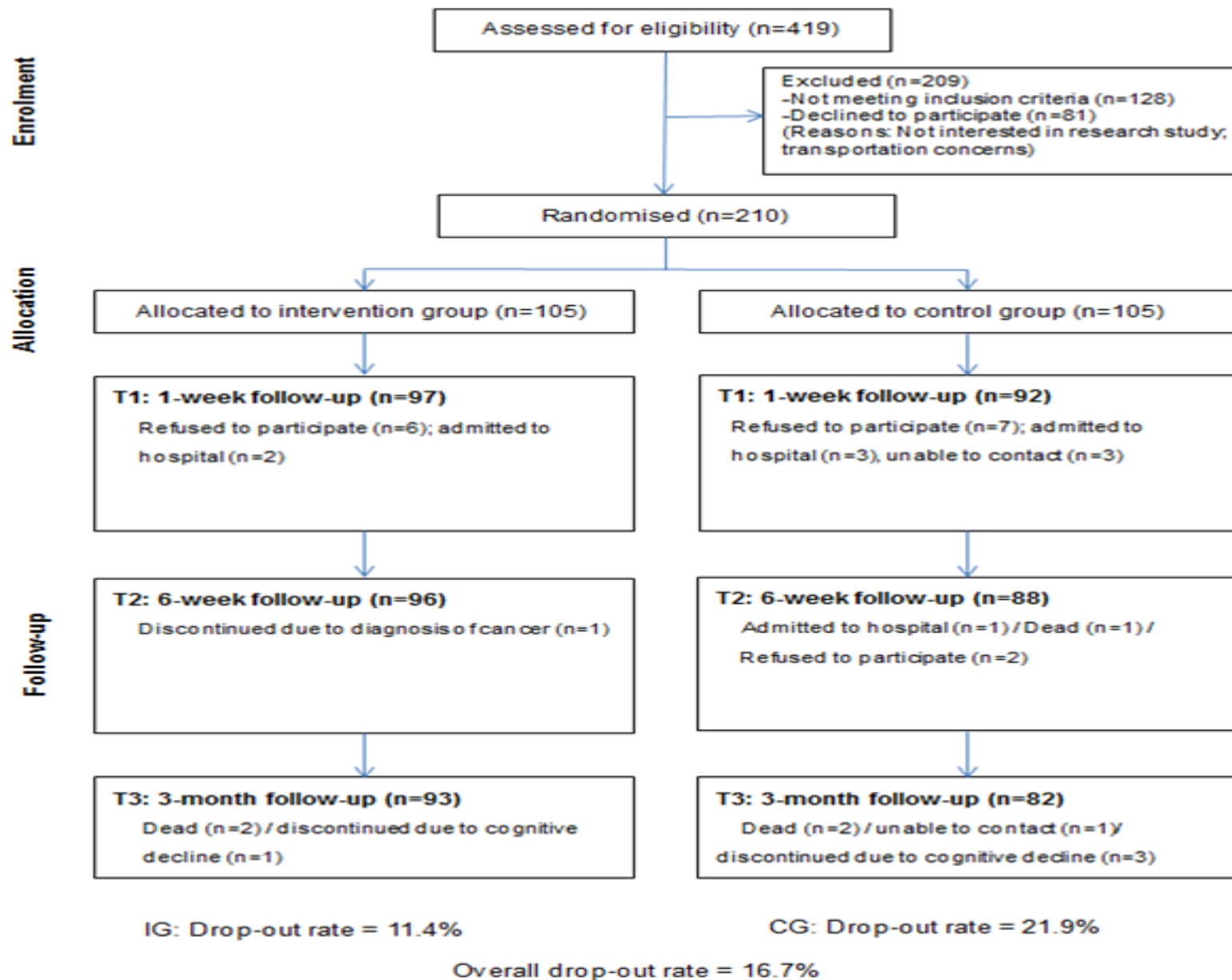
Data Collection Tools/Measurement Instruments	Measurement Time Periods			
	Baseline (T0)	1-wk Post test (T1)	3-mo post test (T2)	6-mo post test (T3)
Demographics and Clinical Profiles	×			
Self-efficacy in illness management (subscale of Chinese self-management behavior questionnaire)	×	×	×	×
Self-management behavior (Chinese self-management behavior questionnaire)	×	×	×	×
Functional ability (Barthel Index; Lawton ADL scale)	×	×	×	×

Ethical considerations

- The study conformed to the principles outlined in the Declaration of Helsinki.
- Information sheet & Consent form
- Anonymity and Confidentiality
- Ethical approval is obtained from HKEC Clinical Research Ethics Committee [*REC ref. no. HKEC-2011-038*]



Study flowchart



Results Phase I

Table 1 Baseline socio-demographic characteristics of the participants (n=210)

