



# Impact of therapeutic educational program on patients with stroke and care burden among family caregivers

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## Abstract:

**Background:** As people age, their risk of stroke complications and mortality rises, impairing patients' quality of life and adding to carers' workload. Patients and their caregivers are significantly impacted by nursing care.

**Aim:** To evaluate the impact of a therapeutic education program on patients with stroke and the care Burden of Family caregivers.

**Methods:** A pre-posttest quasi-experimental design was used. Setting: The study was conducted at Minia University Hospital's neurology department and an outpatient clinic. Tools for gathering data: Tool (I): Structure Interview Questionnaire; Tool (II): Interview questionnaire for Zarit burden; and Tool (III): Stroke-Specific QOL Scale (SS-QOL-17).

**Results:** Our study revealed that, apart from the financial load, there was a statistically significant decrease in the care burden score among the studied family caregivers. Results showed a statistically significant reduction in care burden score among the studied family caregivers except for financial burden after applying for a therapeutic educational program. Moreover, the patient under study had a statistically significant improvement in their overall quality of life.

**Conclusions:** The therapeutic educational program offers a suitable method of lowering the care burden score and improving the overall quality of life among the studied stroke patients. This study advised integrating therapeutic educational programs into routine primary care services offered to stroke patients and those caring for them.

**Keywords:** Educational program, Stroke, Nursing care, Care burden.



### Introduction:

Stroke is a fatal condition occasionally referred to as a brain assault. It is the main contributor to adult physical, psychological, and social disability. As a result of cerebrovascular disease, millions of stroke survivors each year must learn to adjust to life with limitations on daily activities (1). Family caregivers are members of the family or other close relatives who voluntarily look after stroke patients at home. The duties of family caregivers' range from helping the patients with daily tasks to controlling illnesses related to their care. Also, they are educating, empowering, and interacting with patients so that they can take care of themselves. Caregiving by family members has become more sophisticated as they conduct difficult nursing and medical procedures and coordinate care (2). These family caregivers offer their services without charge to stroke sufferers. Families typically have a significant but unacknowledged role in assisting and caring for patients (3). However, caring for a sick, dependent patient at home presents several obstacles for the family. Being at risk puts much pressure on family caregivers. The repercussions of care, such as the resulting physical, emotional, financial, and social issues, are called the "care burden" (4). The burden of care is the suffering that caregivers may go through when providing for their patients because of the time and help required to deal with the effects of disability, as well as the ongoing high levels of stress and poor coping mechanisms. It also encompasses the breakdown of family connections as well as social and economic issues (5). Quality of life is an essential aspect of health outcome, along with the duration of life, and it is of interest as a determinant of the outcome as well.

A Reduction in life quality was reported even in patients with minimal consequences of stroke (6). Elderly stroke patients appear to benefit from educational strategies, particularly Therapeutic Patient Education (TPE), as they

deal with a chronic disease. TPE is a fundamental and enduring part of patient management. In collaboration with medical specialists, it strives to make it possible for people with chronic disorders to manage their sickness and deal with it daily. With a patient-centered approach, TPE assists patients and their family members in acquiring or maintaining self-management skills. A multidisciplinary team plans organized educational activities using methods and materials that are specific to the patient's needs. Nurses are urged to prioritize the wellness of both patients and caregivers; patient outcomes are given more consideration than care strain (7). By implementing an educational program, which is an essential and fundamental part of rehabilitation, the burden of care for those who provide care for stroke patients could be reduced. This program aims to help people develop the knowledge, skills, and attitudes they need to meet their needs, reduce their level of care burden, improve their quality of life, and help stroke survivors' care providers cope with their condition (8).

### Aim of the Study

To evaluate the impact of a therapeutic education program on stroke patients and family caregivers' care burden.

### Subjects and Methods

#### Research design:

This study was carried out using a one-group pre-posttest quasi-experimental design.

This study was conducted using a convenience sample of 50 patients and their family caregivers with the following criteria:

#### Inclusion criteria:

##### For patient:

- The age range for the patient is 40 to 70 years.
- both sex
- Free from terminal illnesses, other physical limitations, and communication problems

- Agree to participate in a program for therapeutic education.

**For Family caregivers:**

- Family caregivers who gave at least a month's worth of care to stroke patients.
- Unaffected by physical impairments or life-threatening illnesses
- Willing to share.

**Tools for data collection:**

Three tools were used to evaluate the effect of therapeutic educational programs on the care of stroke patients on the burden of family caregivers, which include the following:

**Tool (I): structure Interview Questionnaire:**

It was created by researchers after carefully examining the pertinent literature, and it was composed of 4 parts:

**Part (1):** Socio-demographic information about stroke patients, including their age, sex, marital status, education, residence, number of children, level of education, employment, and financial situation.

**Part (2):** Socio-demographic information about family caregivers, such as their age, sex, relation to the patient, marital status, number of

children, educational level, financial situation, employment, caregiver condition, the duration of care, and providing care for others.

**Part (3):** (Medical history): To evaluate the past medical histories of patients and their family caregivers, including prior illnesses, surgeries, allergies, and family histories of strokes.

