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Self-Efficacy, Symptoms Burden and Compliance Among Patients with Systemic Lupus Erythematosus

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ABSTRACT:

Background: Systemic lupus erythematosus (SLE) is a chronic autoimmune disease that may significantly affect patients' ability to manage their illness. Self-efficacy plays an important role in enabling patients to cope with their disease and participate effectively in self-management.

Aim: The study aimed to to assess self-efficacy, symptoms burden, and compliance among patients with SLE.

Design: A descriptive correlation research design was used to achieve the aim of the study.

Setting: The study was conducted at the Immune and Rheumatology Department Outpatient Clinic, Ain Shams University Hospitals, Cairo, Egypt.

Sample: A purposive sample of 135 adult patients diagnosed with SLE. **Tools**: Four tools of data collection were used:

Tool I: Patients' Interviewing Questionnaire, It consisted of two parts :

Part I: Patient's Sociodemographic Characteristics and

Part II: Patients' Clinical Data.

Tool II: General Self-Efficacy Scale.

Tool III: Symptom Burden Assessment, including the Lupus Impact Tracker, Numeric Pain Rating Scale, Fatigue Severity Scale, Pittsburgh Sleep Quality Index, Perceived Stress Scale, and Barthel Index.

Tool IV: Patient Compliance Rating Scale, assessing medication, exercise, healthy nutrition, and follow-up compliance.

Results: Regarding self-efficacy, 69.6% of the studied patients had negative self-efficacy, with a mean score of 26.27 ± 6.353. Regarding symptom burden, 57.8% experienced severe fatigue, 74.1% had poor sleep quality, and 37.0% had high lupus impact. Regarding compliance, 76.3% had unsatisfactory compliance, with a mean score of 70.12 ± 19.22. Compliance was significantly positively correlated with self-efficacy ($r = .629$, $p < .001$)

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and significantly negatively correlated with symptom burden, particularly sleep disturbance ($r = -.598$), lupus impact ($r = -.586$), pain ($r = -.557$), and fatigue ($r = -.514$), all $p < .001$. Self-efficacy was significantly negatively correlated with perceived stress ($r = -.684$) and lupus impact ($r = -.632$, $p < .001$). **The study concluded** that most patients with SLE had negative self-efficacy, considerable symptom burden, and unsatisfactory compliance. Higher self-efficacy was associated with better compliance, while greater symptom burden was associated with lower self-efficacy and compliance.

Recommendation: Developing structured nursing education and self-management programs are recommended to strengthen self-efficacy, reduce symptom burden, and improve compliance among patients with SLE.

INTRODUCTION:

Systemic lupus erythematosus (SLE) is a chronic autoimmune disorder characterized by an inappropriate immune response against the body's own tissues. This abnormal immune activity can result in widespread inflammation and tissue damage affecting different organs. The disease commonly follows a fluctuating course, with recurrent episodes of increased disease activity, known as flares, which may produce severe manifestations and, in some cases, lead to serious or life-threatening complications **(Albano & Gallicchio, 2023).**

Although the exact etiology of SLE has not been fully established, its development is thought to result from the interaction of genetic susceptibility with environmental and hormonal influences. Individuals with an underlying predisposition may develop the disease following exposure to particular triggering factors. Such triggers may include ultraviolet light exposure, infections, surgical procedures, and pregnancy **(Choi & Costenbader, 2022)**.

Skin rashes, arthralgia, and tiredness are common symptoms; nevertheless, SLE can advance to significant organ involvement and end-stage renal failure. The clinical course of SLE is characterized by alternating periods of disease activity and relative stability. Episodes in which symptoms become more pronounced are referred to as disease flares, whereas periods during which symptoms are minimal or disease activity is absent are described as remission. The frequency and duration of these episodes vary among individuals, with some patients experiencing occasional flares and others having recurrent exacerbations over the course of the disease **(Ameer et al., 2022).**

Self-efficacy refers to an individual's belief in their ability to perform behaviors necessary to manage their condition effectively. In patients with SLE, greater self-efficacy may support the ability to cope with and manage disease-related symptoms and maintain effective self-management practices. It has also been associated with different aspects of functioning, including physical and psychological well-being and the ability to respond effectively to challenges encountered in everyday life **(Ugarte-Gil et al., 2023).**

Patients with SLE may face several challenges that can interfere with adherence to their treatment plans. These challenges include cognitive and psychological manifestations of the disease, complicated therapeutic regimens, variations in symptom severity over time, and socioeconomic difficulties that may affect access to and continuation of care. The clinical severity of SLE varies considerably, ranging from relatively mild manifestations to potentially life-threatening disease. Appropriate medical management, preventive measures, and patient education are therefore important for supporting patients' functioning and overall disease management **(Shi et al., 2020).**

Medication adherence refers to the extent to which patients consistently follow their prescribed medication regimen as recommended by their healthcare providers. In patients with systemic lupus erythematosus (SLE), adherence to prescribed medications is an important component of self-management and contributes to effective disease control. Conversely, failure to follow the prescribed regimen, such as omitting medications or changing their doses without medical advice, may interfere with disease management and increase the risk of disease exacerbation and other unfavorable health outcomes **(Alahmadi et al., 2020).**

Failure to follow prescribed treatment may compromise therapeutic effectiveness and prolong the persistence of symptoms. Poor adherence can also contribute to worsening disease control and may necessitate additional therapeutic interventions or

changes in medication. The use of multiple treatments as a consequence may further increase the possibility of drug interactions and treatment-related adverse effects **(Minhas et al., 2020)**.