Socio-demographic characteristics	Control (n=105)	Intervention (n=105)	p-value #
Age (years) †	70.7 (13.9)	67.8 (14.2)	0.124
Sex			
Male	55 (52.4%)	55 (52.4%)	0.999
Female	50 (47.6%)	50 (47.6%)	
Marital Status			
Single	10 (9.6%)	10 (9.5%)	0.206
Married	80 (76.9%)	71 (67.6%)	
Divorced / separated / widowed	14 (13.5%)	24 (22.9%)	
Educational level			
No formal education	22 (21.2%)	21 (20.0%)	0.606
Primary school	27 (26.0%)	24 (22.9%)	
Secondary school	47 (45.2%)	46 (43.8%)	
Tertiary education or above	8 (7.7%)	14 (13.3%)	
Employment status			
Full/part time work	34 (32.4%)	33 (31.4%)	0.827
Housewife	15 (14.3%)	20 (19.0%)	
Retired	48 (45.7%)	45 (42.9%)	
Unemployed	8 (7.6%)	7 (6.7%)	
Carer			
Relatives	17 (16.2%)	24 (22.9%)	0.090
Paid full-time domestic helper	10 (9.5%)	16 (15.2%)	
Paid part-time domestic helper	60 (57.1%)	57 (54.3%)	
Aged care staff	18 (17.1%)	8 (7.6%)	
Religion			
No	61 (58.7%)	61 (58.1%)	0.935
Yes	43 (41.3%)	44 (41.9%)	
Smoking habits			
Never smoke	68 (64.8%)	68 (64.8%)	0.999 ^ψ
Ex-smoker	34 (32.4%)	35 (33.3%)	
Smoker	3 (2.9%)	2 (1.9%)	

Data marked with † are presented as mean (standard deviation), all others are presented as frequency (%).

Categorical and continuous variables were compared between the two groups using Pearson chi-square test and t-test respectively, those marked with ^ψ were compared using Fisher's exact test.



Results

Phase I



Table 2: Baseline clinical profile of the participants (n=210)

Clinical profile	Control (n=105)	Intervention (n=105)	p-value #
Stroke type			
Haemorrhagic	26 (25.0)	29 (27.6)	0.667
Ischaemic	78 (75.0)	76 (72.4)	
Affected brain region			
Left brain	49 (47.1)	41 (40.2)	0.579 [‡]
Right brain	51 (49.0)	57 (55.9)	
Both	4 (3.9)	4 (3.9)	
Mobility			
Hemiplegia	6 (5.8)	4 (3.8)	0.854 [‡]
Hemiparesis	90 (86.5)	92 (88.5)	
Both	8 (7.7)	7 (6.7)	
Not obvious	0 (0.0)	1 (1.0)	
Affected body part			
Left side	43 (43.4)	50 (47.6)	0.931
Right side	41 (41.4)	41 (39.0)	
Both	9 (9.1)	9 (8.6)	
Others (visual/ speech)	6 (6.1)	5 (4.8)	
Sensory Influence			
Intact	34 (32.7)	35 (33.3)	0.999 [‡]
Impaired	65 (62.5)	66 (62.9)	
Absent	5 (4.8)	4 (3.8)	
Chronic illnesses	96 (91.4)	93 (90.3)	0.776
Hypertension	74 (70.5)	73 (70.9)	0.950
Diabetes Mellitus	38 (36.2)	36 (35.0)	0.852
Hyperlipidaemia	47 (44.8)	50 (48.5)	0.585
Heart Disease	11 (10.5)	24 (23.3)	0.013
Complications	7 (7.0)	13 (12.7)	0.172

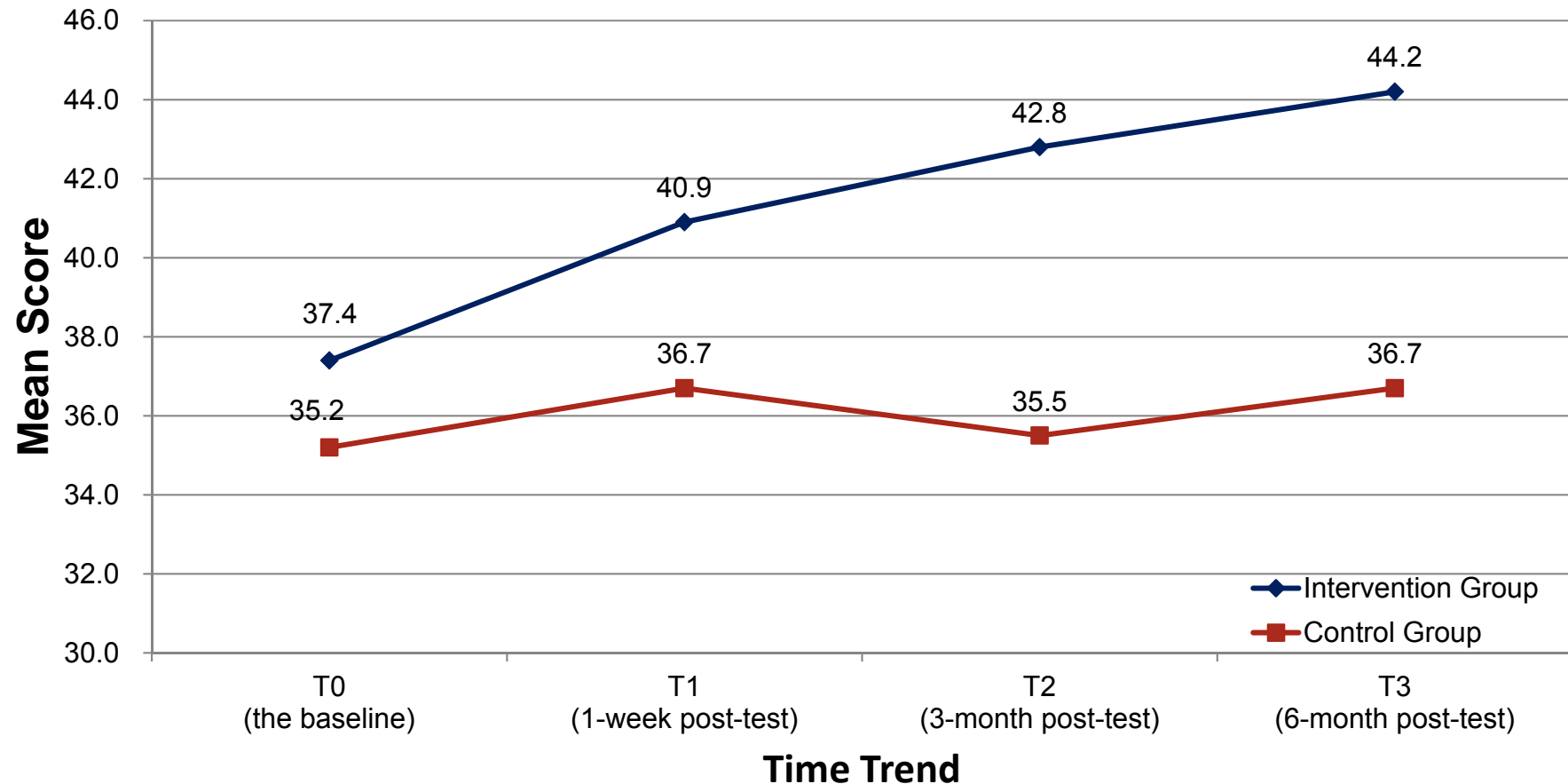
Data are presented as frequency (%).

