

## Knowledge of SLE among Health Care Providers and Non-Medical Attendants of Helwan University Hospital

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### Abstract

**Background:** Systemic lupus erythematosus (SLE) is a chronic, multisystem; autoimmune disorder attacks any part of the body including the vital organs. Damage, dysfunction and complications by comorbidities increase due to delay in diagnosis. It has a significant mortality and morbidity.

**Aim of Study:** This study aimed to assess knowledge regarding SLE among the Egyptian population attending Helwan University Hospital in order to improve quality of health.

**Patients and Methods:** A cross-sectional, hospital-based study conducted on 720 subjects (63 Health care providers and 657 Non-medicals). The questionnaire consisted of the following parts (demographic data, general knowledge, risk factors, diagnostic methods, therapies, and complication). Reliability Test and validity of the questionnaire were determined. The study was carried at Al-Azhar University Hospitals during the period between January 2020 till January 2021.

**Results:** The study showed that median grand total knowledge score percentage for participants was 28% (poor knowledge). There was statistically significant higher knowledge score about treatment options in female vs. male participants (25% vs. 12.5%). There was a statistically significant higher general and grand total knowledge scores in health care providers vs. those with non-medical professions (53.3% vs. 33.3% and 30% vs. 26%, respectively).

**Conclusion:** This study revealed that awareness of SLE among participants was inadequate particularly among less educated, there are so many misconceptions about essential information of this serious disease. The comprehensive national study is recommended to clarify the knowledge about SLE.

**Key Words:** *Systemic lupus erythematosus – Knowledge, Health care providers – Non-medical attendants.*

### Introduction

**SYSTEMIC** lupus erythematosus (SLE) is a chronic multi-system autoimmune disease [1]. Impacting the physical well being and health related quality of life (HRQOL) of patients [2]. In which immune

system attacks various organs, causing damage and dysfunction [3]. Some patients have mild disease, which can be treated with simple medications whereas others can have serious, life-threatening

With a significantly higher mortality in SLE patients, developing chronic damage, Awareness is a major goal in management. Flares are a common feature of SLE and can result in organ failure

The cause of autoimmune diseases is not fully understood, but the hidden process in SLE is that the immune system mistakenly attacks healthy tissue by using complexes or cytotoxic antibodies

SLE is one of several diseases known as "the great imitator" because it often mimics or is mistaken for other illnesses [7].

SLE has unevenness at the onset that making correct and early diagnosis is challenging [8].

Assessing knowledge on SLE can lead to the identification of deficient areas of information and, thus, would aid in devising education programs. To our knowledge, this is the first study that specifically aimed to measure the knowledge of SLE among Egyptian adults. Provided that it has an acceptable reliability and validity, the questionnaire can be used in exploring the level of knowledge on SLE among sample of the Egyptian population.

Awareness about SLE may help in early diagnosis and to minimize its complications and severity [9].

Disease awareness has also been shown to be an important determinant of outcome in SLE, however: Poorer knowledge is associated with

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greater physical and mental disorders [10]. While increased disease awareness within the family and the community has been implicated an improved-quality of life and reduced frequency of flares in patients [11-13].

### Patients and Methods

A cross-sectional questionnaire was designed to study knowledge of general population on Systemic Lupus Erythematosus. This questionnaire was conducted on 720 Egyptian participants from those attending Helwan University Hospital between December 2020 and February 2021. Ethical clearance has been obtained from REC-FMHU: 78-2020. The participants were 63 Health care providers (9 males, 54 females) and 657 Non-medicals (180 males, 477 females). Written informed consent was obtained from all the participants.

The questionnaire consisted of the following parts (demographic data, general knowledge, risk factors, diagnostic methods, therapies, and complication [14].

#### Reliability test and validity of the questionnaire:

Kuder Richardson 20 (KR20) was run on items collected from a pilot study conducted on 10 health care providers to measure test reliability of inter-item consistency. The coefficient was acceptable for all domains with only one change for the question about "SLE is complicated by thrombocytopenia" to be about "SLE can affect complete blood count". The final coefficients are reported in Table (1) and showed that KR20 values were above 0.75 (acceptable value) for all domains and below 0.90 (No redundant items).

Table (1): Reliability test of the questionnaire.

