Predictors of life satisfaction among stroke survivors and spousal caregivers: a narrative review

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Impact of stroke on survivors & spousal caregivers
Stroke is a major cause of disability and death worldwide. It affects 15 million people globally and 60% either die or are permanently disabled as a result of stroke. In a rapidly aging population, stroke is expected to continue to be a major concern for survivors, their families and health and social care providers. Most stroke survivors live in the community and are assisted by family caregivers, especially spouses. However, stroke-related impairments and poststroke depression interfere with recovery and result in impaired relationships and reduced life satisfaction for the survivors and their spouses. New interventions are needed to assist stroke survivors and their spouses to cope with the many physical, emotional and environmental changes that result after stroke and enable survivors to become reintegrated into the community.

Most stroke survivors return home after the initial hospitalization and are assisted in the recovery process by a primary family caregiver, usually the spouse. The full impact of the stroke and its sequela may not be fully realized until several months posthospital discharge. Physical, psychological, emotional and cognitive changes associated with stroke impact the family as well as the stroke survivor. In several studies, spouses of stroke survivors perceived most caregiving burden in terms of feelings of loss, heavy responsibility, uncertainty about the survivors' daily care needs, difficulty managing safety and behavioral problems, constant worries, restraints in social life and feelings that survivors relied only on their care [1–4]. These changes affect the health and life satisfaction of spousal caregivers. This paper reviews the concept of life satisfaction and provides a narrative overview of the literature related to life satisfaction in stroke survivors and spousal caregivers.

Methodology
The following four databases were searched for 1960 to February, 2008: OVID (PsychINFO) Medline(R), EBSCO Medline, PubMed (NLM) and SCOPUS. The following search terms were used in several combinations: satisfaction with life, life satisfaction, quality of life (QOL), wellbeing, sense of wellbeing, happiness and stroke, cerebral vascular accident (CVA), stroke survivor, caregiver, spouse and spousal caregiver. Extensive searching occurred using the references from published articles obtained from the computerized searches. Articles were only included if they were in English, or if the article was a review of literature with an abstract or summary in English.
For the analysis of the concept of life satisfaction, articles were chosen to represent a broad range of opinions on life satisfaction, wellbeing and QOL. In addition, references were given to as many instruments that purported to measure these concepts as could be identified. Articles were included if they discussed older adults and/or adults with chronic illnesses and disabilities. For the remainder of the narrative review, articles were included in the discussion if they:

- Included stroke survivors and spousal caregivers in their samples;
- Included an overall measure of life satisfaction whether the authors referred to it as life satisfaction, satisfaction with life, overall QOL or overall wellbeing.

**Concept of life satisfaction**

Lack of clarity exists in the literature regarding the definition of terms, such as wellbeing, life satisfaction, happiness and QOL [5,6]. In 1984, Diener concluded from a review of the literature stretching back to 1967, that the term ‘subjective wellbeing’ included the concept of life satisfaction [7]. Early work on subjective wellbeing identified two components, an affective component (pleasant or unpleasant affect) and a cognitive or judgmental component (life satisfaction) [8]. While some studies have used the terms health status, functioning, QOL and wellbeing interchangeably with life satisfaction [9], most scholars believe that these terms are not synonymous in meaning [10].

Life satisfaction is often referred to as global QOL [6,11]. The term wellbeing has been preferred in the social sciences, while the term QOL has been more heavily used in medical sciences [5]. QOL has become increasingly valued as an adjunctive outcome of healthcare interventions. General agreement exists that QOL is a complex, multidimensional concept that includes both objective and subjective elements [10,12]. Veenhoven points out, however, that the subjective and objective appraisals may not be in agreement [6]. Four components have been suggested as major contributors to QOL in stroke survivors:

- Physical health, including disease and treatment-related symptoms;
- Functional health represented by mobility, self care and role performance;
- Psychological health, which includes wellbeing, emotional status, satisfaction with life and happiness;
- Social health represented by the amount and quality of social networks [10].