Those marked with [‡] were compared using Fisher's exact test, Pearson chi-square test was used otherwise.

Results – Phase I

Subscale of Chinese self-management
behaviour questionnaire

Self-efficacy in illness management



Generalized Estimating Equation (GEE) models:

B (95%CI):

Group*T1: 2.11 (-1.77, 6.00)

Group*T2: 5.44 (1.24, 9.64)*

Group*T3: 5.59 (1.22, 9.95)*

* $p < .05$

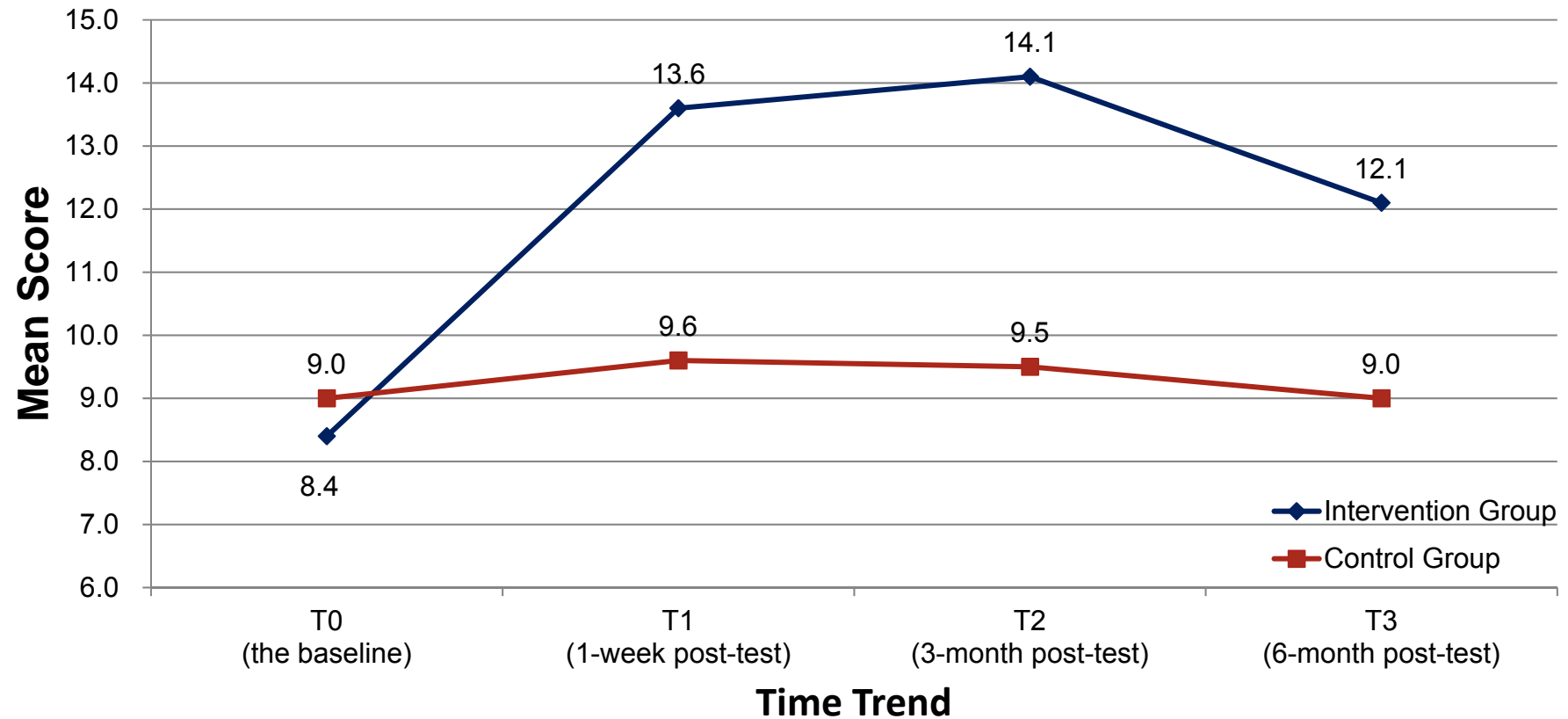
** $p < .01$

*** $p < .001$

Results – Phase I