Domain	KR20 coefficient
General	0.887
Symptom	0.802
Diagnosis	0.863
Complications	0.794
Treatment	0.791
Overall	0.849

The questionnaire was administered under the supervision of researchers during the study period. Questions were given one score for the correct answers and zero for incorrect answers. The total score was changed to a percentage. Those who had 50% or greater were considered to have good knowledge while those who got less than 50% were classified to have poor knowledge of SLE.

#### Statistical analysis:

Data were coded, entered and analyzed using SPSS version 22. Categorical variables were presented as frequencies and percentages and continuous variables as means and standard deviations. The associations between categorical variables were analyzed using Pearson's Chi-squared test  $\pm$  continuity correction. A simple logistic regression analysis was initially used to explore the data. And 95% confidence intervals (95% CI) were calculated. Statistical significance for all associations was considered being at  $p < 0.05$ .

### Results

This study involved 720 participants with a median age of 33 years S.D, 531 (73.8%) were female and 189 (26.3%) were male. Participants were classified into 4 subgroups: Group 1: male health care providers (N=9), group 2: male with non-medical professions (N=180), group 3: female health care providers (N=54), group 4: female with non-medical professions (N=477). There was statistically significant difference between male and female participants in the distribution of marital status (married status was more in female and single status was more in male), education level (basic level was more in female), and profession (health provider profession was more in female) as shown in Table (2).

Table (2): Socio-demographic characteristics of the study participants.

Characteristic	Total	Male	Female	P-value
N	720	189	531	
Age (years)*	33 (25-44)	33 (24-43)	33 (25-44)	0.194
<i>Marital status</i> §:				
Married	511 (71%)	119 (63%)	392 (73.8%)	0.005
Single	209 (29%)	70 (37%)	139 (26.2%)	
<i>Education level</i> :				
Basic	57 (7.9%)	6 (3.2%) <sup>a</sup>	51 (9.6%) <sup>b</sup>	0.034
Secondary	164 (22.8%)	47 (24.9%)	117 (22%)	
University	466 (64.7%)	129 (68.3%)	337 (63.5%)	
Postgraduate	33 (4.6%)	7 (3.7%)	26 (4.9%)	
<i>Profession</i> :				
Health care provider	63 (8.8%)	9 (4.8%)	54 (10.2%)	0.024
Non-medical	657 (91.3%)	180 (95.2%)	477 (89.8%)	

- Data expression [test of significance]: \*Median (25th percentile - 75th percentile) [mann-whitney test], §n (%) [chi-square test], z-test for comparisons of column proportions was presented as different letters for statistically significant difference.

There was that median grand total knowledge score % for participants was 28% (poor knowledge). There was statistically significantly higher knowledge score about treatment options in female

vs. male participants (25% vs. 12.5%). For other domains and for the grand total score, there was

no statistically significant difference between male and female participants (Table 3; Fig. 1).

Table (3): Knowledge scores of the study participants (male vs. female).

Knowledge score (%)	Total	Male	Female	p-value
N	720	189	531	
General	40 (13.3-66.7)	33.3 (13.3-66.7)	40 (13.3-66.7)	0.880
Symptom	18.2 (0.0-36.4)	18.2 (0.0-36.4)	18.2 (0.0-36.4)	0.880
Diagnosis	20 (0.0-80)	20 (0.0-80)	20 (0.0-80)	0.179
Treatment	25 (12.5-25)	12.5 (12.5-25)	25 (12.5-25)	<0.001
Complications	9.1 (0.0-27.3)	9.1 (0.0-18.2)	9.1 (0.0-27.3)	0.273
Grand total	28 (20-36)	26 (18-32)	28 (20-36)	0.097

- Data expression [Test of significance]: Median (25th percentile - 75th percentile) [Mann-Whitney Test].

