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Improving Coping Abilities among Caregivers of Patients with Cerebrovascular Stroke

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Abstract

Cerebrovascular stroke is a condition that affects both patients and family members who provide care and support. Because stroke is an unexpected traumatic event that suddenly forces family members into a care giving role, and experience an overwhelming sense of burden, the present study was conducted to assess the perceived stress and stressors facing caregivers of patients with cerebrovascular stroke, their burden, patterns of caring themselves ,their coping abilities and designing and implementing nursing intervention program for improving caregivers' coping abilities toward their stressors and burden. The study was carried out at the Outpatient Clinic of Neuropsychiaty in Ain Shams University Hospitals. The sample included 50 caregivers of patients with cerebrovascular stroke. Tools used for data collection were 1) Questionnaire dealing with socio-demographic characteristics, general health condition of caregivers, physical, economical, psychological and social stressors facing them and their awareness toward patterns of caring themselves. 2) Perceived Stress Scale to measure the caregivers' perception of stress 3) Burden Interview Questionnaire which indicates how often the caregivers feel toward caring their patients 4) Assessment dependence level questionnaire to assess ADL and IADL of patient. 5) Coping Inventory to assess caregivers' coping abilities. The main results showed that the nursing intervention program was effective in improving caregivers' coping abilities toward their perceived stress and burden. This study recommended that, caregivers-focused intervention programs should be provided for family caregivers emphasizing on, assertive training to deal with burden of care giving based on caregivers' actual needs' assessment and awareness programs are needed about self care and stress management techniques for improving their coping abilities with their stressors and burden of care giving.

Keywords: Caregivers, Cerebrovascular Stroke, Coping abilities, Nursing intervention

Introduction

Stroke is the primary neurological problem in the world and the third leading cause of death worldwide. A stroke is defined as a sudden loss of brain function resulting from disruption of the blood supply to a part of the brain ***(Clemen-Stone et al., 2002; and Adams, 2003).*** Patients suffering from stroke are at risk for many complications related to impaired neuromuscular functions. The patient with severe motor impairment is at risk for constipation, dehydration, contractures, urinary tract infections, pressure ulcers and pneumonia and sensory losses that put the patients at risk for traumatic injuries ***(Black & Matassarin 2003; and Smeltzer & Bare, 2004***). Stroke also has major consequences for family caregivers. It is a sudden event and caring partners enter their new role abruptly, often without the opportunity to adjust to the change and learn new skills ***(Draper & Brocklehurst, 2007).***

A caregiver is defined as someone who regularly helps and provides care for a person who is disabled or ill with tasks like dressing, shopping or household tasks, or who offers other sorts of practical or emotional support. A caregiver may be a family member, a parent, a spouse, a son, a daughter, or other relatives or friends ***(Bugge et al., 2000 and Dewey et al., 2002).*** Several studies have reported great burden and stress among family members caring for chronically disabled relatives who have stroke disorders. In addition, poor health of stroke patients has been associated with the desire by family members to institutionalize the patients ***(Visser-Meily et al., 2006).***

The caregiver's health and functional ability are recognized as factors that contribute to stress or burden, lower levels of physical and mental well-being and limit their ability to perform care giving tasks ***(Allender & Spradley, 2002).*** Caregivers across the world, who are often unrecognized and under-supported, are deeply and personally impacted by the care they provide. Despite the burdens they shoulder, many caregivers need resources and support to sustain this loving and valuable care of those with neurological disorders ***(Pryor, 2008).***

Families caring for stroke patients are unlike other illness, coping with a degenerating brain disease which is much different than dealing with physical disability ***(May & Thompson, 2005)*****.** Families` members and their providers often accept responsibility for the care of those with chronic health needs. Typically, they do this for emotional and economic reasons, because they are proficient and feel comfortable with the type of care required or accepted to assume the role of caregiver without being feared for the possible emotional, physical and financial consequences ***(Ahmed, 2009).***

The prolonged illness of a family member is a stressful situation and threatens the normal balance of personal, family and social functioning. Informal caregivers are subject to problem situations due to adverse conditions and a lack of immediate problem-solving abilities, which can lead to a state of psychosocial disorganization that is frequently accompanied by negative feelings such as fear, guilt and anxiety. When this state of discomfort and tension occurs over a long period, these individuals tend to adopt new response modes to overcome the crisis, which can lead to an unhealthy adjustment to negative emotions, thereby causing caregiver burden ***(Polit & Beck, 2008)*** .

