Evaluation of Awareness, Knowledge and Attitudes regarding Common Rheumatic Diseases (Rheumatoid Arthritis and Systemic Lupus Erythematous) in Sohag Governorate

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Abstract

Background: Rheumatoid arthritis (RA) is one of the commonest autoimmune diseases. It affects about 1% of the population worldwide. Systemic lupus erythematosis (SLE) is a chronic autoimmune disease which vary from mild to life-threatening condition. **Objective:** To measure awareness, knowledge and attitude of community members attending health centers toward rheumatic diseases. **Method:** A cross-sectional community-based study was conducted in Sohag governorate in Upper Egypt. Potential study participants were recruited from urban health centers in different cities and villages in Sohag governorate. Data were collected using a structured questionnaire. **Results:** Total 2,168 participants between 19 and 66 years old were recruited, 1,098 (50.6%) were males, 445 (20.5%) were illiterate, 596 (27.5%) reported to be currently unemployed, 702 (32.4%) of participants were a slum area resident, 769 (35.5%) reported either themselves or one of their family members having a rheumatic disease, 955(44%) of participants reported that rheumatology is a part of orthopedic, only 882 (40.7%) of the participants believed that drugs which are used in treatment of rheumatic disease are safe. Awareness and knowledge of rheumatic diseases are significantly higher among females, participants with higher education level, working for cash, single participants and urban residents. **Conclusion:** Awareness and knowledge of the studied sample in Sohag city regarding rheumatic diseases need to be improved through extensive mass educational and learning programs

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Introduction

Rheumatoid arthritis (RA) is one of the commonest autoimmune diseases. It affects about 1% of the population worldwide.[1] The prevalence of RA differ widely among different countries, while it is 1% in north America, it decreases to 0.2- 0.3% in China, Japan, north-west Greece, rural Africa and Egypt.[2] Not only the prevalence of the disease which varies among different continents, races, ages and socioeconomic levels, but also the disease pattern, knowledge, attitude and practice (KAP).[3] Systemic lupus erythematosus (SLE) is a relatively uncommon chronic autoimmune disease which varies from mild to life-threatening conditoin. There is no agreement about the exact definition of the disease. The prevalence in the developed world is 24/100,000 population. Studies in countries which include predominantly white races showed lower prevalence rates (in comparison to those conducted among Afro-Caribbeans, Asians and Hispanics).[4] In Egypt there is no clear

data about the exact prevalence of the disease in adults.[5,6]

Chronic diseases management and treatment require clear and organized planning to raise the awareness about disease nature, risk factors, complications and prognostic factors. The patient should have a full picture of his disease; moreover, he should participate in the choosing of treatment strategy. This will result in improving attitudes and behaviors of patients and subsequently improve disease outcome. Self-management skills are crucial for improving patient compliance to treatment and follow-up of the disease.[7] Several studies displayed that, KAP of chronic rheumatic diseases are related to patient's age and education, and those people who are suffering from those diseases have insufficient information. More work is needed to be achieved in this field for the reason that KAP were deeply influenced by scoioeconomic, demographic levels and also, by the disease pathological pattern.[8-10] To the best of our knowledge, this is the first study to assess KAP of rheumatic diseases (RA, SLE) in Upper Egypt.

We aimed to provide a full data about the present situation of those common rheumatic diseases, which can be used for the future planning of awareness raising and education programs in Sohag Governorate.

Method

Study design and study population*:* This is a cross-sectional community-based study conducted in Sohag governorate. Sohag is a densely populated province in Upper Egypt; with approximately 5.1 million inhabitants (according to governmental records in January 2019). Female and male individuals between 19 and 66 years of age who visited the urban centers in Sohag governorate during the period from January 2018 to June, were invited to participate in the study.

Sohag contains 12 urban centers (cities). The field part of the study was about 6 months, during this period we visited each center twice and did a total coverage for all center's visitors who are eligible to participate in the study. We recruited 150-200 participants from each urban center, the total number of participants was 2168.

Data were collected from the questionnaire through either self-answering of the participants of the Arabic version of the questionnaire, or through face-to-face interviews for patients who are illiterate The questionnaire was in two versions: English version which was used in the study analysis and Arabic version answered by the participants, the items of the questionnaire were taken from some papers that used validated questionnaire.[3,7,8] The questionnaire is divided into five parts: Basic information about the participants; General knowledge about rheumatic diseases; Knowledge about rheumatoid arthritis; Knowledge about systemic lupus; Attitude towards patients with rheumatic diseases.

