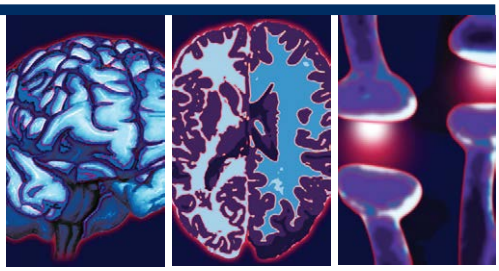
Research Paper



Narrative Group Intervention to reconstruct Meaning of Life among Stroke Survivors: A Randomized Clinical Trial Study

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ABSTRACT

Objectives: Stroke is the most significant cause of disability in older adults and has a dramatic psychosocial impact on stroke survivors. Narrative therapy (NT) views people as 'the experts' in their own lives, assuming people have many skills, abilities, beliefs, and values that will assist them in life. NT is used to externalize the dominant problem-saturated experiences and open diverse possibilities for reconstruction of identity in ways that are powerfully connected with their meaning and purpose of life.

Method: A double-blind randomized controlled trial (RCT) was used. A sample (N=192) of stroke survivors was randomly assigned to intervention (NT) or treatment as usual (TAU) psycho-education groups.

Results: Survivors in the NT group showed significant improvements in the various outcome measures: stroke knowledge, mastery, self-esteem, hope, meaning in life, and life satisfaction. Most improvements were sustained 4 months post intervention. The TAU group failed to show similar improvements across most measures. The NT participants experienced significantly decreased depression, and improved self-esteem, mastery, hope, meaning in life and life satisfaction scores, sustained 4 months post intervention. No adverse reaction was recorded in any of the cases mentioned at all study sites.

Conclusion: Results suggest that NT as a meaning-making intervention could be a viable option for stroke survivors to facilitate their recovery.

Keywords

Narrative therapy, Psycho-educational therapy, Stroke survivor, Post-traumatic growth, Intervention

Introduction

Individuals can live from 20 to 38 years after experiencing a stroke [1]. Often, having a stroke is a traumatic experience both physically and psychologically; many stroke survivors also often face dramatic changes that impose obstacles in their lives. They are most likely to experience limited mobility, communication problems, changes in social interaction and life participation [2]. A loss of physical or intellectual functioning and/or a decrease in self-care abilities may also bring detrimental effects to the psychological health and social identity of the stroke individual, and is often accompanied by a range of emotional, psychic, cognitive and social consequences [3]. Other idiopathic emotions such as shock, helplessness, hopelessness, depression, anger, anxiety, and frustration may also arise, and 30-40% of stroke survivors experience serious and disabling mood

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changes. Depression is most evident within the first two years after a stroke [4].

Often, an individual's self-esteem will be shaken when he or she feels a sudden loss of body control which hinders normal daily roles in the family or workplace [5]. Stroke may also lead to social withdrawal and/or loss of friendships and other esteem-building social bonds [6]. Stroke victims can also experience the 'stigma of stroke', which is socially constructed, holding the perception that others think less of them, keep away from them, or feel uncomfortable with them because of their newly acquired disability [7]. Some stroke patients often believe that they are segregated and detached from their family members and friends [8]. Many individuals may have difficulties even though they have tried very hard to adapt to an altered lifestyle and revamp relationships with themselves, their family, friends and society. Post-stroke adaptation is an ongoing process that is both harsh and demanding, both for stroke survivors and for those around them. Functional limitations may also be a major obstacle for stroke survivors, as these limitations may exacerbate the possibility of self-worth, identity and and social isolation. Psychological problems such as the 'stigma of stroke' may become a reality when stroke survivors are closely bound to a relationship with their stroke and continue to live with personalized 'problem-saturated stories', with accompanying feelings of hopelessness and helplessness if no therapeutic rehabilitative treatment is provided.

Present Rehabilitation Services for Stroke Patients in Hong Kong

The health-care system in Hong Kong, like that in most well-developed countries, is significantly influenced by the conventional biomedical model, which emphasizes symptoms, disease, illness, and pathologies: [8] only individuals assessed with a higher potential for rehabilitation will be transferred to rehabilitation and convalescent hospitals for remedial or extended care services. Patients are commonly provided with related health and service information on stroke knowledge to prevent relapse. Although the psycho-educational approach is commonly used in current stroke rehabilitation services, previous studies have indicated that it was found less promising than expected [9].

