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RESEARCH ARTICLE

POPULATION AWARENESS AND KNOWLEDGE OF SYSTEMIC LUPUS ERYTHEMATOSUS INTAIF, SAUDI ARABIA

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Abstract

Background: Systemic Lupus Erythematosus (SLE) is a systemic autoimmune disease that necessitates a multidisciplinary approach. Many studies showed misconceptions and low awareness in different regions of the kingdom of Saudi Arabia.

The aim: of this study is to evaluate the level of awareness among general population in Taif city, Saudi Arabia.

Methodology:across-sectional study using a self-administrated online Arabic questionnaire.

Results: a total of responses from 408 participants; whose sociodemographic characteristics showed 34.8% belonged to the age group of 18-24 years, 66.2% were females, 53.7% were married, 83.6% were Saudis, 35.5% had post-graduate education, and 46.1% were medical students. The analysis showed that 89% had poor awareness, only 3.7% had good awareness and 7.6% had a fair awareness about SLE.

Conclusion: This study showedlow general awareness and some misconceptionsamong the Taif-KSA population regarding the SLE.

Recommendations: health education campaigns to increase awareness of SLE among the Saudi population, will be helpful to detect and diagnose early cases of SLE patients to reduce its complication and improve the quality of patient's life.

Introduction/Literature Review:-

Systemic lupus erythematosus (SLE), is the most common type of lupus. SLE is an autoimmune disease in which the immune system attacks its own tissues, causing widespread inflammation and tissue damage in the affected organs. It can affect the joints, skin, brain, lungs, kidneys, and blood vessels. It is a chronic illness that often affects women of reproductive age [1].

It can lead to unfavorable pregnancy complications in women [2]. There is no cure for lupus, but medical interventions and lifestyle changes can help control it [3]. People with SLE have episodes in which the condition

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gets worse (exacerbations) and other times when it gets better (remissions). Overall, SLE gradually gets worse over time, and damage to the major organs of the body can be life-threatening, about a third of people with SLE develop kidney disease nephritis [4].

SLE is about nine times more common in women than in men. [5] Management of systemic lupus erythematosus (SLE) often depends on disease severity and disease manifestations. Despite numerous advances in the diagnosis and treatment of SLE and associated comorbid conditions, such as loss of physical, social, and emotional functioning, this disease remains a source of significant morbidity and mortality.[6]

There are some studies that stress on the importance of raising awareness and educating the public about SLE by clarifying the nature of the disease, its direct causes, treatment methods, and control mechanisms. In Riyadh, Kingdom of Saudi Arabia (KSA), a study conducted in 2015 among students at King Saud University showed that the level of awareness about SLE among students was low. Workshops or campaigns are required to enhance awareness and correct misunderstandings.[7]

In Taif, KSA, a study was undertaken in 2017 that involved many of the Kingdom's regions reported a high prevalence of less-than-optimal awareness and knowledge of SLE among the Saudi adult population.[8]

Methodology:-

The study was conducted as a cross-sectional study in Taif city-KSA from 2021-to 2022.using a self-administrated online Arabic questionnaire to gather information about the knowledge of SLE. The questionnaire had 13 items that focused on; the definition, risk factor, diagnosis, and management of the disease.

