

ORIGINAL ARTICLE

Apathy and Health-Related Quality of Life in Stroke



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Abstract

Objective: To examine differences in health-related quality of life (HRQOL) in stroke survivors with and without apathy.

Design: Cross-sectional study.

Setting: Acute stroke unit in a regional hospital.

Participants: Stroke survivors (N=391) recruited from the acute stroke unit.

Interventions: Not applicable.

Main Outcome Measures: Participants were divided into apathy and nonapathy groups. Participants who scored ≥ 36 on the Apathy Evaluation Scale, clinician's version formed the apathy group. HRQOL was measured with the 2 component scores, mental component summary (MCS) and physical component summary (PCS), of the Medical Outcomes Study 12-Item Short-Form Health Survey (SF-12). Demographic and clinical information were obtained with the National Institutes of Health Stroke Scale (NIHSS), Barthel Index (BI), Mini-Mental State Examination (MMSE), and Geriatric Depression Scale (GDS).

Results: Thirty-six (9%) participants had apathy. The apathy group had significantly lower MCS and PCS scores. After adjusting for sex, education, diabetes mellitus, and NIHSS, MMSE, GDS, and BI scores, the MCS score in the apathy group remained significantly lower.

Conclusions: Apathy has a significant negative effect on HRQOL in stroke survivors, particularly on their mental health. Interventions for apathy could improve the HRQOL of stroke survivors.

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Stroke is one of the most frequent causes of death in Chinese populations,¹ with steadily increasing incidence.² Ischemic stroke is the most common subtype of stroke in China, making up 70% of all stroke cases.³

Health-related quality of life (HRQOL)⁴ is gaining acceptance as an important measure of outcome in stroke research.⁵ HRQOL provides information to aid health care providers to make treatment decisions, formulate policy, and evaluate and manage health care delivery.⁴ The physical and mental health in stroke survivors are significantly worse than age-matched healthy controls examined 3 to 5 years after the index stroke.⁶ Two years after the index stroke, HRQOL domains of emotion, communication, memory, and social participation decline.⁶ Older age,⁷ pain,⁸⁻¹⁰ mood disturbances,¹¹⁻¹³ and

cognitive¹⁴ and physical impairment⁷ are associated with poor HRQOL after stroke.

Apathy is a complex psychopathologic concept composed of aspects of cognition, emotion, and motor and sensory functions.¹⁵ In clinical practice apathy is commonly defined as a lack of, or diminished, emotion, interest, concern, and motivation,^{16,17} manifesting as poor engagement with significant others and in social activities, and a loss of pleasure in usual interests.¹⁸ Apathy is also characterized by a quantitative reduction of goal-directed and purposeful behavior.¹⁹ The psychopathologic concept and clinical manifestations of apathy overlap with affective disorders, particularly depression,²⁰ and also shares features with dementia^{21,22} and the chronic phase of schizophrenia.²³ Differentiating apathy from depression could be difficult.²⁴ Although both syndromes could present with diminished initiation, hopelessness, and fatigue, depression typically includes feelings of guilt, anxiety, and lack of insight, whereas apathy is more likely to be dominated by blunted emotional response and indifference.²⁴

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Apathy frequently occurs in various medical conditions, such as stroke,²⁵⁻²⁷ human immunodeficiency virus (HIV),²⁸ dementia,²⁹ and Parkinson's disease.^{30,31} The prevalence of apathy after stroke has been reported as 27% to 38%.^{25,32} Poststroke apathy is associated with older age,³² lower education,²⁵ impaired cognitive³²⁻³⁵ and physical abilities,^{32,34} depressive symptoms,³² and lesion location.^{27,36} Apathy is not related to sex,^{25,32} stroke severity,³² or history of stroke.³⁷

Apathy has a negative influence on recovery after stroke,^{25,32,34,37} particularly in terms of daily functioning^{25,34,35} and cognition.^{32,37} It has been suggested that positive emotions are important contributing factors in stroke recovery.³⁸ The reduced or absent emotions associated with apathy hinder recovery.²⁵

Apathy differently affects HRQOL in different medical conditions, such as HIV,²⁸ dementia,²⁹ and Parkinson's disease.^{30,31} Tate et al²⁸ concluded that apathy made an impact on HRQOL in individuals with HIV; however, compared with depression, the impact of apathy on HRQOL in persons with HIV is minimal,²⁷ whereas apathy affects mobility, self-care, daily activities, and pain/discomfort in Parkinson's disease.³⁰

Only 1 study³⁹ has examined the impact of apathy on HRQOL in stroke. Therefore, the objective of this study was to explore the effect of apathy on HRQOL in stroke survivors. We hypothesized that poststroke apathy would be associated with poor HRQOL in stroke survivors.

