Stroke Risk, Practice and Health Promotion Guidance among Geriatric Patients: Randomized Control Trail

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Abstract: Background: Stroke is one of the world's chief reasons of death and infirmity among geriatric. Objective: The research at hand analyzed the association among the rFSRP and health promotion lifestyle and practice about stroke prevention among geriatric patients. Design: A randomized controlled experimental study was used in this study. This study included 85 study and 85 control participants. Methods: Participants were randomly selected and provided with an educational intervention on health-promoting lifestyle behaviors. Data were collected via Tool (I): demographic and clinical data of geriatric patients, Tool (II): Revised Framingham Stroke Risk Profile (R- FSRP) Tool (III): geriatric patients' practices about stroke prevention, and Tool IV: Health Promoting Lifestyle Profile II (HPLP II) pre, and three months after the program intervention. Results: The data analysis revealed noteworthy dissimilarities between the experimental and control groups, which were deemed statistically significant and pre and follow - up intervention regarding(R- FSRP), practice and health promotion ($p < 0.05$.). Conclusion:The study concluded that the intervention program had a positive effect on stroke risk, practices and health promotion lifestyle.

Key Words: Lifestyle, geriatric patient, Stroke risk, practices, prevention.

1. INTRODUCTION

Stroke, a cerebrovascular disease with high mortality and disability rates, remains a significant global health burden. Despite improvements in constructing green channels for stroke patients in hospitals to provide emergency care and reduce treatment delays, the prognosis of stroke remains unfavorable(**1)**.

Stroke survivors commonly experience varying degrees of mechancial, mental, and language-oral ingestion dysfunction, which negatively influence their self-care capability and cognitive function, as well as troubling their relatives. Despite extensive research on the etiologies, risk factors, diagnosis, and management of stroke over recent decades, it still ranks as a primary reason to the global weight of illness**(2).**

While being old is not a medical condition, studies have shown that over 80% of older individuals experience one or more diseases that can result in a range of issues, including bodily, mental process, interactions with other, and financial challenges. As the older adult population rises, there is a corresponding rise in the prevalence of disorders and a greater reliance on others in assistance for daily activities. Among these health issues, stroke is considered a significant concern for older adult individuals' worldwide**(3).**

Stroke is influenced by several major risk factors, including age, ethnicity, high blood pressure, diabetes insipidus, tobacco use, metabolic syndrome, and atrial fibrillation. Furthermore, specific classifications of cerebrovascular accident have a sstrong correlation with advanced age.In light of this, a more extensive comprehension of the danger factors, and consequences of stroke in the geriatric people holds great significance for the timely detection, prevention, and clinical management of this condition in an aging society**(4)**.

The probability of stroke in the geriatric people is a complex interplay of various factors, including age-linked alteration in the brain and blood vessels, chronic medical conditions, and lifestyle issues such as high blood pressure, diabetes mellitus, and cardiovascular diseases. Therefore, it is crucial to identify and manage these risk factors to prevent stroke in the geriatric population **(5)**.

Although these nuances of cerebrovascular accident probability and its consequences in geriatric, risk reasons related to this age group have yet to receive adequate scholarly attention and investigation. Unfortunately, the majority of scholars have directed their attention towards scrutinizing the risk elements present in younger demographics. As a result, precise tools for risk evaluation and interventions aimed at mitigating the likelihood of strokes among the elderly are imperative(**6)**.

A health-promoting lifestyle is essential for geriatric patients at risk of stroke, as it can reduce the incidence of stroke and improve overall health outcomes. Regular exercise, a healthy diet, stress management, and avoiding unhealthy habits such as smoking and excessive alcohol consumption are critical components of a health-promoting lifestyle(**7)**.

The Framingham Stroke Risk Profile (FSRP) was developed in 1991 to assess the probability of incident stroke using data from the Framingham Heart Study (FHS) cohort. The FSRP is a composite score based on several factors, including age, systolic blood pressure (SBP), antihypertensive medication use, diabetes mellitus (DM), smoking status, cardiovascular disease (CVD), atrial fibrillation (AF), and left ventricular hypertrophy (LVH) determined through echocardiography**(8).**

A geriatric population that is robust, physically engaged, and self-sufficient would reap advantages from adopting a predominantly plant-riched food. Furthermore, they would benefit from lipid-reducing treatment, proper regulation of blood pressure levels, administration of antiplatelet agents or anticoagulants as required, B vitamins to lower plasma total homocysteine levels, and suitable interference for carotid stenosis. These interventions would reduce the incidence of cerebrovascular accident, safeguard worth of life, and forestall the start of dementia. Given the progressive aging of our society, it is imperative that we do not let these chances go to waste(**9)**.

1.1. Significance of the Study

Stroke is a significant global health concern and ranks as the second most common cause of mortality and infirmity worldwide. The problem of cerebrovascular accident is a continuous issue, and its impact on international health is substantial. The incidence of cerebrovascular accident varies among European countries and the United States, with Italy reporting the lowest prevalence at 1.5% and the UK and United States reporting the highest at 3%(**1)**. Great death and illness because of stroke as its incidence reach 963 per 100,000 people annually. In Egypt Center for Disease Control and Prevention, 2021 reported that, cerebrovascular accident is considered the third reason of mortality 14 %(**10)**.

1.2. Hypotheses:

H1. Stroke risk among geriatric patients will be expected to reduce after health promotion lifestyle guidance and stroke prevention practices.