**Part (4):** Clinical data of stroke patients was used to evaluate the type of stroke, duration, level of disability prior to the stroke, and memory/thinking issues following the stroke.

**Tool (II): Interview questionnaire for Zarit burden:**

It was employed to determine the degree of burden, including the status of one's physical, psychological, economic, and social life. **Awad et al. (9)** examined its content validity and dependability to Egyptian culture after translating it into Arabic. This questionnaire consists of 22 items, each of which is graded on a 5-point scale with zero denoting no burden, one denotes a little burden, two a mild burden, three a moderate burden, and four a severe burden.

Classification	Score
No burden to mild	0 – 20
Mild to moderate burden	21 – 40
Moderate to severe burden	41 – 60
Severe burden	61 – 88

**Tool (III): Stroke-Specific QOL Scale (SS-QOL-17):**

The scale was employed to give a condensed compressive evaluation of post-stroke QOL According to the patient's physical and functional characteristics, adherence to treatment, and psychosocial factors. It underwent an Arabic translation and reliability and content validity testing **(10)**. This questionnaire has 17 statements and includes two items from the Medication Adherence Scale to measure medication forgetfulness and resistance to therapy as well as six items from the Barthel Index to assess the level of dependence in daily activities like feeding, grooming, bathing, dressing, toileting, and mobility.

This questionnaire has 17 statements and consists of 6 items from the Barthel Index to determine the level of dependence in daily performance such as (feeding, grooming, bathing, dressing, toileting, and mobility) and two items from the Medication Adherence Scale to assess medication forgetfulness and unwillingness to receive therapy. Lastly, nine items from the Arabic version of SS-QOL (SSQOL-A). These questions evaluated general aspects of quality of life (QOL), such as energy, family engagement, speech difficulties, cognition, future discouragement, social engagement, mood, and general performance. These responses were graded from "never" to



"always" on a 4-point scale. The sum of all responses was used to calculate the final score. The score, which is graded on a 3-point scale,

with one denoting poor, two denoting moderate, and three denoting good QOL, could vary from 17 to 51.

Level	Score
Poor	< 50.0%
Fair	50.0-<75.0%
Good	≥ 75.0

## Method

1. The relevant authorities gave their official consent.
2. Ethical and legal considerations:
  - Before beginning the study, the scientific ethics committee of the nursing faculty at Minia University provided its consent.
  - The ethical committee gave their approval.
  - The study's design ensured that no subjects experienced any pain or injury.
  - The researcher is guaranteed to safeguard the subject data's privacy, confidentiality, and anonymity.
  - The name was replaced with a code number.
  - Patients and their caregivers were informed that they had the option of choosing to participate in the study or not and that they were free to do so at any time and without providing a reason.
  - Respect was shown for views, values, and culture.

## Risks and Benefits:

- (a) No risks from this study.
  - (b) Advantages predicted from this study include analyzing the impact of a therapeutic education program on patients with stroke and the care burden of family caregivers, decreasing the level of burden of care on family caregivers of stroke patients, and boosting the quality of life among survivors.
  - (c) Any unanticipated risks that surfaced during the research were promptly disclosed to participants and the ethical committee.
3. The researchers translated the study's tools from English into Arabic.
  4. To assess the tools' content validity and clarity, a jury of five experts in medical-surgical nursing, geriatric nursing, and community

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health nursing was presented with the materials.

5. Appropriate statistical tests were employed to evaluate the dependability of the tool.
6. A pilot study was conducted on five patients and their family caregivers to assess the viability and application of the tools and identify any challenges that might arise during the data-collecting period. As a result, no modifications were required. It came from the sample.
7. The current investigation was carried out in four stages (Assessment, planning, implementation, and evaluation).

**Phase 1 of the Assessment (pretest):** The researcher used three techniques to evaluate patients and their family caregivers who would be involved in the study to determine whether they fit the inclusion criteria.

## 2. Planning Phase:

- Based on the first data acquired during the assessment phase, in-depth studies of pertinent literature, management arrangements for carrying out the study, and the researchers were constructing the therapeutic educational program.
- The researchers prepared the therapeutic educational program's material to fulfill the demands of the patients and their family caregivers.
- An illustrated, organized colored booklet with explanatory photographs was created based on a literature evaluation and written in easy Arabic and practical language as a guide to aid them in comprehending the contents.

## 3. Implementation Phase:

- The settings mentioned earlier were used to carry out the implementation of the therapeutic educational program.

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- The therapeutic educational program was delivered over the course of six sessions, with each session lasting between 20 and 30 minutes.
- The sample was split into smaller groups, with at least five patients and their family caregivers in each group.
- The therapeutic educational program was delivered clearly and straightforwardly, concentrating on interactive learning and active engagement while adhering to the principles of geriatric learning.