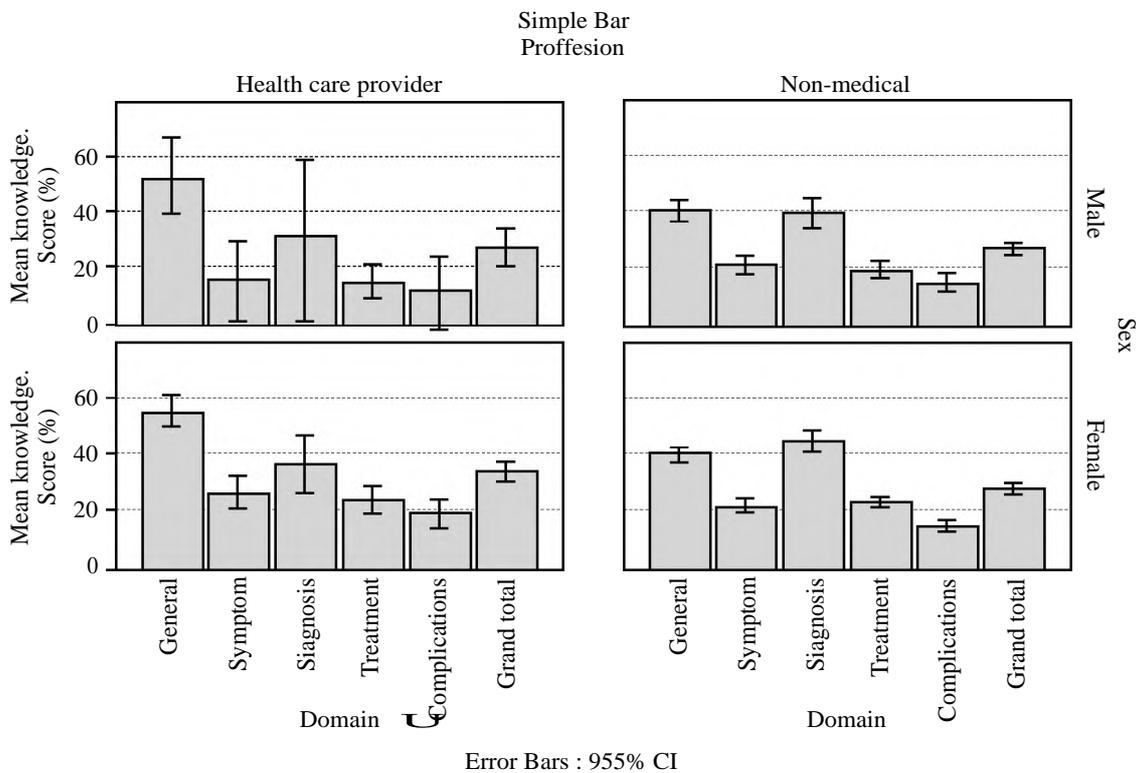


Fig. (1): Knowledge scores of the study participants.

There was a statistically significantly higher general and grand total knowledge scores in health care providers vs. those with non-medical profes-

sions (53.3% vs. 33.3% and 30% vs. 26%, respectively). There was no statistically significant difference for other domains (Table 4; Fig. 1).

Table (4): Knowledge scores of the study participants (Medical vs. Non-Medical).

Knowledge score (%)	Medical profession	Non-medical profession	p-value
N	63	657	
General	53.3 (33.3-73.3)	33.3 (13.3-66.7)	<0.001
Symptom	18.2 (0.0-45.5)	18.2 (0.0-36.4)	0.172
Diagnosis	20 (0.0-60)	20 (0.0-80)	0.186
Treatment	25 (12.5-25)	25 (12.5-25)	0.635
Complications	9.1 (0.0-27.3)	9.1 (0.0-27.3)	0.145
Grand total	30 (26-40)	26 (18-36)	0.002

- Data expression [Test of significance]: Median (25th percentile - 75th percentile) [Mann-Whitney Test].

There was a statistically significant difference in general, treatment and grand total knowledge scores between the 4 groups. Pairwise comparisons revealed that both general and grand total scores were statistically significantly higher in female health care providers vs. non-medical professions (male and female). The scores were also higher than male health care providers, but the difference did not achieve a statistical significance. Treatment

score statistically significantly higher in female vs. male health care providers but no statistically significant difference between other subgroups (Table 5; Fig. 1).

As demonstrated in Fig. (2), it showed that predictors of the likelihood of having knowledge score of  $\geq 50$  of the 720 participants, only 42 (5.8%) achieved a score that is equal to or exceeding 50%.

Table (5): Knowledge scores of the study participants (4 groups): Compares between the 4 groups as regards knowledge scores.