Nurses have an important role in supporting patients with SLE, particularly during periods of increased disease activity. Nursing care can help patients develop effective strategies for coping with the condition in their daily lives, understand and manage lupus-related symptoms, and reduce factors that may contribute to disease exacerbation. In addition, nurses provide comprehensive health education and guidance concerning appropriate lifestyle modifications that can support disease management **(Elmetwaly et al., 2021).**

Significance of the Study:

SLEis associated with considerable morbidity and mortality and places a substantial economic burden on both affected individuals and society. Compared with White populations, African Americans have a markedly higher prevalence of lupus and experience an increased risk of developing the disease at a younger age, as well as a greater likelihood of organ damage and death **(Tanaka et al., 2022).**

In Egypt, approximately 85 patients per month have been reported to attend the rheumatology department at Cairo University because of different lupus-related manifestations **(Sedky et al., 2023).** SLE is a potentially fatal autoimmune rheumatic illness that can affect nearly every organ system. In the industrialized world, the prevalence of SLE is 24 per 100, 000 people **(El Saman et al., 2020)**.

Enhancing patients' awareness through nursing education is essential to improve their understanding of the disease and support them in managing the challenges associated with their condition **(Sedrak et al., 2020).** In Egypt, SLE presented a wide range of clinical and immunological symptoms; the total estimated prevalence of adult SLE in Egypt was 6.1/100, 000 population (1.2/100, 000 males and 11.3/100, 000 females), **(Gheita et al., 2021).**

Furthermore, from the first of January 2022 to the end of December 2023, 245 patients were hospitalized at South Valley University Hospitals in Egypt owing to SLE according to **(Annual Statistic of South Valley University Hospitals, 2023).** There for this study conducted to assess (self -efficacy, symptoms burden and compliance) among patients with SLE.

Aim of the Study:

This study aimed to assess self-efficacy, symptoms burden and compliance among patients with SLE.

The aim of this study will be achieved through the following objectives:

1. Assess level of self-efficacy among patients with SLE.
2. Assess symptoms burden among patients with SLE.
3. Assess level of compliance among patients regardingSLE.
4. Assess the relation between self – efficacy , symptoms burden and compliance among patients with SLE.

Research Questions:

To achieve the study aim, the following research questions is formulated:

Q1: What is the level of self-efficacy among patients with SLE ?

Q2: What is the level of symptoms burden of SLE ?

Q3: What is the level of compliance among patients with SLE ?

Q4: Is there relation between self-efficacy, symptoms burden and compliance of patients with SLE ?

Subjects and Methods:

1. Research design

A descriptive correlational research design was utilized to achieve the aim of the present study.

2. Research setting:

The study was carried out in the Immune and Rheumatology Outpatient clinic, at Ain Shams University Hospital. Cairo, Egypt.

3. SAMPLE SIZE:

A purposive sample of 135 patients of both sexes diagnosed with SLE was selected from the previously mentioned setting. Patients were selected according to the following inclusion and exclusion criteria:

Inclusion Criteria

1. Adult Patients from both sexes with different educational levels.
2. Patients able to communicate verbally.

Exclusion Criteria

1. Patients with health complications ; as stroke, paralysis.
2. Patients with any cognitive dysfunction.

Data Collection Tools:

Data were collected using four tools.

Tool I : Patients' interviewing questionnaire. The researcher developed this questionnaire in Arabic language after reviewing recent and relevant literature, **Lavielle et al.(2018) and Kankaya, H., & Karadakovan, A. (2020).** and It consisted of two parts : **First part : socio-demographic characteristics** , including age, gender, educational level, marital status residence area, income, treatment payment system, occupation, number of rooms, number of family members and ventilation.

Second part: patients' Clinical Data, This part concerned with assessment of patients' clinical data. It included:

- **Present history**: Information regarding how disease discovered, duration of disease, causes, signs and symptoms, complications, elevating factors and relieving factors.
- **Past history**: Information related to chronic diseases, medications and past surgery.
- **Family history**:Information related to family history of SLE and relation.

Tool II :General Self Efficacy Scale-GSE: It was revised by **Warner et al. (2011) and adopted from Schwarzer and Jerusalem (1995).** This psychometric scale was created to evaluate perceived self-efficacy in order to forecast how well people would cope with day-today difficulties as well as with the challenges of adapting to stressful life events and illnesses like SLE. It had ten (10) items and a score of forty (40). According to a 4- point scale, the patients' responses to each statement were: 1 = not at all true, 2 = hardly true, 3 = somewhat true, and 4 = exactly true. The responses for all ten (10) items were added up to create a final score with a range of (10) to (40), and the scoring system was then divided into the following categories: >75% it mean that; the patients had positive self-efficacy while <75% ; it mean that; the patients had negative self-efficacy.

Tool III: Symptom Burden tool : This tool was used to assess symptoms severity , pain , fatigue , sleep quality , stress and activities of daily living , It consisted of six parts :

Part I : Lupus Impact Tracker: it was adopted by **Jolly,M., et al.(2014)**. It is a patient-reported clinical instrument used to assess and monitor the impact of SLE. It consists of 10 statements. Scoring is Rating on a 5-point Likert scale: 0 = Non of the time, 1 = alittle of the time, 2 = some of the time, 3 = most of the time, 4 = all of the time.

Part II : Numeric Pain Rating Scale Assessment : It was adopted by **Williamson and Hoggar (2005).** It is used to assess pain severity at that moment in time . The NPRS is an 11-point scale scored from 0-1, no pain = 0 and the most intense pain imaginable=10.

Part III : Fatigue Severity Scale, It was adopted by **Krupp et al.(1989).** It consists of 9 items used to assess patient severity of fatigue. It are scored on a seven-point Likert type scale ranging from 1 ("strongly disagree") to 7 ("strongly agree").

Part IV : Pittsburgh Sleep Quality Index Scale, It was adopted from **Daniel, et al.(1989).** That was used to assess sleep quality over a 1-month time interval. The instrument includes seven components, with each component assigned a score ranging from 0 to 3, where higher scores indicate greater sleep disturbances or dysfunction. The component scores are combined to calculate the overall PSQI score, which ranges from 0 to 21. Higher total scores reflect poorer sleep quality.

Part V : Perceived Stress Scale, It was adopted from **Cohen, et al.(1983).**It was used to assess psychological status. It consists of 10 statements that was used to measure the perception of stress. Scoring is Rating on a 5-point Likert scale: 0 = Never, 1 = Almost Never, 2 = Sometimes, 3 = Fairly Often, 4 = Very Often.