Caregiver stressor is a perception that the care giving responsibilities have negative effects on the emotional or physical health of the caregiver. The stress of the helping relationship for the caregiver may lead to a sense of burden, of not being appreciated, or of being confined to the care giving role. If there is an agreement of the response, such as the whole family disassociating, caregiver burden may still exist because of the losses incurred to maintain intense focus on the ill person. Losses could include minimal social activities, private time, or personal rewards, in addition to the physical or emotional exhaustion of care giving duties ***(Kitze et al., 2002; and Kalra et al., 2004).***

Caring for someone who cannot perform activities of daily living such as bathing, grooming and personal care activities; compound with high rates of depressive symptoms and mental health stress among caregivers, put many caregivers at series risk for physical and mental health outcomes ***(Mant et al., 2005).***

The stress of providing 24 hours of supervision and intensive assistance with activities of daily living coupled with the loss of social interaction for the caregiver may last for several years ***(Kaufer et al., 2000).*** In addition, higher levels of burdens may correlate with increased morbidity and mortality in caregivers, loneliness isolation from family and friends; feeling of helplessness in the caregiver is high **,** social isolation and lack of motivations were identified as the most problematic area of caregivers ***(Lehman & Poindexter, 2006).*** Involving caregivers in training activities is an appropriate way to increase the intensity of patients' therapeutic activities and learn them basic skills of moving and handling, facilitating activities of daily living and conducting simple care activities ***(Eldred & Sykes, 2008).***

The nurse can play a key role in helping family members, identifying their needs and developing better communication and problem-solving skills to build the relationships needed for caregiving to be successful. Home health care nurse can learn the patient and family how to use community resources to meet various needs. If a family caregiver is becoming overwhelmed the nurse can provide resources to relieve the stress, support family decisions about complex treatment or end of life care, provide guidance and tailor interventions to facilitate the development of a social, volunteer and professional support network ***(Visser-Meily et al., 2008).***

Significance of the study:

Burden is a daily fact of life for many caregivers. Caregiving often takes a great deal of time, effort, and work. Many caregivers struggle to balance care giving with other responsibilities including full-time jobs and caring for children. Constant burden can lead to "burnout" and health problems for the caregiver. Caregivers may feel guilty, frustrated, and angry from time to time **(*White et al., 2004).*** Assessment of caregivers' burden and providing coping strategies for improving their coping abilities and patterns of care toward themselves and their stork patients is essential to help them dealing positively with their stressors and burden and achieving their physical, economical and psychosocial needs.

Aim of the Study

This study aimed to improving coping abilities among caregivers of patients with cerebrovascular stroke through :

- Assessing the perceived stress and stressors facing caregivers of patients with cerebrovascular stroke, their burden, patterns of caring themselves and their coping abilities.
- Designing and implementing nursing intervention program for improving caregivers coping abilities toward their stressors and burden.

- ***Research hypothesis:***

The nursing intervention program will enhance the coping abilities among caregivers of patients with cerebrovascular stroke

Subjects and Methods

Research Design:

A quasi-experimental design was utilized to conduct this study.

Research setting:

The study was conducted at the Out-patient Clinic of Neuropsychiatry in Ain Shams University Hospitals

Subjects of the study:

A sample of convenience of 50 caregivers accompanying their patients with cerebrovascular stroke (males & females) coming to the Neuropsychiatry Out-patient Clinic seeking medical care, was recruited for the study.

Tools of data collection:

Data were collected using the following tools:

1- An Interviewing Questionnaire: It was designed by the researchers in Arabic language after reviewing the related literature. It was used to collect data *related to:*

- Demographic characteristics such as; age, gender, family relationship, marital status, level of education, occupation, monthly income, adequacy of income, residence , having children , number of children , family members and availability of caregivers.
- General health condition of caregivers.
- Physical, psychological, social and economical stressors facing caregivers.
- Caregivers' awareness toward patterns of caring themselves.

Scoring system: The total score of the questionnaire responses was grades in relation to the general health condition of the caregivers, it included 12 questions, the stressors related to caring for patients with stroke included 29 questions and caregivers' awareness toward their patterns of caring themselves included 34 questions. The maximum score for each question was 2 degrees and the minimum score was zero evaluated as follows: Yes = 2 degrees, Sometimes = 1 degree and No=zero.