Clark et al. [10] conducted a randomized controlled trial (RCT) to compare the effectiveness of an education and counseling intervention on stroke survivors and their families. Psycho-education had limited effects on the same psychosocial aspects (e.g., depression, anxiety and mastery) of stroke survivors. Thus, alternative interventions are warranted in order to provide effective stroke rehabilitation service for stroke survivors, which served as the main rationale for this study.

Narrative Therapy: Meaning Making and Illness

Numerous studies have suggested that the earlier a stroke patient receives rehabilitative treatment post stroke, the sooner he or she is able to reintegrate into normalized community living. From a social constructionism paradigm, it is important to facilitate stroke survivors in reconstructing their stroke narratives, which often cover aspects of recovery, community, and reconstruction of self [11]. Narrative therapists contend that people have many skills, competences, beliefs, values, commitments, abilities and problem-solving capacities which may have led to successful coping in the past. According to the social constructionism framework, NT can: 1) facilitate and engage stroke survivors in addressing their major life challenge; 2) empower survivors to reclaim their preferred lives and enhance their well-being, by reconnecting their strengths, and mastery from their personal narratives, reducing focus from their stroke in their narrative without re-traumatizing them; and 3) help them to rediscover their preferred identity, view themselves in more positive ways and transform their narratives and alternatives in the future to a more meaningful life. Therefore, they can make better sense of their illness experiences, to retain and restore more personal purpose and meaning in life.

From the NT perspective, the therapist acts as a non-expert, taking a respectful, non-blaming approach, and individuals themselves act as 'the experts' of their own lives. NT views people as having unique histories, and emphasizes the importance of their subjective perceptions and experiences of their problems. The emphasis of NT is building a new perspective, eliciting persons'/clients' inner strengths and wisdom, and What are they enriching in rebuilding ? their lives within the limits of disability [12,13]. NT is based upon therapeutic conversations between the therapist and the person/client. The main purpose of these conversations are: 1) to de-

construct or 'unpack' the dominant life stories of the person and thus open up the possibility to 're-story' or 're-author' these problem-saturated stories; 2) to 're-author' a problem-saturated story by externalizing conversations, and recasting the person's problems as afflictions; 3) to find exceptions (unique outcomes) in the person's problem-saturated story, as he or she experienced partial triumphs over the affliction, and take effective action and open space for alternative stories and life possibilities for the person's new preferred meanings and ways of living [14-17]. The theoretical basis of NT is social constructionism: people's expressions of their experiences of life [14,15,17]. People are shaped by their own narratives, which are composed of meanings, identities, discourses, landscapes, plots and purposes, and new life narratives will be re-created during the meaning-making process, when people ascribe meaning to the events of their life. In the face of illnesses, such stories may be constrictive and self-blaming [18]. By openly externalizing negative feelings and marginalization through narrative conversations, individuals are able to rewrite their own new stories about their issues with their stroke and view themselves from a new lens. For instance, in an externalizing conversation about 'the stroke', a person might explain that he or she wishes to do away with the influence of stroke on 'the loss of normal functioning' but to retain the 'improvement of family relationships'. During the therapeutic process, individuals can step back and separate themselves from their problems, free of self-blame, judgment, and negative self-identity [19,20].

Effectiveness of Narrative Therapy on Well-being

NT conducted in groups provides a common discourse ground [21] and has proven to be effective among older adults [22-24] as a restoration of meaning in life. This can be especially important because of age-related losses in social relations, social roles and physical functions that challenge meaning in life [25]. Additionally, Vronmans and Schweitzer [26] provided empirical support for the effectiveness of NT in the treatment of adults with major depressive disorders.

While most survivors live with some degree of disability and struggle with residual physical and cognitive impairments from stroke, these impairments likely totalize the survivors with problem-saturated life events, which adversely affect their sense of self and their identity as a burden to family and society after a stroke. NT may offer a viable treatment in handling the psychosocial and spiritual hardships of survivors through a meaning-making process [27,28]. Narrative therapists believe that, even if stroke survivors are afflicted with a problem-saturated identity, they can reconnect with their values and beliefs, strengths and life wisdom, which will enable them to reduce the effect of the problems and rebuild their lives within the limits of disability [15,29]. Through a therapist's curiosity in asking narrative questioning, the participants share rich information about their stories of coping, hopes and dreams to be interpreted, which provide flexibility to examine the meaning-making process in a variety of natural contexts. The discursive dialogue provides an alternative method to understanding complex psychological constructs, by linking theory and data to understand the important process of meaning-making [30]. NT interventions can also allow researchers to overcome some methodological constraints of traditional empirical research methods, which has been shown to be beneficial to Chinese older adult participants [31,32].