These four components are also major contributors to QOL in caregivers. It is the diverse multidimensional aspects of QOL that Musschenga calls the ‘container concept’. He argues for conceptual clarity and the use of discrete terms, such as life satisfaction for global subjective wellbeing and other discrete terms for physical, psychological and social functioning [5].

Life satisfaction represents a general subjective appraisal of one’s life and does not necessarily mean satisfaction with all aspects of life [5,13]. Many instruments have been used to measure life satisfaction, QOL and wellbeing in stroke survivors and their family caregivers [14–22]. How they differ conceptually is not always clear. A number of comparisons and evaluations of instruments commonly used with stroke survivors and their family caregivers have been published to address this issue [23–27].

The concept of life satisfaction has been shown to be discriminable from positive and negative effects and from optimism and self-esteem [28]. The feeling of wellbeing is a personal experience that can only be understood from the individual’s perspective [13]. Individuals use their own criteria to determine satisfaction with their lives. The domains of self, standard of living, family life, marriage, friends and work are believed to have greater influence on general life satisfaction than environmental domains (housing, neighborhood, community and nation) [13]. However, the causal direction has not been established and some argue that general life satisfaction affects the specific domains, rather than specific domains influencing the general appraisal of life satisfaction [28,29]. The domains of wellbeing are not weighted equally and vary among individuals. In addition, the relative value of each domain is influenced by the individual’s developmental phase of life and culture [30]. While life satisfaction has been shown to be a relatively global and stable concept [31,32], events such as a negative change in health, relationships or work can have a strong influence over long-term levels of life satisfaction [33]. Campbell pointed out that a change in life satisfaction could result from a perceived change in circumstances and/or a change in aspirations [13]. This change might
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reflect a real change or a change in the psychological perspective from which the individual views the situation. Veenhoven used the term adaptation to describe situations when the objective circumstances of life are negative, but the persons' appraisal of life is positive [6]. Researchers who used a technique referred to as a 'standard gamble' with stroke and nonstroke medical patients concluded that most people did not view stroke as an overwhelming catastrophe [34]. Most individuals seek to maximize their sense of wellbeing and to perceive their life as positively as possible [13].

Life satisfaction & disability
Impact on stroke survivors
In general, healthy older people tend to report as much satisfaction with life as younger people. Campbell attributed this to the narrowing of discrepancies between aspirations and achievements in older ages. As people age, their achievements increase and their aspirations tend to fall [13]. However, health problems may increase this discrepancy and, thus, lead to less life satisfaction for those in poorer health. People with disabilities are most likely to express dissatisfaction with their lives; dissatisfaction with health translates into dissatisfaction with life [13]. Satisfaction with oneself, feeling physically attractive and perceiving control over one's life may all affect a person's perceived satisfaction with life. Individuals who experience a disabling disease, such as a stroke, experience a change in many of the attributes associated with being satisfied with self. While some studies, especially studies of long-term stroke survivors, have found relatively high rates of life satisfaction [35], most studies have demonstrated that stroke survivors and their caregivers report life satisfaction lower than matched samples in the general population.

Clarke and colleagues found in their national study of Canadian seniors with strokes, that functional disabilities in instrumental activities of daily living (e.g., cooking and doing laundry) were associated with a reduced sense of mastery and control, reduced opportunities for personal growth and reduced ability to engage in positive social relationships [36]. Self-efficacy and self-esteem have also been shown to correlate with life satisfaction [11,37,38]. The type and location of the stroke may also impact the stroke survivor's perception of wellbeing [39,40]. De Haan and colleagues found only weak associations with side of the stroke, but survivors with supratentorial strokes reported poorer function at 6 months poststroke than those with infratentorial strokes [39]. Using MRIs to pinpoint lesions, however, Moon and colleagues reported that severe subcortical lesions were associated with lower overall QOL [37].