2- Perceived Stress Scale (PSS) (Cohen, et al., 1983): It was consisted of 10 statements measuring the caregivers perception of stress

Scoring system: it was consisted of four point scale of responses for each statement indicated that way: Never =0 Almost Never = 1 Sometimes =2 Fairly Often =3 or Very Often=4, The total score was obtained by summing the response rate for all statements. The perceived stress level was rated as follows: Low stress if the score ranges between 0- 13, Moderate stress if it is 14-26 and High perceived stress if the score is 27-40.

3- Burden Interview Questionnaire (Zarit et al., 1980). It consisted of 29 statements indicating how often the caregivers feel toward caring their patient

Scoring system: It consisted of four point scale of responses for each statement indicated that way: never (0), rarely (1), sometimes (2) or nearly always (3). The total score was obtained by summing the response rate for all statements. The burden level was rated as follows: Mild burden if the score ranges between 0-29, Moderate burden if it is 30-59 and severe burden if the score is 60-87.

4- Assessment Dependence Level Questionnaire (Eliopoulos 2001). It was composed of two parts: **the first part**, about **activities of daily living (ADL)** which is an assessment format composed of ten close-ended questions which covers; mobility, transferring, bathing, dressing, toileting, continence, feeding, stairs, exercises and grooming. **the second part**: about **instrumental activities of daily living (IADL),** which is an assessment format composed of eight close-ended questions that covers: telephoning, shopping, medicating, handling money, preparing food, housekeeping, laundry and transporting .

Scoring system for (ADL) and (IADL) was ranged from [0-2] for every point, in the first assessment tool, it contains ten points scored as follows; for independent performance (2), for needing assistance in performance (1) and for total dependent performance (0). The total score was categorized as follows; **Activities of daily living (ADL)** score [0-20]: Dependent = (0 – 7), Independent with assistance = (8-12) and Independent (13-20) **Instrumental activities of daily living (IADL)** score [0-16]: Dependent = (0 – 6), Independent with assistance= (7-10) and Independent (11-16).

5- **Coping Inventory (Center for the Study of Neurosis, 1990);**

This inventory was formed of 33 items to assess the caregiver's coping patterns**.**

Scoring system: it ranged from [0-2] was granted according to his/her response, if the item was not applied (0); if applied occasionally but was not helpful (1), and if applied always and found very helpful (2). The coping ability was rated "low" if the score was (0-22) "moderate" if (23-44), and "high" if (45-66).

Tool reliability**:** The reliability of the developed tools used was assessed through the internal consistency method. The tool reliability proved to be very good, with Cronbach alpha coefficient 0.86.

Tool validity**:** The developed tools were reviewed by experts in nursing and medical psychiatric and community health for clarity, relevance, comprehensiveness, understanding, applicability and ease for implementation. Validation was through majority agreement

Operational Design:

The operational design included preparatory phases, pilot study and fieldwork of the study.

Preparatory phase:

This phase dealt with the preparation of the designed data collection tools.

Pilot study:

A pilot study was conducted on 10% of the studied caregivers, from the Neuropsychiatric Out-patient Clinic, Ain Shams University Hospitals; for testing clarity, arrangement of content and applicability of items, also to determine time required to fill in the constructed tools of the research. Subjects who shared in the pilot study were excluded from the main study sample**.**

Field work and Procedures:

The study was implemented through ten months during the period from beginning of May 2012 till the end of February 2013 for data collections and program implementation. Filling in the questionnaire sheets was conducted at the waiting area of Neuropsychiatric Out-patient Clinic, affiliated to Ain Shams University Hospitals, while the patients and their caregivers were attending the clinic for follow up and receiving treatment. The aim of the study and the components of the tools were explained to the caregivers before starting the interview in order to get their approval to participate in the study. The researchers assessed and observed patients and family caregivers individually to collect data. Suitable teaching aids prepared especially for program were a booklet, colored posters, and handouts. Subjects were divided into subgroups each of them consisted of 10 subjects and nursing intervention was implemented for each group separately (2 days/week) the duration of each session lasted from 50 - 60 minutes. The period of implementation of the intervention sessions was achieved within 6-8 weeks. Each session consisted of the following activities: Participant’s acquaintance, expressing feelings, exchange experiences, interaction with others, training to listen attentively and arrange what the subject wants to say.