Aims

Although some research has shown the effectiveness of NT in improving personal relationships, meaning of life and depression among different subjects, limited research has been conducted to evaluate its effectiveness on stroke survivors. Despite the empirical effects of NT being clinically promising, the main methods of empirical inquiry using NT with survivors with chronic illnesses have primarily used qualitative approaches. Thus, it appears that more quantitative data are needed to investigate the effectiveness of NT on patients with chronic illness. The present study aims to assess the effectiveness of NT among a sample of Chinese stroke patients by comparing them with a psycho-educational approach (as treatment-as-usual (TAU)). As such, this study fills a distinct void in the literature on this subject.

Method

■ Sample selection

We recruited a sample of Chinese Hong Kong older adults (aged 60 or older) who had had a stroke within the past 1-2 years and fulfilled both inclusive and exclusive criteria. They

were recruited based on the following inclusive criteria: (1) had completed either hospital or day rehabilitation programs, (2) were able to move with physical impairment or walking aids, (3) possessed normal mental and hearing ability, (4) were not currently experiencing an acute crisis with severe stress, (5) were free from active psychotic symptoms such as hallucinations and delusions, (6) were able to perform minimal daily functions, (7) had Cantonese Chinese Mini-Mental State Examination (C-MMSE) scores greater than or equal to 18 (including moderate to high cognitive function), (8) were not intellectually disadvantaged and did not have a diagnosis of a personality disorder, (9) did not have a record of suicide or violent behavior, and (10) were willing to meet group expectations. After providing informed consent, participants were assigned randomly in matched pairs by Jensen's [33]. computerized method of minimization to one of two groups: intervention or TAU groups. To minimize uneven distributions of known variables, randomization was carried out after the initial stratification of age (60-70, 71-80, 80+), gender (male or female), type of stroke (cerebral ischaemia or hemorrhage), and side of hemiplegia (right or left).

The sample was recruited from the stroke registries of the following five regional clusters of the Hong Kong (HK) Hospital Authority: Kowloon East, Kowloon West, New Territories West, New Territories East, and HK Island. There were also several other possible sites for sample recruitment: local patient resources centers (PRC), elderly health centers (EHC), integrative family services centers (IFSC), and district elderly counseling centers (DECC). Initial confirmation was also solicited from the chairperson of the HK Stroke Association, a survivor-led self-help mutual aid organization, which has five centers based in the HK community rehabilitation network (CRN) of the Society for Rehabilitation to provide as alternative support to those participants after they had completed the intervention. The study obtained approval through the City University of HK's ethics committee.

■ Procedures used

According to the flow of study as indicated in **Figure 1**, a battery of questionnaires was distributed to participants of the intervention and TAU groups at four sequential times: baseline (T_0), interim (T_1) (1 month), post intervention (T_2) (2 months), and four months after intervention (T_3) (6-months) [22]. The suggested time flow was adopted with reference to previous study design for narrative therapy [34]. Data were collected by face-to-face interviews conducted by a trained research assistant who was blinded about the design of the present study. A double-blind RCT was adopted for the study. An RCT with a larger sample and multiple measurements was necessary to obtain evidence deemed of intervention effectiveness [25]. For the intervention group, stroke survivors received 2-hour NT group sessions for 8 consecutive weeks during 2012-13 [29]. Participants assigned to the TAU group joined a structured psycho-education group, facilitated by a trained practitioner at the site and supervised by a clinical practitioner for fidelity, for 2 hours each week for 8 consecutive weeks. In each session, participants reviewed and discussed common topics on stroke rehabilitation (e.g., rehabilitation exercises, stroke knowledge, and prevention of stroke relapse).

■ Data analyses

SPSS 23 for Windows was used for all statistical computations. To first check for the equivalence between the intervention and the TAU groups, independent *t*-tests (for continuous variables), and Chi-square tests (for categorical variables) were conducted to initially check for potential group differences in demographic information and clinical characteristics of the participants at baseline. The mean scores of outcome measures at baseline across the two groups were also compared using independent sample *t*-tests. These tests revealed that the comparative samples were relatively equivalent.