Subscale of Chinese self-management
behaviour questionnaire

Self-management behavior – Cognitive symptom management



Generalized Estimating Equation (GEE) models:

B (95%CI):

Group*T1: 4.49 (2.60, 6.37)***

Group*T2: 5.18 (3.27, 7.09)***

Group*T3: 3.61 (1.62, 5.61)***

* $p < .05$

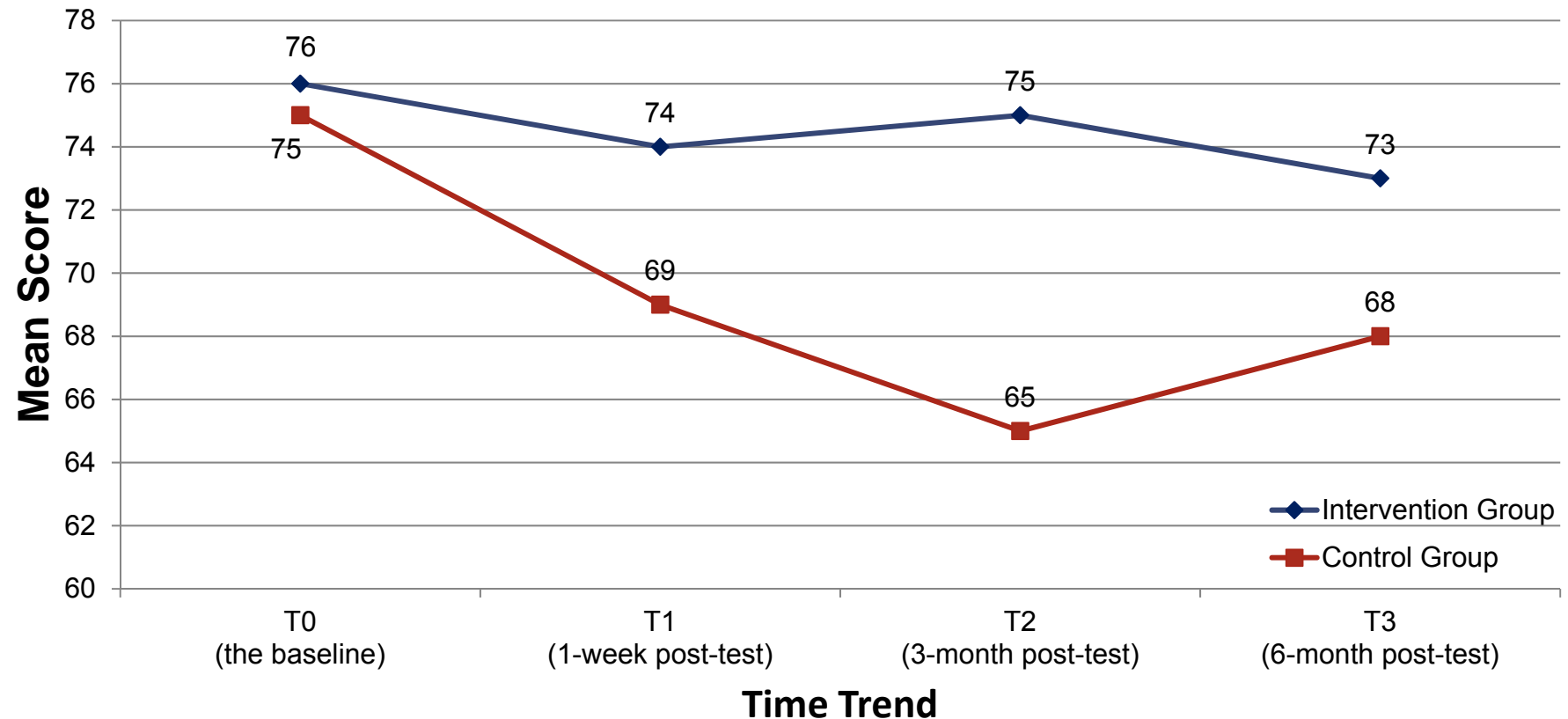
** $p < .01$

*** $p < .001$

Results – Phase I



Self-management behavior – Medication adherence (adherence percentage)



Generalized Estimating Equation (GEE) models:

B (95%CI):