Methods

A sample of 391 stroke patients was recruited from the acute stroke unit of the Prince of Wales Hospital. The Prince of Wales Hospital is a university-affiliated regional hospital serving a population of 800,000 in the Shatin district of Hong Kong. Stroke patients admitted to the aforementioned unit between June 2008 and September 2011 were screened for the inclusion and exclusion criteria to check for their eligibility to participate in the study.

Inclusion criteria included the following: Chinese ethnicity; Cantonese as the primary language; ≥ 18 years of age (because it is the legal age to give informed consent for participation in studies in Hong Kong); and well-documented (clinical presentation and computed tomography scan of the brain) stroke occurring within 7 days prior to admission. Exclusion criteria included (1) transient ischemic attack, cerebral hemorrhage, subdural hematoma, or subarachnoid hemorrhage; (2) history of a central nervous system disease other than stroke, such as tumor, trauma, hydrocephalus, or Parkinson's disease (medical history was accessed from the patients' medical records); (3) severe cognitive impairment, as defined by a Mini-Mental State Examination

(MMSE) score of <20 ⁴⁰; (4) all types of aphasia; (5) loss to follow-up; (6) physical frailty that prevented attending an interview; (7) severe auditory or visual impairment; (8) recurrent stroke prior to the assessment; and (9) inability or unwillingness to give informed consent.

The study protocol was approved by the clinical research ethics committee of the Chinese University of Hong Kong. All participants signed a consent form.

Patients' demographic and clinical characteristics were recorded at the time of inpatient hospitalization and retrieved from a stroke registry. The severity of stroke was assessed by the National Institutes of Health Stroke Scale (NIHSS)⁴¹ and was obtained by a trained research assistant during the index stroke admission.

The following scales were administered 3 months after the index stroke. HRQOL was measured with the Medical Outcomes Study 12-Item Short-Form Health Survey (SF-12), which has been validated in stroke⁴² and in Chinese patient populations.⁴³ The SF-12 comprises both mental component summary (MCS) and physical component summary (PCS) scores. There are 12 items constituting 8 scales: physical functioning, role physical, bodily pain, general health, vitality, social functioning, role emotional, and mental health. Each item contributes to both component scores according to a weight.⁴⁴ Each component score ranges from 0 to 100, with higher scores indicating better health.

Apathy was measured using the Apathy Evaluation Scale, clinician version (AES-C)⁴⁵ 3 months after the index stroke. The Chinese version was validated in an older adult population with a Cronbach alpha coefficient of .90, and test-retest reliability and interrater reliability of .88 and .86, respectively.⁴⁶ The interitem correlation in the current sample was .35. The AES-C is an 18-item scale; each item is scored on a 4-point adjectival scale: not at all, slightly, somewhat, and a lot. Items are scored by the clinician based on the verbal and nonverbal information given by the patients. Total scores range from 18 to 72; scores greater than the cutoff point of 36 indicated apathy because it represented >2 SDs from the mean score of the control group.^{32,47-50} Patients were divided into apathy and nonapathy groups using a cutoff point (36 or 37).³²

The self-reported Barthel Index (BI),⁵¹ a frequently used measure in stroke rehabilitation,⁵² assessed the extent of patients' disability in carrying out daily functions. The BI covers 10 items: personal hygiene, bathing, feeding, toileting, stair climbing, dressing, bowel control, bladder control, ambulation or wheelchair use, and chair-bed transfer. Total scores range from 0 to 20; higher scores indicate more independent levels of self-care. The Chinese version of the BI has been validated in patients with stroke yielding an interrater consistency of $>.80$ and Cronbach alpha of .92.⁵³

Global cognitive functions were evaluated with the Cantonese version of the MMSE.⁴⁰ Cronbach alpha and test-retest reliability of the Chinese version of the MMSE were .86 and .78, respectively; interrater reliability measured with intraclass correlation coefficient was .99.⁴⁰

The Chinese version of the 15-item Geriatric Depression Scale (GDS),⁵⁴ a self-report scale rated the presence and severity of depressive symptoms. The GDS has been used in adults with good psychometric properties.^{55,56} Cronbach alpha and test-retest reliability of the GDS were .89 and .85, respectively.⁵⁷

Statistical analysis

Statistical analyses were performed using SPSS version 20.^a Descriptive data are presented as means or proportions, as

List of abbreviations:

AES	Apathy Evaluation Scale
AES-C	Apathy Evaluation Scale, clinician version
BI	Barthel Index
GDS	Geriatric Depression Scale
HIV	human immunodeficiency virus
HRQOL	health-related quality of life
MCS	mental component summary
MMSE	Mini-Mental State Examination
NIHSS	National Institutes of Health Stroke Scale
PCS	physical component summary
SF-12	Medical Outcomes Study 12-Item Short-Form Health Survey

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