Repeated measures ANOVAs were then performed to investigate the changes within and between the 2 groups (Intervention vs. TAU), across time: baseline (T_0), interim (T_1), post intervention (T_2) and 4 months after intervention (T_3) in various psychological outcomes. The interaction effect (Group × Time) between groups was also assessed. The α-level for the multiple comparisons was corrected using a Bonferroni adjustment. To further test intervention group effects on selected outcome measures, variables of change were created for each outcome variable by generating the differences between (1) T_1 and T_0, (2) T_2 and T_0, and (3) T_3 and T_0. Subsequently, linear regression models were used to test for intervention effectiveness.

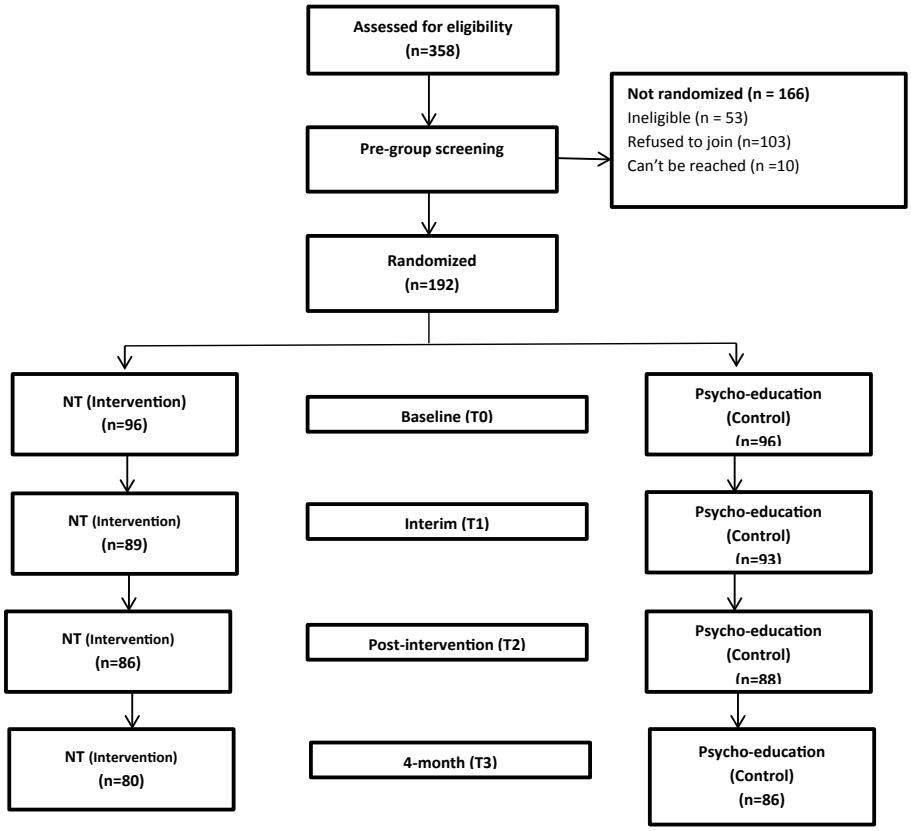

Figure 1: Randomized Control Design of the Present Study (N=192)

Measures

For screening purposes, the Mini-mental State Examination (C-MMSE), and the Cantonese version of the Mini-mental State Examination [35] were used as assessment tools administered at baseline only. Eight standardized and translated measures were used on the subsequent analysis for between and within group effectiveness.

Self-esteem: Self-esteem was measured by Rosenberg's [36] 10-item self-esteem scale. This scale has been widely used in Hong Kong for the measurement of self-esteem among older adults [37]. The score of one's self-esteem is the average of self-esteem scores of the 10 items, which range from 0 (low) to 5 (high). Only one of the items ('I wish I could have more respect for myself') yielded a negative item-total correlation. A previous study pointed out that there is a syntax error in this item in the Chinese version, which conveys equivocal meaning [37,38]. Therefore, this item was excluded from further analyses. Reliability coefficients (α) ranging from α=0.81 to 0.89 were obtained across the four times in this study.

