Knowledge of stroke risk factors and warning signs among population in Shebin Al-Kom District, Menoufia Governorate, Egypt

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Abstract: Objectives: The aim of this study was to assess the knowledge level of the general population about risk factors and warning signs of stroke. **Background:** Both reduction the risk of stroke and increase in the speed of hospital presentation after the onset of stroke depend on the level of knowledge of stroke among general population. **Participants and methods:** This cross-sectional study was conducted in the context of time frame of 15 months (starting from first January 2016 to the end of March 2017) and included 400 participants of both genders, aged from 18 to 80 years old who were all attendants at two different family health centers in the context of time frame of three months. A closed-ended questionnaire was used to assess the awareness about stroke among population of Shebin Al Kom District. **Results**: The total stroke knowledge score was higher among participants with previous history of stroke attack and who with family history of stroke. The most identified risk factor for stroke by respondents was uncontrolled hypertension 271 (67.75%). The most recognized stroke symptom was severe headache 231(57.75%). **Conclusion:** There was a serious lack in knowledge about stroke; so educational programs about stroke can help to reduce stroke burdens in Egypt.
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1. Introduction

Stroke is the second common cause of death in the world causing 6.7 million deaths per year [1]. The burdens of disease (disability, morbidity and premature deaths) caused by stroke are thought to double worldwide by 2030[2].

In Egypt, the overall prevalence rate of stroke is high with a crude prevalence rate of 963/100 000 inhabitants [3].

Of all neurological diseases, stroke is the most preventable. Many of the established stroke risk factors, including hypertension, dyslipidemia, smoking, heart disease and diabetes can be prevented through healthy lifestyle or medication [4].

Intravenous recombinant tissue plasminogen activator (rt-PA) has been shown to decrease stroke-related morbidity in particular selected patients and is the only food and drug administration (FDA) approved treatment for acute ischemic stroke. Use of intravenous rt-PA requires drug administration within the first three hours of attack onset [5].

So, early identification of stroke signs and symptoms, risk factors and early treatment can reduce stroke disability and mortality as well as decrease the financial burden of the community [5].

Aim of the work:

In the present study, the aim was to assess the knowledge of risk factors and warning signs of stroke among residents of Shebin Al-Kom district.

Subjects and Methods:

This cross-sectional study was conducted in the context of time frame of 15 months (starting from first January 2016 to the end of March 2017).

The study was conducted at Menoufia Governorate, Egypt, at two family health centers were chosen randomly out of healthcare facilities in Shebin Al Kom District selected using the simple random sampling technique; in Shebin Al Kom (for urban population) and Bakhaty (for rural population).

2. Participants and methods

All the population who met the inclusion and exclusion criteria and attended Shebin Al-kom Family Health Center from 10:00 am till 2:00 pm daily for three days (selected randomly) from the 1st of October 2016 to the 15th of November 2016 and were invited to participate in the study; 23 persons refused to participate and 185 accepted. All the population who met the inclusion and exclusion criteria and attended Bakhaty Family Health Center from 10:00 am till 2:00 pm daily for three days (selected randomly) from the 15th of November 2016 to the end of December 2016 and were invited to participate in the study; 40 persons refused to participate and 215 accepted.

Inclusion criteria:

1- Approval from cooperative people.
2- People aged 18-80 years attended the selected family health clinic.

3- Both genders were included.
4- Population living in Shebin Al-kom District.

Exclusion criteria:

1- Uncooperative people.
2- Severe mental illness, visual or hearing disability that may interfere with answering the questions.
3- Population with terminal illness i.e malignancy.
4- Population not living in Shebin Al-kom District.

The study population included 400 participants who attended of the selected centers while waiting for medical consultation in the waiting room. They were interviewed face-to-face using a predesigned questionnaire that divided into sections:

(1) Identification data [age, gender, education, occupation marital status and residence] and assessment of socioeconomic standard was determined according to the scoring system of Fahmy et al [6] scoring system.

(2) Presence of stroke risk factors, previous history of a stroke and family history of cerebrovascular disease.