- To make teaching each topic easier, it was implemented utilizing various instructional techniques and media, including brief lectures, group discussions, as well as brochures, images, posters, and videos.
- The researcher conducted the therapeutic educational program for the patients under study and their family caregivers over the course of the following six fundamental sessions:

Session	Content
<b>One</b>	Before the start of the first session of the therapeutic educational program, the researchers provided the study participants and their family caregivers with information about the program's goals and the significance of their cooperation, as well as the specifics of the support plan and a booklet.
<b>Second</b>	Understanding the process of stroke, its causes, symptoms, signs, types of therapies, the importance of patient care, patient transfer, coping mechanisms, effective patient communication, and active listening.
<b>Three</b>	Concentrate on coping mechanisms, stress management, social support, and controlling the emotions and actions of stroke patients. Check the nutritional state.
<b>Four</b>	Management of the patient's blood pressure, respiratory and limb physiotherapy, change of position, pressure ulcer prevention, and prevention of limb deformity
<b>Five</b>	Activities for studying patients include wrist and hand stretches, shoulder openers, table towel slides, deep breathing exercises, and relaxation: bathing, clothing, general hygiene, and oral and dental hygiene. The family caregivers' professionals practiced on patients while being supervised by the researcher, who responded to all questions about nursing interventions.
<b>Six</b>	Follow-up treatments assess the need for more referrals and provide the answers. After that, the study's participants and their family caregivers were urged to participate in an open discussion with the researchers, where questions and feedback were encouraged. The researcher will stay in touch with them at all times.

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#### 4. Evaluation Phase:

Patients and their family caregivers will be evaluated twice.

- First time: prior to the therapeutic educational program's implementation, using pretest tools
- Second time: three months after the therapeutic educational program's implementation, employing Tools II and III for

the objectives as mentioned earlier. The researcher contacted the patients and their family caregivers during a clinical visit follow-up for their stroke patients or during a previously registered mobile call at the researcher's expense with the instruction to come and assess the program's effectiveness, not them.

#### Results



According to Table (1) socio-demographic information, almost one-third (34.0%) of patients were between 50 and 60 years old. Less than three-quarters of the studied patients (72.0%) were male, married with children, working, and had insufficient income. More than half of them (56%) lived in urban, and 36.0% of them had secondary education.

Regarding socio-demographics for family caregivers, around one-third (34.0%) of them were between the ages of 40 and 50. In comparison, 66.0% were female; the majority were married, have children, worked, and did not have enough income. 46.0% of them had a university, and more than three-quarters of them did not only caregiver and provide care for others.

Figure (1): represents that 46.0% of the studied family caregivers were a wife. Also, 22.0% of them were a daughter.

Table (2): Regarding medical history, the majority of the studied patients (94.0%) had a chronic illness, and the most common chronic disease was hypertension, which was followed by heart diseases (88.0% & 76.0 %) of them respectively, majority of them did not have surgery history & family history of stroke respectively. Of family caregivers, 40.0% of them had chronic diseases, and the most prevalent disease was hypertension and, followed by diabetes mellitus, and 92.0 % & 68.0 % of them did not have surgery history & family history of stroke, respectively.

Table (3): related to clinical data for the studied patients, 70.0% & 78.0% of them had suffered from ischemic stroke in less than six months. Most of them were not disabled before the stroke, while 76.0% of them have memory/thinking problems since the stroke.

Figure (2) demonstrates that financial burden had a high severity burden level, followed by physical burden among the studied family caregivers; additionally, there is a statistically significant difference between all burden subscales except financial burden.

Table (4): Illustrates that less than two-thirds of the studied caregivers had moderate to severe

level pre-therapeutic educational programs compared to about one-third of them at post-program. Moreover, there was a statistically significant difference among the studied family caregivers and total burden care pre and post-program ( $p=0.000$ ).

Figure (3) illustrates a statistically significant increase in quality of life among the studied patients after the therapeutic educational program, as fair QOL represented 64.0%.

Table (5): demonstrates that there was a statistically significant difference in total burden care score among the studied family caregivers and their age, residence, have children, education level, occupation, monthly income, only caregiver, providing care for others at  $p<0.05$ . At the same time, there was no statistically significant difference between the studied family caregivers and the rest of the socio-demographic data.

Table (6): Reveals that the level of education and therapeutic are the statistically Significant positive predictor of quality of life among studied patients. On the other hand, age, chronic diseases & memory/thinking problems since stroke were statistically significant negative predictors of quality of life among studied patients.

#### **Discussion:**

Stroke is one of the important health issues in the world, associated with high mortality rates. Caregivers of stroke patients have various physical, psychological, social, and economic burdens because of the healthcare process (11). This study aimed to evaluate the impact of therapeutic education program on patients with stroke and the care burden of family caregivers. Regarding socio-demographics for the studied patients, the current result showed that the highest percentage of them their age ranged from 50 to less than 60 years. This may be because the risk of stroke rises with age, which can signal the start of a sedentary lifestyle and several physiological changes, such as brain blood vessel narrowing. This finding was supported by a previous study (1) in Egypt and showed that most patients who had a stroke

their age ranged from 50 to less than 60 years. Regarding the sex of the studied patients, the current study revealed that about three-quarters of the studied patients were males. This is because, compared to female arteries, male arteries are more affected due to plaque accumulation from smoking. This finding is in line with a previous study (12) that showed less than three-quarters of the studied stroke patients were males.