Sense of Mastery: The Pearlin MAS Scale [39] is a 7-item self-report scale that measures the extent to which an individual feels that she or he has control over life outcomes. Items are scored from 1 ("strongly agree") to 4 ("strongly disagree"), and negatively worded items are reversed scored. Higher scores indicate higher mastery. It has been well established with basic psychometric properties and has been used in several different populations. The Cronbach's alphas ranging from α = .75 to .76 were obtained across the four times in this study.

Herth Hope Index (HHI): The HHI was used to measure the overall acceptance of the chronic illness and post-illness life. HHI is a well-regarded scale used to assess a patient's hopefulness. Knowing that a person is hopeful guides the provider in determining ways to sustain that hope to live with chronic illness [40]. The Chinese version has been validated and proved to be a reliable measure [41]. Cronbach's alphas ranging from α=0.83 to 0.94 were obtained in the present sample across the four times in this study.

The meaning in Life Scale (MLS) The MLS is a 15-item interviewer-administered scale, used for reporting a patient's assessment of perceived worth in life remaining? a The MLS was designed to reach beyond the dimensions or domains covered by life satisfaction and life measures. Warner and Williams [42] defined meaning in life as "centered in a sense of purpose, beliefs and statements of faith". The scale consists of both positive and negative items. Scores for the items ranged from 1, a low negative meaning, to 5, a high positive meaning. Responses were on the positive side of the rating scale, but there were clusters of lower scores as well. Reliability coefficients for this measure ranging from α=0.75 to .80 were obtained across the four times in our study.

The Chinese Geriatric Depression Scale (GDS-SF). This shortened 15-item scale was used in the present study [43]. Each item has a yes-no dichotomous response. Lee and colleagues [44] tested it in Hong Kong and suggested a 4/5 cutoff point for screening. Cronbach's alphas ranging from α=0.84 to .88 were obtained across the four times in this study.

The Life Satisfaction Scale-Chinese (LSS-C) LSS-C [45] consists of 14 items which assess multidimensional needs of Chinese elderly people: food, finance, health, housing, transportation, job, recreational activity, life partners, family relationships, intergenerational communication, friendship, family responsibility, respect, and spirituality. This scale has been validated among samples of Chinese persons in Hong Kong [45]. Reliability coefficients ranging from α=0.66 to 0.80 were obtained across the four times in this study.

Stroke Knowledge (SK) Eight self-developed items were included in the present test battery to assess patients' subjective understanding of their own stroke, in its causes, symptoms, treatment, and prevention of relapse and rehabilitation options. This self-developed scale had a high internal consistency in the present sample, ranging from α=0.91 to .96 across the four times in this study.

Results

■ Preliminary analyses

The demographic information and clinical characteristics of sample participants at baseline shown in **Table 1** reveals that, of the *N*=192 original participants, 33 (17.19%) dropped out throughout the data collection time. More than half the participants in the intervention group (61.46%) and the TAU group (62.50%) were male. The mean age of the stroke survivors in the intervention and TAU groups were *M*=72.49 (*SD*: 7.27) and *M*=72.84 (*SD*: 7.82) respectively. The majority of participants suffered an ischaemic stroke (intervention: 83.72%, TAU: 81.82%). Initial MMSE scores were similar in the two groups (intervention: 26.11%; TAU: 26.24%). No other significant differences between the intervention and the TAU group were found for all clinical characteristics and selected demographic information. All selected outcome variables at baseline showed no significant differences between intervention and TAU groups **(Table 2)**; thus both groups were deemed comparable at baseline.

■ Analyses of intervention and control groups

Repeated measures ANOVAs were conducted to compare the patterns of outcome change over time between the two groups. These results are presented in **Table 3**. In the intervention group, significant time effects were demonstrated across all 7 outcome measures. However, for the control group, a significant time effect was only found in the meaning in life (F (3, 246)=3.28, p=0.02), hope (F (3, 237)=3.15, p=0.03), self-esteem (F (3, 243)= 2.70, p=0.49) and stroke knowledge (F (3, 234) = 43.35, p<0.001). The noted change patterns over time were further investigated in their mean plots, which suggested that the patterns of change over time in the outcome measures across the intervention and the TAU groups were statistically different. Further, many of these positive effects were sustained at 4 months post intervention, in the intervention. Pairwise comparisons revealed that hope, meaning in life, self-esteem and stroke knowledge had significant changes between T_0 and T_1, T_0 and T_2, and T_0 and T_3 **(Table 3)**.

