

Factors predicting burden among male caregivers of older adults with stroke

Sirinthip Nimitphuwadon, Pornchai Jullamate, Naiyana Piphatvanitcha, Sivasankari Nadarajan and Watchara Tabootwong

Sirinthip Nimitphuwadon is a Master student based at the Faculty of Nursing, Burapha University, Chonburi, Thailand. Pornchai Jullamate and Naiyana Piphatvanitcha both are based at the Department of Gerontological Nursing, Faculty of Nursing, Burapha University, Chonburi, Thailand. Sivasankari Nadarajan is a PhD Candidate based at the Faculty of Nursing, Burapha University, Chonburi, Thailand. Watchara Tabootwong is based at the Department of Gerontological Nursing, Faculty of Nursing, Burapha University, Chonburi, Thailand.

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Abstract

Purpose – *This study aims to examine the factors predicting burden among the male caregivers of older adults with stroke.*

Design/methodology/approach – *This was a descriptive cross-sectional study. A simple random sampling technique was used to recruit 98 male caregivers in the outpatient department's neurological clinic, at Banphaeo General Hospital. Data was collected using six questionnaires: the demographic questionnaire, the center for epidemiologic studies depression scale, the perceived health status interview form, the caregiver and patient relationship interview form, the Barthel ADL index and the Zarit burden interview. Descriptive statistics and stepwise multiple regression analysis were used for data analysis.*

Findings – *The male caregivers of older adults with stroke had a mild to moderate level of burden. Factors such as depression of caregivers and activities of daily living of older adults predicted the burden among male caregivers, explaining 53.6% of the variance. The findings imply that nurses can plan new approaches and interventions to alleviate the burden of male caregivers by reducing their depression levels and encouraging activities of daily living in the older adults. In addition, effective programs can be developed to provide informational support to caregivers for reducing their burden level.*

Originality/value – *Male caregivers with depressive symptoms had an increased caregiving burden. Therefore, health-care professionals should support and formulate guidelines to reduce the burden of caregiving among the male caregivers by considering predictive factors.*

Keywords *Caregivers, Stroke, Older adults, Caregiving burden, Depression, Health status*

Paper type *Research paper*

Introduction

Stroke is a neurological disease caused by blockage of blood vessels; it can lead to long-term disability. Globally, stroke incidence rises with age, decreasing the longevity of older adults. Annually, around 14 million suffer a stroke, of which 5.5 million die; globally there are about 80 million stroke survivors [World Stroke Organization (WSO), 2020]. In Thailand, for the past five years, the stroke death rate per 100,000 population has ranged from 43.3% to 53.0% (Strategy and Planning Division Ministry of Public Health, 2019). The rising incidence of stroke has resulted in a significant public health problem in many countries. Despite advancements in medical science and technology, stroke survivors continue to suffer stroke-related disabilities. Chronic disability is multifactorial and depends on the location of the pathology in the damaged brain Krishnamurthi *et al.* (2020).

Stroke has significant impacts on both individuals and families. Older adults' cognitive and functional abilities deteriorate, as does the ability to perform daily activities. This further increases their dependency on others; more and more, they need caregivers to take care of them. The existing literature reveals that most caregivers of stroke survivors are family members such as children, spouses or relatives (Limpawattana *et al.*, 2015; Sihapark *et al.*, 2014).

The male caregiver, especially if solely responsible for patient care, plays a vital role in stroke survivor's caregiving process, particularly if he is a single child, unmarried, married with no children or one of a same-sex couple (Sihapark *et al.*, 2014).

Additionally, a survey conducted in the USA found a steep rise in male caregivers ranging from 35% to 39%, between the years 2015 and 2020 (Lopez-Anuarbe and Kohli, 2019). Caring for older adults with stroke poses a great challenge for caregivers because stroke is a sudden event, and because caregivers with extended roles and minimal preparation perceive caregiving as stressful. This stress becomes an obstacle to providing continuous quality care throughout the patient's life (Limpawattana *et al.*, 2015). Also, because stroke is an abrupt neurological deficit and an unpredictable crisis, it often adversely has multidimensional effects on the life of the male caregivers. These include effects on physical health, such as fatigue, back pain, waist pain, weight loss and other health problems; mental health effects such as anxiety and depression; and social and economic effects. Because of the patient's debilitating condition, treatment expenses increase, leading to a decrease in income perhaps followed by employment issues. Male caregivers thus often face a debt burden (Sihapark *et al.*, 2014; Chayawatto, 2016; Surakan and Jongudomkarn, 2019), which of course can affect their perceived overall level of burden in caregiving. Male caregivers who cannot adapt or handle these new roles and situations thus perceive a high burden that may lead to elder abuse neglect, or abandonment, and the inability to provide adequate care (Summawong *et al.*, 2017).