Knowledge score (%)	Group 1	Group 2	Group 3	Group 4	p-value
N	9	180	54	477	
General	40 (33.3-70) <b>a<sup>1</sup>b</b>	33.3 (13.3-66.7) <b>a</b>	53.3 (33.3-73.3) <b>b</b>	33.3 (13.3-60) <b>a</b>	<b>&lt;0.001</b>
Symptom	18.2 (0.0-27.3)	18.2 (0.0-36.4)	27.3 (6.8-45.5)	18.2 (0.0-36.4)	0.314
Diagnosis	20 (0.0-60)	20 (0.0-80)	20 (0.0-65)	40 (0.0-80)	0.274
Treatment	12.5 (12.5-25) <b>a<sup>1</sup>b</b>	12.5 (12.5-25) <b>a</b>	25 (12.5-25) <b>a<sup>1</sup>b</b>	25 (12.5-25) <b>b</b>	<b>0.001</b>
Complications	0.0 (0.0-22.7)	9.1 (0.0-18.2)	18.2 (0.0-27.3)	9.1 (0.0-27.3)	0.246
Grand total	30 (20-33) <b>a<sup>1</sup>b</b>	26 (18-32) <b>a</b>	31 (25.5-42) <b>b</b>	26 (18-36) <b>a</b>	<b>0.005</b>

- Data expression [Test of significance]: Median (25th percentile - 75th percentile) [Kruskal-Wallis Test].

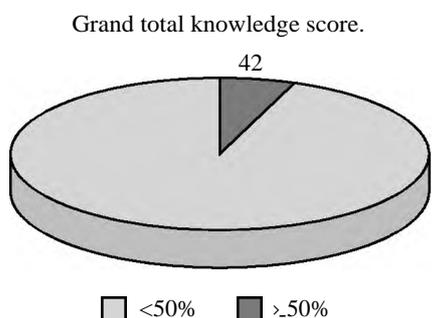


Fig. (2): Grand total knowledge score.

This study showed that higher education level (University/postgraduate) vs. lower education level (basic/secondary) was the only statistically significant independent predictor of the likelihood that participant will score at least 50%. The model was statistically significant [ $\chi^2 = 13.991, p = 0.016$ ]. The model correctly classified 94.2% of participants with 100% specificity. Participants with higher education level have 6 times higher odds that their score will be at least 50% (Table 6).

Table (6): The results of binary logistic regression analysis that was run to ascertain the effects of female sex, medical profession, married status, age, and a university level of education or higher on the likelihood that participants will score at least 50%.

Predictor	Univariate			Multivariate		
	p-value	COR	95% CI	p-value	COR	95% CI
Sex:	0.466			0.305		
Male		R	R		R	R
Female		1.3	0.62-2.8		1.5	0.69-3.2
Profession:	0.855			0.493		
Non-medical		R	R		R	R
Medical		1.1	0.38-3.2		0.67	0.21-2.1
Age	0.506	1.009	0.98-1.04	0.482	1.02	0.97-1.06
Marital status:	0.444			0.202		
Single		R	R		R	R
Married		1.3	0.64-2.8		0.50	0.17-1.45
Education level:	0.005			0.002		
Lower		R	R		R	R
Higher		4.5	1.6-12.7		6	1.9-18.6

R=Reference category. CI=Confidence interval. COR=Crude odds ratio. OR=Odds ratio.

## Discussion

Significant differences between the scores of the health care providers and those with non-medical professions indicated that the questionnaire had satisfactory construct validity, even when taking into account the skewed gender and age characteristics of the groups. The female scored higher knowledge about treatment options.

According to general knowledge items of SLE, our study found that 28% have previously heard the term SLE. It is important that awareness campaign should be carried out. There was a higher knowledge about treatment options in female vs. male participants (25% vs. 12.5%).

It also showed a higher knowledge in health care providers vs. those with non-medical professions (53.3% vs. 33.3% and 30% vs. 26%, respectively) and higher knowledge about treatment options in female vs. male participants (25% vs. 12.5%).

To our knowledge, this is the first Egyptian scientific evaluation of such awareness of SLE among general population. Few comparative data are available for other population. A single time-point marketing study carried out in the United States, based on almost 3000 randomly selected respondents, showed an unexpectedly high awareness of 86% [15]. In India, a study (2017) among the general population to assess their SLE awareness and knowledge found that the majority of participants had insufficient knowledge of its status as a rare disease that occurs in the population [16].

In Saudi Arabia, a cross-sectional study conducted among 400 participants; 56.8% of patients had heard the term "SLE", most of the participants did not know anyone with SLE (61.5%) and the majority did not know that SLE is not contagious (48.2%) but could be fatal (43.5%). Most believed that SLE was a hereditary disease and classified SLE in this way (29.8%). They also did not know that SLE can affect many organs in the body (44.5%) and 26.8% believed that only the kidney could be affected by systemic lupus erythematosus [17].