To further delineate intervention effectiveness, regression of change between (1) T_1 and T_0, (2) T_2 and T_0, (3) T_3 and T_0 were conducted. These analyses are displayed in **Table 4** and indicate there is a delineated pattern: NT shows a higher improvement in most outcome scores over the conventional psycho-education intervention. Results further indicate that the intervention group significantly improved in mastery (R^2=0.04, F (1, 174) = 7.12, p = .05), hope (R^2=0.04, F (1, 176)=7.24, p = .05), meaning of life (R^2=0.04, F (1, 172)=7.04, p=0.01) and

Table 1: Selected Demographic Information and Clinical Characteristics of Participants in the Intervention and TAU groups (*N*=192).

	Intervention (n=96)		Control (n=96)		
Variables	***Mean***	***SD***	***Mean***	***SD***	***t***
Age	72.49	7.27	72.84	7.82	-0.33
	Frequency	**Percent**	**Frequency**	**Percent**	**Chi-square**
Gender					.02
Male	59	61.5	60	62.5	
Female	37	38.5	36	37.5	
Education level					4.46
Lower than primary	29	24.2	22	23.2	
Primary	39	41.1	39	41.1	
Secondary	30	31.6	24	25.3	
Tertiary or above	3	3.2	10	10.5	
Marital status					.95
Married	67	69.8	73	76.0	
Others	29	30.2	23	24.0	
Living Condition					.45
Live alone	14	14.8	11	11.5	
Live with others	81	85.3	85	88.5	
Body affected: left side					.37
Yes	44	46.8	39	42.4	
No	50	53.2	53	57.6	
Body affected: right side					.03
Yes	42	44.7	40	43.5	
No	52	55.3	52	56.5	
Body affected: upper limb(s)					2.18
Yes	12	12.8	19	20.9	
No	82	87.2	72	79.1	
Body affected: lower limb(s)					.93
Yes	18	19.2	23	25.0	
No	76	80.9	69	75.0	
Type of stroke					
Haemorrhagic	14	16.3	14	15.2	1.98
Ischaemic	72	83.7	72	81.8	
Mixed or TIA	-	-	2	2.3	
MMSE Score	26.11	3.04	26.24	3.34	-0.287
Speech barrier					2.89
Yes	8	8.3	8	8.3	
Partial	13	13.5	6	6.3	
No	75	78.1	82	85.4	
Have caregiver or not					.58
Yes	78	82.1	73	77.7	
No	17	17.9	21	22.3	

Note. *p<0.05. **p <0 .01. ***p<0 .001.

life satisfaction (R^2=0.04, F (1, 178)=6.72, p = .05), at post intervention versus baseline. Improvement of self-esteem was marginally significant between interim and baseline in the intervention group R^2=0.02, F (1, 179)=3.60, p=0.06. Regarding stroke knowledge, a negative mean difference though insignificant seemed to be understandable, suggesting the relative effects of NT and the psycho-education group are similar. We posit that the reason is the delivery of psycho-education mainly provides information about stroke during the rehabilitation process.

Finally, the results of these analyses support the contention that NT is beneficial in reconnecting the persons' sense of mastery, enhancing self-esteem, and reconstructing meaning of life with hope in one's life, (i.e., ascribing more positive meaning to a critical life event) while having other positive influences on their depression and satisfaction of life.

Table 2: Means, Standard Deviations and Baseline Differences between Groups of Outcome Variables Over Time (*N*=192).