Motor impairments, limitations in daily activities and aphasia that persist over time have a negative effect on life satisfaction [41–43]. Activity level has been found to be a significant predictor of life satisfaction in stroke survivors [42,44–46]. Returning to work was a major factor in predicting positive life satisfaction for younger stroke survivors [47–51]. Reports about stroke survivors' ability to return to work poststroke vary with estimates from 9.4% in younger stroke survivors 3 months poststroke [50] to 62% in stroke survivors with aphasia 2 years after discharge [51]. In order to return to work, some survivors required changes in assignments or working hours or found different employment [46]. Younger survivors with higher educational levels who have white-collar jobs were more likely to return to work, but findings vary based on the measures used and the follow-up periods [52].

In general, stroke survivors reported less satisfaction with life than the general population [53]. Some researchers have reported a decline in specific domains of QOL from 3 to 12 months after discharge [54–56], while others have shown an improvement in the mean overall QOL score between 4 and 16 months after stroke [38,57,58]. An increase in global QOL in spite of decreased physical function suggests some internal adaptation to changes in the life situation [57]. In a longitudinal study of stroke survivors, coping strategies were shown to be a powerful determinant of life satisfaction 9–12 months after discharge [59], and religious beliefs have been shown to influence the coping ability and, thus, increase life satisfaction [60]. Recent studies have shown that female stroke survivors experienced less functional recoveries and had lower QOL summary scores than males [61]. Even stroke survivors who were mildly physically disabled were less satisfied with their lives than controls in the general population [45]. Vlatten and colleagues reported that 61% of stroke survivors were still dissatisfied with their lives 4–6 years after their strokes [41]. In their 5-, 10- and 15-year follow-ups of stroke survivors, Teasdale and Engberg concluded that symptoms, functioning and social conditions tended to become stagnant in
long-term survivors [62]. As a group, stroke survivors were less satisfied than their spouses on most domains of life satisfaction [63].

Impact on spousal caregivers
Spouses of stroke survivors also reported significantly lower life satisfaction than the general population [53,64], although in most domains, caregivers scored higher than the stroke survivors [57]. Only 50% of spousal caregivers were satisfied with their lives 'as a whole' 1 year after the stroke [65]. Factors that contributed to lower life satisfaction were apprehensiveness about increased responsibility and new tasks related to caregiving, and fewer opportunities to pursue their own interests [66,67]. Changes in life satisfaction that occurred by 4 months poststroke continued to persist and were generally more marked at 12 months [68]. Decreased spousal life satisfaction has been shown to be associated with the stroke survivors' physical and cognitive impairments [53,68–70], and the lack of reintegration into normal patterns of living [72]. In addition, spouses' satisfaction with their own daily activities, leisure and self-care were associated with stroke survivors' physical impairment and low self-care ability. However, spousal caregivers' ability to cope with the burden and strain of the caregiving situation, not the stroke survivors' activities of daily living dependency, was the strongest predictor of life satisfaction in the study by Visser-Meily and colleagues [65].

Life satisfaction & depression
Poststroke depression
Poststroke depression (PSD) is a very common and complex phenomenon with potential interactions among anatomical and psychosocial factors [72,73]. PSD has repeatedly been shown to be associated with stroke survivors' wellbeing and to potentially jeopardize the recovery process [35,74]. Stroke-related impairments (physical, cognitive and speech) and depression have repeatedly been shown to predict lower life satisfaction among stroke survivors [42,75–81]. In one study 3 years after stroke, depression still had a very strong association with wellbeing [82]. Depression and poor life satisfaction in stroke survivors have also been shown to be positively related to depression and burden in caregivers [83–86].