Conversely, the result was contrasted with Darwish et al. (13), who reported that most patients were female. Also, the present study demonstrated that most studied patients were married, had children, worked, and did not have enough income. Also, more than one-third of them had secondary education, as well as more than half of them, were urban residents. Conversely, Elhassanien et al. (14) found that more than half of the studied patients lived in rural areas, had high education, and had average income.

With regard to the sex of the studied family caregivers, the result of the present study revealed that about two-thirds of them were females. This may be due to the nature of the female and women's strong sense of obligation and self-sacrifice in caring for their family members as the primary providers of care and compassion in the home, particularly making their greatest efforts to safeguard and maintain their wellbeing. This result agreed with the study by a previous study (15), which found that more than half of the studied caregivers were female.

Concerning the degree of consanguinity, the current study's result indicated that less than half of the studied family caregivers were a wife. Also, less than one-quarter of them was the daughter. This outcome might be attributed to the wife being the primary carer in the household because they appear to view it as an immoral duty. Also, some adult daughters experienced role reversal, in which they became the parent, and their parent became the child. Spousal care providers also noted that marital responsibility and a sense of obligation

urged them to become primary carers. This result was similar to a previous study (6) that reported that about one-third of the studied caregivers were wives.

This study revealed that the most prevalent chronic diseases among studied Patients were hypertension, followed by heart disease. If left untreated, this may be due to hypertension and major stroke risk factor. Also, heart diseases double the risk of stroke as they damage blood vessel walls, speed up artery-clogging, and raise blood pressure. This result aligned with a previous study (16) and showed that hypertension was the most prevalent chronic disease among studied patients. Unlike Gan et al. (17) who showed that most of the studied patients suffered from atrial fibrillation most prevalent chronic disease.

Pertaining to the duration of stroke among the studied patients, the present study's result illustrated that most of them had a stroke within six months or less. On the contrary, this outcome disagreed with a study by Naqvi et al. (18) that illustrated more than two-fifths of the studied patients had a stroke within six months or less.

Regarding the care burden subscale among the studied caregivers, the current study demonstrated that financial burden had a high severity burden level, followed by physical burden among the studied family caregivers. Additionally, statistically significant difference between all burden subscales except financial burden. This result may be due to most of the studied sample's lack of income. This finding was supported by a study done in Hong Kong (19) that indicated a statistically significant difference between all burden subscales among the studied caregivers.

Concerning total care burden among the studied caregivers, the current study demonstrated that less than two-thirds of the studied caregivers had moderate to severe levels of burden during the pre-therapeutic educational program compared to about one-third of them during the post-program. Moreover, there was a statistically significant

difference among the studied family caregivers and total burden care pre and post-program. The result may be due to the consequence of ongoing surveillance and complete patient care, including physical, psychological, social, and other responsibilities and obligations for family caregivers. This finding followed a study in Iran (20) that reported a significant difference between caregiver burden scores after the intervention period. On the other hand, this finding disagreed with a study in Egypt by (21), who reported that the intervention program had no significant effect on the total care burden over time.

Regarding the quality of life among the studied patients, the present study illustrated a statistically significant increase in quality of life among the studied patients after the therapeutic educational program. This outcome could result from stroke patients needing to learn a variety of skills and information to manage their illness and enhance successful patient outcomes. This outcome agreed with a study in Thailand (22), which reported that QOL among studied patients in the experimental group was significantly more than before receiving the intervention.

The present study revealed that the level of education and therapeutic was the statistically significant positive predictor of quality of life among studied patients. On the other hand, age, chronic diseases & memory/thinking problems since stroke were statistically significant negative predictors of quality of life among studied patients. This outcome could be explained by the increasing likelihood of incapacity that comes with chronic diseases as people age. This finding is consistent with a

previous study (10) that showed that age, & chronic diseases were statistically significant negative predictors of quality of life among studied patients. Moreover, this result followed a previous study (6). It showed that a significant positive predictor of quality of life among studied patients with a higher educational level was associated with higher quality of life scores. Conversely, this finding was contraindicated with a previous study (23) that reported QOL was not significantly correlated with education level and age.

#### **Limitations:**

The participants in this experimental study were eligible stroke patients and family caregivers who met the inclusion criteria. The results may be less generalized due to the limited sample size.

#### **Conclusion:**

According to the current study's findings, the therapeutic educational program has an adequate means of lowering the care burden score and enhancing the overall quality of life among the studied stroke patient. Also, the results emphasize the value of exercising, strengthening, and adopting coping mechanisms.

#### **Recommendation:**

Up on the completion of this study, it can be recommended that:

- This study recommended implementing a therapeutic educational program as part of routine primary care service for stroke patients and their family caregivers.
- Nurses should help family caregivers see benefits by encouraging them to view care positively and focus more on the advantages associated with care.