(3) Knowledge of stroke risk factors.

(4) Knowledge of signs and symptoms of stroke.

(5) Source of knowledge about stroke.

To evaluate the awareness about stroke risk factors, the respondents were asked to point if each factor would be increase the risk of developing a stroke, no or don't know. The factors listed were: uncontrolled hypertension - diabetes - heart disease - dyslipidemia - smoking - alcohol intake – obesity - hereditary factors - aging - contraceptive pills - sedentary life and stress.

In order to evaluate participant's ability to recognize a stroke episode, they were asked to detect if the listed signs and symptoms that would raise their attention to the development of a stroke or not or don't know. The signs and symptoms listed were: weakness in the face, body - chest pain - numbness in the face, body - difficulty speaking - abdominal pain - blurred or decreased vision - nasal bleeding-dizziness – sweating - sudden severe headache - fever - difficulty understanding – jaundice and trouble breathing. In order to verify variables associated to public stroke knowledge, three main end points were defined.

1- Satisfactory knowledge of risk factors, defined as achieving at least 60% of correct answers in these questions.

2- Satisfactory knowledge of signs and symptoms of acute stroke, defined as achieving at least 60% of correct answers in these questions.

3- Satisfactory knowledge of stroke, defined as achieving at least 60% of correct answers in both risk factors and symptoms of acute stroke (Total stroke knowledge score).

Statistical analysis

The data were tabulated, and analysed by SPSS (Statistical Package for Social Science) version 17.0 on IBM compatible computer (SPSS Inc., Chicago, Illinois, USA).

Two types of statistics were done; descriptive statistics and analytic statistics which included Chi-square test [$\chi 2$] Ficher Fisher exact testthat were used to study association between two qualitative variables. P-value of <0.05 was considered statistically significant.

Ethics

The study design was reviewed and formally approved by ethics committee of Faculty of Medicine, Menoufia University. Communications with the university and health professions were oriented to the objectives and procedures of the study and permission were obtained to conduct the study. All participants were informed about the nature of study and those who consented were included in the study.

3. Results

A total of 400 subjects answered the questionnaire. The mean age of them was (38.2 ± 12.5) years old. About half of them were females54.3%, from rural areas53.8% and had secondary education 48% (Table 1).

Table 2 shows the rates of correct answers about risk factors of stroke. The most identifiable risk factors of stroke were uncontrolled hypertension (67.75%) then stress (60.75%) while the least identifiable risk factor was oral contraceptive pills (6.75%).

Table 3 demonstrates the frequency of right answers acquired from the questions about signs and symptoms of acute stroke. The most identifiable symptom of stroke was sudden severe headache (57.75%) while the least identifiable stroke sign was difficulty understanding (29.75%).

Most of the participants 333 (83%) had unsatisfactory knowledge about stroke.80 (20%) of the studied population had satisfactory knowledge about risk factors of stroke and 70 (17.5%) had satisfactory knowledge about stroke symptoms (Figure 1).

Among 400 participants, (39%) acquired their knowledge about stroke risk factors and symptoms from media, (17%) from friends and neighbors, (12%) from family, (7%) from health workers and (25%) from other sources (Figure 2).

The highly statistical significant factor affecting level of knowledge about stroke was family history of stoke (P-value $<$ 0.001), there was statistical significant relation between stroke level of knowledge and previous stroke attack of the participant (P-value 0.02) (Table 4).

Table 1. Sociodemographic criteria and medical history of the participants

Parameter	N=400
Age (years) Mean ± SD 18 - <50 50 – 80	 38.2 ± 12.5 77.25)) 309 22.75)) 91
Gender (n (%)) Male Female	 183 (45.75) 54.25))217
Residence (n (%)) Rural Urban	 215 (53.75) 46.25))185
Marital status (n (%)) Single Married Divorced Widow	 59 (14.75) 78.75))315 2.25))9 17 (4.25)
Occupation (n (%)) Not working Working	 147 (36.8) 63.2))253
Education (n (%)) Illiterate & literate certificate Less than secondary Secondary University & above	 8.25))33 6))24 192 (48) 37.75))151
Socioeconomic status (n (%)) Low Middle High	 7.5))30 69.75))279 91 (22.75)
Family history of stroke (n (%)) Previous stroke (n (%))	78 (19.5) 4 (1)
Stroke risk factors (n (%)) Diabetes mellitus Hypertension Cardiac disease Lipid disorder Physical inactivity Smoking Hormonal contraception Obesity	 53 (13.25) 49 (12.25) 11 (2.75) 14 (3.5) 318 (79.5) 79 (19.75) 77 (19.25) 326 (81.5)