To provide "knowledge and awareness score" for each participant, we gave each "right answer" a score of (1), each "wrong answer" a score of (0), and each "I do not know "a score of (0) then we summated these answers, giving a total score ranging from 0 to 87. The accuracy is the percentage of the true score of each participant to the highest score of 87, according to the accuracy calculated from questionnaire scoring system; we ranked our participants into five levels: Excellent, good, average, bad and very bad.

Statistical analysis: Statistical analysis was performed with IBM SPSS Statistics, version 22. Qualitative data were expressed as number and percentages, while the quantitative data were expressed as mean ± SD. We tested the data for normality by Shapiro-Wilk

test that direct us to use parametric tests such as independent t test. We used the

chi-square

Table 1: Demographic data of the study population

Item		Males 1,098 (50.6%)	Females 1,070 (49.4%)	Total 2,168 (100%)	P value
Age	Mean ± SD	41.58±13.56	41.07±13.64	41.33±13.6	0.384
Education level: N (%)	Illiterate	197 (18.4)	248 (22.6)	445 (20.5)	
	Primary education	244 (22.8)	225 (20.5)	469 (21.6)	
	Secondary education	366 (34.2)	411 (37.4)	777 (35.8)	**0.005**
	Graduate university education	234 (21.9)	185 (16.8)	419 (19.3)	
	Postgraduate education	29 (2.7)	29 (2.6)	58 (2.7)	
Residence N (%)	Urban	375 (34.2)	332 (31.0)	707 (32.6)	
	Rural	391 (35.6)	368 (34.4)	759 (35.0)	0.082
	Slum	332 (30.2)	370 (34.6)	702 (32.4)	
Marital status N (%)	Single	131 (11.9)	110 (10.3)	241 (11.1)	
	Married	724 (65.9)	551 (51.5)	1275 (58.8)	
	Divorced	140 (12.8)	210 (19.6)	350 (16.1)	0.076
	Widow	103 (9.4)	199 (18.6)	302 (13.9)	
Occupation N (%)	Currently working	869 (79.1)	703 (65.7)	1572 (72.5)	**<0.001**
	Not working	229 (20.9)	367 (34.3)	596 (27.5)	

Table 2. General knowledge about rheumatology

Item	Yes N (%)	No N (%)	I do not know N (%)
Rheumatology is the same as Orthopedics	955 (44.0)	969 (44.7)	244 (11.3)
Rheumatology is a branch of Orthopedics	425 (19.6)	1023 (47.2)	720 (33.2)
Rheumatology is a branch of Internal Medicine	482 (22.2)	1002 (46.2)	684 (31.5)
Rheumatology is the same as Immunology	472 (21.8)	865 (39.9)	831 (38.3)
Rheumatology is directly related to Rehabilitation	986 (45.5)	756 (34.9)	426 (19.6)
Rheumatology is a separate branch of medicine	718 (33.1)	716 (33.0)	734 (33.9)
The cause of rheumatic diseases are:			
- **Genetic**	918 (42.3)	820 (37.8)	430 (19.8)
- **Inflammatory**	1114 (51.4)	598 (27.6)	456 (21.0)
- **Auto-immune**	774 (35.7)	688 (31.7)	706 (32.6)
- **Degenerative**	876 (40.4)	662 (30.5)	630 (29.1)
The aims of investigations for rheumatic patients:			
- **To monitor disease activity**	930 (42.9)	491 (22.6)	747 (34.5)
- **To monitor disease complications**	935 (43.1)	867 (40.0)	366 (16.9)

test to calculate the differences across groups in categorical variables.

Ethical Consideration

The study protocol got the approval of the ethical committee at Sohag faculty of medicine. We elucidated all the study details and related terminologies were clearly defined to the study participants.