Each session started by a summary about what was given through the previous sessions and objectives of the new one, taking into consideration using simple language to suit the caregivers. Discussions, explanation, motivation and reinforcement during program sessions were used to enhance learning. At the end of each session, the researchers make conclusion, take feedback from every participant and give homework e.g., schedule for diary. The researchers review and discuss their homework at the beginning of another session. The approach of the researchers during the sessions were leaving caregivers expressing inner feelings freely, listening attentively to every subject, controlling the session, encouraging and involving participants, giving constructive criticism and appraisal for achievement, encouraging speaking or stopping speaking to listen without interruption. The content of intervention program covers knowledge regarding cerebrovascular stroke related to definition, causes, manifestations, associated features, associated disturbance, management and how to deal with the patient, ways for caring self to be healthier and coping strategies for burden of care and stressors. Upon the completion of the intervention nursing program, the post test was done to evaluate the outcomes of the program using the same preprogram tools.

Ethical considerations:

Oral informed consent was obtained from each caregiver prior to filling in the interviewing questionnaire, after clarification of the study aim and assuring him/her that the gathered information will be used for scientific research purpose only and will be treated strictly confidentially. The study subjects were also informed about being free to withdraw from the study at any time without giving any reason.

Statistical analysis:

The collected data were tabulated and statistically analyzed using the statistical package for social science (SPSS), version 17. The statistical analysis included: Percentages (%), mean, standard deviation (SD) were used for quantitative continuous variables. Chi- square ($\mathbf{X}^2$) test was used to compare groups and relations as regards qualitative data. The observed differences, associated were considered as follows:

- Not Significant (NS) $p > 0.05$ - Significant (S) $p < 0.05$ - Highly Significant (HS) $p > 0.00$

Results:

Table (1): shows the sociodemographic characteristics of the studied sample. The age of the caregivers ranged from < 30 up to 40 years and more with a mean of 29.5±6.25 years. More than half of them were aged 40 years or more, and 40% their age ranged from 30- < 40 years. Women relatively more common as main caregivers constituting more than three fifths of the sample (62%), and nearly half of them were wives (48%). More than half of the caregivers did not work (56%), three fifths of caregivers were living with the patients and available most of the time (60%), and the majority of them have insufficient income (88%).

Table (2): describes the general health status of caregivers. The main physical health problems among them were bone/ joint problems, hypertension and diabetes, representing 42 %, 36% and 34% respectively and less than two third of them were treated in governmental hospitals (64%).

As regards the dependency level among patients with stroke, **Table (3)** shows that the majority of them were totally dependent in their patterns of instrumental activities of daily living (62 %).

Regarding caregivers’ stressors **figure (1):** illustrates psychological, economical, physical and social stressors prevailing among them (88%, 72%, 63% & 62% respectively).

Table (4): describes the differences between caregivers' awareness toward patterns of caring themselves pre-post intervention ; There were a highly statistically significant differences between pre- and post-program as regards caregivers' awareness toward the importance of hygienic and infection protection measures, and seeking support, which improved post program with equal percentage to 92% ($\mathbf{X}^2$ = 10.96 & 11.26 respectively, $P< 0.001$) . Meanwhile, there were statistically significant differences between pre- and post-program as regards caregivers' awareness toward the importance of sleeping, time management, social relations, recreational and stress reduction activities, which also improved post program to 58%, 80% , 64%, 74% & 56% respectively ($\mathbf{X}^2$ = 6.42 , 9.78, 6.92 , 6.36 & 6.38 respectively, $P < 0.05$)

Table (5): reveals that 32 % of caregivers experienced a high perceived stress before intervention, while in post-intervention they decreased to 18% and nearly one tenth of the caregivers had low stress at the preprogram representing 22% , their scores improved at the post-test to 62% of them, who succeeded to manage their stress and so they experienced a low stress level. There was a highly statistically significant difference between caregivers, perceived stress scores pre - post- program, implementation (X^2=37.48 at $P< 0.001$).

Table (6): displays the comparison of burden levels among caregivers of patients with stroke at pre–post intervention session. Three fifths of caregivers (60%), experienced a sever burden before intervention, while in post-intervention, 64% experienced a mild burden. There was a highly statistically significant difference between family caregivers burden scores pre-post program implementation (X^2=42. 50 at $P< 0.001$).