The burden level of male caregivers of older adults with stroke is related to several factors. This study used the Lazarus and Folkman theory of stress and the coping to identify the factors affecting adaptation. It is postulated that increased burden level was due to the maladaptation resulting from the stress response. Caregivers will try to analyze their burden of caring for the older stroke survivors and find adaptive ways to cope with stress. Unsuccessful coping may negatively affect their adaptation outcome and create further burden on these male caregivers (Lazarus and Folkman, 1984). The factors affecting the assessment and adjustment of male caregivers were personal (including depression among the male caregivers), relational (between male caregivers and older adults with stroke) and self-perception (the health status of male caregivers). In addition, there were situational factors such as the ability to perform daily activities and the duration of care for the older adults with stroke and environmental factors such as the caring for older adults.

The literature review found several studies on both male and female caregiver burden level. But only a few studies focused on the role of male caregivers for older adults with stroke (Srisuk and Kespichayawattana, 2019; Lopez-Anuarbe and Kohli, 2019). The male caregivers, coupled with stereotypical masculine characteristics such as strong body build, patience, leadership skills and self-confidence, often managed the tasks better (Pierce *et al.*, 2019; Srisuk and Kespichayawattana, 2019). Most male caregivers are less likely to accept help from others and do not wish to reveal their true feelings during times of stress, leading to increased perceived burden of caring for the older adults with stroke. Because existing studies examining the factors related to male caregiver burden are scarce, this research studies factors predicting the burden level of male caregivers caring for older adults with stroke, and thus could serve as a guideline for planning nursing interventions and developing programs to reduce male caregiver burden.

Methods

A descriptive cross-sectional design was used to examine the factors predicting burden among male caregivers of older adults with stroke. The sample size in this study was calculated using the G*Power 3.1.9.7 program (Faul *et al.*, 2007). The effect size was determined using the correlation coefficient from a previous study by Udonsart *et al.* (2018). Older adult daily living activities related to male caregiver burden were estimated using the formula $f^2 = R^2/(1 - R^2)$, $r = -0.36$ and equal to 0.14. The effect size was calculated with a significance level (α) of 0.05,

power was 0.80 and the sample size was determined to be 98. The sample was recruited using simple random sampling. Inclusion criteria for participants were:

- primary caregiver, taking care of the person post-stroke for at least one month, having a close relationship with the survivor (husband, brother, son, grandson, son-in-law, male friend), and not receiving any wages or compensation for their caregiving;
- over 18 years of age;
- able to communicate in Thai; and
- willing to participate in this study.

Research instruments

- The demographic data form comprised of personal data of male caregivers – age, relationship to stroke survivor, duration of care, number of hours of care provided per day, occupation, education level, income and underlying disease/s, and demographic characteristics of the stroke survivors, including gender, age, diagnosis and duration of illness (month).
- The Center for Epidemiological Studies-Depression Scale (CES-D) was initially developed by [Radloff \(1977\)](#) and adapted in Thai by [Worapongsatorn et al. \(1990\)](#). This 20-item instrument used to measure depression, uses a three-point scale, with total scores ranging from 0 to 60. A cutoff score of 16 or more reflects risk of depression, with higher scores indicating increased risk.
- The relationship between caregiver and stroke patient questionnaire by [Tirapaiwong \(1997\)](#) was used to assess the relationship between caregivers and older adults with stroke. This instrument was translated and adapted from the intimacy scale by [Walker and Thompson \(1993\)](#). Item scores were summed and can range from 0 to 85. Scores of 0–28 indicate “low relationship”; 28.1–56 indicate “mild relationship”; and 56.1–85 indicate “high relationship.”
- The Thai version of the SF 12 Short Form Health Survey developed from Quality Metric Incorporated in the USA was used to measure the perceived health status. This consists of 12 items with overall scores ranging between 12 and 56. The scores were converted to a range of 0–100 using the formula $(100/\text{score interval variance}) \times (\text{raw score} - \text{lowest score value})$. Total scores below 50 were interpreted as unhealthy and scores of 50–100 were interpreted as healthy ([Ware et al., 2009](#)).
- The Thai version of the Barthel index measures the activities of daily living (ADL) of stroke survivors. The scale developed by [Jitapunkul \(2001\)](#) was used to measure the ADL among the stroke survivors. Scores for this 10-item scale range from 0 to 20, with higher scores indicating more independence performing ADLs. Scores of 0–4 indicate “very severe dependence,” 5–9 “severe dependence,” 10–14 “moderate dependence,” 15–19 “mild dependence” and 20 “independence.”
- The Zarit Burden Interview, developed in English by [Zarit and Zarit \(1990\)](#), was translated to Thai by [Toonsiri et al. \(2011\)](#). This was used to measure caregiver burden. Scores for this 22-item scale range from 0 to 88. Scores of 0–20 indicate “little or no burden,” 21–40 “mild to moderate burden,” 41–60 “moderate to severe burden” and 61–88 “severe burden.” Thus, higher scores represent increased levels of caregiver burden.