Written informed consent was obtained from each respondent before their interview

Results

Table 1 shows descriptive characteristics of the total study population, total 2168 participants between 19 and 66 years old

Table 3: Knowledge about rheumatic diseases treatment

		No (%)
Do you think that treatment of rheumatic diseases is?	Curative in most cases	571 (26.3)
	Can treat symptoms and stop disease progression in most cases	800 (36.9)
	I do not know	410 (18.9)
Do you think that drugs used in rheumatology are?	Safe	882 (40.7)
	Toxic	618 (28.5)
	I do not know	668 (30.8)
Do you think that drugs used in rheumatology are?	Very expensive	620 (28.6)
	Expensive	424 (19.6)
	Of moderate cost	571 (26.3)
	Very cheap	196 (9.0)
	Some are cheap	357 (16.5)

Table 4: Knowledge about rheumatoid arthritis:

		No (%)
Have you ever heard about RA?	Yes	1208 (55.7)
	No	960 (44.3)
How did you hear about RA?	Not mentioned	960 (44.3)
	From a doctor	145 (6.7)
	From media	324 (14.9)
	From a friend	384 (17.7)
	From the internet	120 (5.5)
	From a patient	235 (10.8)
Do you think that RA is:	An infectious disease	321 (14.8)
	A genetic disease	401 (18.5)
	An auto immune diseases	307 (14.2)
	An inflammatory diseases	725 (33.4)
	I do not know	414 (19.1)

Table 5: Rheumatoid arthritis epidemiology:

		No (%)
Regarding sex:	RA is more common in females	513 (23.7)
	RA is more common in males	730 (33.7)
	RA is equal in both gender	349 (16.1)
	I do not know	576 (26.6)
Regarding age:	RA can affect all ages	735 (33.9)
	RA affects only children	205 (9.5)
	RA affects only middle-aged persons	404 (18.6)
	RA affects only old aged persons	380 (17.5)
	I do not know	444 (20.5)
Do you think that RA is:	A completely curable diseases	570 (26.3)
	A treatable disease but complete cure is impossible	810 (37.4)
	A non-treatable disease, we can just relieve its symptoms	384 (17.7)
	I do not know	404 (18.6)

were recruited for the study, 1,098 (50.6%) were males, 445 (20.5%) were illiterate, 596 (27.5%) reported to be currently unemployed. 702 (32.4%) of participants being a slum resident. There were statistical significant differences between males and females in terms of education level, employment status. Out of the 2,168 participants, 769 (35.5%) reported having a rheumatic disease

Table 6: Parts of the body can be affected by rheumatoid arthritis:

Item	Yes N (%)	No N (%)	I do not know N (%)
Joints	808 (37.3)	1145 (52.8)	215 (9.9)
Musculoskeletal system	1116 (51.5)	605 (27.9)	447 (20.6)
Gastrointestinal tract	579 (26.7)	896 (41.3)	693 (32.0)
Kidneys	683 (31.5)	846 (39.0)	639 (29.5)
Liver	230 (10.6)	1113 (51.3)	825 (38.1)
Central nervous system	537 (24.8)	996 (45.9)	635 (29.3)
All body systems	367 (16.9)	1280 (59.0)	521 (24.1)

Table 7: General knowledge about SLE

Item		Yes N (%)	No N (%)	I do not know N (%)
What are the possible causes of SLE?	Inherited genes	1089 (50.2)	684 (31.5)	395 (18.2)
	A hidden infection	846 (39.0)	584 (26.9)	738 (34.0)
	Female sex	1158 (53.4)	471 (21.7)	539 (24.9)
	Environmental pollution	964 (44.5)	667 (30.8)	537 (24.8)
	An auto-immune process	1000 (46.1)	729 (33.6)	439 (20.2)
Common symptoms of SLE:	Fever	942 (24.5)	532 (24.5)	694 (32.0)
	Skin rash	1117 (51.5)	433 (20.0)	618 (28.5)
	Swollen joints	1219 (56.2)	412 (19.0)	537 (24.8)
	Extreme fatigue	856 (39.5)	623 (28.7)	689 (3.8)
	All of the above	467 (21.5)	907 (41.8)	794 (36.6)
Which of these organs are commonly affected by SLE?	Kidneys	689 (31.8)	913 (42.1)	566 (26.1)
	Lungs	647 (29.8)	918 (42.3)	603 (27.8)
	CNS	812 (37.5)	669 (30.9)	687 (31.7)
	Skin	1041 (48.0)	481 (22.2)	646 (29.8)
	Joints	1396 (64.4)	357 (16.5)	415 (19.2)
	Blood	804 (37.1)	659 (30.4)	705 (32.5)
	All of the above	371 (17.1)	1156 (53.3)	641 (29.6)