Table (7): Testing the differences between caregivers' coping abilities pre-post intervention, the table reveals a highly statistically significant difference between scores in pre-program compared to post-program (X^2=28.49 at $P< 0.001$).The frequency of score grades were changed from 50% to 12 % (low coping), 42% to 64% (moderate coping) and 8% to 24% (high coping).

Table (1): Number and Percentage Distribution of Caregivers According to their Characteristics (n=50).

Characteristics	**No.**	**%**
Age (years):		
<30	4	8
30 - <40	20	40
40 +	26	52
Mean ± SD	29.5±6.25	
Gender:		
Male	19	38
Female	31	62
Family relationship:		
Husband	8	16
Wife	24	48
Son/daughter	18	36
Marital status:		
Single	7	14
Married	33	66
Divorced	3	6
Widowed	7	14
Education:		
Illiterate	19	38
Read and write	11	22
Secondary	15	30
Academic	5	10
Occupation:		
Not working	28	56
Working	11	22
Retired	12	24
Income:		
Sufficient	6	12
insufficient	44	88
Availability of caregivers:		
Living with patient and always available	30	60
Living with patient and sometimes available	11	22
Not living with patient and sometimes available	9	18
Family members:		
Two	3	6
Three	12	24
Four and more	35	70

Table (2): Distribution of Caregivers According to their General Health Status (n=50).

Characteristics	No.	%
Health problems:		
No	12	24
Heart disease	13	26
Diabetes	17	34
Hypertension	18	36
Respiratory disease	4	8
Renal disease	9	18
Neurological disease	4	8
Orthopedic	21	42
GIT	14	28
No. of previous hospitalizations:		
0	17	34
1	19	38
2	9	18
3+	5	10
Reason for hospitalization:		
Surgical operation	18	36
Regular checkup	19	38
Follow-up	21	42
Emergency	9	18
Source for health care:		
Governmental hospitals	32	64
Private	6	12
Insurance	12	24

Responses are not mutually exclusive

Table (3): Distribution of Activities of Daily Living Among Patients with Stroke (n=50).

Activities of Daily Living	**No**	**%**
Totally dependent (0-7)	**26**	**54**
Need assistance (8-12)	**24**	**48**
Independent (13-20)	**0**	**0**
Instrumental activities of daily living		
Dependent (0- 6)	**31**	**62**
Independent with assistant (7 -10)	**19**	**38**
Independent (11-16)	**0**	**0**

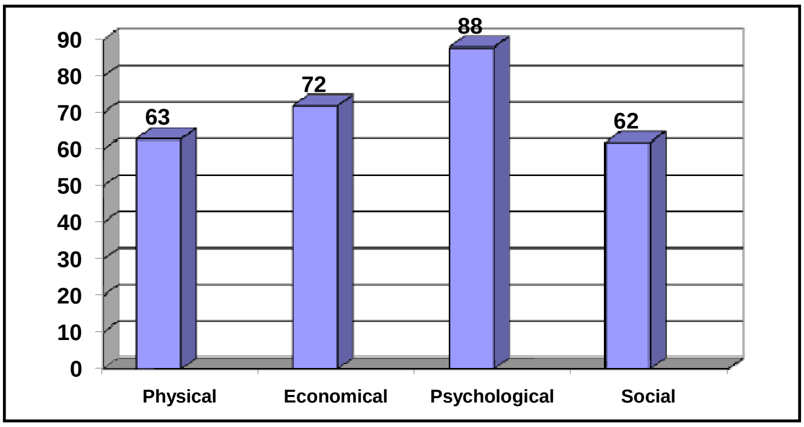

Figure (1): Distribution of Stressors Facing Caregivers Caring for Patients with Stroke

Table (4): Comparison of Caregivers' Awareness toward Patterns of Caring Themselves Pre/Post Program Implementation (n=50)