Data collection

This study obtained ethical approval from the Institutional Review Boards of researcher affiliation and Banphaeo General Hospital. After approval, the researcher asked for the

cooperation from the registered nurses at the Outpatient Department of the Neurology Clinic. The participant list was collected from medical records from the day the older adults visited to receive treatment. Prospective participants who met the eligibility criteria were recruited for the study and informed about the research objectives, risks and benefits, duration, confidentiality, anonymity, rights of participants and withdrawal from the study at any time without consequences. Signed informed consent was obtained from the recruited participants. The data collection period lasted approximately 30–45 min.

Data analysis

The demographic characteristics of the sample were analyzed using descriptive statistics. Stepwise multiple regression was used to examine the factors predicting burden among male caregivers of elderly stroke survivors.

Results

Characteristics of the sample

The plurality of the male caregivers was in their middle adulthood phase, aged between 46 and 59 (41.84%). Their mean age was 46.51 (SD = 11.78), and the three-quarters (76.53%) of them were sons reporting a close relationship with their older parents. Most of the male caregivers had completed their primary level of education (38.77%) and were farmers (28.57%). Around 27.55% of the participants had an average income of 30,000 baht/month. About 70.40% of the male caregivers had no underlying disease, and they provided care for 9.01 h per day (SD = 3.69) with a mean duration for 20.85 months (SD = 21.41) (Table 1).

Just over half (51.02%) of the stroke survivors were female with age of 60–69 years (37.76%). Nearly all (93.88%) had sustained an ischemic stroke and 46.94% of survivors had survived their stroke for 12–60 months (Table 2).

Burden level of the male caregivers

The data analysis revealed that nearly half (47.96%) of male caregivers of older adults with stroke had a mild to moderate burden level, with a mean score of 29.55 (SD = 12.17) (Table 3).

Predictors of burden among male caregivers

Stepwise multiple regression analysis revealed that factors predicting burden among male caregivers of older adults with stroke were caregiver depression ($\beta = 0.456$) and stroke survivors' activities of daily living ($\beta = -0.415$). These factors explained 53.6% of the variance in burden among male caregivers of older adults with stroke ($R^2 = 0.536$, $p < 0.001$) (Table 4).

Discussion

The findings of this study revealed that the caregivers had a mild to moderate level of burden with a mean score of 29.55 (SD = 12.17); this might be due to the increased mean age of the older adults (72.95 years) (SD = 7.80). Also, as their age progresses, cognitive and functional abilities decline requiring more assistance from their caregivers to perform daily activities (Miller, 2019). This increased level of caregiving leads to an increased burden level. Because half of the stroke survivors were female (51.02%), the male caregivers could have experienced feelings of insecurity, or embarrassment, and fear of causing injury to the patient while providing care for certain activities such as bathing (especially cleaning the genital areas, dressing and changing adult diapers) (Srisuk and Kespichayawattana, 2019). Thai society values emphasize the importance of filial piety

Table 1 Demographic characteristics of male caregivers (*n* = 98)