Part VI : Barthel Index of Activities of Daily Living : : It was adopted by **Mahoney and Barthel.(1965).** It was utilized to assess patients' ability to perform activities of daily living independently. Total scores range from 0 – 20, with lower scores indicating increased disability. If used to measure improvement after rehabilitation, Changes of more than two points in the total score may represent a meaningful improvement, whereas a change of one point may occur because of variations in functional dependence or independence.

Tool IV, Patient Compliance Rating Scale, It was used to assess the extent to which patients with systemic lupus erythematosus adhered to the recommended aspects of their treatment regimen. it contained 4 parts :

Part I : Medication adherence rating scale, it was adapted by **Laura et al, (2008).** It consists of 9 items.

Part II : Exercises adherence rating scale, it was adapted by **Newman-Beinart et al, (2017).** It consists of 6 items.

Part III : patients' compliance related to nutrition and Part IIII : patients' compliance related to follow up, they were developed by researcher in an Arabic language after reviewing the recent and relevant literatures **Drenkard, C., & Feldman, C. H. (2020) and Fernandez-Lazaro et al., (2019).**

Each item has 5 likert scoring scale (Always 4, often 3, sometimes 2, rarely 1 and never 0). The patient had low level of compliance and was given (0 score), the patient had a high level of compliance and was given (4 score). The total score is divided to two categories as follows, >70% it mean that; the patients had satisfactory level of compliance while <70% ; it mean that; the patients had unsatisfactory level of compliance.

Validity:

The validity of the study tools was established through both face and content validity. Content validity aimed to examine whether each tool accurately measured the intended concepts and adequately covered the study objectives. To ensure this, the tools were reviewed by a jury of five experts: four professors and professors-Assistant from the Medical-Surgical Nursing Department, Faculty of Nursing, Ain Shams University, and one professor from the immune and rheumatology Department, Faculty of Medicine, Ain Shams University. The experts evaluated the tools for clarity, relevance, comprehensiveness, understanding, and applicability. Based on their feedback, minor modifications were made to enhance the quality and accuracy of the tools.

Reliability :

Reliability testing was conducted to ensure the consistency and trustworthiness of the study tools. A biostatistics specialist reviewed all items to confirm face and content accuracy. Reliability was further assessed during the pilot study, which included 10% of the total sample size using the developed questionnaire. Internal consistency was measured using Cronbach's alpha coefficient, which demonstrated high reliability for all tools. The Cronbach's alpha values were 0.791 for the Patients' interview questionnaire, 0.814 for the Patients' adherence to therapeutic regimen, exceeding the minimum acceptable reliability coefficient of 0.60.

Additionally, the validity scores of the tools were 100% for the Patients' interview questionnaire, 0,714 for the Patients' adherence to therapeutic regimen,. These values indicate a high level of internal consistency and strong validity across all study instruments.

II- Operational Item:

The operational design includes the preparatory phase, pilot study, and field work.

Preparatory Phase:

The preparatory phase involved an extensive review of related literature and theoretical knowledge relevant to the study topic. This included consulting books, scientific articles, internet-based resources, periodicals, and recent research publications to gather the necessary background information. During this phase, the researcher also visited the selected study settings to become familiar with the environment and the healthcare staff. Informed consent was obtained, and the study tools were developed under the guidance of academic supervisors, taking into consideration the feedback and recommendations of subject matter experts.

Pilot Study:

A pilot study was conducted on 10% of the study sample (14 patients with SLE) to assess the feasibility, simplicity, and applicability of the constructed tools, as well as the clarity of the included questions. The pilot study also helped estimate the time required for each participant to complete the questionnaire with the investigator and to identify any potential challenges that might arise during data collection. The findings of the pilot indicated that the tools were clear and applicable, and no modifications, corrections, or deletions of items were necessary. Therefore, the patients who participated in the pilot study were included in the main study sample.

Field Work

Field Work

The data collection was carried out through three phases: preparation and assessment, data collection, and data management.

A. Preparation and Assessment Phase

The researcher met with the head of the Immune and Rheumatology Outpatient Clinic at Ain Shams University Hospitals to explain the purpose and objectives of the study and become familiar with the study setting and staff. The purpose of the study was explained clearly to eligible patients before data collection. Written informed consent was obtained from each participant after ensuring that the study procedures were understood. Confidentiality and privacy of participants' data were maintained throughout the study. Patients were selected according to the predetermined inclusion and exclusion criteria.

B. Data Collection Phase

Data were collected through face-to-face structured interviews with all participants. The researcher met individually with each patient, explained each item in a simple manner, asked the questions, and recorded the patients' responses. The researcher visited the Immune and Rheumatology Outpatient Clinic at Ain Shams University Hospitals three days per week, from 9:00 a.m. to 1:00 p.m. Data were collected using the study tools, including the sociodemographic and clinical data questionnaire, symptom burden assessment tools, Patient Compliance Rating Scale, and General Self-Efficacy Scale.

C. Data Management Phase

After completion of data collection, the collected data were reviewed for completeness, coded, organized, and prepared for statistical analysis.

Ethical Consideration

Ethical approval to conduct the study was obtained from the Scientific Ethical Committee at the Faculty of Nursing, Ain Shams University, registration number 26.07.1372 prior to the start of the research. The investigator clearly explained the aim and objectives of the study to all participants. Participants were assured of the anonymity and confidentiality of their data, and written informed consent was obtained from each patient. They were also informed of their right to voluntarily participate or decline participation and were made aware that they could withdraw from the study at any time without any consequences.

Administrative design:

Official approval to conduct the study was obtained from the Dean of the Faculty of Nursing, Ain Shams University, and directed to the Director of Ain Shams University Hospital. A detailed explanation was provided regarding the nature, significance, and expected outcomes of the study to ensure full understanding and support for its implementation.