Depression in spousal caregivers
Caregivers of stroke survivors experienced high levels of depression [65,83,84,87], which persisted for at least 12 months poststroke [65,86], with their self-estimated general wellbeing and their own health status being the major predictors [88]. Spousal caregivers often reported feeling a loss of control over their lives, a loss of social interactions and increasingly poorer health. Recent research has suggested gender differences with female spouses reporting more depression and lower overall wellbeing than male spouses [89]. Spousal caregivers have reported poorer health and lower levels of wellbeing than adult children caregivers [90]. Studies continue to demonstrate that caring for a stroke survivor has a negative impact on spousal caregivers' wellbeing, resulting in not only a high level of depression, but also a high level of strain [87,91]. Spouses experiencing severe strain and worry have also been shown to have as much as a 63% higher chance of dying within the next 4 years than the general population [92]. The higher levels of burden in spouses are primarily related to their emotional distress and their perception of the survivor's ability, and less to the amount of care they provided or to survivors' characteristics [87,91]. A meta-analysis of 60 studies of wellbeing among informal caregivers reported that uplifts of caregiving were associated with subjective wellbeing and caregiving stressors were associated with depression [69]. Caregiver depression was best predicted by lower life satisfaction, lower physical functioning and a lack of tangible social support [93].

Life satisfaction & finding meaning
Finding meaning in the event has previously been shown to be a positive predictor of adjustment after a stroke for survivors and caregivers [94]. Caregivers who perceived caregiving as less stressful and more meaningful experienced less depression and higher life satisfaction [94]. Archbold et al. reported that caregivers who had positive relationships with their carereceivers experienced less strain because they found caregiving inherently meaningful [95]. Antonovksy postulated that a sense of coherence, a global orientation to life that includes 'meaningfulness', 'comprehensibility' and 'manageability', mediates between stressful life events, wellbeing and health [96]. Forsberg-Warleby and colleagues tested this concept with spouses of stroke survivors, and demonstrated significant associations between sense of coherence and satisfaction with life as a whole [67]. Haley and colleagues used a stress process model to examine predictors of spousal caregivers' depression and life satisfaction [97]. They also concluded that those who viewed caregiving as less stressful (more manageable) and
more meaningful, and remained active in social roles, experienced less depression and higher life satisfaction [97]. Finding meaning and developing a strong sense of coherence has been demonstrated to reduce distress and have a positive effect on adjustment and life satisfaction for both stroke survivors and spousal caregivers [94,98].

Life satisfaction & interpersonal relationships
In the USA, people report ‘having a happy marriage’ and ‘having good health’ as the two most important attributes of a ‘good life’ [13]. A happy marriage and a network of relatives and friends are important to how people evaluate their lives. Marital transitions, especially estrangements and divorces, have been associated with long-lasting changes in life satisfaction [33]. Family functioning and the relationship between the caregiver and carereceiver have been shown to be important factors in adjustment to chronic illness [99]. Relationship with the partner was the only domain in which stroke survivors reported more satisfaction than their spouses [63]. Several studies of stroke survivors and/or their spouses have reported that the stroke survivors’ impairments negatively affected the relationship between the partners, family life and sexual life [41,68,100]. PSD and lack of social support have also been shown to impact the quality of sexual life and to constitute a risk factor for marital dissatisfaction [100,101]. Similarly, Carlson and colleagues found that satisfaction with life as a whole, and the domains of leisure and sexual functioning, were most affected for both survivors and spouses after a stroke [63]. Spouses of stroke survivors who had cognitive and emotional impairments were more likely to be dissatisfied with the partner relationship, while spouses of survivors with depression and/or physical impairments were less satisfied with their sexual life [68]. Satisfaction with life and marital satisfaction contributed significantly toward explaining attitudes toward spousal caregiving for older women [102].

Stroke survivors and spousal caregivers reported negative longitudinal changes in family functioning in problem solving, family communication, role definition, behavior control and affective involvement over a 12-month period [103]. Younger survivors may have additional social issues, including work and child care, which may affect their life satisfaction [50]. Married couples’ joint perception of life satisfaction was related to their ability to function in everyday life, including participation in leisure activities and their social life [104]. The presence of social support, the use of positive coping skills and the presence of strong religious beliefs have been associated with increased life satisfaction [59,60,105,106]. Only a third of the couples reported that they were satisfied with their life 1–5 years after the stroke [104]. Thus, family functioning, marital satisfaction, the support of family and friends, and coping ability appear to affect the adjustment process for the stroke survivors and spousal caregivers, and ultimately their satisfaction with life.