H2. Health promotion lifestyle guidance and stroke prevention practices will be improved after implementing nursing educational intervention program

2. MATERIEL AND METHODS

2.1. **Design**

A randomized controlled experimental study was used.

2.2. Setting

The study was carried out in outpatient clinics (hypertension, diabetes mellitus, and cardiac clinics) at the main Assiut University Hospital.

2.3. Sample

The participant group was a systematic random sample of geriatric patients. The sample size calculated using the online Sample Size Calculator (Raosoft), the study sample is determined to be 132. The Sample was calculated after setting the margin of error at 5%, the confidence interval at 95%, and the population size is estimated to be around 230 geriatric patients in the outpatient clinics of the hospital. A 10% non-response error should be added which makes the final sample size 170 geriatric patients.

The subjects were allocated randomly and divided into two cohorts, with both the study and control groups consisting of an equal number of participants, specifically 85 individuals per group.

The study included individuals of both genders aged 60 years or above, who had been detected with hypertension, diabetes mellitus, and cardiac conditions, possessed the ability to communicate effectively, and provided their permission to involve in the research.

2.4. Instruments of Study

Tool I. Sociodemographic and clinical data of geriatric patients' structured interview schedule:

The construction of the tool was the creation of the researcher after reviewing different research and pertinent literature for the conduction of the study. The tool incorporated demographic attributes of the research participants, such as age and gender, education, residence, health problem, smoking history, and previous history of stroke.

Tool II: Revised Framingham Stroke Risk Profile (R- FSRP)**(11)**

Wolf and colleagues (1991) developed the Framingham Stroke Risk Profile (FSRP), which is the most widely utilized cerebrovascular accident probability evaluation tool. The FSRP was initially introduced in 1991 and in this particular study, the R-FSRP was employed to estimate the probability of an person experiencing a cerebrovascular accident in a 10-year timeframe. The key elements of the R-FSRP encompass age, gender, systolic blood pressure (SBP), current smoking status, pre-existing cardiovascular disease (CVD), past or present atrial fibrillation (AF), past or present diabetes mellitus (DM), and the use of antihypertensive medications (HRX). The R-FSRP score for each research patient was evaluated using the formula provided in the equation below, which is categorized according to gender.

Male: FSRP(t) = 1 − Sb(t) exp(L − M) , where t = 10, Sb(10) = 0.94451 (the baseline survival at time t), M = 4.4227101 (L evaluated at the mean of all the covariates), and L is the linear combination: L = 0.49716 * (Age/10) + 0.47254 [if smoker] + 0.45341 [if CVD] + 0.08064 [if AF] + 0.45426 [if Age ≥ 65] + 1.35304 [if Age < 65 and DM] + 0.34385 [if Age ≥ 65 and DM] + 0.82598 [if antihypertensive medication used {HRX}] + (0.27323 * (SBP-120)/10) [if no HRX] + (0.09793 * (SBP-120)/10) [if HRX].

Female: FSRP(t) = 1 − Sb(t) exp(L − M) , where t = 10, Sb(10) = 0.95911, M = 6.6170719, and L is the linear combination L = 0.87938 * (Age/10) + 0.51127 [if smoker] − 0.03035 [if CVD] + 1.20720 [if AF] + 0.39796 [if Age ≥

65] + 1.07111 [if Age < 65 and DM] +0.06565 [if Age ≥ and DM] + 0.13085 [if HRX] + (0.11303 * (SBP-120)/10) [if no HRX] + (0.17234 * (SBP-120)/10) [if HRX].

Tools (III): geriatric patients' practices about stroke prevention

The researcher created this tool after a thorough review of pertinent scholarly sources to evaluate the geriatric patient's practices pre and follow-up educational program. It includes items related to smoking cessation, reduction in fat intake, compliance with medications, therapeutic diet, engage in weight control measures if obese, exercise, and attend follow up visits at the clinic regularly and measuring of blood pressure and blood glucose level at home. Items will be scored using a 4- point likert scale in terms of frequency as the following (Never (N) = 1, Sometimes (S) = 2, Often (O) = 3, Routinely (R) = 4). The total score will be adjusted from 0 to 100 and can classify the level of practice to poor (ranging from 0 to 33.3), moderate (range from 33.4 to 66.6) and good (ranging from 66.7 to 100).

Tools (IV): Health Promoting Lifestyle Profile II (HPLP II)**(12)**

The Health-Promoting Lifestyle Profile II (HPLP II) was first introduced by Walker et al. in 1995 as a reliable instrument to evaluate an individual's personal lifestyle behaviors that foster good health. This comprehensive tool comprises a 52-item questionnaire, where respondents indicate their frequency of involvment in health-promoting activities using a 4-point Likert-type scale (Never (N) = 1, Sometimes (S) = 2, Often (O) = 3, and Routinely (R) = 4).

The HPLP II is divided into six subscales, namely Health Responsibility, Physical Activity, Nutrition, Spiritual Growth, Interpersonal Relations, and Stress Management, each assessing different facets of health promotion. The six subscale scores are obtained by computing the mean of subscale items. To maintain the 1 to 4 metric of item answers and permit for comparisons of scores across subscales, using means instead of sums of scale items is recommended.

2.5. Validity

To ensure the face validity of the tool, completeness, and clarity of the items of questions. Five distinguished experts in gerontological nursing and community health nursing faculty were consulted.