Table 8: Diagnosis and treatment of SLE

Item		Yes N (%)	No N (%)	I do not know N (%)
How is SLE diagnosed?	By clinical assay	992 (45.8)	776 (35.8)	400 (18.5)
	By imaging studies	1115 (51.4)	729 (33.6)	324 (15.0)
	By laboratory investigations	1172 (54.1)	687 (31.7)	299 (14.3)
	All of the above	684 (31.5)	1000 (46.1)	484 (22.3)
How is SLE treated?	By surgery	909 (41.9)	874 (40.3)	385 (17.8)
	By radiation therapy	804 (37.1)	691 (31.9)	673 (31.0)
	By anti-inflammatory medicines	1145 (52.8)	658 (30.4)	365 (16.8)
	By drugs specific for lupus	1222 (56.4)	484 (22.3)	462 (21.3)
	Just by palliative treatment	646 (29.8)	882 (40.7)	640 (29.5)
	None of the above, lupus is non-treatable disease	370 (17.1)	1659 (76.5)	139 (6.4)

(either the participants themselves 210 (9.7%) or one of the family members 559 (25.8%). (Figure 1). Table 2 shows the general concept of our studied population about rheumatology. 955 (44%) of our participants reported that rheumatology is a part of orthopedics, Regarding the cause of rheumatic diseases, more than half of subjects (51.7%) related rheumatic diseases to inflammatory causes, but only 35.7% of them related rheumatology to auto-immunity. On the other hand, 40.4% of our participant related rheumatic diseases to degenerative cause which is a wrong answer. More than 40% agreed that investigations can be used to monitor disease activity or complications, but another 40% denied its importance. Table 3 shows the knowledge of the study participants regarding rheumatic diseases treatment. The effect of drugs were expected to control the diseases by more

Table 9: Relation with someone that has rheumatic disease:

		No (%)
Do you or a family member living in your household have one of the above-mentioned rheumatic diseases?	Yes	769 (35.5)
	No	718 (33.1)
	I do not know	681 (31.4)
If yes, who?	The question is not applicable	1399 (64.5)
	Myself	210 (9.7)
	One or more of my family members	559 (25.8)
Would you likely marry a patient with one of the above-mentioned rheumatic diseases?	Strongly agree	314 (14.5)
	Agree	428 (19.7)
	Undecided	508 (23.4)
	Disagree	627 (29.0)
	I do not know	291 (13.4)
Would you likely live in the same place with a person with rheumatic disease?	Strongly agree	349 (16.1)
	Agree	510 (23.5)
	Undecided	379 (17.5)
	Disagree	407 (18.8)
	I do not know	523 (24.1)
Would you likely play or work with a patient with rheumatic disease?	Strongly agree	349 (16.1)
	Agree	404 (18.6)
	Undecided	790 (36.4)
	Disagree	407 (18.8)
	I do not know	218 (10.1)

Table 10: What if you have a rheumatic disease?

	Strongly Agree N (%)	Agree N (%)	Undecided N (%)	Disagree N (%)	Strongly Disagree N (%)	I do not know N (%)
Would you likely inform your wife/husband that you have a rheumatic disease	501 (23.1)	376 (17.3)	444 (20.5)	416 (19.2)	0	431 (19.9)
Would you likely inform your friend that you have a rheumatic disease	501 (23.1)	187 (8.6)	444 (20.5)	416 (19.2)	338 (15.6)	282 (13.0)
Would you likely inform your colleagues that you have a rheumatic disease	501 (23.1)	187 (8.6)	444 (20.5)	657 (30.3)	273 (12.6)	106 (4.9)

than one third (36.9%), only 40.7% of the participants believed that drugs which are used in treatment of rheumatic disease are safe, and 31% denied any previous knowledge in this point. The cost of the drugs was a matter of conflict, with only one sixth (16.5%) reached the correct answer (some are cheap, some are expensive).

Table (4), shows the general knowledge about RA among the study population. Of the 2168 participants, 1208 (55.7%) reported having heard of RA. However, the most common source of RA was "heard from a friend" (31.8%), with only 12% heard about it "from a physician".