RESULTS:

Table (1) illustrates that 57.8% of the patients their age range between 21< 45 years, the mean and SD of age was 25.415 ± 7.376 . As regarded to gender and marital status , 90.4% of them were females and 49.6% were single . Also, 50.4% of patients had studied Intermediate qualification. Additionally, 57.8% of them were from rural area and 54.8% were unemployed .

Table (2): shows that 79.3% of the patients reported that their disease was discovered at the onset of symptoms. 67.4% of them had a disease duration of < 5 years . 100% of patients experienced associated symptoms, including extreme fatigue, severe headache and dizziness. 100% of them reported disease-exacerbating factors, psychological stress, nervous disorders and cold or infection, while 100% of patients reported that the disease relieving factor was reducing stress.

Figure (1): shows that 100% of the patients suffered from extreme fatigue as well as severe headache and dizziness. 94.1% of them experienced fever and hyperthermia, while 75.6% of patients complained of dyspnea. 74.8% of patients reported Joint pain and swelling as well as 67.4% of them experienced Hair loss. 63% of them suffered from Weight loss or gain beyond normal, 49.6% of them suffered from pain in the chest area and 18.5% of them experienced Skin Rash.

Continue Table (2): shows that 100% of the patients had anemia as a disease complication. 94.8% of them were non-smokers. Among smokers, 28.6% of patients reported a smoking durations for 3 years, 28.6% of them reported 5 years, and 28.6% of them reported 10 years. 57.1% of smokers used Cigarettes as their smoking type. 28.6% of smokers reported smoking 3 cigarettes per day and 28.6% of smokers reported smoking 1.5 packs per day, while 100% of the patients reported no alcohol consumption.

Table (3):shows that 84.4% of the patients had no associated chronic diseases, and 84.4% of them took no routine monthly medications. 91.1% of the patients had no previous surgical history, and among those with surgical history, 66.7% had cholecystectomy (gallbladder removal). 82.2% of the patients had no family history of SLE, while 17.8% of them had a positive family history and 58.3% of them were first-degree relatives.

Table(4): shows that 69.6% of the patients reported negative self-efficacy, while 30.4% demonstrated positive self-efficacy. The mean and standard deviation for the total score was 26.27 ± 6.353.

Table (5): shows that 37.0% of the patients experienced a high impact from the disease, 28.1% of them experienced a low impact from the disease, 25.9% of patients experienced a moderate impact from the disease, and 8.9% of them experienced a very high impact from the disease. The mean and standard deviation for the total LIT score was 18.8 ± 9.41.

Table (6): shows that 49.6% of the patients reported "Mild" pain according to current pain intensity. 60.7% of them reported "Mild" pain according to the usual pain intensity over the last week, while 66.7% of the patients reported "Mild" pain according to the minimum (best) pain level experienced over the last week. 40.7% of them reported "Mild" pain according to the maximum (worst) pain level over the last week .

Figure (2): shows that 66.7% of the patients reported "Mild" pain according to their minimum (best) pain level over the last week. 60.7% of the patients reported "Mild" pain For the usual pain intensity, while 40.7% of them reported "Mild" pain regarding the maximum (worst) pain level, and 29.6% of them reported equal proportions for "Moderate" and "Severe" pain.

Table (7): shows that 57.8% of the patients suffered from severe fatigue, while 42.2% of them experienced mild fatigue. The mean and standard deviation was 4.25 ± 1.51.

Table (8): shows that 74.1% of the patients suffered from a poor quality of sleep, while 25.9% of the patients reported enjoying a good quality of sleep. The mean and standard deviation was 8.74 ± 3.591.

Table (9): shows that 48.9% of the patients experienced moderate stress, 29.6% of them suffered from high stress, while 21.5% of the patients reported low stress. The mean and standard deviation was 21.41 ± 8.483.

Table (10): shows that 28.9% of the patients suffered from severe dependency, 25.2% of them were independent, 22.2% of patients had moderate dependency, and only 18.5% of them had mild dependency.

Table (11): shows that 28.9% of the patients reported "Sometimes" as the highest category for compliance with prescribed medication, 25.9% of them reported "Sometimes" as the highest category for compliance with exercise and physical activities,

while 37.8% of the patients reported "Often" as the highest category for compliance with healthy nutrition and 38.5% of them reported "Often" as the highest category for compliance with follow-up visits .

Table (12): shows that 76.3% of the patients reported exhibited an unsatisfactory level of compliance, while 23.7% of the patients demonstrated a satisfactory level of compliance. The total means and standard deviation score for the patients was 70.12 ± 19.22.

Table (13): There were highly statistically significant correlations among the studied variables ($p < 0.001$). Self-efficacy showed a highly statistically significant positive correlation with patient compliance ($R = 0.629$, $p < 0.001$) and highly statistically significant negative correlations with stress ($R = -0.684$, $p < 0.001$) and the Lupus Impact Tracker ($R = -0.632$, $p < 0.001$). Symptoms burden variables were also negatively correlated with patient compliance, including stress ($R = -0.462$), PSQI ($R = -0.598$), pain ($R = -0.557$), Lupus Impact Tracker ($R = -0.586$), and fatigue ($R = -0.514$), all $p < 0.001$. In addition, patient compliance showed a highly statistically significant positive correlation with activities of daily living (ADL) ($R = 0.577$, $p < 0.001$). These findings indicate that lower self-efficacy was associated with greater symptom burden and poorer compliance among patients with SLE.

Table (1): Frequency and Percentage distribution of socio-demographic characteristics among patients with systemic lupus erythematosus. (N=135).