2.6. Reliability

The reliability of the HPLP-II questionnaire, ICC = 0.79 was achieved (95% confidence interval: 0.59–0.86, $P < 0.001$) and its domain for all factors was calculated as 0.76–0.88. The reliability was measured using the Cronbach alpha coefficient test to practices about stroke prevention was (0.8).

2.7. Assessment of the questionnaire

In preparation for the main study, a pilot investigation was conducted on 17 individuals who were not part of the final sample group, to measure the clearness of the research tools and establish the duration wanted to complete the questionnaire.

3. DATA COLLECTION

The dean of Assiut University's Faculty of Nursing dispatched an official approval letter including agreement to conduct the research, to the manager of outpatient clinics at the main Assiut University Hospital. The letter contained a detailed explanation of the study's aims and scope, ensuring that all parties were informed and aware of the nature of the investigation. An application of the educational intervention consumed three months in the period from December 2022 to the end of February 2023 five days/week and after three months doing the follow-up.

To gather baseline data and administer a pretest (n=170), individual interviews were conducted with all participants. The study group received educational program in outpatient clinics and the control group got a routine follow-up. The program content was created based on the relevant literature and available resources to enhance pateints' practices, health promotion lifestyle and reduce stroke risk. It was implemented in small groups of (2-3) geriatric patients. Each group had two sessions. Every session took 90 minutes and 15 minutes for the rest period. The geriatric patients performed the exercise 3 times a week for 16 weeks (4 weeks for implementing program and 12 weeks after implementing but without observation) and the researcher follow their commitment.

The researchers used teaching methods such as discussion, presentations, and demonstrations, power point presentations, brochure, and a handout booklet (printed and pdf copy) were used.

3.1 Objectives of program:

1. Evaluate the potential for stroke and preventive measures among patients.
2. Assess behaviors related to promoting good health.
3. Implement an educational program on promoting health behaviors, stroke prevention practices, and breathing exercises.
4. Utilize breathing exercises.
5. Perform blood sugar monitoring.
6. Conduct blood pressure measurements.
7. Assess the efficacy of the educational program concerning stroke risk, health promotion behaviors, stroke prevention practices, and breathing exercises

3.2 The sessions of the program:

The 1st session included two part, part I: orientation about importance, purpose, session of the program, and expectations, Part II: an introduction to stroke, the anatomy & function of the brain, pathophysiology of stroke, definition, risk factors, causes, signs & symptoms, complications, and health promotion lifestyle measures of stroke prevention such as (nutrition, exercise, engage in weight control measures, smoking cessation, appropriate treatment of diseases, and routine follow up). This session was conducted via group discussion.

The 2nd session contained two part, part I (theoretical part for exercises, measuring of blood sugar and blood pressure), definition of breathing exercises, purpose, advantage, time to perform breathing, indication and contradiction of performing exercise, steps of breathing exercises and steps of measuring of blood sugar and blood pressure. Part II: applying breathing exercises and steps of measuring of blood sugar and blood pressure. This session was conducted via group discussion and demonstration.

3.3 Steps of applying breathing exercise:

- While in an upright position, gently retract your elbows to create space for your chest to expand.
- Inhale deeply through your nostrils.
- Hold breath for a count of 5.
- Gradually release the breath by exhaling through nose.

3.4 Steps of measuring of blood sugar:

- Thoroughly clean and dry your hands.
- put a diagnostic strip into the device.
- Custom the lancet to puncture the edge of fingertip.

• Gently touch and hold the test strip's edge to the blood drop.
• After a few seconds, the meter will show your blood sugar level on the screen.

3.5 Steps of measuring blood pressure:

•Discover a clam room to meaure it.
•Sit in comfortable and relaxed position.
•Twirl the cloths on upper limp.
•Sit in a seat next to a board for a few moments. Put upper limp parallel to cardiac. Keep spine upright with the seat, lower limp uncrossed. relax forearm on the board with the inner hand toward the ceiling.
• Locate pulse.
•Secure the cuff.
•Blow up and devalue the cuff.

3.6 If using a manual monitor:

• Grasp the pressure device in left hand and the bulb in right hand.
• Close the airstream regulator on the bulb by rotation the pin in circular motion.
• Squeeze the bulb with right hand to inflate the cuff while listening for the pulse through the stethoscope.
• Keep an eye on the gauge and continue inflating the cuff until it reaches approximately 30 degrees more than the predictable systolic pressure. At this moment, the pulse must no longer be audible through the stethoscope.
• While closely observing the device, gradually remove the compression in the cuff by gateway the airstream regulator anti clockwise. The device must drop by only 2 to 3 degress with every cardiac pump. Confirm that the regulator is twisted gradually.
• Pay attention for the initial pulse sound. Just as catch it, take the reading on the device. This measurment represents the systolic pressure.
• Slowly devalue the cuff while remaining to hear cautiously.
• Note the reading on the gauge just as you can no longer listen the pulse. This measurment represents the diastolic pressure.
• Let the cuff to totally devalue.

3.7 If using a digital monitor:

• Grasp the bulb in right hand.
• Open the device to activate the monitor. All display signs must briefly look, tailed by a zero, signifying that the monitor is on.
• Squeeze the bulb to inflate the cuff.
• Retain an eye on the device and continue inflating the cuff until it reaches about 30 degrees more than the predictable systolic pressure.
• Ckeck the device. The pressure measurmens will be appered on the screen.
• Wait for a continued honk, signifying that the reading is ready. Take note of the pressures displayed on the screen. The systolic pressure will seem on the left, and the diastolic pressure on the right.
• Let the cuff to totally devalue.