About 14.2% of participants related RA to an autoimmune cause, while over 33% thought that it is an inflammatory disease. Table (5), explores the epidemiology of RA, 23.7% of participants reported that RA is more common among females, and 33.9% reported that RA can affect all age groups, regarding the curability of RA, 37.4% of the participant stated that RA is "a treatable disease but a complete cure is impossible", while 26.3% stated that it's a completely curable disease", while about 18.6% of the participant did not know. Table (6), regarding the parts of the body

Table 11: What would you do for your management if you have a rheumatic disease?

	Strongly Agree N (%)	Agree N (%)	Undecided N (%)	Disagree N (%)	Strongly Disagree N (%)	I do not know N (%)
I will ask for medical advice	732 (33.8)	696 (32.1)	201 (9.3)	231 (10.7)	132 (6.1)	176 (8.1)
I will buy some medication directly from the pharmacy	603 (27.8)	402 (18.5)	244 (11.3)	363 (16.7)	519 (23.9)	37 (1.7)
I will ask a person who can remove (evil spirits)	589 (27.2)	280 (12.9)	294 (13.6)	329 (15.2)	634 (29.2)	42 (1.9)
I will ask for physiotherapy	721 (33.3)	168 (7.7)	247 (11.4)	476 (22.0)	500 (23.1)	56 (2.6)
I will try some herbal and alternative medicines	808 (37.3)	131 (6.0)	223 (10.3)	517 (23.8)	466 (21.5)	23 (1.1)

affected by RA, only 16.9% of our participants agreed that it can affect all body systems; compared to 51.5% who stated that it is a disease of musculoskeletal system mainly.

Table 12: Evaluation of rheumatic disease awareness and knowledge score

Level	No	%
Excellent (>80%)	0	0
Good (60-80%)	268	12.4
Average (40-60%)	537	24.8
Bad (20-40%)	1050	48.4
Very bad (<20%)	313	14.4

Table 13: Evaluation of rheumatic disease attitude score

Level	No	%
Excellent (>80%)	0	0
Good (60-80%)	256	11.8
Average (40-60%)	549	25.3
Bad (20-40%)	1031	47.6
Very bad (<20%)	332	15.3

Table (7), shows the general knowledge about SLE among our study participants. The cause of SLE was multifactorial as decided by most of our subjects, with female sex and genetics plays the most important rules (agreed by 53.4% and 50.2% of our subjects respectively). Although 46% of them agreed that SLE is an autoimmune disease. Subjects

agreed that, swollen joints (56.2%) and skin rash (51.5%) were the most common symptoms of SLE. This was reflected to the other questions, with 64.4% of them agreed that SLE can affect joints, 48% agreed that SLE can affect skin, compared to only 17.1% who agreed that SLE is a systemic disease which can affect all body systems. Table (8), Regarding SLE diagnosis, nearly 31.5% of our participants thought that it need a combination of clinical, laboratory and imaging studies. More than one half (56.4%) agreed that SLE is treated by drugs specific for lupus

Tables (9, 10, and 11) show the attitude toward individuals with rheumatic diseases, on which around one third of our participants had at least one family member with one of the rheumatic diseases, among them 9.7% had the disease themselves. However, a substantial proportion of participants had negative attitudes towards individuals with rheumatic diseases. To the extent that, every third participant reported not to marry a person with a rheumatic disease. Every fifth participant reported not to play/work or live in the same place with a person with a rheumatic disease. This was

Table 14: Factors affecting knowledge and awareness of the study population about rheumatic diseases

Item		Score	P value
Sex	Male	28.98±12.80	<0.001

	Female	31.55±14.47	
Education level	Illiterate	14.46±3.83	<0.001
	Primary education	23.91±5.72	
	Secondary education	31.29±6.55	
	University graduate education	48.26±9.69	
	Postgraduate education	58.50±1.22	
Work	Working	28.74±12.92	<0.001
	Not working	34.23±14.89	
Residence	Urban	34.90±13.65	<0.001
	Rural	30.01±15.25	
	Slum	25.82±10.02	
Marital status	Single	47.58±11.92	<0.001
	Married	29.21±13.97	
	Divorced	24.65±5.74	
	Widow	27.29±9.28	