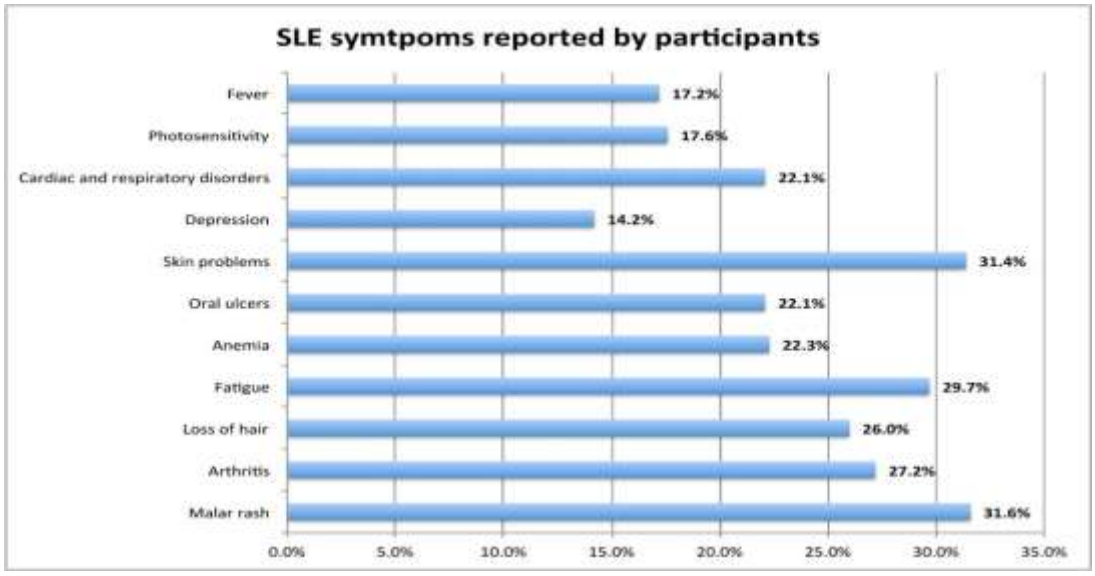
All Saudi Taif population male or female aged from 18 in all educational levels were included in the study, those below 18 were only excluded. Responses were collected from 405 participants and statistically analyzed.

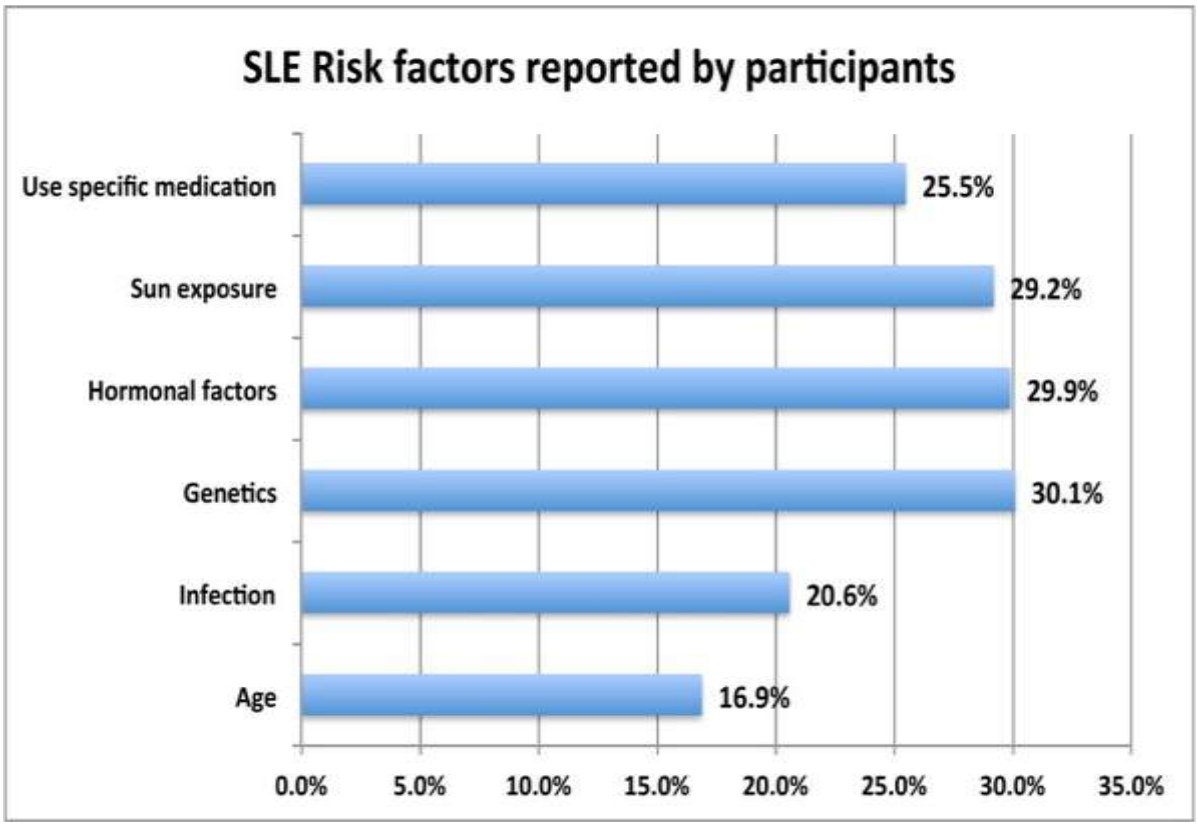
Statistical analysis:

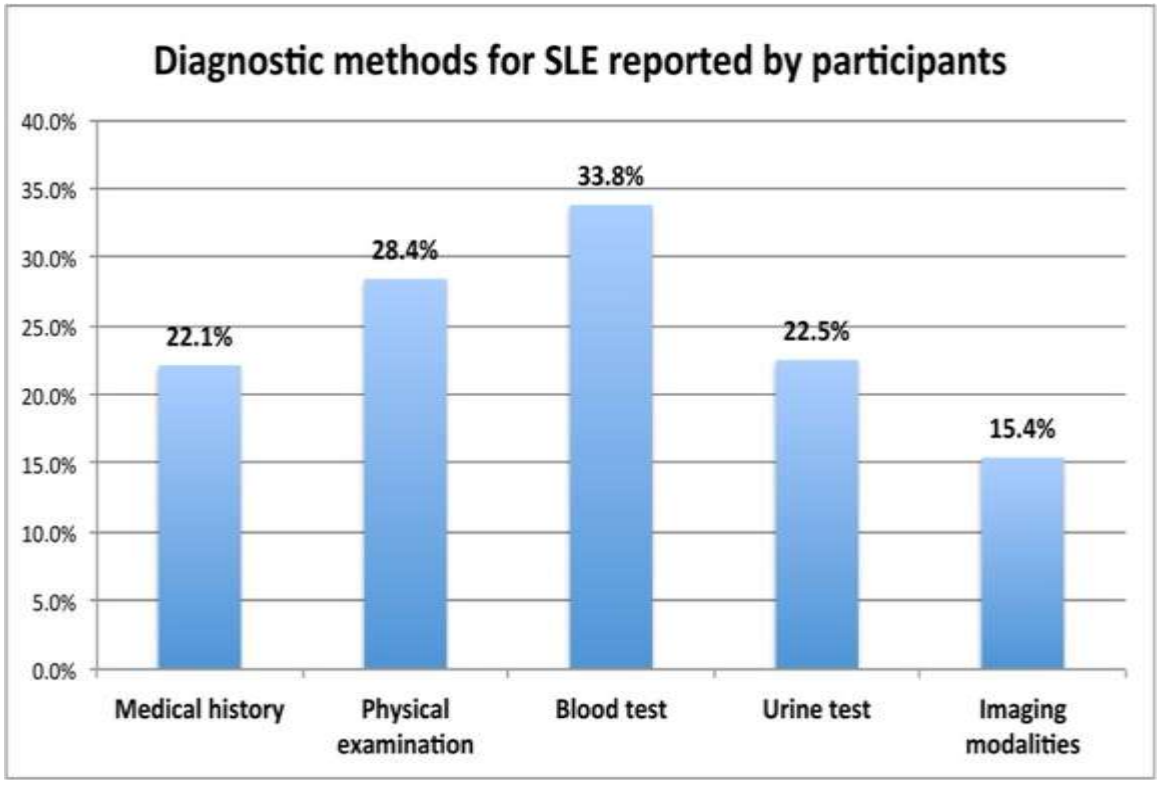
Data were analyzed using the "Microsoft software Excel program" (2016) for windows, and the Statistical Package of Social Science Software (SPSS) program, version 20 (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.) to be statistically analyzed.