To support the nursing educational intervention, the researcher furnished the patients with a booklet that showed the activities and objectives of the intervention. The booklet was created in straightforward Arabic language and featured mainly pictures to improve clarity and address the issue of illiteracy that is prevalent among geriatric patients. The telephone number of the patients was taken to arrange for upcoming meetings and made follow-ups. After three months of program application, the researchers evaluated and compared the experimental group and comparison group by using the following same tools; I, II, III, and IV. The goal of this assessment is to determine baseline data that help in evaluating the efficiency of implementing instructive guidance on the stroke risk, health promotion.

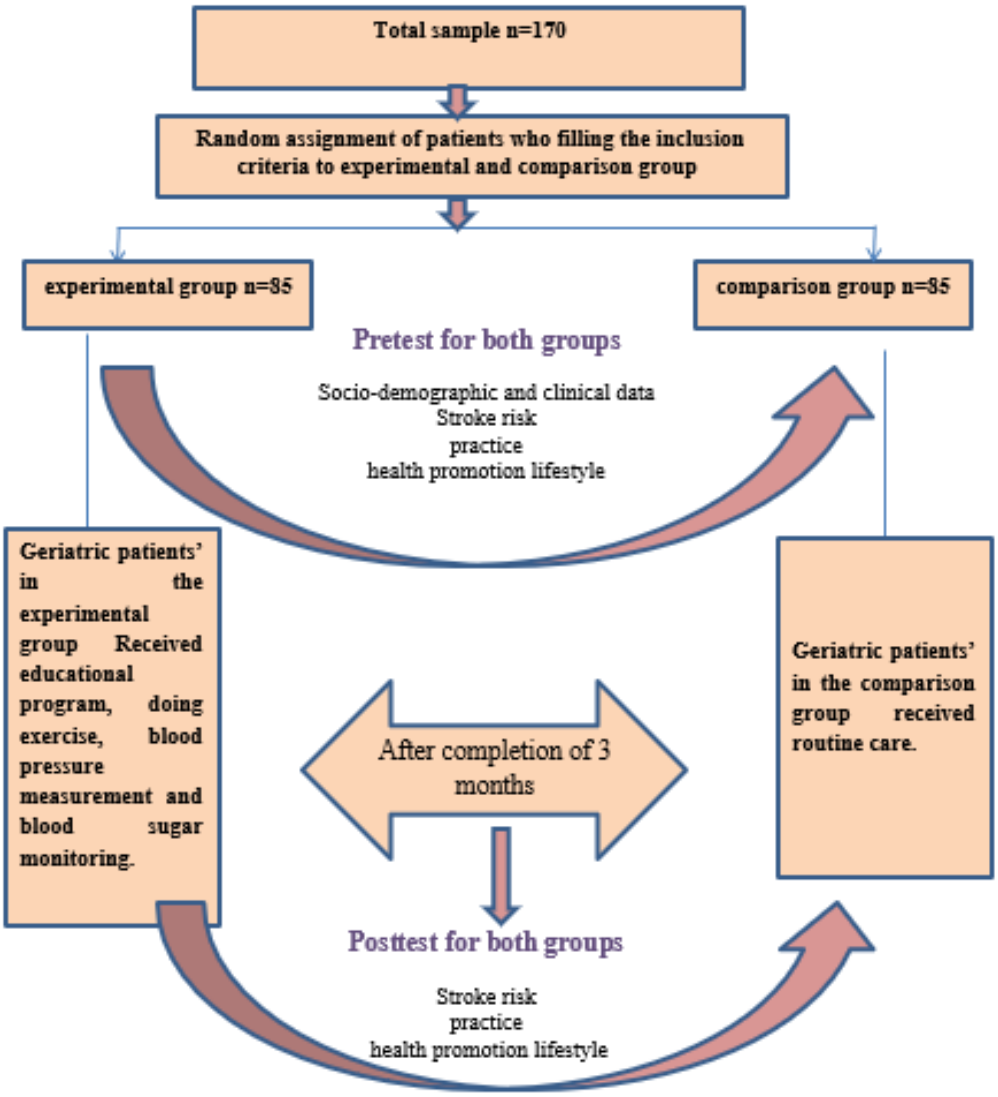

Figure1: Flow chart of the research.

3.8 Ethical considerations:

The research proposal received approval from the ethics board at the Nursing College, Assiut University (IRB no.3060026), and the investigation was recorded at www.clinicaltrials.gov (NCT05640154 identifier). The researchers meticulously adhered to ethical guidelines throughout the study, ensuring no harm was inflicted on the study participants. Before consenting, each study subject received a detailed clarification of the research's rationale. The privacy and confidentiality of the investigation participants and their data were guaranteed, and participants had the right to opt-out of the investigation at any point without giving any reason or facing any negative consequences.

4. RESULTS

Table 1 The geriatric patients comprised 48.2% of the experimental group and 67.1% of the comparison group were male, 25.9 % of the experimental group and 31.8% of the comparison group were smoker and (76.5%, and 84.7% respectively) of both study and control groups have hypertension.a notable contrast

Table 2 The experimental group demonstrated a notable contrast between the pre-test and follow-up results regarding R-FSRP (t) ($p = 0.001$), while a notable statistical contrast between the experimental and comparison groups at follow-up in R-FSRP (t) ($p = 0.000$).