Variables	**No.**	**%**
Age		
≤ 20 years	57	42.2%
21 < 45 years	78	57.8%
Mean ± SD	**25.415 ± 7.376**	
Gender		
Female	122	90.4%
Male	13	9.6%
Marital status		
Single	67	49.6%
Married	59	43.7%
Widow	5	3.7%
Divorced	4	3.0%
Education level		
Can't read and write	8	5.9%
Read and write	25	18.5%
Intermediate qualification	68	50.4%
University qualification	34	25.2%
Residence		
Rural	78	57.8%
Urban	57	42.2%
Occupation		

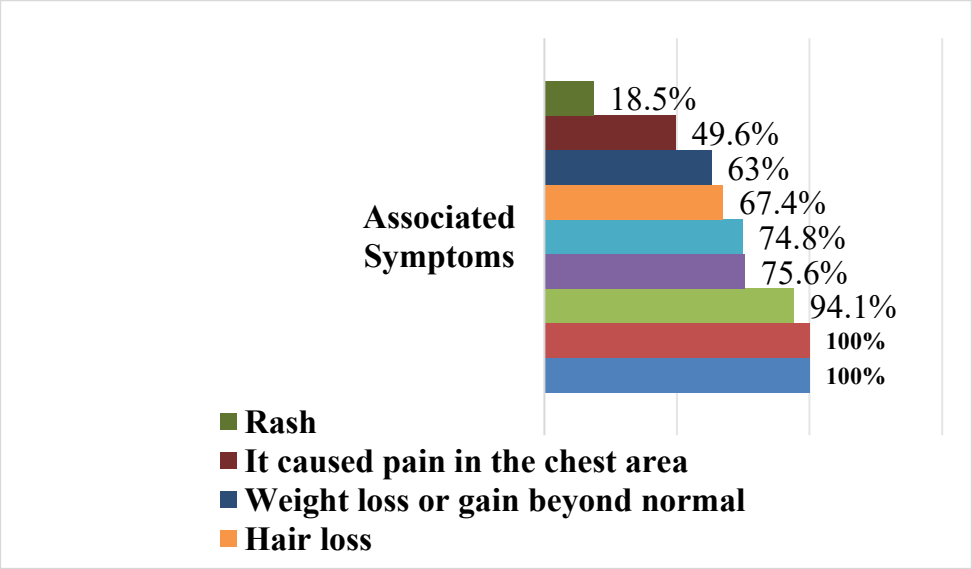
Unemployed	74	54.8%
Employed	61	45.2%

Table (2): Frequency and Percentage distribution of past history among patients with systemic lupus erythematosus. (N=135).

Variables	**No.**	**%**
Method of Disease Discovery		
With the onset of symptoms	107	79.3%
Discovered by chance	28	20.7%
Duration of Illness		
From birth	13	9.6%
< 5 years	91	67.4%
≥ 5 years	31	23.0%
Associated Symptoms		
Extreme Fatigue	135	100%
Severe headache and dizziness	135	100%
Fever and hyperthermia	127	94.1%
Dyspnea	102	75.6%
Joint pain and swelling	101	74.8%
Hair loss	91	67.4%
Weight loss or gain beyond normal	85	63%
It caused pain in the chest area	67	49.6%
Skin Rash	25	18.5%
Disease exacerbating Factors		
Psychological stress and nervous disorders	135	100%
cold or infection	135	100%
Sun exposure	118	87.4%
Some medications and hormones	74	54.8%
Disease relieving Factors		
Reduce stress	135	100%
Get enough sleep	126	93.3%
Limit sun exposure	118	87.4%
Maintain a healthy diet	93	68.9%
Exercise regularly	32	23.7%

Figure (1) : Percentage Distribution of associated symptoms among patients with SLE. **N(135).**

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Continue Table (2): Frequency and Percentage distribution of past history among patients with systemic lupus erythematosus. (N=135).

Variables	No.	%
Disease Complications		
Anemia	135	100%
Vasculitis	92	68.1%
Kidney damage	59	43.7%
Myocarditis	34	25.2%
Bleeding or blood clotting	24	17.8%
Smoking History		
No	128	94.8%
Yes	7	5.2%
Smoking Duration		
Smoker for three years	2	28.6%
Smoker for five years	2	28.6%
Smoker for seven years	1	14.3%
Smoker for ten years	2	28.6%
Smoking type		
Cigarettes	4	57.1%
Cigarettes + Shisha	3	42.9%
Cigarettes consumption per day		
3 cigarettes	2	28.6%

6 cigarettes	1	14.3%
One pack a day, sometimes one and a half packs a day	1	14.3%
One and a half packs a day	2	28.6%
Two packs a day	1	14.3%
Alcohol Consumption History		
No	135	100%

Table (3): Frequency and Percentage distribution of medical history among patients with systemic lupus erythematosus. (N=135).

Variables	**No.**	**%**
Chronic diseases		
No chronic diseases	114	84.4%
Hypertension	12	8.9%
Diabetes Mellitus	9	6.7%
Routine monthly medications		
No medications	114	84.4%
Anti-hypertensive medications	12	8.9%
Diabetes medications	9	6.7%
Previous Surgical History		
No previous surgeries	123	91.1%
Had previous surgeries	12	8.9%
Type of Surgery		
Cholecystectomy	8	66.7%
Appendectomy	4	33.3%
Family History of SLE		
No family history	111	82.2%
Positive family history	24	17.8%
Degree of Relationship		
First-degree relative	14	58.3%
Second-degree relative	10	41.7%

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Table (4): Frequency and Percentage distribution of General Self-Efficacy Scale (GSE) levels among patients with system ic lupus erythematosus. (N=135).

Levels of General Self-Efficacy Scale (GSE)	Studied Sample	
	No.	Percentage
Negative self-efficacy	94	69.6%
Positive self-efficacy	41	30.4%
Mean ± SD	**26.27 ± 6.353**	

Table (5): Frequency and Percentage distribution of lupus impact tracker (LIT) levels among patients with systemic lupus erythematosus. (N=135).

Levels of lupus impact tracker (LIT)	Studied Sample	
	No.	Percentage
Low	38	28.1%
Moderate	35	25.9%
High	50	37.0%
Very high	12	8.9%
Mean ± SD	**18.8 ± 9.41**	

Table (6): Frequency and Percentage distribution of numeric pain assessment among patients with systemic lupus erythematosus. (N=135).