**References:**

1. Bahgat, F. (2022). Effect of Nursing Intervention by Using Physical Exercises Modules on Gait and Balance for Stroke Patients. *NeuroQuantology*, 20(20), 615-630.
2. Amr, A., AbouElazab, R., Hussein, S., Doma, N., & Salama, E. (2021). Effect of Tele-nursing on Burden and Coping Strategies among Family caregivers of Confirmed COVID-19 Patients.
3. Xiong C, Biscardi M, Astell A. (2020). Sex and gender differences in caregiving burden experienced by family caregivers of persons with dementia: A systematic review. *PLoS One*, 15, e0231848.
4. Alqhtani S. (2021). Systematic Review of Family caregivers of Persons with Serious Mental Illnesses in Non-Western Countries. *Saudi J Nurs Health Care*, pp. 4, 48–71.
5. Çelik, A., & Kara, B. (2019). The relationship between the stroke survivors' functional status and their informal family caregivers' burden and quality of life. *AIMS Medical Science*, 6(1), 115-127.
6. Aziz, A. M., Rizian, A. E., Tawfik, F. M., & Mekky, J. F. (2023). Determinants of the quality of life in Egyptian patients with cerebrovascular stroke by using the stroke specific QoL questionnaire. *The Egyptian Journal of Neurology, Psychiatry and Neurosurgery*, 59(1), 1-6.
7. Champarnaud, M., Villars, H., Girard, P., Brechemier, D., Balardy, L., & Nourhashémi, F. (2020). Effectiveness of therapeutic patient education interventions for older adults with cancer: a systematic review. *The journal of nutrition, health & aging*, 24(7), 772-782.
8. Kennedy, N. (2021). The role of neuroplasticity in stroke nursing. *British Journal of Neuroscience Nursing*, 17(Sup2), S20-S25.
9. Awad, M., El Gammal, H., Fahmy, M., & Imam, E. (2010). Determinants of disabled elderly family caregiversburden in Ismailia, Egypt. *The Medical Journal of Cairo University*, 78(2).
10. Sakr, F., Dabbous, M., Akel, M., Salameh, P., & Hosseini, H. (2022). Construction and Validation of the 17-Item Stroke-Specific Quality of Life Scale (SS-QOL-17): A Comprehensive Short Scale to Assess the Functional, Psychosocial, and Therapeutic Factors of QOL among Stroke Survivors. *International Journal of Environmental Research and Public Health*, 19(23), 15668.
11. Gok Ugur, H., & Erci, B. (2019). The effect of home care for stroke patients and education of caregivers on the caregiver burden and quality of life. *Acta Clinica Croatica*, 58(2.), 321-332.
12. Baykal, D., & Tülek, Z. (2022). The effect of discharge training on quality of life, self-efficacy and reintegration to normal living in stroke patients and their informal caregivers: A randomized controlled trial. *Neurology Asia*, 27(1), 73-82.
13. Darwish, H. S., ElShafey, R., & Kamel, H. (2021). Prediction of motor recovery after stroke by assessment of corticospinal tract Wallerian degeneration using diffusion tensor imaging. *Indian J Radiol Imaging*, 31(1), 131-137.
14. Elhassanien, M., Ghali, A., Shaheen, K., Ali, A., Sabra, K., Motawea, H., & Bahnasy, W. (2023). Public stroke awareness among Gharbia governorate inhabitants: a cross-sectional study. *The Egyptian Journal of Neurology, Psychiatry and Neurosurgery*, 59(1), 1-9.
15. Achilike, S., Beauchamp, J. E., Cron, S. G., Okpala, M., Payen, S. S., Baldrige, L., & Sharrief, A. (2020). Caregiver burden and associated factors among informal caregivers of stroke survivors. *Journal of Neuroscience Nursing*, 52(6), 277-283.