Table 3 The research outcomes demonstrated that there was (7.1%) of the studied elderly patients had a good practice score about stroke in pre-test, and (55.3%) of them had good practice score after three months after implementation of the program. It shows a notable statistically contrast between the experimental and comparsion group regarding practice score in follow-up ($p < 0.05$).

Table 4 The research results revealed a notable statistically contrast between the experimental and comparsion group regarding the all domains of health promotion lifestyle ($p < 0.05$).

Figure (1) Negative correlation between R-FSRP (t) and stroke prevention practices in study group (pre-test)
Figure (2) Negative correlation between R-FSRP (t) and stroke prevention practices in study group (follow-up)
Figure (3) Negative correlation between R-FSRP (t) and stroke prevention practices in control group (pre-test)
Figure (4) Negative correlation between R-FSRP (t) and stroke prevention practices in control group (follow-up)
Table 5 The research results revealed an inverse relationship between geriatric patients' R-FSRP (t) and their health promotion lifestyle behaviors in both groups.

Table (1): Sociodemographic characteristics and clinical data of geriatric patients.(N=170).

Items	**Study (n= 85)**		**Control (n= 85)**		**P-value**
	No.	**%**	**No.**	**%**	
Age (years)					
60 - < 70	57	67.1%	60	70.6%	0.619
70 - < 80	28	32.9%	25	29.4%	
Mean ± SD	66.52 ± 4.73		65.87 ± 5.07		0.391
Sex					
Female	44	51.8%	28	32.9%	
Male	41	48.2%	57	67.1%	0.013*
Educational level					
Illiterate	45	52.9%	19	22.4%	
Read & write	15	17.6%	19	22.4%	
Basic education	14	16.5%	29	34.1%	0.000*
Secondary	9	10.6%	18	21.1%	
University	2	2.4%	0	0.0%	

Systolic blood pressure:					
Mean ± SD	151.16 ± 7.36		149.36 ± 7.02		0.145
Smoking					
Non-smoker	63	74.1%	58	68.2%	0.130
Smoker	22	25.9%	27	31.8%	
Previous history of stroke					
No	67	78.8%	76	89.4%	
Yes	18	21.2%	9	10.6%	
Health problem#					
Hypertension	65	76.5%	72	84.7%	0.175
Diabetes mellitus	49	57.6%	31	36.5%	0.006*
Cardiac diseases	14	16.5%	31	36.5%	0.003*
Arterial fibrillation	5	5.9%	22	25.9%	0.000*
Anti-hypertensive medication used {HRX}:					
Yes	64	100.0%	73	100.0%	--

* Significant value at p < 0.05 Significant value at p <0.01
# More than one answer was mentioned
Chi-square test
Independent samples t-test

Table (2): R-FSRP (t) of geriatric patients' (n = 170)

R-FSRP(t)	Study (n= 85)	Control (n= 85)	P-value[1]
Pre-test			
Mean ± SD	0.11 ± 0.08	0.17 ± 0.15	0.113
Median (Range)	0.08 (0.00-0.38)	0.12 (0.01-0.86)	
Follow-up			
Mean ± SD	0.07 ± 0.04	0.17 ± 0.16	0.000*
Median (Range)	0.06 (0.02-0.18)	0.11 (0.01-0.86)	
P-value[2]	0.001*	0.970	

* Significant value at p < 0.05 Significant value at p <0.01
P-value1: Comparison between experimental and comparison groups Mann -Whitney test
P-value2: Comparison between pre-test and follow-up Wilcoxon signed-rank test

Table (3): Distribution of geriatric patients' according to practice about stroke prevention. (n = 170)

Items	Practice level	Study (n= 85)		Control (n= 85)		P-value1
		No.	%	No.	%	
Pre-test	Poor	61	71.8%	65	76.5%	0.603
	Fair	18	21.2%	13	15.3%	
	Good	6	7.1%	7	8.2%	
Follow-up	Poor	13	15.3%	67	78.8%	0.000*
	Fair	25	29.4%	12	14.1%	
	Good	47	55.3%	6	7.1%	
P-value2		0.000*		0.929		

* Significant value at p < 0.05 Significant value at p <0.01
P-value1: Comparison between study group and control group Mann -Whitney test
P-value2: Comparison between post-test and follow-up Wilcoxon signed-rank test

Table (4): Relation between the health promotion lifestyle behaviors of the experimental and comparsion group pre and follow- up implemented program (n =170).