Group*T1: 1.10 (0.50, 2.42)

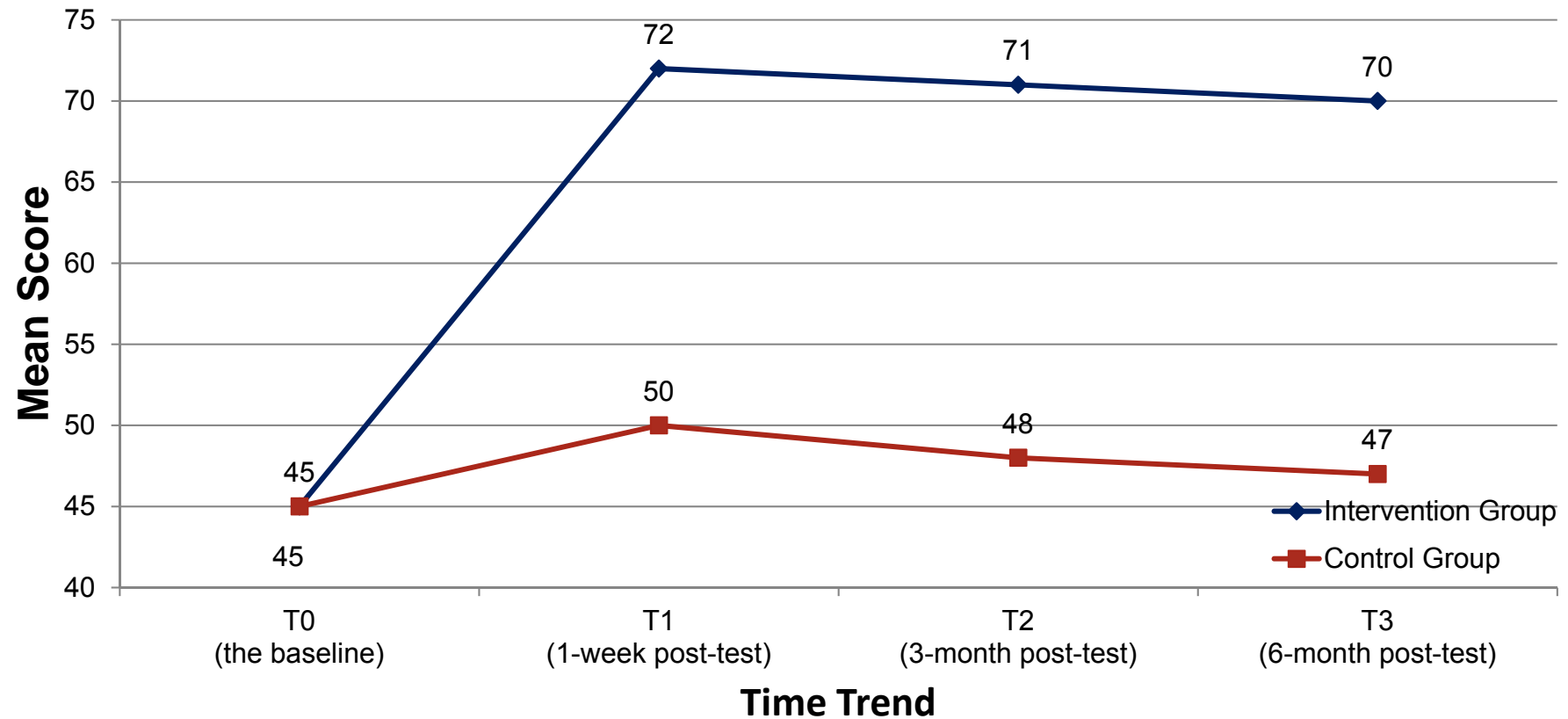
Group*T2: 1.29 (0.57, 2.92)

Group*T3: 0.57 (0.25, 1.32)

Results – Phase I



Self-management behavior – Self-BP monitoring (adherence percentage)



Generalized Estimating Equation (GEE) models:

B (95%CI):