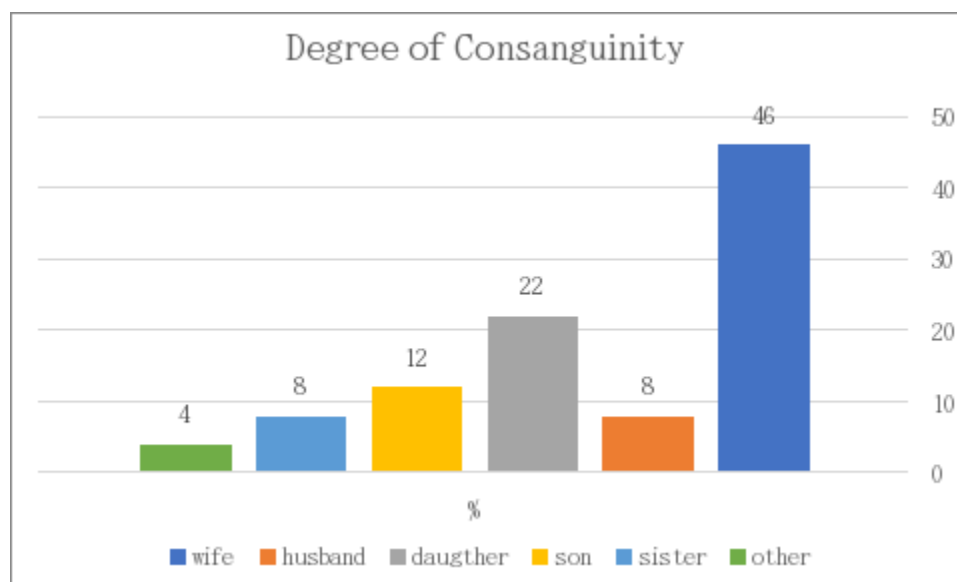
16. Mohamed, R., Abdel-Salam, D., & Mohamed, S. (2021). Functional Disability and Their Associated Chronic Diseases among Elderly Patients Attending an Egyptian Family Practice Clinic. *Egyptian Journal of Community Medicine*, 39(4).
17. Gan, Y., Wu, J., Zhang, S., Li, L., Yin, X., Gong, Y., & Lu, Z. (2017). Prevalence and risk factors associated with stroke in middle-aged and older Chinese: A community-based cross-sectional study. *Scientific reports*, 7(1), 9501.
18. Naqvi, I., Montiel, T., Bittar, Y., Hunter, N., Okpala, M., Johnson, C., & Beauchamp, J. (2021). Internet access and usage among stroke survivors and their informal caregivers: cross-sectional study. *JMIR Formative Research*, 5(3), e25123.
19. Lou, V., Tang, J., Lau, G., Lum, T., Fong, K., Ko, R., & Kwok, T. K. (2021). Effectiveness of a Two-Tier Family-Oriented Intervention in Enhancing the Family Functioning and Care Capacity of the Family Caregivers of Stroke Survivors: Protocol for a Randomized Controlled Trial. *JMIR Research Protocols*, 10(5).
20. Farahani, M., Ghezeljeh, T., Haghani, S., & Alazmani-Noodeh, F. (2021). The effect of a supportive home care program on caregiver burden with stroke patients in Iran: an experimental study. *BMC Health Services Research*, 21, 1-10.
21. Elsheikh, M. A., Moriyama, M., Rahman, M. M., Kako, M., El-Monshed, A. H., Zoromba, M., & Amr, M. (2022). Effect of a tailored multidimensional intervention on the care burden among family caregivers of stroke survivors: a randomised controlled trial. *BMJ open*, 12(2), e049741.
22. Buapin C, Julamad P, Pisitpitatana N. (2019). Effects of a clinical nursing practice guideline for discharge planning on the quality of life of elderly stroke survivors. *The Southern College Network Journal of Nursing and Public Health*. 6(1):51-62.
23. Ramos-Lima, M. J. M., Brasileiro, I. D. C., Lima, T. L. D., & Braga-Neto, P. (2018). Quality of life after stroke: impact of clinical and socio-demographic factors. *Clinics*, 73.

**Table (1): distribution of the studied patients and their family caregivers according to socio-demographic characteristics (N=100)**

Socio-demographic characteristics	Studied patients. (N=50)		Studied family caregivers (N=50)	
	N	%	N	%
<b>Age (in years):</b>				
20 - < 30	0	0.0	4	8.0
30 - < 40	5	10.0	12	24.0
40 - < 50	13	26.0	17	34.0
50 -60	17	34.0	14	28.0
60 ≤ 70	15	30.0	3	6.0
<b>Gender</b>				
Male	36	72.0	17	34.0
Female	14	28.0	33	66.0
<b>Marital status</b>				
Married	40	80.0	45	90.0

Unmarried	10	20.0	5	10.0
<b>Have children.</b>				
Yes	48	96.0	42	84.0
No	2	4.0	8	16.0
<b>Level of education</b>				
Illiterate	3	6.0	1	2.0
Basic	6	12.0	4	8.0
Secondary	18	36.0	12	24.0
University	11	22.0	23	46.0
Postgraduate	2	4.0	10	20.0
<b>Residence</b>				
Urban	28	56.0	32	64.0
Rural	22	44.0	18	36.0
<b>Employment:</b>				
Working	33	66.0	39	78
Not working	17	34.0	11	22
<b>financial situation:</b>				
Not enough	42	84.0	35	70.0
Enough	4	8.0	12	24.0
Enough to saved	2	4.0	3	6.0
<b>Only caregiver</b>				
Yes	-	-	12	24.0
No	-	-	38	76.0
<b>Providing care for others:</b>				
Yes	-	-	39	78.0
No	-	-	11	22.0

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**Figure (1):** Distribution of the studied family caregivers regarding their degree of consanguinity (n=50).

**Table (2): distribution of the studied patients and their family caregivers according to medical health history (N=100)**

Medical history	Studied patients(N=50)		Studied family caregivers (N=50)	
	N	%	N	%
<b>Have prior illnesses:</b>				
Yes	47	94.0	20	40.0
No	3	6.0	30	60.0
<b>If yes, what is this? #</b>				
Hypertension	28	59.6	12	60.0
Heart disease	21	44.7	3	15.0
Diabetes mellitus	17	36.2	7	35.0
Arthritis	14	29.8	5	25.0
Renal disease	10	21.3	1	5.0
Liver disease	9	19.1	1	5.0
Respiratory disease	5	10.6	2	10.0
Others@	8	17.0	1	5.0
<b>Have surgery history:</b>				
Yes	6	12.0	4	8.0
No	44	88.0	46	92.0
<b>If yes, what is this?</b>				
Appendectomy	1	16.7	1	25.0
Heart cauterization	3	50.0	0	0.0
Cesar section	2	33.3	3	75.0
<b>Family history of stroke:</b>				
Yes	12	24.0	16	32.0
No	38	76.0	34	68.0