Groups	Pre-test (n= 85)	Follow-up (n= 85)	P-value1
	Mean ± SD	Mean ± SD	
Spiritual growth			
Study	2.22 ± 0.48	2.59 ± 0.34	0.000*
Control	2.43 ± 0.32	2.41 ± 0.36	0.691
P-value2	0.001*	0.001*	
Health responsibility			
Study	1.96 ± 0.45	2.46 ± 0.37	0.000*
Control	2.02 ± 0.49	2.04 ± 0.50	0.797
P-value2	0.453	0.000*	
Physical activity			
Study	1.46 ± 0.45	2.17 ± 0.39	0.000*
Control	1.61 ± 0.52	1.62 ± 0.54	0.858
P-value2	0.044*	0.000*	
Nutrition			
Study	1.43 ± 0.31	2.23 ± 0.42	0.000*
Control	1.42 ± 0.21	1.45 ± 0.22	0.450
P-value2	0.843	0.000*	
Interpersonal relations			
Study	2.12 ± 0.50	2.45 ± 0.30	0.000*
Control	2.22 ± 0.41	2.21 ± 0.44	0.933
P-value2	0.190	0.000*	
Stress management			
Study	1.82 ± 0.45	2.39 ± 0.38	0.000*

Control	2.01 ± 0.50	1.99 ± 0.53	0.850
P-value2	0.010*	0.000*	

* Significant value at p < 0.05 Significant value at p <0.01

P-value1: Comparison between the study group and control group Independent samples t-test

P-value2: Comparison between pre-test and follow-up Paired samples t-test

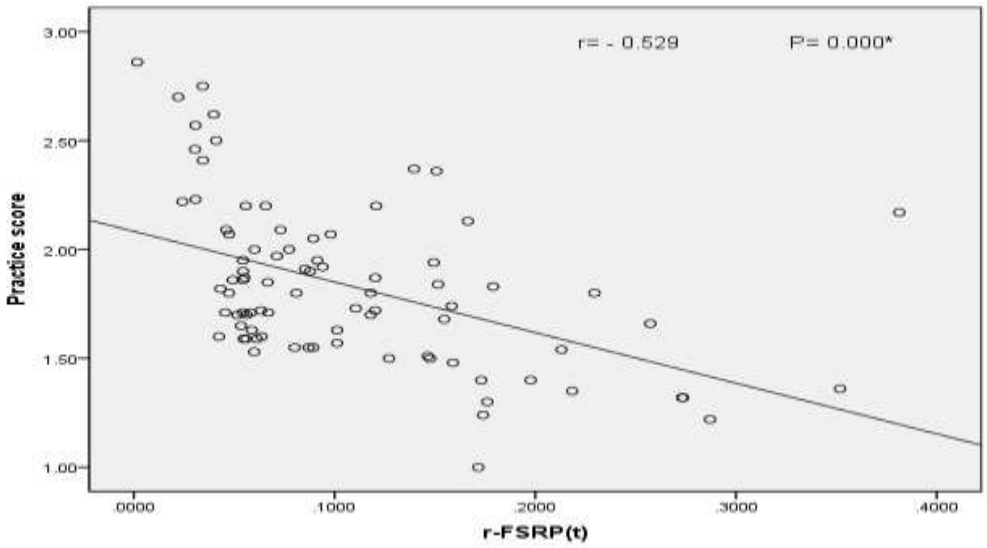

Figure 1. Correlation between R-FSRP (t) and stroke prevention practices in study group (pre-test) (N=170).
* Significant value at p < 0.05 Significant value at p <0.01

Spearman correlation coefficient

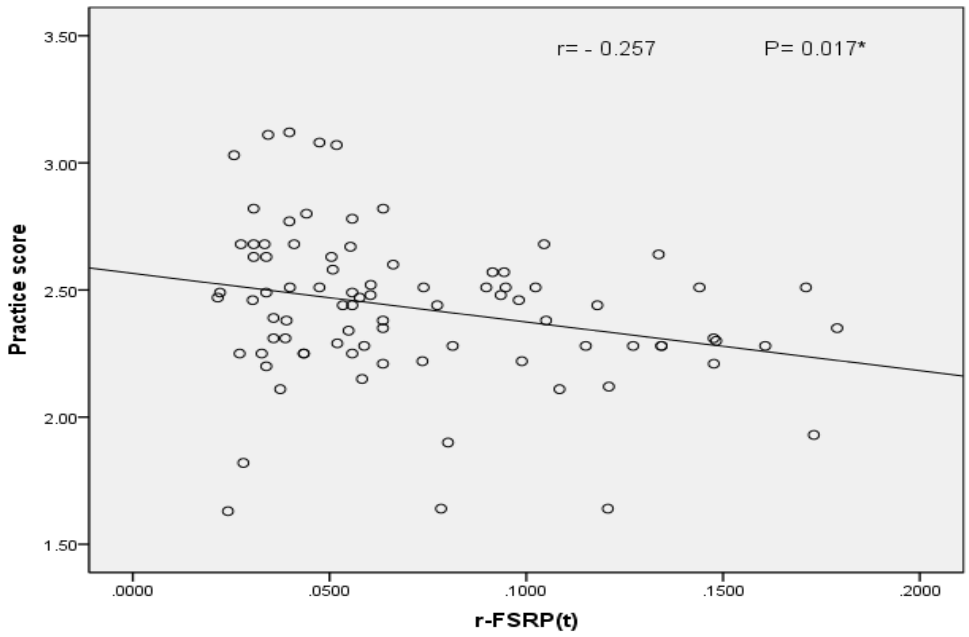

Figure 2. Correlation between R-FSRP (t) and stroke prevention practices in study group (follow- up) (N=170).