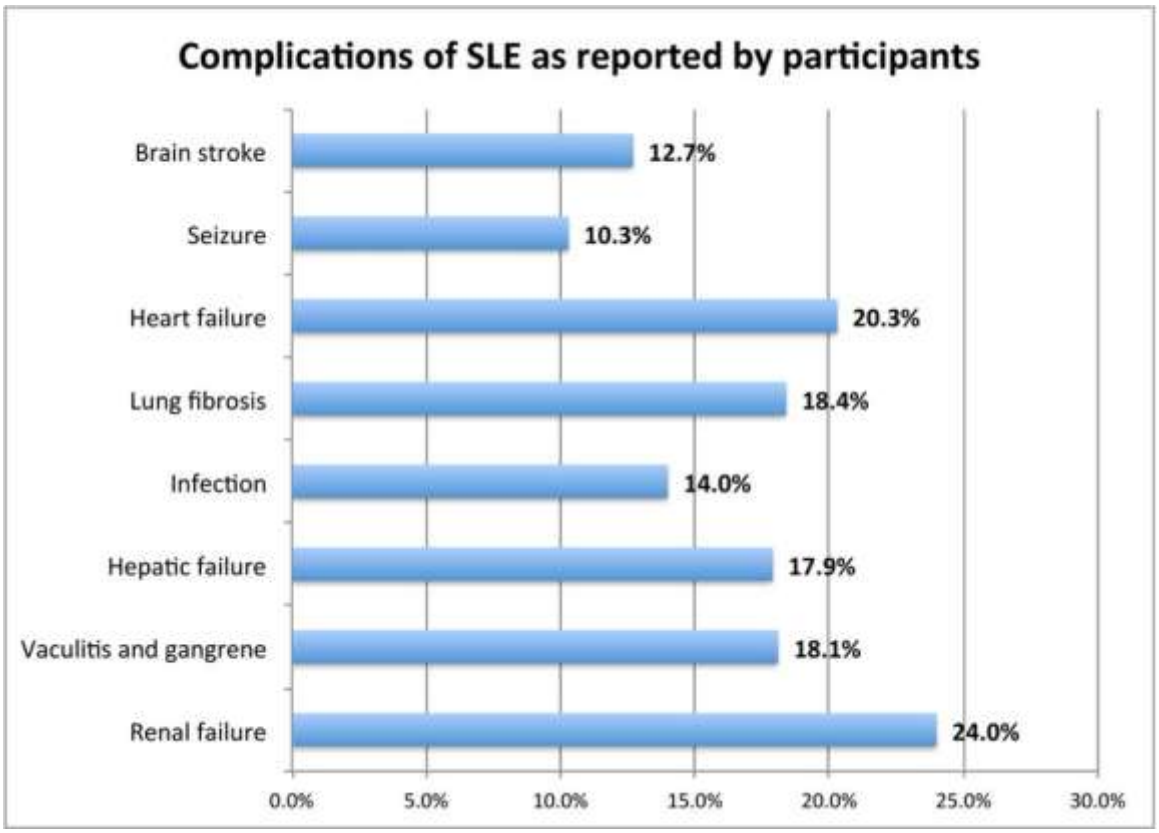
The correct responses for each item were evaluated, and a score of 1 was given for each correct response except for the items with multiple correct options (risk factors, symptoms, diagnostic methods, and complications), where a score of 0.5 was given for each correct answers, and wrong answers were given no scores.

Results:-




SLE Risk factors reported by participants
Use specific medication
25.5%
Sun exposure
29.2%
Hormonal factors
29.9%
Genetics
30.1%
Infection
20.6%
Age
16.9%
0.0%
5.0%
10.0%
15.0%
20.0%
25.0%
30.0%
35.0%


Diagnostic methods for SLE reported by participants
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
22.1%
28.4%
33.8%
22.5%
15.4%
Medical history
Physical examination
Blood test
Urine test
Imaging modalities


Complications of SLE as reported by participants
Brain stroke
12.7%
Seizure
10.3%
Heart failure
20.3%
Lung fibrosis
18.4%
Infection
14.0%
Hepatic failure
17.9%
Vaculitis and gangrene
18.1%
Renal failure
24.0%
0.0%
5.0%
10.0%
15.0%
20.0%
25.0%
30.0%