Table [2] Knowledge of risk factors of stroke

Item	N (%)
Uncontrolled hypertension	271 (67.75)
Diabetes	103 (25.75)
Heart disease	156 (39)
Hypercholesterolemia, dyslipidemia	168 (42)
Smoking	189 (47.25)
Alcohol intake	164 (41)
Obesity	149 (37.25)
Hereditary factors	140 (35)
Aging	186 (46.5)
Contraceptive pills	27 (6.75)
Sedentary life	110 (27.5)
Stress	243 (60.75)

Table [3] Awareness of symptoms and signs of stroke

Item	N (%)
Stroke symptoms	
Weakness in the face, body	191 (47.75)
Numbness in the face, body	197 (49.25)
Difficulty speaking	216 (54)
Blurred or decreased vision	188 (47)
Dizziness	203 (50.75)
Sudden severe headache	231 (57.75)
Difficulty understanding	119 (29.75)
Non stroke symptoms	
Chest pain	84 (21)
Vomiting	82 (20.5)
Nasal bleeding	63 (15.75)
Sweating	60 (15)
Fever	78 (19.5)
Jaundice	61 (15.25)
Trouble breathing	42 (10.5)

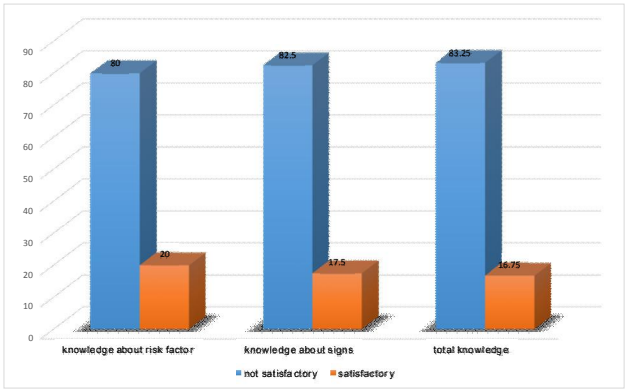

Figure (1) Knowledge scores of stroke of the participants

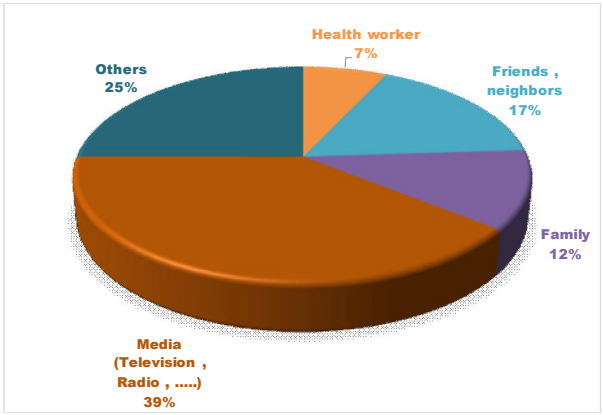

Figure (2) Source of Knowledge about stroke of participants

Table (4) Variables associated to total stroke knowledge score of the respondents