Variables	No.	%
Current pain intensity		
Mild	67	49.6%
Moderate	59	43.7%
Severe	9	6.7%
Mean ± SD	**3.68 ± 1.75**	
Usual pain intensity over the last week		
Mild	82	60.7%
Moderate	35	25.9%
Severe	18	13.3%
Mean ± SD	**3.41 ± 1.96**	
Minimum (best) pain level over the last week		
Mild	90	66.7%

Moderate	35	25.9%
Severe	10	7.4%
Mean ± SD	**2.67 ± 1.85**	
Maximum (worst) pain level over the last week		
Mild	55	40.7%
Moderate	40	29.6%
Severe	40	29.6%
Mean ± SD	**4.66 ± 1.86**	

Figure (2) :Percentage Distribution of pain intensity levels among patients with SLE. **(N=135).**

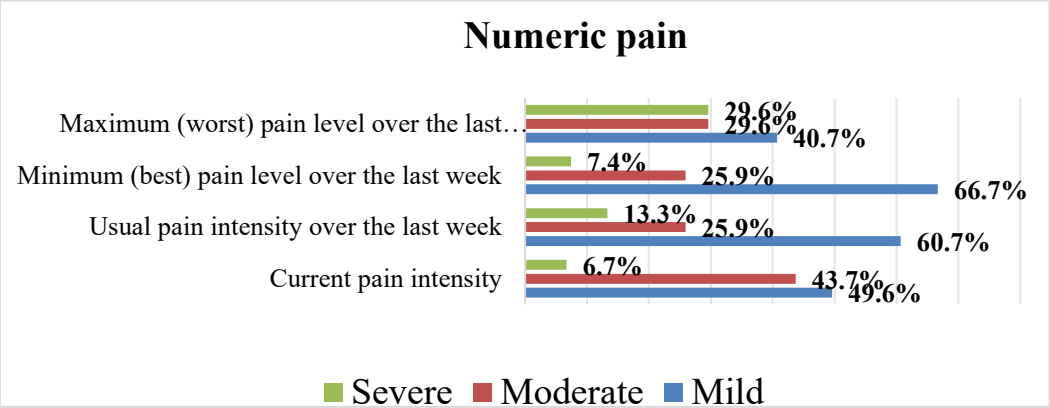


Table (7): Frequency and Percentage distribution of fatigue severity scale levels among patients with systemic lupus erythematosus. (N=135).

Levels of fatigue severity scale	**Studied Sample**	
	No.	**Percentage**
Mild	57	**42.2%**
Severe fatigue	78	**57.8%**
Mean ± SD	**4.25 ± 1.51**	

Table (8): Frequency and Percentage distribution of Pittsburgh sleep quality index (PSQI) levels among patients with systemic lupus erythematosus. (N=135).

Levels of Pittsburgh sleep quality index (PSQI)	**Studied Sample**	
	No.	**Percentage**
Good quality of sleep	35	**25.9%**
Poor quality of sleep	100	**74.1%**
Mean ± SD	**8.74 ± 3.591**	

Table (9): Frequency and Percentage distribution of perceived stress scale levels among patients with systemic lupus erythematosus. (N=135).

Levels of perceived stress scale	Studied Sample	
	No.	Percentage
High stress	40	29.6%
Moderate stress	66	48.9%
Low stress	29	21.5%
Mean ± SD	21.41 ± 8.483	

Table (10): Frequency and Percentage distribution of Barthel index of activities of daily living levels among patients with systemic lupus erythematosus. (N=135).

Levels of Barthel index of activities of daily living	Studied Sample	
	No.	Percentage
Independent	34	25.2%
Mild dependency	25	18.5%
Moderate dependency	30	22.2%
Severe dependency	39	28.9%
Total dependency	7	5.2%
Mean ± SD	13.059 ± 6.026	

Table (11): Frequency and Percentage distribution of compliance rating scale categories among patients with systemic lupus erythematosus. (N=135).

No.	Category	Never		Rarely		Sometimes		Often		Always	
		No.	%	No.	%	No.	%	No.	%	No.	%
A	Compliance to Prescribed Medication	16	11.9	25	18.5	39	28.9	35	25.9	20	14.8
B	Compliance to Exercise and Physical Activities	22	16.3	20	14.8	35	25.9	34	25.2	24	17.8
C	Compliance to Healthy Nutrition	15	11.1	19	14.1	25	18.5	51	37.8	25	18.5
D	Compliance to Follow-up	13	9.6	20	14.8	29	21.5	52	38.5	21	15.6

Note: All values are rounded to the nearest integer

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Table (12): Frequency and Percentage distribution of compliance rating scale levels among patients with systemic lupus erythematosus. (N=135).

Levels of compliance rating scale	**Studied Sample**	
	No.	**Percentage**
Unsatisfactory level of compliance	**103**	**76.3%**
Satisfactory level of compliance	**32**	**23.7%**
Mean ± SD	**70.12 ± 19.22**	

Table (13): Relation between total scores of symptoms burden, compliance and self-efficacy among patients with systemic lupus erythematosus. (N=135).

Variables	Self-Efficacy (GSE)		Patient Compliance	
	R-value	P-value	R-value	P-value
Self-Efficacy (GSE)	-	-	0.629	**<0.001****
Activities of daily living	0.420	**<0.001****	0.577	**<0.001****
Stress	-0.684	**<0.001****	-0.462	**<0.001****
Pittsburgh sleep quality index	-0.677	**<0.001****	-0.598	**<0.001****
Pain	-0.550	**<0.001****	-0.557	**<0.001****
Lupus impact tracker (Symptoms Burden)	-0.632	**<0.001****	-0.586	**<0.001****
Fatigue	-0.584	**<0.001****	-0.514	**<0.001****

DISCUSSION:

SLE is a chronic autoimmune disease that can affect multiple body systems. It is associated with immune dysregulation, autoantibody production, immune-complex deposition, and persistent inflammation, which may result in damage to almost any organ. Although considerable progress has been made in the diagnosis and management of SLE, the disease continues to cause substantial morbidity, organ damage, and deterioration in patients' health-related quality of life. Women represent approximately 90% of individuals affected by SLE, with the disease occurring most frequently during the reproductive years **(Hoi, et al., 2024)**. The prevalence of SLE varies across different populations. In Egypt, a nationwide multicenter study reported an overall prevalence of 6.1 cases per 100,000 adults, with a considerably higher prevalence among females (11.3 per 100,000) compared with males (1.2 per 100,000)**(Gheita et al., 2021)**.