Caregivers' positive awareness	Pre-program		Post-program		X^2	P value
	No.	%	No.	%		
Sleeping	13	26	29	58	6.42	< 0.05
Nutrition	28	56	43	86	3.47	> 0.05
Body mechanics	7	14	14	28	2.20	> 0.05
Hygiene & Infection protection	21	42	47	92	10.96	< 0.001
Time management	18	36	40	80	9.78	< 0.05
Medical appointments	16	32	27	54	2.95	> 0.05
Social relations	13	26	32	64	6.92	< 0.05
Recreational activities	19	38	37	74	6.36	< 0.05
Seeking support	22	44	46	92	11.26	< 0.001
Stress reduction activities	12	24	28	56	6.38	< 0.05
Spiritual attitudes	40	80	45	90	2.12	> 0.05

Table (5): Comparison between Level of Stress Perceived by Caregivers of Patients with Stroke Pre/Post Program Implementation (n=50)

Perceived Stress	Pre-program		Post-program		X^2	P-value
	No.	%	No.	%		
Low	11	22	31	62	37.48	< 0.001 (HS)
Moderate	23	46	10	20		
High	16	32	9	18		

Table (6): Comparison of Total Burden Levels Among Caregivers of Patients with Stroke Pre/Post-Program Implementation (n=50).

Burden	Pre-program		Post-program		X2	P-value
	No.	%	No.	%		
Mild	8	16	32	64	42. 50	< 0.001 (HS)
Moderate	12	24	10	20		
Sever	30	60	8	16		

Table (7): Comparison of Caregivers Coping Abilities Toward their Stressors and Burden pre/post-program Implementation (n=50).

Coping Abilities	Pre-program		Post-program		X^2	P-value
	No.	%	No.	%		
Low	25	50	6	12	28.49	< 0.001 (HS)
Moderate	21	42	32	64		
High	4	8	12	24		

Discussion

Caring for stroke patients can be a stressful task with caregivers reporting a considerable stress and burden for several years. Family caregivers not only need the information of stroke and care giving skills, psychosocial support, peer sharing but also need various approaches of coping interventions that should be developed to support the stroke family caregivers, address their needs and improve their psychological wellbeing, social relationship and support, enhance problem solving and coping abilities with their stressors **.**

The present study result showed that, more than half of stroke caregivers were aged 40years or more. This results is to some extent supported with ***Fesci (2009),*** who studied family caregivers' difficulties in caring for bedridden stroke patients and found that the highest percentage of stroke caregivers were in age >40 years. In relation to the sex of stroke caregivers, the current study revealed that, more than three fifths of caregivers of stroke patients were females. This result is consistent with ***Morimoto (2003),*** who studied caregivers' burden and health-related quality of life stroke caregivers and found that most of stroke caregivers were female. This reflects that the women are able to tolerate the responsibility and burden of caring for those family members.

The current study result clarified that, three fifths of the studied sample were living with their stroke patients and available at any time. This result agrees with ***Eldred and Sykes (2008),*** who studied psychosocial interventions for carer of survivors of stroke indicated that most of the caregivers were living together with the patients. This could be due to a moral habits and spiritual pleasure especially in Arabic female to care any disabled one of her family members.

The present study result clarified that, the highest percentages of the main physical health problems among stroke caregivers were bone/joint problems, hypertension and diabetes. These results may be due to that after engaging in care giving duties, caregivers experienced changes in their roles; from a spouse or a daughter to being the stroke survivors' nurse, they may neglect their own health, resulting in a decline in their performance of their own health promotion practices. This finding is supported by ***Thomas (2013***) ***and Adams (2014),*** who mentioned that caregivers' stress and burnout put their own health at risk, and affect their ability to provide care. They hurt them and the person they're caring for. As well, this result is in accordance with ***Flegal, & Furie ;(2008) and Abu Kamel (2012),*** who stated that, many stroke survivors will be cared for at home, primarily by their relatives. Providing care to a family member with a chronic disabling disease can be both emotionally and physically distressing for the caregivers.

The present study showed that more than half of stroke patients were totally dependent in their patterns of daily activities. This may be due to the patients with stroke have distinct characteristics, they are not able to care themselves, and some of them are not able to express their needs which leads caregivers to spend a lot of time with them and increase the amount of care giving by caregivers.