Conclusion
Life satisfaction is an increasingly important adjunctive outcome for intervention studies aimed at facilitating maximal recovery for stroke survivors living in the community and for reducing strain and burden of family caregivers, especially spouses. However, the term is used imprecisely and a myriad of generic and stroke-specific measures are used to measure life satisfaction, making comparisons among studies difficult. There is general agreement that life satisfaction is a subjective component of well-being that can be affected by developmental stage of life, culture, individual preferences, social support, family relationships and health. Life satisfaction varies within and between individuals and couples so it is difficult to generalize the findings. However, studies across many Western cultures (e.g., Australia, Canada, The Netherlands, Norway, Spain, Sweden, UK and USA) have reached similar conclusions.

The majority of studies on life satisfaction have been conducted with stroke survivors, using different inclusion criteria and different instruments. In general, stroke survivors reported reduced life satisfaction. Two predictors (impaired functioning and depression) were associated with impaired relationships with spouses; all were strong predictors of decreased life satisfaction. Stroke is a chronic disease with improvement stagnating and life satisfaction not returning to prestroke levels as many as 15 years after the stroke.

Few intervention studies are reported in the literature directed toward improving the life satisfaction of stroke survivors. However, the findings suggest that intensive rehabilitation initially and ‘booster’ sessions over the long term, may help to avoid decreases in function that have been observed after initial gains. Exercise programs have been shown to increase QOL and hold considerable promise as long-term interventions for stroke survivors [107].
Support and encouragement of family, friends and health professionals to practice self-care and engage in activities (leisure and work) may also increase stroke survivors’ sense of self-efficacy, self-esteem and control over their lives, thus leading to less depression and greater life satisfaction [44,77]. The use of self-efficacy enhancement strategies may be helpful in achieving positive changes in self-care and activities [108]. PSD is a devastating problem that needs to be identified early and addressed through pharmacological and psychological therapies that include attention to goal setting, family relationships and the use of accommodative coping skills, which have been suggested as helpful in increasing life satisfaction for stroke survivors [42,59,109].

Relatively few studies have addressed the life satisfaction of family members caring for stroke survivors. The studies that exist include different inclusion criteria, use different instruments and cover different periods of time, making comparisons difficult [110]. However, some general themes have emerged from the literature. Functional impairments and PSD are associated with strain, burden and depression in spousal caregivers, resulting in lower life satisfaction. Spouses experienced more strain, worry and disruption in their daily lives than adult children caregivers, and are at greater risk for poorer health themselves, restricted social contacts and poorer life satisfaction for at least 1 year poststroke [88]. Spouses’ perceptions of the caregiving situation, especially its manageability and meaningfulness, were as important predictors of life satisfaction as stroke survivors’ impairments and depression. Social support from others, ability to continue involvement in social activities and the use of adaptive coping strategies were also associated with positive life satisfaction [97].

Caregiving literature suggests that spouses need to be included early as a part of the rehabilitation process, so that they understand the deficits caused by the stroke and institute appropriate approaches at home [111,112]. Discharge home can be an overwhelming time for spouses as they adapt to new physical, emotional and environmental demands for care. Interventions targeted to the caregivers’ needs that include information, assistance with problem solving and other coping strategies, emotional support, building social networks and referral to community resources are most useful in increasing life satisfaction and can be provided in person, by telephone or over the internet [105,113,114]. Cognitive behavioral therapy groups for spouses of stroke survivors have also proven successful in making caregiving more manageable and meaningful and, thereby, increasing life satisfaction [115]. The time devoted to caregiving often leaves spouses with little extra time to pursue health promotion and disease prevention behaviors. This is especially difficult if these activities require leaving their spouse alone, which generates fear and guilt in many caregivers [4]. Sorensen and colleagues, after their review of 71 caregiver intervention studies for disabled elders, concluded that since caregiving spouses are older, have poorer health, report more caregiving strain, have lower incomes and smaller social networks, they may need interventions that focus on their health, building supportive social networks and accessing low-cost community resources [116]. A literature review of the impact of stroke on informal caregivers [12] and a meta-analysis of interventions for informal stroke caregivers [117] both concluded that while there are a relatively small number of well-designed studies, educational and support interventions hold promise for improving life satisfaction for caregivers.