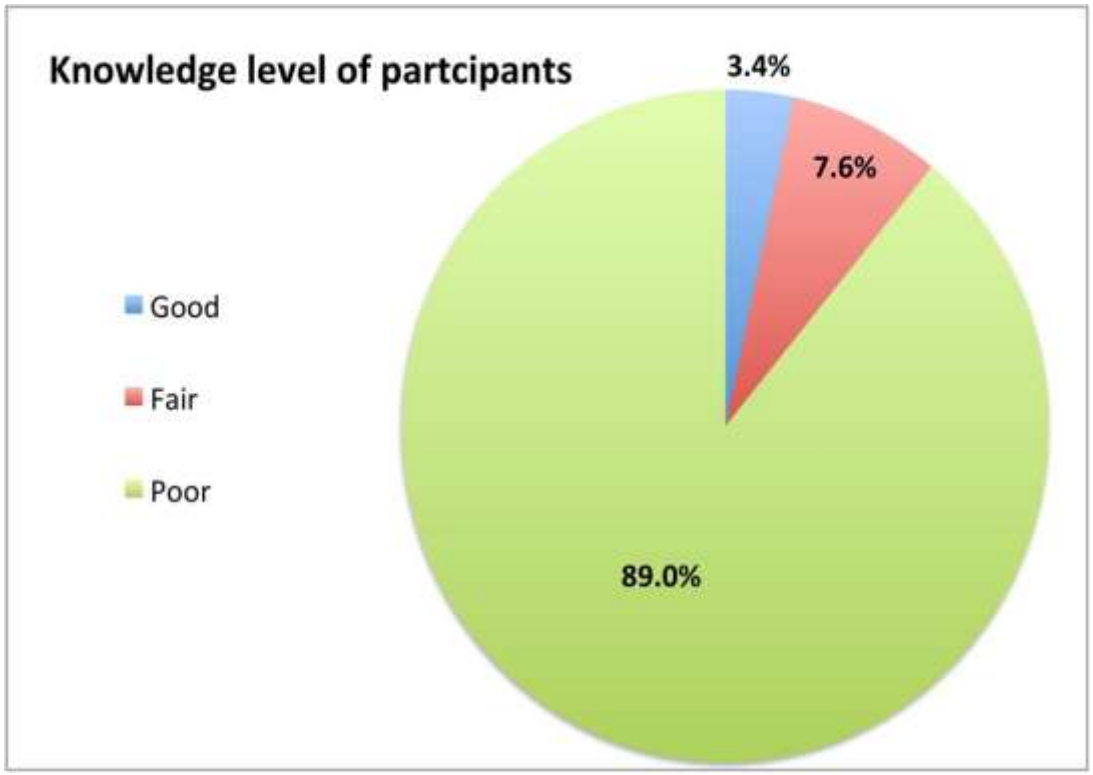

Knowledge level of partcipants
3.4%
7.6%
89.0%
Good
Fair
Poor

Table 1:- Sociodemographic details.

		N	%
Age	18-24	142	34.8
	25-35	130	31.9
	Above 36	136	33.3
Gender	Female	270	66.2
	Male	138	33.8
Marital status	Married	219	53.7
	Unmarried	189	46.3
Nationality	Saudi	341	83.6
	Non-Saudi	67	16.4
Educational level	Post-graduate	145	35.5
	University	127	31.1
	Secondary school	101	24.8
	Intermediate school	22	5.4
	Illiterate/basic education	13	3.2
Profession	Medical students	188	46.1
	Health professionals	14	3.4
	Other professions or non-medical students	206	50.5

Table 2:- Responses of participants to knowledge items (n=408).

	Response (n,%)	
	Correct	Wrong
SLE is a multisystem disease	177 (43.4)	231 (56.6%)
SLE is a contagious disease	48 (11.8)	360 (88.2)
SLE is a life-threatening disease	65 (15.9)	343 (84.1)
SLE flare due to environmental triggers including exposure of sunlight, drugs, and infection	168 (41.2)	240 (58.8)
SLE flare can be prevented and managed by sun protection, proper diet and nutrition, exercise and smoking cessation, and appropriate immunization	149 (36.5)	259 (63.5)
SLE is an inherited disease	92 (22.5)	316 (77.5)
SLE is common among female compare to male	150 (36.8)	258 (63.2)
The most common age group affected with SLE (18-50 years)	124 (30.4)	284 (69.6)
Treatment of the disease	87 (21.3)	321 (78.7)

Table 3:- Knowledge level and its relationship with sociodemographic details.