<i>Characteristics of male caregivers</i>	<i>Frequency</i>	<i>(%)</i>
<i>Age (years)</i>		
20–35	16	16.32
36–45	29	29.59
46–59	41	41.84
60–69	9	9.19
70–79	3	3.06
<i>(M</i> = 46.51, <i>SD</i> = 11.78, <i>Min</i> = 20 years, <i>Max</i> = 74 years)		
<i>Relationship with the older adults</i>		
Son	75	76.53
Grandson	6	6.12
Husband	6	6.12
Younger brother	3	3.06
Elder brother	2	2.05
Son-in-law	6	6.12
<i>Occupation</i>		
Not working	4	4.08
Farmer	28	28.57
Trade/own business	26	26.53
Labor	21	21.43
Government and private sector employees	13	13.27
Government officer	6	6.12
<i>Education level</i>		
Primary education	38	38.77
Secondary education	22	22.45
Diploma	12	12.25
Bachelor's degree	23	23.47
Master's degree	3	3.06
<i>Income per month (฿)</i>		
<5,000 ฿	4	4.08
5,000–10,000 ฿	7	7.15
10,001–15,000 ฿	17	17.35
15,001–20,000 ฿	22	22.45
20,001–25,000 ฿	11	11.22
25,001–30,000 ฿	10	10.20
>30,000 ฿	27	27.55
<i>Hours of care/day (Hours)</i>		
1–5	17	17.35
6–10	49	50.00
11–15	25	25.50
16–20	7	7.15
<i>(M</i> = 9.01, <i>SD</i> = 3.69, <i>Min</i> = 4 h, <i>Max</i> = 16 h)		
<i>Duration of caregiving (month)</i>		
<12 months	49	50.00
12–60 months	46	46.94
>60–120 months	3	3.06
<i>(M</i> = 20.85, <i>SD</i> = 21.41, <i>Min</i> = 1 month, <i>Max</i> = 120 months)		
<i>Underlying disease</i>		
No underlying disease	69	70.40
Underlying disease	29	29.60

toward the benefactor. In this study, most male caregivers were sons of the care recipient; because of filial piety, these sons feel an obligation to care for their affected parent (Udonsart *et al.*, 2018; Chaiwongnakkapun *et al.*, 2020).

Stroke is a chronic neurological disease that causes disabilities and increases the chances of complications leading to a slow recovery (Krishnamurthi *et al.*, 2020). In this study, nearly

Table 2 Demographic characteristics of stroke survivors (*n* = 98)

Characteristics of stroke survivors	Frequency	(%)
<i>Age (years)</i>		
60–69	37	37.76
70–79	35	35.71
80 or older	26	26.53
(M = 72.95, SD = 7.80, Min = 60 years, Max = 92 years)		
<i>Gender</i>		
Male	48	48.98
Female	50	51.02
<i>Diagnosis</i>		
Ischemic stroke	92	93.88
Hemorrhage	6	6.12
<i>Duration of illness (month)</i>		
<12 months	43	43.87
12–60 months	46	46.94
>60–120 months	9	9.19
(M = 26.13, SD = 27.83, Min = 1 month, Max = 120 months)		

Table 3 Burden level of male caregivers of older adults with stroke (*n* = 98)

Burden level	Number	(%)
Little or no burden	28	28.57
Mild to moderate burden	47	47.96
Moderate to severe burden	23	23.47
(M = 29.55, SD = 12.17, Min = 8, Max = 53)		

Table 4 Stepwise multiple regression analysis of variables predicting burden among male caregivers of older adults with stroke (*n* = 98)

Variables	R ² change	b	SE(b)	Beta	t	p
Depression of caregivers	0.392	1.215	0.204	0.456	5.940	<0.001
Activities of daily living of older adult	0.143	−0.838	0.155	−0.415	−5.411	<0.001
Constant = 23.278			4.263		5.460	<0.001

Note: R² = 0.536, R²_{adj} = 0.526, F_(2,95) = 54.775, p < 0.001

all 93.88% of the survivors had sustained an ischemic stroke. The male caregivers expressed mild to moderate burden (mean = 3.20, SD = 0.81) when answering the item, “You feel that the patient is dependent on you.” Nonetheless, the male caregivers continued to provide care and assistance to the older adults in their daily activities. This could also be explained by the conclusion of a review that found primary caregivers had increased levels of “care burden” while caring for stroke survivors (Suksatan *et al.*, 2022).

Depression was a significant predictor of the burden of male caregivers of older stroke survivors. Depression is an emotional state resulting from stressful situations, in this case while helping older stroke survivors. The caregiving role cannot be stopped intermittently as stroke often has residual disabilities requiring constant and long-term care.