Finally, only a handful of studies have considered life satisfaction in the stroke survivor and spousal caregiver as a couple. Couples reported significant strain in the relationship, including decreased family functioning, communication, marital and sexual satisfaction, 1 year after the stroke [53,57,63,98,100,103]. Life satisfaction was higher in couples who found meaning in the experience, who used adaptive coping strategies, who had a stronger sense of coherence and those who were able to resume a resemblance of everyday normalcy though resumption of leisure and social activities as a couple. However, the small number of studies, the use of different inclusion criteria and instruments, variation within couples and varying intervals since the stroke make generalizations impossible. No intervention studies focusing on the couple, as a unit, were reported in the literature.

Future perspective
The population of people in the USA aged 65 years and older, is expected to increase from 36.8 million in 2005 to over 55 million by 2020 [204]. In 2002, approximately 37% of older persons reported severe disabilities and 16% reported that they needed assistance as a result. Stroke is a major cause of long-term disability in the USA and the incidence increases...
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with age. The American Heart Association estimates that the incidence of stroke doubles with every decade of life after 55 years of age [202]. While the mortality rate for stroke has declined during the last 20 years, the age-adjusted hospitalization rates increased 18.6% between 1988 and 1997 [118]. This suggests that continuing decline in stroke mortality may be due, in large part, to improved survival after acute stroke [118,119]. The increased survival of stroke survivors, combined with the continuing decrease in the average length of acute and rehabilitation hospital stays, places a significant burden on family caregivers to provide home-based care after a stroke. The vast majority of care for disabled elderly is provided by informal caregivers who number more than 22.4 million [120]. Caregivers who are over the age of 65 years are most likely to be caring for a spouse [120]. Approximately 80% of persons who live with a disabled spouse provide care to them [121]. The availability of a family caregiver is often the determining factor in whether or not persons with a stroke can be discharged to their own homes or will be placed in a nursing home. Of the elderly who need assistance with activities of daily living, but have no available family caregiver, 50% are in nursing homes, compared with only 7% who have a family caregiver [204].

Research in the next 5–10 years should focus on the careful design of randomized control trials with adequate sample sizes to test interventions that build on smaller studies with strategies shown to increase life satisfaction among stroke survivors and their spousal caregivers. Researchers should study the effect of the intervention on both stroke survivors and the caregivers since the stroke affects them individually, as well as jointly. Interventions will need to be individualized to the needs of the couple; some studies have suggested that factors predict life satisfaction differentially in stroke survivors and spousal caregivers. Research with persons with dementia and their caregivers has demonstrated that multicomponent interventions are more effective than single educational or support interventions alone [122]. In addition, the effect of health service interventions on life satisfaction needs to be studied. Technology is quickly becoming available that will allow expansion and adaptation of interventions using the internet and, thus, eliminate barriers due to physical impairments, transportation needs or geographical location.

Very few studies report racial or ethnic differences in life satisfaction among stroke survivors and/or spousal caregivers. Only recently have studies begun to suggest gender differences in life satisfaction between stroke survivors and spousal caregivers. More attention is needed in both of these areas, as well as to differences related to socioeconomic status and availability of healthcare services. Multisite intervention studies that will include couples of different ethnic, racial and socioeconomic backgrounds from different geographical regions are also required in the future.