			Knowledge			P value*
			Good	Fair	Poor	
Age	18-24		5	14	123	0.533
			3.5%	9.9%	86.6%	
	25-35		3	10	117	
			2.3%	7.7%	90.0%	
	Above 36		6	7	123	
			4.4%	5.1%	90.4%	
Gender	Female		9	23	238	0.615
			3.3%	8.5%	88.1%	
	Male		5	8	125	
			3.6%	5.8%	90.6%	
Marital status	Married		7	14	198	0.580
			3.2%	6.4%	90.4%	
	Unmarried		7	17	165	
			3.7%	9.0%	87.3%	
Level of education	Post-graduate		9	8	128	0.041*
			6.2%	5.5%	88.3%	

	University		4	16	107	
			3.1%	12.6%	84.3%	
	Secondary school		1	3	97	
			1.0%	3.0%	96.0%	
	Illiterate/basic education		0	1	12	
			0.0%	7.7%	92.3%	
	Intermediate school		0	3	19	
			0.0%	13.6%	86.4%	
Profession	Medical students		8	22	158	0.039*
			4.3%	11.7%	84.0%	
	Health professionals		0	0	14	
			0.0%	0.0%	100.0%	
	Other professions or non-medical students		6	9	191	
			2.9%	4.4%	92.7%	

* a p value less than 0.05 is considered statistically significant .

Results:-

The analysis included responses from 408 participants who were residents from Taif city, whose sociodemographic characteristics showed 34.8% belonged to the age group of 18-24 years, 66.2% were females, 53.7% were married, 83.6% were Saudis, 35.5% had post-graduate education, and 46.1% were medical students.

There were 13 items in the questionnaire that assessed knowledge related to SLE. The analysis showed that 88.2% believed that SLE is a contagious disease, and 84.1% mentioned that it is not a life-threatening disease. About 77.5% agreed that SLE is an inherited disease, and 36.8% agreed that it is predominantly seen in females. Only 30.4% knew about the most common age group affected (18-50 years), and 21.3% knew about the treatment options for SLE [Table 2]. When we assessed the knowledge about risk factors, the most commonly identified risk factors was genetics or hereditary factors (30.1%), followed by hormonal factors (29.9%), sun exposure (29.2%), use of specific medications (25.5%), infection (20.6%) and age (16.9%) [**Figure 1**]. When we assessed the symptoms in SLE, the malar rash was the commonly reported one (31.6%), followed by skin problems (31.4%), fatigue (29.7%), arthritis (27.2%), loss of hair (26%), anemia (22.3%) and the least reported one was depression (14.2%) [**Figure 2**]. The knowledge regarding diagnostics methods showed that 45.8% didn't know about it, and the most commonly mentioned method was blood test (33.8%), followed by physical examination (28.4%), urine examination (22.5%), medical history (22.1%) and medical imaging (!5.4%) [**Figure 3**]. The knowledge related to complications showed that heart failure (20.3%) was the most commonly cited complication, and 45.8% didn't know any complications of the SLE [**Figure 4**].

The correct responses for each item were evaluated, and a score of 1 was given for each correct response except for the items with multiple correct options (risk factors, symptoms, diagnostic methods, and complications), where a score of 0.5 was given for each correct answers, and wrong answers were given no scores. Thus the maximum knowledge score one participant could score was 24 for all the 13 items. The mean knowledge score in our study was found to be 5.95± 5.26. The knowledge scores were categorized based on the percentage scored into three levels: Good (>75%), fair (50-75%), and poor (<50%). The analysis showed that only 3.4% had demonstrated good knowledge, and the majority, 89% of the participants, had poor knowledge related to the SLE [**Figure 5**]. When we evaluated the relationship of this knowledge level with the sociodemographic characteristics, there were no statistically significant differences seen for age, gender, and marital status of the participants ($p>0.05$). Participants who had an educational level of post-graduate level and university level had comparatively demonstrated more 'good' knowledge compared to those who had lesser qualifications ($p<0.041$). Medical students had shown significantly more 'good' knowledge scores than other health professionals and non-medical students ($p<0.039$) [Table 3].

Discussion:-

SLE is a multigenic disease with a prevalence that ranges from 20 to 150 cases per 100,000 persons with varied clinical courses, which may be characterized by periods of remission and by chronic or acute relapses [9]. Even though the patients with SLE are vulnerable to various symptoms, complaints, and inflammatory involvement that can impact almost every organ, SLE can cause major kidney damage, and kidney failure is one of the primary

reasons of mortality among persons with this condition [10]. The involvement may range from moderate sub nephrotic proteinuria to diffuse progressive glomerulonephritis leading to chronic kidney impairment. Lupus nephritis, one of the common complications, commonly arises early in the course of SLE. Lupus nephritis should be suspected in the presence of new-onset hypertension, hematuria, proteinuria, edema of the lower extremities, and an increase in Creatinine [11 ,12].