reflected by their decision not to inform their contacts if they had a rheumatic disease, with only 23% agreed strongly to do so, while 19.2% of participants decided not to inform their wife/husband, 34.8% decided not to inform their friends and 42.9% decided not to inform their colleagues. Although the majority of the participants agreed to seek medical advice if they had a rheumatic disease (65.9%). Other non-medical routes were also agreed by many of them such as buying some over the counter medicines (46.3%), ask for removing "evil spirits" or even (39.9%), ask for physiotherapy (41%), and try herbal and alternative medicine measures (43.3%).
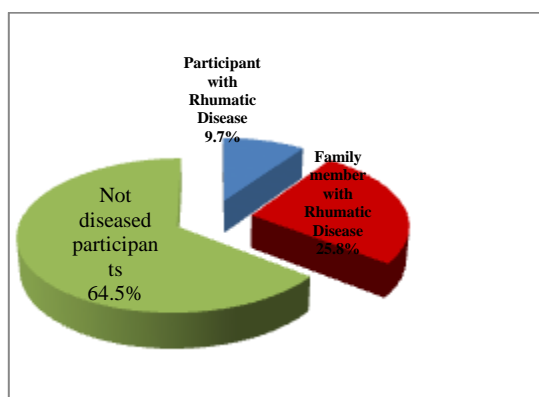

Figure (1): The prevalence of rheumatic disease among study participants

Table (12), regarding evaluation of rheumatic disease awareness and knowledge score, we revealed that the majority of the participants fell in the "bad level (48.4%)" and "average" levels

(24.8%), with no one had "excellent" level of knowledge regarding rheumatic diseases. Table (13), shows factors affecting knowledge and awareness of the study population about rheumatic diseases: We found that awareness and knowledge of rheumatic diseases are significantly higher among females. Regarding education level, there is a steady increase in the awareness with the rise of education level, with a highly significant relation. Non-working and single participants had significantly higher knowledge compared to married or working ones. Lastly, regarding residence, urban people had the highest knowledge scores, followed by rural, and lastly those came from slum areas.

Discussion

Although the prevalence of diseases like RA and SLE, in Egypt in general and Upper Egypt in particular are not well studied, these diseases are considered as the most prevalent rheumatic diseases worldwide. Spreading of knowledge about these diseases in the poor areas and among population of poor education and socioeconomic levels could modify the disease track towards better scenarios. This study shed light on the present KAP regarding those diseases in upper Egypt and suggest overtures to improve the current situation.[3]

Male: female ratio in our study was 1:1. One fifth of the participants were illiterate. Educational level, employment

and marital status were greater in males than females with a significant difference. This distribution can be attributed to the patriarchal community nature in upper Egypt. We found in our study, that about one third of the participants reported having a rheumatic disease themselves or one of the family members has a rheumatic disease. This was consonant with results from Usenbo et al.[3]

At variance of expectations, our study revealed that more than one third participants were able to sharply differentiate between orthopedics and rheumatology. Moreover, nearly one third of participants considered that rheumatology is related to auto-immunity. An analogous study was performed in Netherland with a dissimilar educational, ethnic and social horizon.[11]

Severo and his colleagues conducted a study in Portugal with a similar number of participants to ours and their main concern was RA, SLE, osteoporosis, beside other rheumatic diseases. This survey unveiled the limited knowledge concerning rheumatic diseases at the general population: there were obstacles of differentiation between rheumatic diseases, and more than half of the participants thought that rheumatic diseases are not curable. One quarter of the study participants had a false general concepts about rheumatic diseases and less than 1/3 did not have thorough knowledge about rheumatic diseases.[7]

More than half of our respondents were aware of RA, and around 1/8 heard about it "from a physician", a comparable study was conducted in Iraq with a similar cultural background of the participants demonstrated that one third of the study participants have no idea about their disease, one fifth didn't understand the aim for the investigations, about half of them did not neither distinguish their medication, nor its adverse effects. In this study all the contributors had RA and they are frequently visiting their physician. They found a poor correlation between patients' educational level and the disease activity. They elicited that, neither the educational level nor the frequency of clinic visits had an effect on the disease knowledge and awareness. This assumption may be interpreted by the relatively low educational level of the participants in comparison to ours.[12]

Near half of the participants agreed that SLE is an autoimmune disease. Swollen joints and skin rash were the commonest manifestations approved by the participants as common symptoms of SLE. Less than 1/3 of participants supposed that SLE diagnosis requires a combination of clinical, laboratory and imaging studies. More than half agreed that SLE is treated by drugs specific for lupus. Most of our participants answered wrongly that SLE is either more common among males or equal in both sexes. Most of our participants stated that steroid is needed in SLE treatment.