# More than one answer

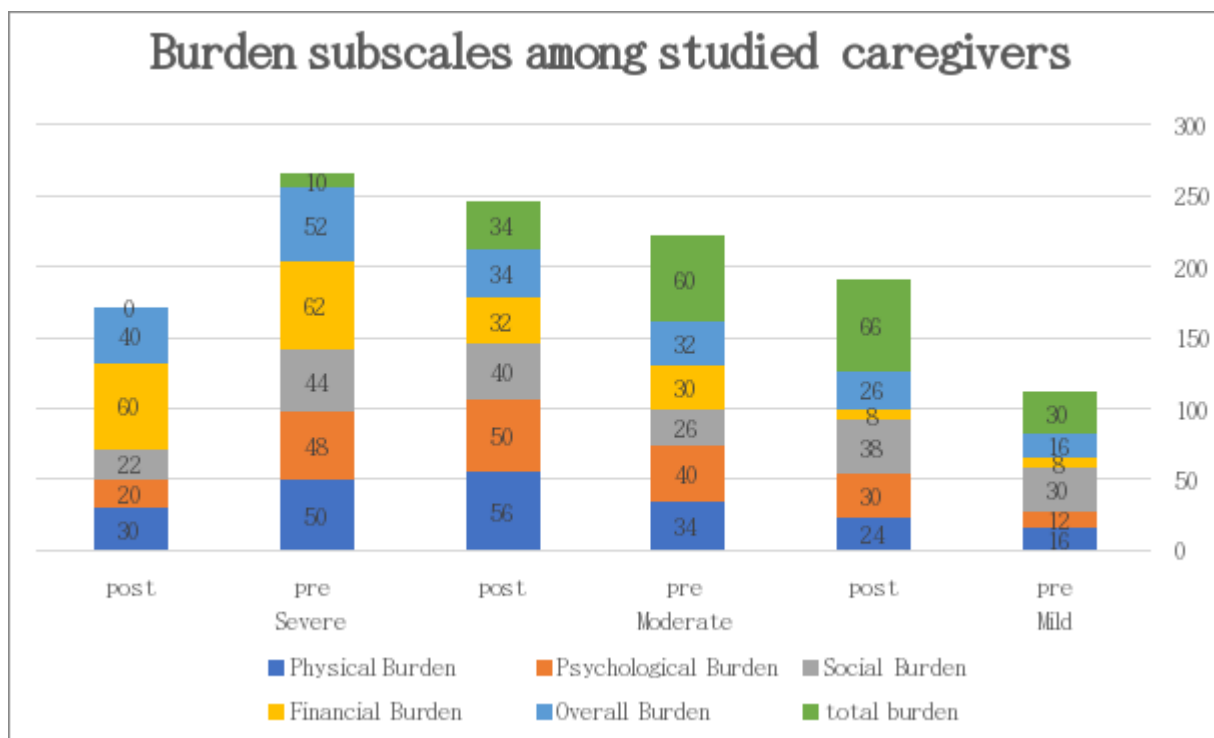
@ Other (eye disease, GIT disorder)

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**Table (3): distribution of the studied stroke patients according to their clinical data (N=50)**

Clinical data	Studied patients (n=50)	
	N	%
<b>The type of stroke:</b>		
Ischemic	35	70.0
Hemorrhagic	15	30.0
<b>Duration of stroke (months)</b>		
<6	39	78.0
≥6	11	22.0
<b>Have a disability prior to the stroke</b>		
Yes	5	10.0
No	45	90.0
<b>Memory/thinking issues following the stroke:</b>		
Yes	38	76.0
No	12	24.0

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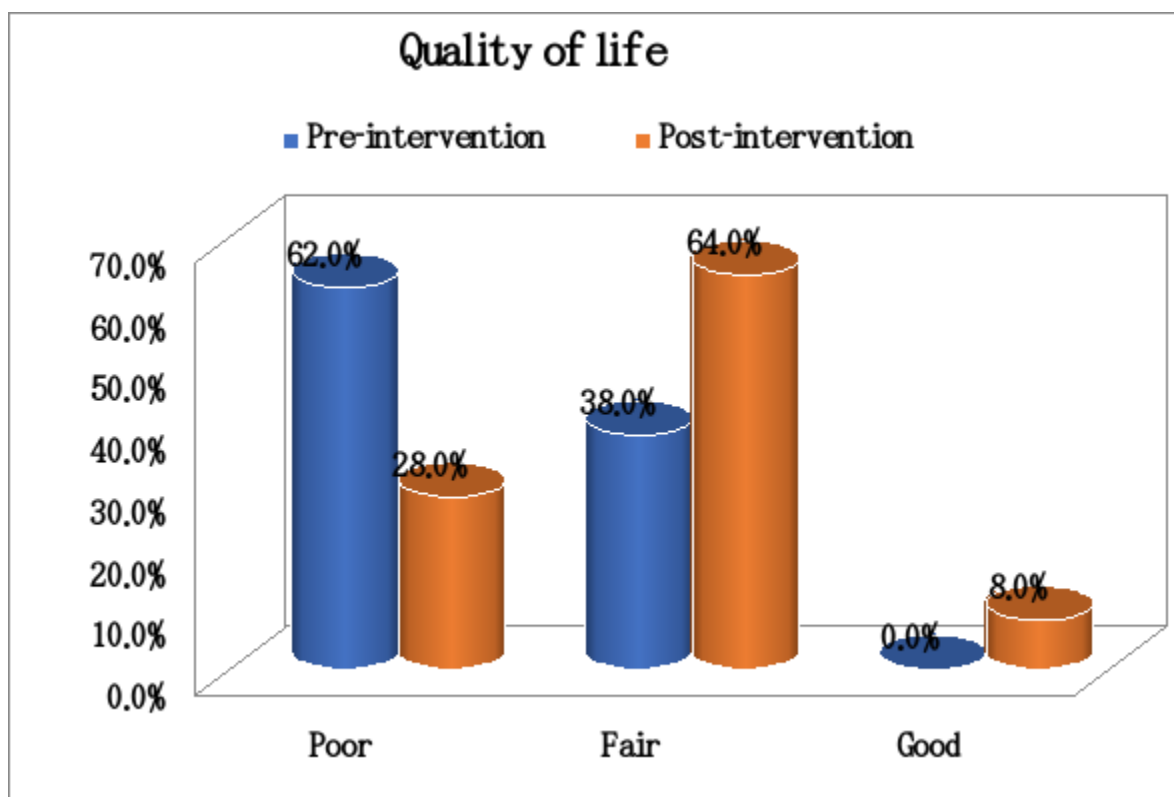