The present study result indicated that psychological stressors constitute the highest percentage of the stressors facing stroke caregivers, followed by economical, physical and social stressors. This may be due to the fact that caring for a loved one can be very rewarding, but it also involves many stressors: changes in the family dynamic, household disruption, financial pressure, adding to the workload and the inability of stroke caregivers to meet a constant demand of their patients which make them disturb their life style and feels overwhelmed, leaves them also vulnerable to a wide range of physical and emotional problems**.** The current study was in line with ***Stephens et al., (2000)*** as they considered that caregiver's stress can be particularly damaging, since it is typically a chronic, long-term challenge. They may face years or even decades of care giving responsibilities. It can be particularly disheartening when there's no hope that their family member will get better. This results is also supported by ***Allergan (2012),*** who emphasized in his study on caring for the caregiver and found that caregivers may feel more stress than the general population, are twice as likely to become increased blood pressure and also stress causes increased risk of heart disease and sleep deprivation which interfere with overall life.

In this respect ***Pinquart and Sorensen (2006),*** identified that caregiver stressor is a perception that the care giving responsibilities have negative effects on the emotional or physical health of the caregiver. The stress of the helping relationship for the caregiver may lead to a sense of burden, of not being appreciated, or of being confined to the care giving role. If there is an agreement of the response, such as the whole family disassociating, caregiver burden may still exist because of the losses incurred to maintain intense focus on the ill person. Losses could include minimal social activities, private time, or personal rewards, in addition to the physical or emotional exhaustion of care giving duties (***Schlote et al., 2006).***

The present study finding revealed that there were improvements of caregivers' awareness toward patterns of caring themselves pre-post intervention; this may be due to that family caregivers become overwhelmed by the demands associated with their roles and responsibilities a caregivers for dependent patients, which affect their own health status and wellbeing However in the intervening time, awareness toward self care may help caregivers take care of themselves regarding the importance of hygienic and infection protection measures, nutrition, body mechanics, seeking support, sleeping, time management, social relations, recreation, relaxation, stress reduction activities and positive spiritual attitudes.

These previous findings are incongruent with ***Mathews et al. (2010),*** who clarified that targeting interventions to promote self care activities in caregivers is an important nursing role. Interventions focused on increasing physical activity and exercise may be especially important in the prevention of chronic health problems and may assist the caregiver in maintaining optimal health. In the same context, ***Visser-Meily et al. (2005),*** found in their study on caregivers of people with stroke using a stroke-specific follow-up care model, the authors reported that the intervention group of caregivers (n = 62) had significantly increased its social activities and levels of depression decreased significantly after intervention and reported significant emotional compromises and emphasized the importance of a targeted program for them for assistance and guidance.

Furthermore, ***Bergstom et al. (2011),*** examined the relationships between provision of care by family members and their health behaviors and health maintenance. These researchers found that, with a high level of caregiving activities, the odds of the caregivers not getting rest, not having time to exercise, and actually not recuperating from illness were also high. In addition, caregivers were more likely to forget to take their prescriptions for their own chronic illnesses. Providing care poses a threat to the overall health of caregivers, which can compromise their ability to continue to be caregivers. If caregivers are to continue to be able to provide care, relief from the distress and demands of maintaining the required care must be considered. Both highly negative and highly positive consequences of providing care may exist simultaneously. It is plausible that positive consequences, such as rewards and satisfaction, may buffer the negative effects of caregiving.

The present study result revealed that there were improvements of level of stress perceived by caregivers of cerebrovascular stroke from high perceived stress percentage in pre-program to low perceived stress in post program. It may be due to that after intervention with the ways of caring self, problem solving and healthy coping suggested by the present study program, findings revealed that the stress perceived by caregivers indicated more "low stress" among caregivers leading to more acceptance of patients' natures of illness, needs, burden of care and help in increasing the visibility of care giving**.**

As well, ***Mehta (2005)*** identified that stress is a negative feelings of being unable to control or manage the problems and external events that occur in life while stress levels experienced by caregivers may be influenced by stroke patients' characteristics and their level of recovery. In addition to caregivers' perceptions of available social support, the states of family dynamics are also associated with caregivers' stress. Meanwhile, most patients have families that are providing some level of care and support ***(Blonder et al., 2007)***. In the case of older adults and people with chronic disabilities of all ages, this "informal care" can be substantial in scope, intensity, and duration.

So, a variety of caregiver support services are useful in alleviating caregiver strain and helping caregiver to provide care ***(Ostwald et al., 2009; and Baumann et al., 2011)***.