Item	Unsatisfactory		Satisfactory		X^2	p- value
	No 333	% 83.25	No 67	% 16.75		
Gender						
Male	153	83.6	30	16.4	0.031*	0.48
Female	180	82.9	37	17.1		
Age						
<50	262	84.8	47	15.2	2.3*	0.15
≥50	71	78	20	22		
Residence						
Rural	174	80.9	41	19.1	1.8*	0.23
Urban	159	85.9	26	14.1		
Marital status						
Single	48	81.4	11	18.6	0.99	0.8
Married	264	83.8	51	16.2		
Divorced	8	88.9	1	11.1		
Widow	13	76.5	4	23.5		
Occupation						
Working	122	83	25	17	0.011	0.5
Not	211	83.4	42	16.6		
Education						
Illiterate & literate certificate	28	84.8	5	15.2	1.79	0.62
Less than secondary	21	87.5	3	12.5		
Secondary	163	84.9	29	15.1		
University & above	121	80.1	30	19.9		
Socioeconomic level						
Low	23	76.7	7	23.3	1.014	0.602
Middle	234	83.9	45	16.1		
High	76	83.5	15	16.5		
Previous stroke						
No	332	83.8	64	16.2	9.8	0.02
Yes	1	25	3	75		
Family history of stroke						
No	276	85.7	46	14.3	7.2	<0.001
Yes	57	73.1	21	26.9		
Stroke risk factors						
No risk factor	38	77.6	11	22.4	2.122	0.346
Less than three risk factor	203	82.9	42	17.1		
≥ three risk factor	92	86.8	14	13.2		

*Fisher exact test

4. Discussion

This is cross sectional study that was carried out on four hundred subjects attended Shebin Al-Kom and Bakhaty family health centers in Shebin Al-Kom district, Menoufia Governorate.

Awareness of risk factors of stroke can affect the incidence of stroke, and help in the prevention strategies. Knowledge of stroke risk factors among the studied participants is unsatisfactory. (17.5%) of the respondents couldn't identify any risk factor of stroke.

Hypertension was listed as the most identifiable risk factor of stroke in this study. It was identified by (67.75%). This is similar to a study was conducted in Jordan\done by Madae'en et al **[7]** where hypertension was identified by (56%). However, it disagrees with Neau et al **[8]** study in which hypertension was mentioned as a risk factor by (20.9%) of the studied group. This can be explained by type of questionnaire used as it was open ended questions like name risk factors of stroke.

A small proportion of respondents (6.75%) identified "contraceptive pills" as stroke risk factor. This agrees with study done by Neau et al **[8]** in where this percent was (1.5%). Alternatively this is different from study done by Morgan et al **[9]** in which the percent of participants who said that contraceptive pills increases the risk of stroke was (35%). The second least identifiable stroke risk factor was "diabetes" (25.75%).

These results suggest that community-based strategies for stroke prevention should focus on these stroke risk factors.

The present study showed that the knowledge of stroke warning symptoms among the studied population is inadequate. (20%) of the respondents couldn't identify any warning sign of stroke. This lack of knowledge causes delay in hospitalization and administration of necessary treatment.

The most common warning signs of stroke identified by the respondent in the present study were sudden severe headache then dizziness. They were identified by (57.75%, 50.75% respectively) of the studied participants. They were recognized by (76.1%, 79% respectively) in Falavigna et al **[10]** study, were recognized by (36.6%, 30.3% respectively) of the sample in Madae'en et al **[7]** study. This disagrees with Al Shafaee et al **[11]** where the percent were (3.3%, 5.5%).

In the current study there was a high statistical significant relation between family history of stroke and knowledge about stroke. Respecting past history of stroke, 75% of participants with past history of stroke attack and 16.2% with no previous stroke attack had satisfactory knowledge, showing statistical significant relation.

In study of Falavigna et al **[10]**, lower income, age less than 50 years old were independent factors to insufficient knowledge regarding stroke risk factors. Low level of education was the unique independent factor associated to lack of knowledge about stroke warning signs.

Age more than 47 years old was the single independent factor associated to lack of knowledge about stroke risk factors and warning signs in Madae'en et al **[7]** study.

Conclusion

The current study highlights the lack of awareness of stroke in Shebin Al□Kom district population. Stroke educational programs should be undertaken at different levels in the community to all groups. Other community based studies are required in both rural and urban populations to detect the level of awareness of stroke in the Egyptian population, to improve stroke care in this country.

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