**Figure (2): distribution Burden subscales among the studied family caregivers pre and post-therapeutic educational program (N=50)**



**Table (4): distribution of the studied family caregivers according to their burden of care level pre and post therapeutic educational program (N=50).**

Burden of care level	Studied family caregivers (n=50)			$\chi^2$ P
	Pre-intervention		Post-intervention	
	N	%	%	
No to mild	0	0	0.0	20.045 0.000*
Mild to moderate	15	.0	66.0	
Moderate to severe	30	3	34.0	
Severe	5	0.0	0.0	
		6	7	
		0.0		
		1		
		0.0		
Mean±SD	42.73±15.441		34.50±10.364	t=15.221 P=0.000*



**Figure (3): distribution of the studied patients regarding the Quality of life before & after therapeutic health education program (N=50).**

Table (5): Effect of socio-demographic data of the studied family caregivers on their Levels of total burden score (N=50)

socio-demographic data		Levels of total burden						X <sup>2</sup>	P-Value
		Mild (n=15)		Moderate (n=30)		Severe (n=5)			
		No.	%	N	%	N	%		
Age (years)	20 - < 30	3	20	1	3.3	0	0.0	9.001	0.048*
	30 - < 40	4	26.7	7	23.4	1	20.0		
	40 - < 50	8	53.3	9	30.0	0	0.0		
	50 - 60	0	0.0	12	40.0	2	40.0		
	60 ≤ 70	0	0.0	1	3.3	2	40.0		
Gender	Male	10	66.7	5	16.7	2	40.0	6.082	0.102
	Female	5	33.3	25	83.3	3	60.0		
Marital Status	Married	14	93.3	27	90.0	4	80.0	3.047	0.269
	Unmarried	1	6.7	3	10.0	1	20.0		
Residence	Rural	0	0.0	11	32.4	20	20.4	15.07	0.01*
	Urban	8	100.0	23	67.6	78	79.6		
Have children	Yes	9	60.0	28	93.3	5	100.0	9.025	0.027*
	No	6	40.0	2	6.3	0	0.0		
Education level	Illiterate	0	0.0	0	0.0	1	20.0	52.01	0.000**
	▪ Basic education	0	0.0	3	10.0	1	20.0		
	▪ Secondary	0	0.0	17	56.7	3	60.0		
	▪ High education	9	60.0	6	20.0	0	0.0		
	▪ Postgraduate studies	6	40.0	4	13.3	0	0.0		



Occupation	▪ Working	12	80.0	25	83.3	2	40.0	21.14	0.001**
	▪ Not working	3	20.0	5	16.7	3	60.0		
Monthly income	▪ Not Enough	1	6.7	29	96.7	5	100.0	25.26	0.000**
	▪ Enough	11	73.3	1	3.3	0	0.0		
	▪ Enough and save	3	20.0	0	0.0	0	0.0		
Only caregiver	▪ Yes	1	6.7	7	23.3	4	80.0	18.55	0.000**
	▪ No	14	93.3	23	76.7	1	20.0		
Providing care for others	▪ Yes	4	26.7	30	100.0	5	100.0	28.39	0.000**
	▪ No	11	73.3	0	0.0	0	0.0		

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Table 6: Logistic Regression Analysis for Factors That Predict quality of life among stroke patients (N=50).

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Age	-0.044	0.117	-0.070	- 2.272	0.028
Sex	2.935	2.112	1.336	-0.962	0.189
Level of education	0.919	0.383	0.143	0.283	0.014
Chronic diseases	-4.453	1.464	-0.423	-3.041	0.005
Memory/thinking problems since stroke	2.585	0.963	0.348	2.685	0.010
Therapeutic program	0.624	0.274	0.318	2.272	0.028