The present study result indicated that three fifths of a stroke caregivers were suffering from a sever burden before program intervention, meanwhile in post-program intervention they were experiencing a mild burden. This may be due to being close to patients who consequently leads to high level of burden. On the other hand, caregivers who experienced severe level of stress and learned how to use the coping strategy of problem solving so their burden decreased enormously. Improvements that have occurred after the program application could be referred to its content, which was developed based on the caregivers needs for self care, as well as to its clarity, simplicity, illustrated with pictures, using simple language, frequent repetition and discussion to fix the knowledge and most of family members were interested in caring of their patients.

The previous finding agreed with ***Van et al.(2004),*** who studying the assessment of burden in partners of stroke patients, found that many patients are foremost cared for by their relatives who were providing help with activities of daily living are susceptible to unacceptably high levels of burden among those caregivers. Being responsible for medical and nursing procedures like managing urinary catheters, skin care around a central line, gastrostomy tube feedings, and ventilators is anxiety provoking for the novice nursing student, but is becoming routine family care of persons with chronic illnesses living at home. As a result, caregivers often neglect their own health care needs in order to assist their family members, causing deterioration in the caregiver’s health and well-being ***(Tooth et al., 2005)***.

The present study result showed that there were improvements of coping abilities from low percentage in pre-program to high in post-program, which showed statistically significant difference. Coping abilities upgraded enormously post intervention. This may be attributed to that In Egypt like in other developing countries, due to the lack of specialized long-term stroke healthcare services, home care of the patient with stroke falls on family members, who are often ill-prepared to handle such issue. For families as caregivers, providing care for a relative with a disability is a moral obligation, therefore, institutionalizing a patient with stroke is an unacceptable option for families and is considered a social stigma in the Arab context. Meanwhile in post-program their coping level became high. This could be due to that caregivers dealt effectively with the stroke problems for their patients related to understanding their patients' disability and determined the impact of the stressors on their lives, hence increasing awareness of the caregivers about patients and their care helped them to be able to perform well, managing their caregiving responsibilities and coping effectively with their stressors.

In accordance with this study finding ***Chau et al. (2010),*** who studied the effectiveness of psychosocial interventions for family caregivers on the psychosocial wellbeing clarified that psychosocial interventions increasing the availability of education, social and emotional support for family care givers offered a benefit for caregivers to being able to offer care for themselves a longer period of time, their relationships with patient, other family members and friends became less strained and thus enhanced the potentially supportive nature of these relationships, in addition to education and support offered to caregivers, ways to deal creatively with their problems and the restrictions that they are experiencing in their everyday life and giving chances for enhancing and maintaining their own health, social an emotional well-being.

In congruence with ***Skinner et al. (2003) and Chow et al.(2007),*** the previous finding**,** emphasized on the stress and coping process as commonly used to describe how individuals and families adapt to the stress of chronic illness. Stress and coping theory maintain that coping is a process by which the demands of a threat or challenge are made manageable. The individual and family’s appraisal of the threatening event and their problem solving and coping responses help to determine the impact of the stressor on their lives. In the same context ,there is evidence to show that patients recover better and caregivers cope properly when they have been well informed and have good knowledge on stroke and how to deal with patients and their health problem ***(Blake et al 2003).***

In a similar study ***Rombugh and Enaw (2006),*** suggest that coping with caring can be considered a cognitive and behavioral balancing process to achieve equilibrium between internal and external physical and emotional demands. There is evidence that the range and style of coping strategies used by carers affect levels of stress . Social support is an extremely important point of coping as it satisfies the need for attachment, relieves stress and bolsters a sense of self worth, trust and life direction. Likewise, informational interventions alone are not as effective in meeting the complex needs of stroke caregivers as interventions that combine information with other supportive guides may be helpful for caregivers' coping.

Conclusion

From the present study results, it can be concluded that the developed nursing intervention program showed a significant impact, as there was a remarkable decrease in the level of caregivers’ burden and an increase in their coping abilities toward their patients.

Recommendations

Caregivers-focused intervention programs that provide a combination of education about illness, family support, crisis intervention and training or problem solving skills are important to improve caregivers' knowledge and consequently their methods of coping. Further research is necessary to be undertaken for family caregivers that emphasizes, on assertive training to deal with burden of care given, based on caregivers' actual needs' assessment and awareness programs are needed about self care and stress management techniques for improving their coping abilities.

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