Finally, there is a proliferation of different global and domain specific instruments that have been used in life satisfaction research with stroke survivors and spousal caregivers. Both generic and stroke specific instruments are used, some focusing on life satisfaction as a global measure of QOL and some focusing primarily on specific QOL domains. Authors’ theoretical basis for the choice of an instrument is usually not clear, nor is a rationale provided for the value of using one instrument as opposed to another. Several reviews of selected instruments have been published. Although none is exhaustive, general recommendations are to use stroke-specific measures with multiple domains that also include an overall global measure of life satisfaction.

Clearly, there will be an increasing need in the future to accommodate stroke survivors within our communities. Most of them will be assisted by family caregivers, often a spouse, who is also in need of special considerations from the larger community. Families who are impacted by stroke face significant physical, emotional, financial and time costs that challenge their ability to maintain a life that is mutually sustainable and satisfying. Developing multicomponent, individualized, accessible and effective interventions that are acceptable to couples and flexible enough to meet their changing needs is a challenge for researchers in the next decade.

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Executive summary

Impact of stroke on survivors & spousal caregivers

- Stroke is the major cause of long-term disability in the USA with 5.8 million survivors living in the community.
- Stroke survivors are often left with physical, psychosocial, cognitive and affective disabilities requiring assistance from family members.
- Spouses often experience significant strain, burden, poorer health and restricted social networks when they become caregivers.

Concept of life satisfaction

- Life satisfaction is a cognitive appraisal of one's global quality of life.
- Life satisfaction represents a general subjective appraisal of one's life and does not necessarily mean satisfaction with all aspects of life.
- Lack of clarity exists in the use and measurement of concepts, including life satisfaction, quality of life, wellbeing and functioning.

Life satisfaction & disability

- Impact on stroke survivors:
  - Stroke survivors report lower levels of life satisfaction than their spouses and lower levels than the general population.
  - Motor impairments, poststroke depression, limitations in daily living, aphasia and lack of leisure and work activities are major predictors of low life satisfaction.
  - Persistent low levels of life satisfaction are associated with a reduced sense of mastery and control (self-efficacy), reduced self-esteem, reduced opportunities for personal growth and reduced ability to engage in positive social relationships.
- Impact on spousal caregivers:
  - Spouses report lower levels of life satisfaction than noncaregivers and the lower levels persist over time.
  - Low life satisfaction is associated with the stroke survivor's physical, cognitive and speech impairments and lack of reintegration into the community.
  - Ability to cope with the burden and strain of the caregiving situation is the strongest predictor of life satisfaction among spousal caregivers.

Life satisfaction & depression

- Poststroke depression:
  - Poststroke depression is a common and poorly understood phenomenon with potential interactions among anatomical and psychosocial factors.
  - Poststroke depression is one of the strongest predictors of low life satisfaction.
  - Depression and poor life satisfaction in stroke survivors have been shown to be positively related to depression and burden in caregivers.
- Depression in spousal caregivers:
  - Depression in spousal caregivers is associated with poor physical health, a lack of social support and lower life satisfaction.
  - Women report more depression and lower life satisfaction related to caring for a stroke survivor than men.
  - The higher levels of burden in spouses are primarily related to their emotional distress and their perception of the survivor's ability, and less to the amount of care they provide or to survivors' characteristics.

Life satisfaction & finding meaning

- Spouses who perceived caregiving as more manageable (less stressful) and meaningful reported higher satisfaction with life.
- Finding meaning in the event and having a strong sense of coherence is associated with more positive adjustment and higher life satisfaction for stroke survivors and spousal caregivers.