Variable Tested	T_0	T_1	T_2	T_3	Baseline Difference Between Groups
Intervention Group	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*t*-test
Hope	6.13 (1.23)	6.62 (1.35)	6.89 (1.28)	6.75(1.58)	$t(189) = -1.14, p = .25$
Meaning in Life	3.47 (.65)	3.77 (.62)	3.93 (.59)	4.33 (.71)	$t(189) = -1.73, p = .86$
Mastery	3.39 (.85)	3.60 (.77)	3.88 (.86)	3.85 (.77)	$t(188) = -1.18, p = .24$
Self-Esteem	2.60 (.44)	2.85 (.44)	2.99 (.32)	2.94 (.48)	$t(189) = -1.57, p = .12$
Depression	.32 (.25)	.33 (.27)	-.25 (.26)	-.20(.26)	$t(190) = 1.44, p = .15$
Life Satisfaction	.71 (.19)	.78 (.17)	.88 (.15)	.84 (23)	$t(190) = -.62, p = .54$
Stroke Knowledge	3.26 (2.15)	5.05 (1.88)	5.49 (2.09)	5.54 (2.17)	$t(189) = -.89, p = .38$
TAU Group					
Hope	6.35 (1.39)	6.52 (1.34)	6.66 (1.44)	6.52 (1.30)	
Meaning in Life	3.62 (.68)	3.68 (.55)	3.76 (.62)	3.64 (.89)	
Mastery	3.51(.78)	3.56 (.85)	3.68 (.88)	3.70 (.90)	
Self-Esteem	2.72 (.45)	2.77 (.36)	2.82 (.44)	2.80 (.41)	
Depression	.27 (.24)	.27 (.24)	.-26 (.24)	.26(.25)	
Life Satisfaction	.73 (.16)	.74 (.15)	.75 (.16)	.73 (.18)	
Stroke Knowledge	3.46 (2.41)	5.45 (1.90)	5.76 (1.93)	5.86 (2.17)	

Table 3: Comparisons of Outcome Measures in Intervention & Control Groups across T0 to T3 (N=192).

Selected Measures Tested	Time effects	Pairwise Comparisons		
		T_0-T_1	T_0-T_2	T_0-T_3
Hope				
Intervention	F (3, 219) = 7.94, p < .001***	p = .01**	p <.001***	p =.04*
TAU	F (3, 237) = 3.15, p = .03*	ns	p =.06	ns
Meaning in Life				
Intervention	F (3, 219) = 12.86, p < .001***	p <.001***	p <.001***	p <.001***
TAU	F (3, 246) = 3.28, p = .02*	P = .07	ns	ns
Mastery				
Intervention	F (3, 210) = 4.38, p < .001***	ns	p =.02*	p =.03*
TAU	F (3, 243) = .81, p = .49	ns	ns	ns
Self-esteem				
Intervention	F (3, 216) = 4.38, p < .001***	p < .001***	p < .001***	p < .001***
TAU	F (3, 243) = 2.70, p = .49	ns	ns	ns
Depression				
Intervention	F (3, 222) = 5.91, p = .01**	ns	ns	p = .05*
TAU	F (3, 243) = .18, p = .91	ns	ns	ns
Life Satisfaction				
Intervention	F (3, 222) = 4.73, p = .01**	ns	p =.01**	p =.01**
TAU	F (3, 243) = .86, p = .46	ns	ns	ns
Stroke Knowledge				
Intervention	F (3, 219) = 30.63, p < .001***	p < .001***	p <.001***	p <.001***
TAU	F (3, 243) = 43.35, p < .001***	p <.001***	p <.001***	p <.001***

Note. *p < 0.05. **p <0 .01. ***p <0 .001.

Discussion

Consistent with previous research, the present study demonstrated that providing a psycho-education intervention can enrich stroke knowledge for stroke survivors [46]. However, our findings suggest that the effect was limited in enhancing other psychological aspects of stroke survivors. It appears that psycho-educational sessions can only provide stroke survivors with a better understanding of their own illness. However, the psychosocial needs of stroke patients are not fully addressed by this knowledge-focused intervention.

Table 4: Mean Differences between Intervention and TAU group by Outcome Measures between T_0 and T_1, T_0 and T_2 between T_0 and T_3 (*N*=192)

Outcome Measures Tested	Mean differences between intervention and TAU group (*p-value*)		
	T_1-T_0	T_2-T_0	T_3-T_0
Hope	.07 (.71)	.28 (.05)*	.25 (.04)*
Meaning in Life	.10 (.28)	.26 (.04)**	.28 (.02)**
Mastery	.14 (.26)	.17 (.05)*	.13 (.01)**
Self-Esteem	.18 (.24)	.28 (.06)	.25 (.05)*
Depression	-0.003 (.93)	-.02 (.40)	-0.15 (.04)*
Life Satisfaction	.01 (.61)	.24 (.03)*	.21 (.05)*
Stroke Knowledge	.11 (.73)	.16 (.67)	.32 (.43)

**p <0 .05. **p <0 .01. ***p <0 .001.*

The current study is one of the first to apply an RCT design to evaluate the effectiveness of NT on stroke survivors. In contrast to the TAU group, stroke survivors showed greater improvements in various measured psychosocial dimensions including: meaning of life, mastery, self-esteem, hope, and life satisfaction after attending the NT sessions. Moreover, most of the improvements in the NT group were sustained up to 4 months after the administration of the intervention.