Group*T1: 2.49 (1.32, 4.68)**

Group*T2: 2.56 (1.32, 4.96)**

Group*T3: 2.31 (1.11, 4.81)*

* $p < .05$

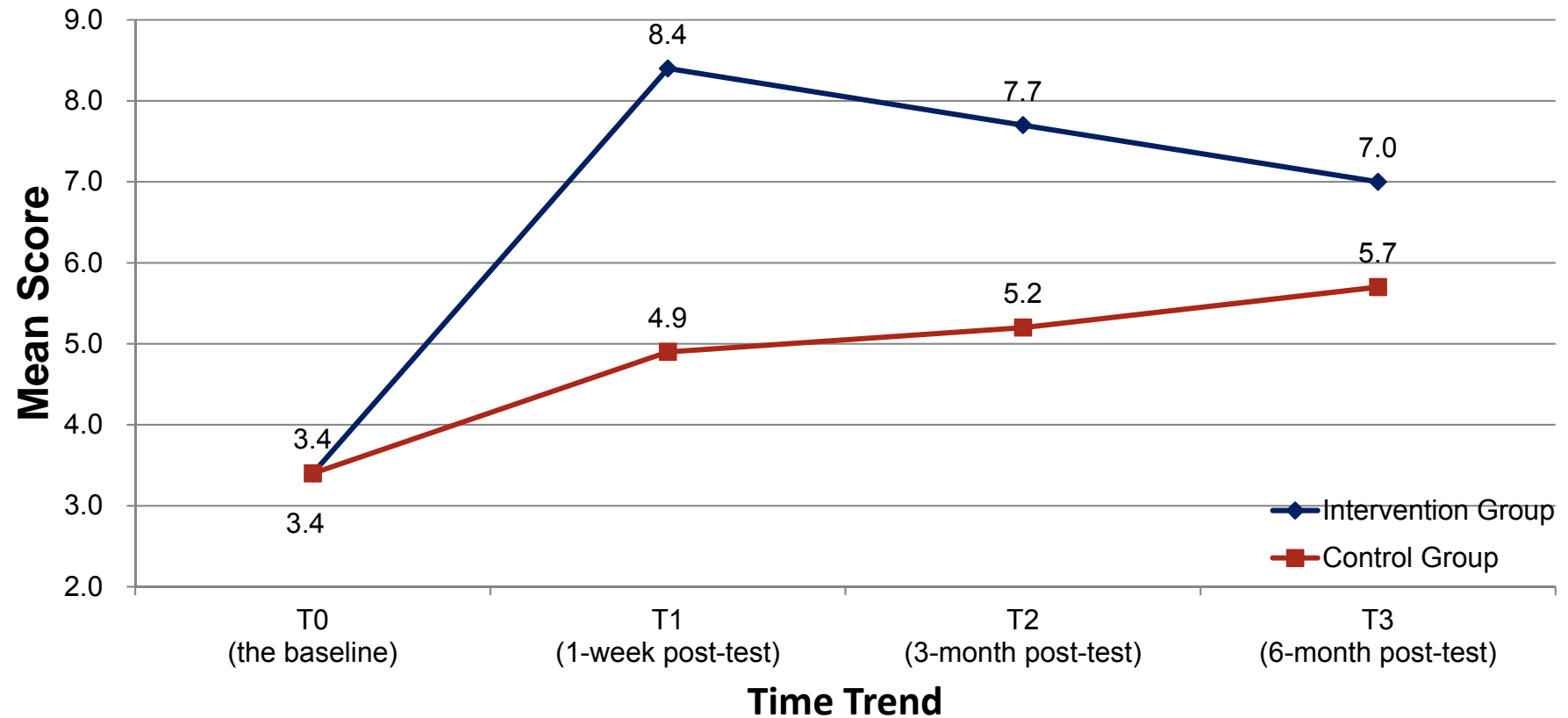
** $p < .01$

*** $p < .001$

Results – Phase I

Subscale of Chinese self-management
behaviour questionnaire

Self-management behavior – Communication with physician (0-15)



Generalized Estimating Equation (GEE) models:

B (95%CI):

Group*T1: 3.53 (2.13, 4.94)***

Group*T2: 2.44 (0.93, 3.95)**

Group*T3: 1.36 (-0.23, 2.95)