Self-efficacy refers to an individual's belief in their ability to successfully perform the actions required to achieve a particular goal. Among individuals living with chronic diseases, it reflects their confidence in managing their condition and dealing effectively with health-related challenges. In patients with SLE, greater self-efficacy has been linked to improved subsequent health-related quality of life (HRQoL), indicating that strengthening patients' confidence in managing their health may contribute to better health outcomes and more effective disease management **(Ugarte-Gil et al., 2023).**

Patients with SLE often experience a substantial disease burden because of the wide range of clinical manifestations associated

with the disease. These manifestations may involve constitutional, mucocutaneous, and musculoskeletal symptoms. Among the commonly reported manifestations are fatigue, lupus-specific skin rash, oral ulcers, alopecia, joint pain, and myalgia. Such symptoms can increase the overall burden of the disease and negatively influence patients' health-related quality of life **(Hoi, et al., 2024).**

Treatment adherence represents a fundamental component of successful SLE management. Following prescribed medication regimens is essential for maintaining disease control and reducing the risk of unfavorable clinical outcomes. Nevertheless, medication non-adherence continues to be a common concern among patients with SLE. Evidence suggests that effective communication and collaboration between patients and healthcare professionals may enhance medication adherence and promote better long-term disease management **(Sun K, et al., 2024).**

The present study was descriptive Correlation study design aimed at assess self-efficacy, symptoms burden and compliance among patients with SLE.

Part I: socio-demographic characteristics and medical health history of the studied patients.

Regarding age, the current study revealed that more than half of the studied patients were aged from 21 < 45 years, with a mean age of 25.415 ± 7.376 years. From the researcher's point of view, this may be explained by hormonal and immunological changes occurring during early adulthood, particularly the role of estrogen in stimulating immune responses and increasing susceptibility to autoimmune diseases such as SLE. Additionally, younger adults are more exposed to environmental and psychological stressors that may trigger disease onset.

However, these findings are agreed with **Pouchot et al., (2025)** in study entitled " Prevalence, sociodemographic characteristics and spatial distribution of systemic lupus erythematous in France" who reported a marked female predominance in SLE, with the highest female-to-male ratio observed among patients aged 35–39 years. This finding supports the female predominance and age distribution observed in the present study.

On the other hand, this finding was incongruent with the study done by **Adeogun et al., (2024)** in study entitled "Comparison of late-onset and non-late-onset SLE individuals in a real-world electronic health record cohort" focused on late-onset SLE patients whose median age at diagnosis was approximately 60 years.

Concerning gender, the present study showed that the overwhelming majority of the studied patients were females, while only 9.6% were males, with a female-to-male ratio of approximately 9:1. From the researcher's point of view, the predominance of females in this study may be attributed to the hormonal and genetic characteristics of women, which increase immune system activity and make females more susceptible to developing autoimmune diseases such as SLE.

This result goes in the same line with **Ellis et al., (2024),** in study entitled "Changes in the incidence and prevalence of systemic lupus erythematous between 1990 and 2020: an observational study using the Clinical Practice Research Datalink (CPRD)", who reported that females represented the majority of SLE patients throughout the study period, confirming the marked female predominance of the disease.

Moreover, this result was disagreed with **Vergara et al., 2025 ,** who conducted a study entitled "National epidemiological analysis of lupus in Chile", reported that although males represented a smaller proportion of SLE patients, they had significantly higher mortality rates than females.

Part II : Assessment of general self-efficacy among patients with SLE.

Regarding General Self-Efficacy Scale (GSE) among Studied Patients with SLE,The present study revealed that more than two-thirds of the studied patients had negative self-efficacy, whereas less than one-third demonstrated positive self-efficacy and the mean GSE score was 26.27 ± 6.353.

From the researcher's point of view, the high level of negative self-efficacy may be due to the chronic nature of SLE and its daily symptoms such as Fatigue, pain, recurrent disease flares, and psychological stress may reduce patients' confidence in managing their condition. This finding is supported by **Ugarte-Gil et al., (2023),** in study entitled "A better self-efficacy is predictive of better health-related quality of life (HRQoL) in patients with Systemic Lupus Erythematosus: data from the Almenara Lupus Cohort". who reported that higher self-efficacy was significantly associated with better health-related quality

of life among patients with SLE and even after adjustment for possible confounders. The authors emphasized the importance of developing strategies to improve self-efficacy in patients with SLE.

The findings of the present study answered the first research question, "What is the level of self-efficacy among patients with SLE?". The results demonstrated that more than two-thirds of the patients had negative self-efficacy, indicating that the overall level of self-efficacy among the studied patients was low.

Part III: Symptoms Burden assessment among patients with SLE.

Regarding Lupus Impact Tracker (LIT) among Studied Patients with SLE, showed that more than one-third of the studied patients experienced a high level of lupus impact, 8.9% reported a very high level of disease impact. Conversely, slightly more than one-quarter of the patients had a low level of disease impact, while approximately one-quarter experienced a moderate level of impact.

From the investigator's point of view, the considerable lupus impact observed among the studied patients may be attributed to the chronic nature of SLE, recurrent disease flares, persistent fatigue and pain, together with the psychological challenges associated with living with a lifelong autoimmune disease. These factors may adversely affect patients' emotional well-being and their ability to perform daily activities, resulting in an increased perceived disease burden.