Narrative therapists believe that 'the person is not the problem a the problem is the problem'. Therefore, stroke survivors themselves are 'the experts' of their own lives, and many have skills, abilities and values which could assist them in changing the relationship with their presenting problem and live out of their problem-saturated stories. Through externalizing their dominant problem-saturated lived experiences, reconstructing their preferred identities and re-authoring subordinate storylines after reclaiming their strengths and core beliefs, stroke survivors can potentially achieve better psychosocial well-being. The current findings echo recent research showing that narrative practices have an important role to play in buffering the meaning of life against well-being in patients with chronic illness [47]. The importance of meaning-making during illness and recovery is substantiated by the concept of purposefulness: re-creating and finding new meaning to different aspects of life that will enhance rehabilitation outcomes. Illness can readily set the stage for creating a personal narrative whereby individuals can actively seek new purpose and their preferred identity [48]. The notion of one's purposefulness and ascribed meaning is in fact universal and is applicable to a variety of contexts, in the hopes of facilitating individuals' responses to any health condition [49].

In and of itself meaning in life is a valuable resource in old age, and individuals at later life stages generally report a higher sense of meaning in their lives and display similar associations to their own well-being at all life stages [50]. Although some research has shown there may be a decline in one's purpose in life a especially in the face of chronic illness and when life priorities change [50]. However, the strongest determinants of meaning-making of life are social contacts and subjective well-being [50]. Thus, it is important to promote NT as a viable option intervention for stroke patients to enhance their meaning of life.

Some interesting findings warrant further discussion. An increase in depression was noticed in the NT group. **Table 2** indicates that there was a mild increase, although insignificant, in depression scores from baseline (T_0) to interim (T_1). A significant reduction in depression was only detected post intervention (T_2) and 4 months after NT (T_3), when compared with depression scores at interim (T_1) but not with baseline (T_0). This may imply that changes in one's overall depression may require extended time to allow reconstruction processes through rediscovering one's core values, self-worth, preferred identity, and improved sense of self to take place [34]. A mild increase in depression at the beginning NT may be due to the process of externalizing a patient's problem-saturated story, which involves recalling the traumatic experience of stroke. Some stroke survivors may feel remorse or even depression. More research is needed about this finding before any conclusions are made.

Finally, NT also enhanced the life satisfaction scores of stroke survivors at post intervention (T_2). One possible explanation for this was that, immediately after the NT sessions, stroke survivors found their new preferred identity, which in turn induced a new sense of hope in their life, increasing their overall life satisfaction. Multiple adjustments in different life aspects

are needed in order to continue to live with the preferred identity explored in their interventions. Some stroke survivors may find it difficult to generalize their preferred identities to other aspects of their life, to consolidate their new preferred identity in their daily lives, in order to sustain improvements in their life satisfaction. Future studies could add a booster session for consolidation of the new preferred identities after cessation of NT treatment, in order to sustain stroke survivors' improved life satisfaction.

However, this study is not without limitations. Questionnaires were administered verbally to ensure that the participants understood each of the items. However, this may cause validity issues when the original instruments were designed for self-administration. It is hoped that future research can assess the validity of this type of methodological approach and develop instruments tailored for verbal administration the older population. Since participants were recruited through day hospitals, and district elderly community centres, these participants may cope better with community resources than those who do not use community resources. The benefits of NT need to be verified via further large-scale studies with other chronic illness populations. Further research is also needed to investigate the impact of NT on other clinical outcomes and the underlying mechanisms involved.

Concluding Remarks

The present study sheds light on the effectiveness of applying NT to patients with chronic illnesses. The effects of NT for stroke survivors in this study were encouraging: significant improvement was found in the various psychosocial outcomes across the repeated times. An observed pattern indicates that NT shows a higher improvement in outcome scores over traditional psycho-education for elderly stroke victims. NT can also facilitate reconstruction of self-concepts and improve meaning in life, which in turn empowers stroke survivors to deal with their life challenges in the future, with their own strengths and resources.

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Declaration of Conflicting Interests

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