Awareness of morbid diseases like SLE is important to detect the disease early and manage its symptoms to reduce its complications. There are huge centers for Disease Control and Prevention in the USA. Campaign in partnership with The American College of Rheumatology which is designed to increase awareness of the signs and symptoms of lupus and empower the public who are at risk for getting lupus**[13].**

This study was conducted to assess the awareness of SLE disease among the general population in Taif city-KSA using a self-administrated online Arabic questionnaire.

The allover results of the questionnaire analysis revealed that; a low level of awareness was foundabout 89% of the participantshad poor knowledge and only about 11% were aware of SLE.Similar studies in Damman and Alqassim-KSA reported also poor SLE awareness in 56.8% and 69% of participants respectively but with lower rate compared to our study [**14,15]**Another study in Asser a similar studyfoundthat about 41.4% of participants (405) know about SLE and 46.4% reported that SLE flare due to environmentaltriggers including exposure of sunlight, drugs, and infection**[16]**.

In this study Higher levels of awareness were observed among participants with higher educational levels and professions, those at or above university level, and those who were medical students.

In Riyadh, Saudi Arabia; 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 this study;poor knowledge was found among 89% when; about 56.6% of the participants didn't know SLE was a multisystemic disease,88.2% hadmisunderstood that it is a contagious disease, and, 84.1%,didn't know that it is not a life-threatening disease.About 63.2 % wrongly thought SLE does not affect mainly females. SLE wasn't known as an inherited disease as reported by 77.5% of participants. Of all participants 69.6%didn't know the most common age group affected by the disease, 58.8 % didn't know that flare could be affected by environmental factors and 63.5% also didn't know that it could be prevented and managed by sun protection, proper diet, and nutrition, exercise and smoking cessation, and appropriate immunization.

Compared to other studies; In Al-Dammam study the majority of participants (54%) have never heard of SLE while (46%) of respondents have previously heard of SLE.In addition, a significant number of respondents (26%) had the misconception that SLE is not affecting mostly females,(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. About (69%) don't know if the disease is fetal or not while (21%) of participants believe that SLE is a fatal disease [**14]**. Another study was conducted at 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 **[7].**

Assiri et al **[16]**have reported that the general population in the Aseer region, Saudi Arabia, demonstrated better awareness that SLE was an autoimmune disease as nearly 70% of them were sure about it and most (61.2%) of them were aware that it was a life threatening disease. Similarly, Alrashdi et al **[15]** found that 51% of the study population were aware that SLE affects females more than males, with 33% indicating that it could affect multiple organs including kidney, blood, heart, eyes, liver skin, joints and lungs.

A study was carried out in medical school about major symptoms and reported that they do not have a clear idea about complications and treatment of SLE disease **[7, 18]** .

In the current study,however, participants reported that; the main symptom of SLE; is skin problems(31.4 %), followed by fatigue, arthritis, hair loss, anemia, oral ulcers, and cardio-respiratory symptoms.However ; the most common symptoms associated with SLE were rash (36.9%), alopecia (26.8%) and joint pain (22.7%) in Al-Qassim - KSA study **[15].**

Responses about SLEdiagnosis and treatment in our study revealed that; about 33.8% of participants believed that it could be diagnosed by blood tests, 28.4% by physical examinations, and others believed that diagnosis of SLE could be made by urine examination, medical history, and imaging which reflect a fairly good awareness which was not assed in other studies.Only 20.7% and 21.2% were aware that SLE is an unpreventable and untreatable disease **[15].** Alharbi et al noted that 29% and 27.5% of the general public in Dammam city, Saudi Arabia believed that SLE cannot be prevented and cannot be treated**[14].** On the other hand, as reported by El Samman et al**[19];** about 66% of participants were sure that SLE was an unpreventable and untreatable disease. In comparison to our study where only 21.3% knew that SLE treatment.

Our study poses some limitations;
online survey method, may not have accurately reflected the general population of Taif - KSA. Our study was a cross-sectional one that used an online self-reported questionnaire. Thus, there is a high possibility of social desirability and recall bias.