* Significant value at p < 0.05 Significant value at p <0.01

Spearman correlation coefficient

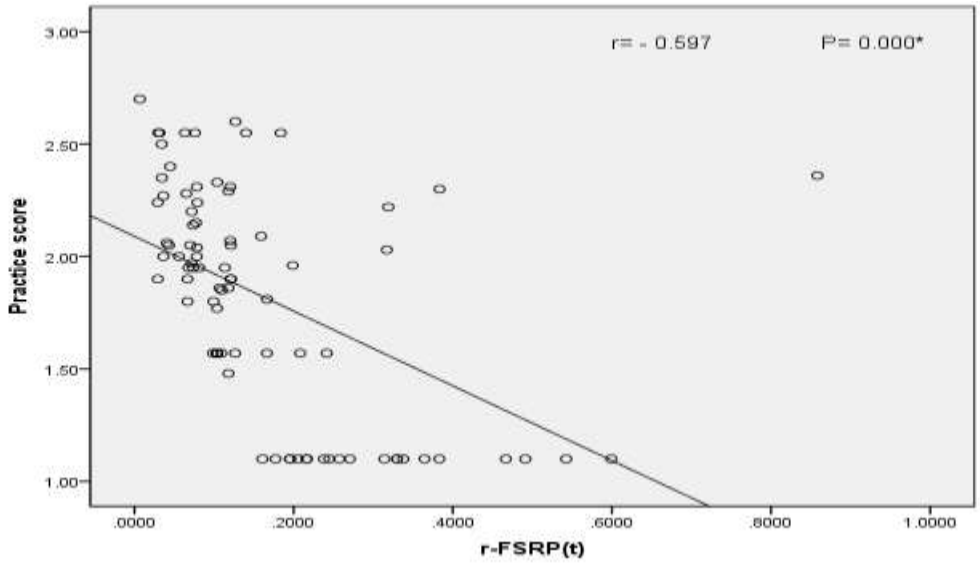

Figure 3. Correlation between R-FSRP (t) and stroke prevention practices in control group (pre-test) (N=170).

* Significant value at p < 0.05 Significant value at p <0.01

Spearman correlation coefficient

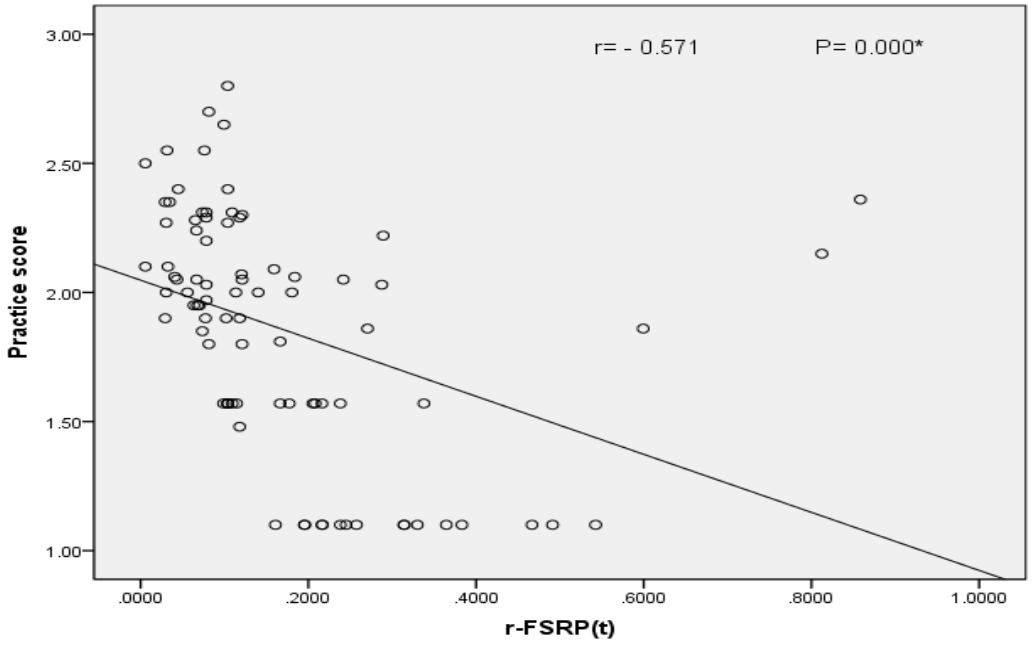

Figure 4. Correlation between R-FSRP (t) and stroke prevention practices in control group (follow- up) (N=170).

* Significant value at p < 0.05 Significant value at p <0.01

Spearman correlation

Table (5): Correlation between the studied geriatric patients R-FSRP (t) and their health promotion lifestyle behaviors (n = 170).

Items	r-FSRP(t)							
	Study				Control			
	(Pre-test)		(Follow-up)		(Pre-test)		(Follow-up)	
	r-value	P-value	r-value	P-value	r-value	P-value	r-value	P-value
Spiritual growth	-0.257	0.018*	-0.058	0.596	-0.177	0.105	-0.210	0.054
Health responsibility	-0.218	0.045*	-0.156	0.153	-0.390	0.000*	-0.406	0.000*
Physical activity	-0.195	0.074	-0.082	0.454	-0.281	0.009*	-0.334	0.002*
Nutrition	-0.108	0.327	-0.080	0.467	-0.645	0.000*	-0.588	0.000*
Interpersonal relation	-0.265	0.014*	-0.024	0.830	-0.379	0.000*	-0.376	0.000*
Stress management	-0.276	0.010*	-0.117	0.285	-0.385	0.000*	-0.371	0.000*

* Significant value at $p < 0.05$ Significant value at $p < 0.01$

Spearman correlation coefficient

5. DISCUSSION

The elderly population faces a significant health challenge in the form of stroke, which is linked to higher rates of illness and death. With age, the likelihood of experiencing a stroke rises, and elderly individuals are particularly susceptible to unadorned infirmity and intellectual diminishing subsequent it(**13)**.