In Al-Dammam, another study was carried out among 240 participants, the study reported that the majority (54%) have never heard of SLE while (46%) of respondents have previously heard of SLE, (52%) of participants didn't know if SLE affects any organ of the body or not and (23%) thought SLE is not associated with any organ involvement. (69%) didn't know if the disease is

fatal or not while (21%) participants believe that SLE is a fatal disease [18].

Another study was conducted among Six hundred thirty participants in King Saud University, the results showed that 40% have previously heard the term SLE, 28% identified it as an autoimmune disease, while (15.5%) thought it is an infectious disease [19].

Due to differences in healthcare system and awareness campaigns in United States. Our study results differ from that applied in United States.

On the other hand our study results are proximately agree with other studies due to near culture and less awareness campaigns about SLE.

An intensive national lupus awareness campaign should be carried out involving television, radio, social media, newspapers, magazines, and posters in public transport systems and public buildings.

Among the limitations of this study was the low number of males in comparison to females. It is generally agreed that educated participants demonstrate significantly better knowledge. It is tempting to suggest that if this questionnaire was used in exploring the knowledge level of the general public on SLE, more questions would be incorrectly answered by the people.

In conclusion, this study showed that this survey is beneficial to the society as it help people to become aware of this disease. Although they may have basic information about it, some of them may not have sufficient knowledge of it, as a serious disease. The questionnaire assessed in this study proved to be a valid and a reliable tool to measure the knowledge, since it is easy to understand and it can be completed by the participants in a short time. Future directions for awareness about the nature of the disease, its course, management and outcome should be carried out.

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## معرفة الذئبة الحمامية بين مقدمى الخدمات الصحية والمتريدين من غيرهم على مستشفى جامعة حلوان

خلفية البحث: الذئبة الحمامية الجهازية (SLE) هو مزمن، متعدد النظم، اضطراب المناعة الذاتية يهاجم أى جزء من الجسم بما فى ذلك الأعضاء الحيوية. الضرر والخلل الوظيفى والمضاعفات الناجمة عن الأمراض المرضية زيادة بسبب التأخير فى التشخيص، لديها معدل وفيات واعتلال كبير.

الهدف من البحث: هدفت هذه الدراسة إلى تقييم المعرفة المتعلقة بالأمراض البرية غير الصحية بين مقدمى الخدمة والمتريدين على مستشفى جامعة حلوان من أجل تحسين نوعية الصحة.

المرضى وطرق البحث: دراسة مقطعية، قائمة على المستشفيات أجريت على ٧٢٠ شخص (٦٣ من مقدمى الرعاية الصحية و ٦٥٧ غير طبي). ويتألف الاستبيان من الأجزاء التالية (البيانات الديموغرافية، والمعرفة العامة، وعوامل الخطر، وأساليب التشخيص، والعلاجات، والمضاعفات). تم تحديد اختيار الوثائق وصحة الاستبيان. وقد تم إجراء هذه الدراسة بمستشفى جامعة حلوان فى الفترة ما بين يناير ٢٠٢٠ حتى يناير ٢٠٢١.

نتائج البحث: وأظهرت الدراسة أن متوسط نسبة مجموع درجات المعرفة الإجمالية للمشاركين كان ٢٨٪ (ضعف المعرفة). وكانت هناك درجة معرفة أعلى من الناحية الإحصائية حول خيارات العلاج لدى المشاركين من الإناث مقابل الذكور (٢٥٪ مقابل ١٢.٥٪). وكانت هناك درجات معرفة عامة وكلية أعلى من الناحية الإحصائية فى مقدمى الرعاية الصحية مقابل أولئك الذين لديهم مهم غير طبية (٥٣.٣ فى المائة مقابل ٣٣.٣ فى المائة و ٣٠ فى المائة مقابل ٢٦ فى المائة على التوالى).

الاستنتاج: وكشفت هذه الدراسة أن الوعى بمرض نقص الأمراض بين المشاركين لم يكن كافياً، لا سيما بين أقل تعليماً، وهناك الكثير من المفاهيم الخاطئة حول المعلومات الأساسية لهذا المرض الخطير. يوصى بإجراء الدراسة الشاملة لتوضيح المعرفة حول SLE.