Conclusion:-

Results showed poor awareness and some misconception regarding the SLE

Recommendations:-

Health education campaigns to increase awareness of SLE among Saudi population , will be helpful to detect and diagnose early cases of SLE patients to reduce its complications improve the quality of patient's life.

References:-

1] Aleksandra Polić, Sarah G Običan**(**2020**)** Birth Defects Research Available at **:** https**:**//doi.org/10.1002/bdr2.1790 **(**Accessed 9 September 2020**)**
[2] Batool Zamani, et al**(**2020**)** BMC research notes Available at **:** https**:**//doi.org/10.1186/s13104-020-05039-9 **(**Accessed 30 March 2020**)**
[3]Thomas R.Frieden**(**2021**)**centers for Disease control and prevention Available at **:** https**:**//www.cdc.gov **(**Accessed 28 September 2021**)**
[4] United Status National Library of Medicine **(**2021**)**medlineplus Available at **:** https**:**//medlineplus.gov **(**Accessed 28 September 2012**)**
[5] Lupus Foundation of America **(**2021**)**Available at **:** https**:**//www.Lupus.org **(**Accessed 28 September 2021**)**
[6] Khan A, Shah MH, Nauman M, Hakim I, Shahid G, Niaz P, et al. Clinical manifestations of patients with Systemic Lupus Erythematosus **(**SLE**)** in Khyber Pakhtunkhwa. J Pak Med Assoc. 2017;67**:**1180–1185. [PubMed] [Google Scholar]
[7] Omair MA, et al. Awareness and Misconceptions of Female Students in King Saud University on Systemic Lupus Erythematosus. Rheumatology **(**Sunnyvale**)** 2015;5**:**165.
[8**)**Althobiti SD, et al . Awareness and knowledge of Saudi population about systemic lupus erythematosus, cross-sectional study. World Journal of Pharmaceutical Research. 2017;6**:**17.
9 -Pons-Estel GJ, et al. Understanding the epidemiology and progression of systemic lupus erythematosus. Semin Arthritis Rheum. 2010;39:257–68.
10-Cervera R, Khamashta MA, Font J, et al. Morbidity and mortality in systemic lupus erythematosus during a 10-year period: a comparison of early and late manifestations in a cohort of 1,000 patients. Medicine (Baltimore). 2003;82:299–308.
11- Fessler BJ, Boumpas DT. Severe major organ involvement in systemic lupus erythematosus. Diagnosis and management. Rheum Dis Clin North Am. 1995;21:81–98.
Von Feldt JM. Systemic lupus erythematosus. Recognizing its various presentations. Postgrad Med. 1995 Apr;97(4):79, 83, 86 passim.
12. Von Feldt JM. Systemic lupus erythematosus. Recognizing its various presentations. Postgrad Med. 1995 Apr;97(4):79, 83, 86 passim.
13-- Available at: https://www.lupus.org/action/spread awareness

14- Alharbi M. et al .Public awareness of systemic lupus erythematosus in Al-Dammam city in Saudi Arabia. Egy J Hosp Med. 2018;70(11):1891-1893.
15-Alrashdi MN et al. Int J Adv Med. Population awareness about systemic lupus erythematosus in the Al-Qassim region, Saudi Arabia 2021 Sep;8(9):1253-1260
16- Assiri FM, etal .Awareness of Systemic Lupus Erythematosus among General Population in Abha, KSA Division of Rheumatology, Department of Internal Medicine, Aseer Central Hospital, Abha, Saudi Arabi-2020
17. Haikel KAB, Tulaihi BA. Awareness of systemic lupus erythematosus among primary health care patients in Riyadh, Saudi Arabia. Open Access Maced J Med Sci. 2018;6(12): 2386-2392.
18- AlKhalaf et al (2017) Awareness of Systemic Lupus Erythematosus among Students in King Faisal University. The Egyptian Journal of Hospital Medicine, 70 (6), Page 989-992
19- El Saman et al. Evaluation of awareness, knowledge and attitudes regarding common rheumatic diseases (rheumatoid arthritis and systemic lupus erythematous) in Sohag governorate. Egypt J Commun Med. 2020;38(2):25-36.