Life satisfaction & interpersonal relationships

- Stroke survivors' impairments and depression negatively affected the relationship between the partners, family life and life satisfaction.
- Couples reported negative longitudinal changes in family functioning, problem solving, family communication and marital and sexual satisfaction.
- Couples joint perception of life satisfaction was related to their ability to function in everyday life, including participation in leisure and social activities.
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Executive summary

Conclusion
- Life satisfaction is an increasingly important adjunctive outcome for intervention studies aimed at facilitating recovery for stroke survivors and reducing burden of spousal caregivers.
- It is difficult to generalize findings from studies of life satisfaction because they use different inclusion criteria and different instruments; few are longitudinal; and very few include the perspectives of both the stroke survivor and spouse.
- While there is general agreement that stroke survivors and their spousal caregivers experience low life satisfaction, very few randomized control trials have been reported to test interventions.

Future perspective
- Since stroke is most common after the age of 55 years, a rapidly expanding elderly population will mean an increasing number of strokes worldwide.
- More effective acute-care treatment of stroke patients means that more will survive to be discharged home with family caregivers.
- Rigorously designed randomized control trials are needed to test promising interventions to increase long-term life satisfaction among stroke survivors and spousal caregivers.
- Future research needs to investigate potential differences in life satisfaction related to gender, age, ethnicity, race, socioeconomic status, geographical location and access to affordable healthcare services.

Bibliography

Papers of special note have been highlighted as either of interest (+) or of considerable interest (+++) to readers.


- Philosophical discussion and analysis of commonly used terms related to life satisfaction and quality of life (QOL).


- Discussion of the conceptual issues related to QOL in stroke survivors and the gaps in the literature.

- Systematic review of 31 studies investigating the QOL of stroke caregivers.

- Classic book that discusses life wellbeing and the domains that influence its subjective meaning.


- Literature review investigating the QOL of stroke caregivers.

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- Discussion of the conceptual issues related to QOL in stroke survivors and the gaps in the literature.

- Systematic review of 31 studies investigating the QOL of stroke caregivers.


**Evaluation of 15 generic and ten stroke-specific instruments used to assess QOL in stroke.** Includes a discussion of reliability, validity, responsiveness, precision, acceptability, suitability for proxy respondents, mode of administration and use of patient-centered approaches in development.


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- Discusses the psychological consequences of stroke on a national representative sample of Danish stroke survivors at 5, 10 and 15 years poststroke.


**Comparison of life satisfaction at 1 year in stroke survivors and spousal caregivers with suggestions for individualizing approaches to meet different needs.**


**Meta-analysis of 60 studies on informal caregivers' depression and subjective well-being, based on a two-factor model distinguishing between positive and negative dimensions of well-being.**


113. Pierce LL, Steiner V, Govoni AL: In-home caregiver intervention during rehabilitation demonstrated positive outcomes for stroke survivors and caregivers 1 year later.


117. Lee JH, Soeken K, Picot SJ: A meta-analysis of nine caregiver intervention studies that were a part of the National Institutes of Health-funded Resources for Enhancing Alzheimer’s Caregiver Health (REACH) project, demonstrating the importance of active, tailored multicomponent intervention studies.

118. M eta-analysis of nine caregiver intervention studies that were a part of the National Institutes of Health-funded Resources for Enhancing Alzheimer’s Caregiver Health (REACH) project, demonstrating the importance of active, tailored multicomponent intervention studies.


120. M eta-analysis of four (out of 31) intervention studies of stroke caregivers that showed improvements in caregiver mental health.


125. Meta-analysis of nine caregiver intervention studies that were a part of the National Institutes of Health-funded Resources for Enhancing Alzheimer’s Caregiver Health (REACH) project, demonstrating the importance of active, tailored multicomponent intervention studies.

Websites


202. Excellent overview of cardiovascular disease (including stroke), risk factors, burden of disease worldwide and action, in terms of research, treatment, policy and legislation. It also includes a very interesting timeline of knowledge of heart and vascular disorders from a drawing in the Paleolithic era to 2004. There is also a World Data Table that includes stroke disability (disability-adjusted life years) for 2003 and stroke mortality rates for 2002 for 192 countries.


204. Accurate and current website with information and resources for stroke survivors, family caregivers and healthcare professionals.