The caregivers perceived life as full of obstacles and burdens. They had a pessimistic view of life when they were unable to successfully adjust to the caregiving process (Chayawatto, 2016; Achilike *et al.*, 2020). This is in line with a previous study that found depression to play a significant role in the caregiver burden (Hamtanon and Nawsuwan, 2019).

ADLs are more challenging for older adults because of the aging process. They may require more assistance in performing even their daily rituals like brushing teeth and bathing, grooming, eating, getting out of bed or transferring from bed to chair or toilet, navigating inside house or climbing/descending stairs and controlling bowel and bladder (Jitapunkul, 2001). This research indicated that ADLs significantly predicted male caregiver burden. As evident in this study, caregiving may gradually increase with complications like ischemic stroke. This condition accompanied by increased age leads to greater dependence of older adults on their caregivers. Performing these extended roles takes a toll on caregivers increasing their caregiving burden. This is consistent with the findings of Pratin *et al.* (2015).

Relationships inevitably play a role during the caregiving process, and the quality of role performance affects the quality of care. Family caregivers, with closer relationships than nonfamily caregivers have to the care recipient, are best positioned to increase the quality of life of stroke patients. As the primary caregivers, adult children show unconditional love and affection and provide adequate care, both *per se* and due to filial piety; either way, since they voluntarily provide care, they feel less stress. As per the values of Thai society, parents need to be respected and honored, and care is considered a duty to repay merit (Udonsart *et al.*, 2018; Chaiwongnakkapun *et al.*, 2020; Hanh *et al.*, 2017). However, this study found that the relationship between caregivers and stroke patients does not predict male caregiver burden.

When caregivers have good physical and mental health, they will be able to perform optimal roles and provide adequate care to stroke older adults. In this study, most of the male caregivers had no underlying disease. The relationship between health perception and care burden could also be mediated by the Thai cultural context. Men in Thai society are considered to possess traits relevant to caregiving quality, such as good leadership skills, physical strength and endurance, better enabling them to support their parents in all daily activities (Srisuk and Kespichayawattana, 2019). However, in this study, perceived health status did not predict male caregiver burden.

In this study, the time per day spent caregiving did not predict the burden of male caregivers caring for older adults with stroke; the daily average number of hours of caregiving was 9.01 (SD = 3.69). These findings mirror those of a study that found caregivers spent more than 8 h per day (Wijitraphan, 2016). However, in contrast, another study showed caregivers spending 14 h per day providing care. This increased time duration could be due to higher emotional bonds while providing care and assistance to their affected parents (Achilike *et al.*, 2020; Chayawatto, 2016), despite most male caregivers in all studies having a personal sense of duty and obligation, being informal, unpaid caregivers and most of them (76.50%) being the children of stroke survivors. The care activities or the time spent caregiving differ based on the nature of the patient's condition, the severity of the disease and the older adult's needs, with greater the severity leading to greater care needs. This of course increases caregivers' sacrifice and burden because they provide daily care for older adults (Lunpilar, 2021), which may influence the quality of caregiving and as noted, caregiver burden. In this study, around 50% of the caregivers had been providing care for at least one year. All else equal, the duration of the caregiving experience *per se* could facilitate caregiver adjustment and problem-solving through experience-based improvements in planning and time management.

Conclusion

This study aimed to examine the factors predicting the burden among male caregivers of older adult stroke survivors. The findings revealed that male caregiver was best predicted by caregiver depression and the stroke survivors' ability to perform daily activities.

The caregiver's depression could be categorized as a personal factor. The older stroke survivors' ability to perform daily activities with stroke is considered a situational factor; and stroke is an environmental factor. All three factors constantly made the caregivers perceive the situation as stressful and a potential threat to stability. Furthermore, if male caregivers are unable to adapt to the stress of caregiving, adverse outcomes may result. Male caregivers' interaction with this situation may get negatively affected. This pessimistic view of the caregiving role lowers their ability to assist the older adults in daily living activities, thus increasing the demand for care and the burden level while reducing the efficiency and effectiveness of care. This study recommends programs for family members that provide information about the caregiving process and ideas for alleviating caregiver burden.

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Further reading

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Corresponding author

Pornchai Jullamate can be contacted at: pornchai@buu.ac.th

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