Lama, et al. carried out a similar study but with limited number of participants (only 29); those who are following regularly in the outpatient clinic. They revealed that less than 1/3 had high knowledge of their disease, more than half had intermediate knowledge and only 3.5% their knowledge was considered as inadequate. With regards of SLE etiopathogenesis they found that less than 2/3 are unknowledgeable about this field. Only 1/10 were able to describe properly how medications work. Only 6.9% of their patients were aware of the immunosuppressive effect of corticosteroids. They deduced that most of their SLE patients had a knowledge that can be considered as intermediate quality. This study was done in Puro with educational and socioeconomic conditions similar or may be better than ours, but the sample size and the inclusion of only SLE patient could elucidate the results difference.[13]

Rheumatic conditions are chronic diseases and they require a continuous adaptation. Chronic pain, repeated exacerbations, disability and impact on activities of daily living and all other factors that affect disease course and prognosis and the patient, family and the surrounding community should be well knowledgeable about. A substantial proportion of participants in our study had negative attitudes against individuals with rheumatic diseases. Most of our participants reported not to marry, work or play with a person with a rheumatic disease, two third of them decided not to inform their contacts. The majority of the participants agreed to seek medical advice if they had a rheumatic disease. Yet other non-medical routes were also chosen by many of them such as buying some over the counter medicines; ask for physiotherapy; try herbal and alternative medicine measures or even ask for removing "evil spirits".

We found in our study that, awareness and knowledge of rheumatic diseases are significantly higher among females than in males and there is a steady increase in the awareness with the rise of education level, with a highly significant relation. Non-working and single participants had significantly higher knowledge compared to married or working ones. Concerning residence, urban people had the highest knowledge scores, followed by rural, and lastly those came from slum areas. Correlation between age and the knowledge and awareness score a highly significant negative correlation. This means that the older the age, the poorer the knowledge. There is a consensus in the previous publications, that higher education means more knowledge of the rheumatic diseases.[7, 11]

Most of the literature denotes that age, sex and marital status and socioeconomic status are not related to the knowledge level.[9] This can be explained by the relatively higher socioeconomic level of the selected sample in these studies and the choice of patients and not general populations besides, the variation of the questionnaire methodology among different studies.

Van der Wardt in his study showed that in general, knowledge about rheumatic diseases is limited. They undervalued the prevalence of rheumatic diseases and were oblivious of the different types. There is an incorrect belief that, poor diet and cold weather may trigger these diseases. He concluded that higher education and contact with patients with these diseases improve the knowledge obviously. The public classified rheumatic diseases as serious and they considered that patients are unable to alter disease progression. The participants in this study considered that the most serious complications of these groups of diseases were pain, deformities and dependency. Media purposes were positively correlated with knowledge, susceptibility, fear and behavioral intentions. This could clearly signifies the necessity and importance of using the media in improving knowledge and providing information on rheumatic diseases.[11]

Potential for patients with lupus to experience cognitive dysfunction may impair the ability for an educational intervention to work effectively. Patient educational programs are key components of patient management strategies and improved quality of life for adults with chronic diseases patient educational programs vary greatly in their design and goals; minimal-to-moderate benefit from the group-based, psycho educational and psychotherapeutic patient education programs were presented. Specifically, cognitive, psychological, support and coping outcomes – the nonmedical factors – were improved more often than lupus disease damage or activity. Studies about the cost of each approach are limited. because of the diverse social, cultural and geographic differences of the

patients with lupus, the programs must be designed to meet the needs of the target population. Do patients gain information that is more beneficial from trained professionals or well-designed self-administered programs? Similarly, given the significant increase in technology; (What technological advances could enhance currently available approaches?). A second issue relates to what specific information is key and most relevant to patients with lupus. "Should patient educational programs emphasize disease-specific knowledge, general disease symptomology, self-efficacy, depression and other mental health symptoms, self-management, or all of the aforementioned issues?" Likewise, it is unclear which elements are most salient in lupus patient educational, Internet based education, TV or direct contact, specifically to affected population or general role of physician.

Conclusions

The awareness, knowledge and attitude of upper Egyptian population regarding rheumatic diseases are limited and deficient, thus widespread mass educational and learning programs are needed. Education level, work, and residence were found to be the main factors affecting knowledge and attitude towards rheumatic diseases in our study.

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