The present study's results demonstrated that approximately half of the participants in the experimental group and over two-thirds of those in the control group were male. This is because males are at high risk of stress and chronic diseases. While another study by Chimberengwa & Naidoo**(14)** in Zimbabwe noticed that more than one-third of the participants were male. The majority of the experimental group and the comparison group had no prior cerebrovascular, and the lifestyle was of low percentage in both groups before applying the intervention as a result the study group when exposed to stroke, the lifestyle will be improved through experience and obtaining information taken from the researchers in this study. This study disagrees with a study done by Bedier(**15)** in Egypt who reported that more than two-thirds of his subjects had previous stroke. Regarding smoking history as a risk factor for cerebrovascular, the current investigation reported that among the study group, three-quarters were non-smokers, while the control group had more than two-thirds of its participants who were also non-smokers. an explanation of the high nonsmokers of in the studied geriatric of the ongoing research may be that more than half of the exprimental group and around one-third of participants were female smoking is not acceptable for females in our community culture in addition to all participants of the study have chronic diseases that required them to stop smoking. This is in contrast with another study conducted by Mutyambizi(**16**) in South Africa that reported that the majority of participants were smokers.

Hypertension was the highest rate of health problems in the current research as more than three-quarters of the experimental group and the majority of the comparison group had hypertension. The possible interpretation for the high rate of hypertension among the studied geriatric is that as individual's age, the vascular system undergoes

alterations resulting in arterial stiffening, which is linked to an increase in blood pressure. This can be true even for people who have heart-healthy habits and feel just fine. This study is in agreement with a study done in Egypt by Bedier[15] who noticed that the majority of the sample had hypertension. Also, this outcome is similar to an investigation done in India by Punnapurath(**17)** who found that more than three-fifth of the sample had hypertension.

To our information, this study is among the initial to examine relations between the R-FSRP and health promotion lifestyle. The present research showed a notable statistical contrast between the pre-test and follow-up in the experimental group regarding R-FSRP(t) and illustrated a notable statistical contrast between the experimental and comparison groups regarding the R-FSRP(t) in follow-up ($p = 0.003$).The ongoing investigation revealed a a notable statistical contrast between the pre-and post-intervention regarding R-FSRP(t) ($p < 0.05$) and health promotion lifestyle ($p < 0.05$) This improvement may be related to the positive effect of the nursing educational intervention. The ongoing investigation exhibited no a notable statistical contrast between R-FSRP(t) concerning both physical activity and, nutrition subscales of health promotion lifestyle except for, physical activity, stress management spiritual growth, and interpersonal relations subscales of health promotion lifestyle there was a notable statistically contrast between them in pre-test ($p < 0.05$). Regrading to total practice score of the elderly patient, the findings of the ongoing investigation also showed that there was (7.1%) of the studied elderly patients in study group had a good practice score about stroke in pre-program intervention and more than half of them had good practice score aftree three months. This may be related to the effectiveness of the health education program in raising the awareness of elderly patients about stroke.

The results of the ongoing investigation also, illustrated that there was a a notable statistical improvement of practice score of studied elderly patients between experimental and comparsion groups during pre, three months post program intervention, that there was (8.2%) of the elderly patients in study group had a good practice score about stroke in pre-program intervention and there is no difference in after three months with a notable statistical contrast between both groups. This research aligns with another research carried out by Mahdy(18) in eygpt who illustrated that there was a notable statistical contrast between comparsion and experimental groups pre/post implementation of predischarge nursing education regarding recurrence of stroke attack among such group of patients. Regarding the relationship between R-FSRP (t) and health promotion lifestyle. Research results revealed an inverse relationship between geriatric patients' R-FSRP (t) and their health promotion lifestyle. It showed no a notable statistical contrast between R-FSRP (t) regarding subscales of health promotion lifestyle in follow-up this can be because of small sample size. Further research was needed on using R-FSRP (t) among geriatric patients on large sample. This aligns with prior original FSRP research conducted by Noh & Shin(**19)** in Korea who found there were no significant relations between the risk of stroke and a health-promoting lifestyle. Regarding the relationship between R-FSRP (t) and stroke prevention practices. There was inverse relation between studied geriatric patients' R-FSRP (t) and their stroke prevention practices.

Multiple measurements were used in this study to measure the duration of the effects over time. R- FSRP decreased in the experimental group at follow-up comparing to the pre-test. Health promotion lifestyle and stroke prevention practices improved in the experimental group at follow-up comparing to the pre-test. There are some limitations, the study is a relatively small sample size, which can result in insufficient power to determine effects.

IMPLICATIONS FOR PRACTICE

Eduactional program about stroke, health promotion lifestyle and stroke prevention practices through health education and practicing breathing exercises blood pressure measurment ans blood sugar monitoring are two nursing interventions which have minimal side effects compared to other interventions that can that can be risky for elderly patients and improve their quality of life because. So far, very limited studies have done educational program about stroke risk.

CONCLUSIONS

The study findings revealed a notable statistical difference between the initial and subsequent measurements in R-FSRP (t) in the experimental group. The investigation revealed a negative correlation between geriatric patients' R-FSRP (t), their stroke prevention practices and health promotion lifestyle.

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