26

* $p < .05$

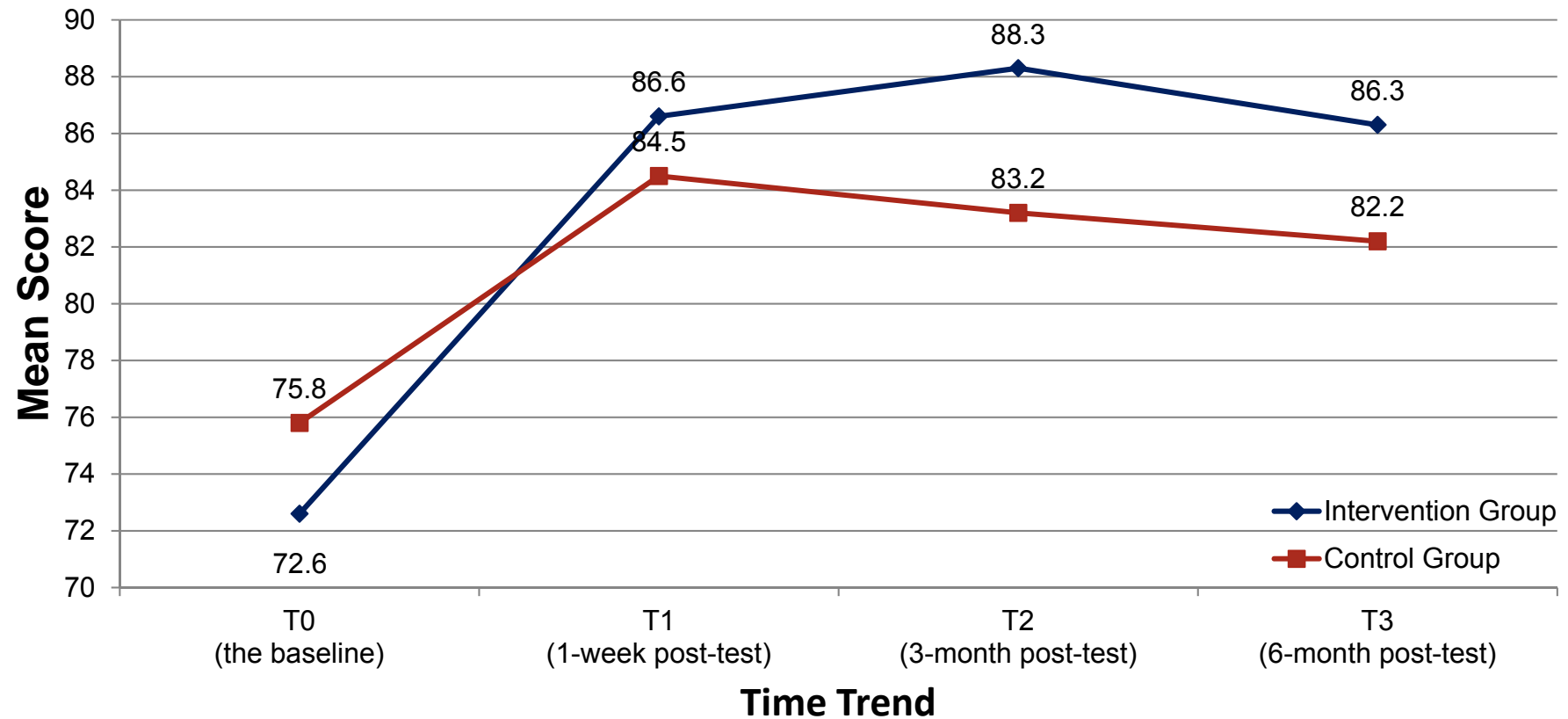
** $p < .01$

*** $p < .001$

Results – Phase I



Functional ability – Barthel index



Generalized Estimating Equation (GEE) models:

B (95%CI):

Group*T1: 5.20 (0.75, 9.64)*

Group*T2: 8.04 (2.40, 13.68)**

Group*T3: 7.97 (1.51, 14.43)*

* $p < .05$

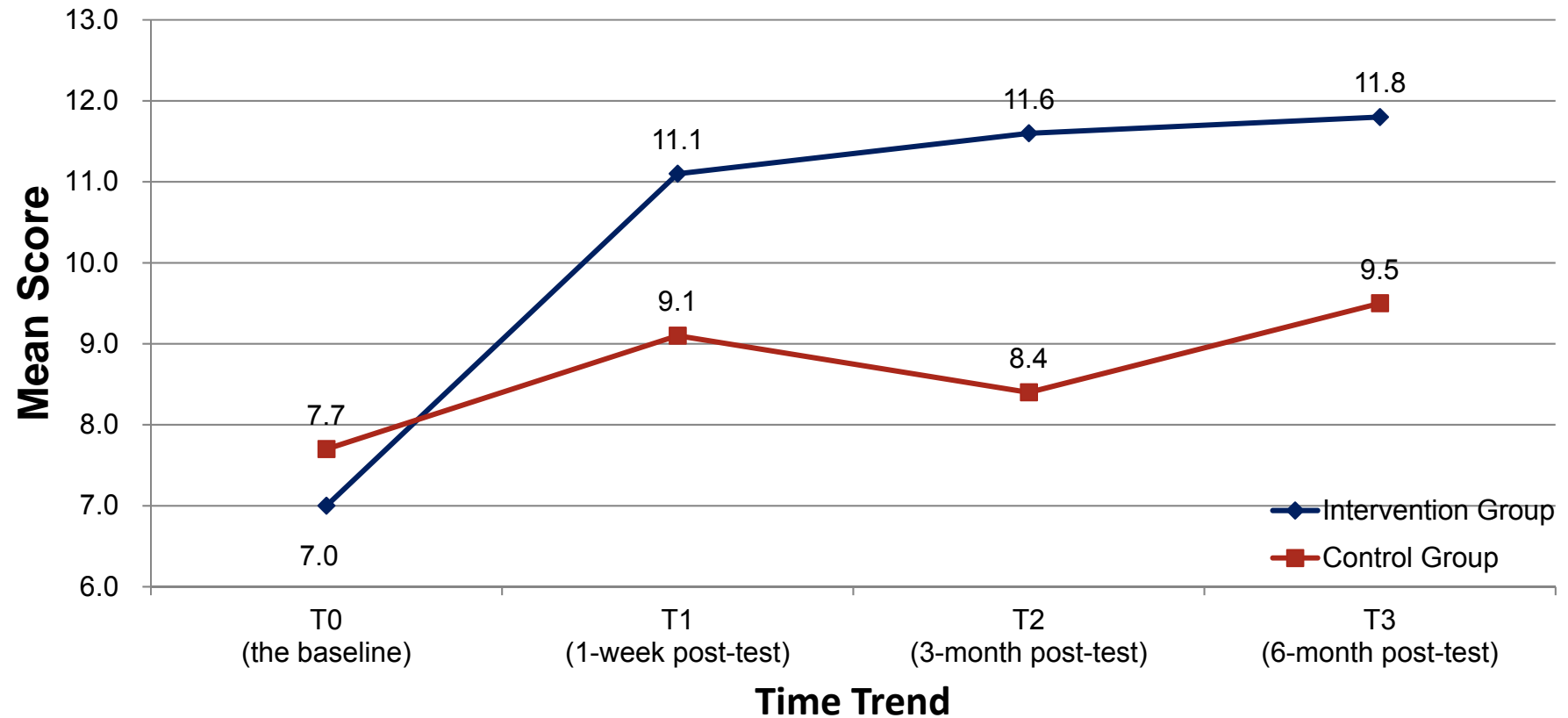
** $p < .01$

*** $p < .001$

Results – Phase I



Functional ability – Lawton IADL scale



Generalized Estimating Equation (GEE) models:

B (95%CI):

Group*T1: 2.46 (1.29, 3.63)***

Group*T2: 3.54 (2.27, 4.80)***

Group*T3: 2.86 (1.39, 4.42)***

* $p < .05$

** $p < .01$

*** $p < .001$

Results – Phase I



Comparison of unplanned AED visits and rehospitalization rates

	Between T1 and T2			Between T2 and T3		
	Control (n=84) ^{Note1}	Intervention (n=95) ^{Note2}	p-value [#]	Control (n=82)	Intervention (n=92) ^{Note3}	p-value ^{#e}
<u>Unplanned AED visits</u>						
0	62 (73.8%)	68 (71.6%)	0.785 ^ψ	68 (82.9%)	79 (85.9%)	0.755
1	16 (19.0%)	21 (22.1%)		11 (13.4%)	9 (9.8%)	
≥ 2	6 (7.1%)	6 (6.3%)		3 (3.7%)	4 (4.3%)	
<u>Stroke-related hospital readmissions</u>						
0	67 (79.8%)	73 (76.8%)	0.453	70 (85.4%)	80 (87.0%)	0.793
1	11 (13.1%)	18 (18.9%)		8 (9.8%)	8 (8.7%)	
≥ 2	6 (7.1%)	4 (4.2%)		4 (4.8%)	4 (4.3%)	

Data are presented as frequency (%).

[#]Those marked with ^ψ were compared using Pearson chi-square test, Fisher's exact test was used otherwise

Phase II research questions

- What strategies (if any) older stroke participants used for self-management post stroke?
- What difficulties or barriers (if any) encountered relating to self-management post stroke?



Phase II: Face-to-face in-depth interview

➤ Purposive sampling:

- participants matrix were informed by Phase I results (tertile of IADL change at T2)
- Participants with significant positive change and those with little or negative changes in IADL were recruited
- Maximum variation principle: sex, age, educational level, baseline ADL, presence of complications, presence of paid caregivers
- 21 participants were interviewed

➤ Data collection

- Digitally recorded semi-structured interview
- Individual interview conducted after the completion of Phase I study

➤ Data analysis

- Content analysis at manifest and latent levels
- Trustworthiness: triangulation of data in the data analysis process, member checking, peer debriefing

Results – Phase II

- Four categories of self-management strategies adopted:

Visualizing
Self-manager
Role

Enhancing
Resilience

Anticipatory
Help Seeking

Collaborative
Symptom
Management

- Three barriers to stroke self-management identified:

Accepting
Disability as Part
of Ageing

Over-protective
family care

Fatigue

Limitations



- Captured the first 10 months after stroke
Whether intervention effects could be sustained beyond this period is not known
- SPEI adopted multifaceted approach
Specific component(s) in SPEI that was/were effective cannot be determined.
- Potential Hawthorne effect
Positive changes in SPEI could have been resulted from the different intensity of professional attention between the two groups, despite CG also received similar contact time with unstructured social chatting
- Self-reported questionnaire used for self-management behavior
Could have led to over-reporting of desired self-management practices by participants, despite strategies to reduce social desirable tendency have been implemented

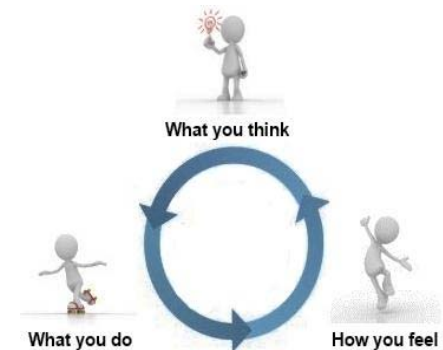


Implication to practice:



Rehabilitation nursing perspectives

- Self-management intervention \neq patient education
- Person-centred, appreciation of psychological and social processes in rehabilitation journey
- Plan with patients vs. plan for patients
- Accept setbacks
- Mental stimulation:
 - Action planning: When, where, how of implementing intended action
 - Coping planning: Anticipation of barriers and alternatives or problem solving



Implication to health policy

- In the context of chronic disease management, **patient engagement** has been an important area in health policy for achieving triple aims: **improving health outcomes, better patient-centered care and lower costs.**
- Patient empowerment intervention can be incorporated in the **ambulatory rehabilitation phase**, where ongoing professional support and facilitation in **engaging stroke patients to assume responsibility and participation** in stroke self-management in home setting become more accessible
- The expanded and extended **nursing role in ambulatory care setting**

Conclusion

- This nurse-led SPEI can readily be conducted in tandem with existing ambulatory stroke rehabilitation services, to foster self-management post stroke and improve functional recovery