The findings are consistent with those of **Touma et al., (2024)**, in study entitled "Patient-reported outcomes and healthcare resource utilization in systemic lupus erythematous: impact of disease activity", who reported that patients with higher disease activity had poorer patient-reported outcomes, lower health status, greater fatigue, increased work impairment, and higher healthcare resource utilization compared with patients who achieved low disease activity.

Regarding Numeric Pain Assessment among Studied Patients with SLE, Although nearly half of studied patients reported mild pain intensity at the time of assessment, while more than two-fifths experienced moderate pain, and only a small proportion suffered from severe pain. The mean current pain intensity score was 3.68 ± 1.75, indicating an overall mild-to-moderate level of pain.

Also, the usual pain intensity over the previous week, more than three-fifths of the studied patients reported mild pain, whereas approximately one-quarter experienced moderate pain, and a small proportion reported severe pain. The mean usual pain intensity score was 3.41 ± 1.96, suggesting that mild pain was the predominant experience for most patients throughout the week.

In addiation to the minimum (best) pain level during the previous week, about two-thirds of the studied patients reported mild pain, while approximately one-quarter experienced moderate pain, and less than one-tenth reported severe pain. The mean minimum pain score was 2.67 ± 1.85, reflecting that many patients experienced periods of relatively low pain intensity.

However, the maximum (worst) pain level during the previous week, slightly more than two-fifths of the patients reported mild pain, whereas nearly one-third experienced moderate pain and an equal proportion reported severe pain. The mean maximum pain score reached 4.66 ± 1.86, indicating that despite relatively low pain levels during routine daily life, many patients experienced episodes of considerably increased pain intensity.

From the researcher's point of view, the persistence of pain among the studied patients may be attributed to the chronic inflammatory nature of SLE together with musculoskeletal involvement, disease flares, fatigue, sleep disturbances, and psychological stress. These factors may collectively increase patients' perception of pain and negatively affect their daily functioning and quality of life.

The findings of the current study are consistent with those reported by **Waldheim et al., (2024),** in study entitled "The experience and implications of pain in systemic lupus erythematosus: A qualitative interview study focusing on the patient's perspective", who reported that pain was among the most impactful symptoms experienced by patients with SLE. The authors also highlighted that higher pain levels were associated with fatigue, anxiety, depression, and impaired quality of life and experienced substantial symptom burden. These findings are in agreement with the current study, which demonstrated the persistence of pain among a considerable proportion of the studied patients.

Regarding Fatigue Severity among Studied Patients with SLE, demonstrated that more than half of the studied patients

experienced severe fatigue, whereas slightly more than two-fifths reported mild fatigue. The mean fatigue severity score was 4.25 ± 1.51.

From the researcher's point of view, the marked impact of fatigue on the studied patients may be related to the chronic inflammatory nature of SLE and its associated symptoms, particularly pain, sleep disturbances, and psychological stress. These factors may collectively reduce patients' physical performance, limit their daily activities, and negatively affect their social participation and quality of life.

The findings of the present study are consistent with those reported by **Lu, Yu, and Xu (2024),** in study entitled "Cross-sectional survey to determine fatigue in patients with systemic lupus erythematosus", who found that fatigue is highly prevalent among patients with active SLE and is significantly associated with anxiety, depression, age, and disease duration. The authors concluded that fatigue markedly affects patients' well-being and emphasized the importance of early assessment and targeted interventions to reduce its impact on patients' quality of life.

Regarding Pittsburgh Sleep Quality Index (PSQI) among Studied Patients with SLE, showed that sleep impairment was common across several domains. Sleep latency had the highest mean score (1.85 ± 0.56), followed by sleep disturbances (1.75 ± 0.74), More than half of the patients reported frequent sleep interruptions, then subjective sleep quality (1.58 ± 0.84), and daytime dysfunction (1.47 ± 0.82), More than one-third of patients experienced moderate daytime impairment.

From the researcher's point of view, sleep impairment in patients with SLE is mainly related to poor sleep quality rather than reduced sleep duration and may be explained by the combined effects of chronic pain, fatigue, disease activity, psychological distress, persistent inflammation and long-term pharmacological treatment may interact to disrupt normal sleep patterns.

The present findings are consistent with **Duong et al., (2026),** in study entitled "Sleep Quality And Its Associated Factors In Patients With systemic lupus erythematous". found that poor sleep quality was common among patients with SLE and was significantly associated with disease activity, anxiety, and accumulated organ damage.

Regarding Perceived Stress Scale (PSS) among the studied Patients, demonstrated that nearly half of the studied patients experienced a moderate level of perceived stress, whereas approximately one-third reported a high level of perceived stress, slightly more than one-fifth of the patients had a low level of perceived stress and the overall mean perceived stress score was 21.41 ± 8.48.

From the researcher's point of view, the moderate and high stress levels may be related to the chronic nature of SLE and its associated physical, social, and psychological challenges. Disease-related symptoms such as fatigue, pain, sleep disturbances, and functional limitations may increase patients' perception of stress and negatively affect their ability to cope with daily life demands.

The current findings are consistent with **Patterson et al., (2023),** in study entitled "Perceived Stress Independently Predicts Worse Disease Activity and Symptoms in a Multi-Racial/Ethnic Systemic Lupus Cohort". who reported that higher perceived stress was significantly associated with greater disease activity, increased pain and fatigue, and worse patient-reported disease activity among patients with SLE.

Regarding Barthel Index of ADLs among the studied Patients, revealed that more than one-quarter of them had severe dependency, followed by one quarter who were independent. Additionally, more than one fifth had moderate dependency, less than one fifth had mild dependency, while only 5.2% were totally dependent and the mean score was 13.059 ± 6.026.

From the researcher's point of view, the observed impairment in activities of daily living may be attributed to the chronic multisystem nature of SLE. Disease flares, fatigue, physical disability, and long-term disease manifestations may reduce patients' functional independence and increase their need for assistance with daily activities.

This finding is consistent with **Plantinga et al., (2025),** in study entitled "Limitations in Activities of Daily Living Among Individuals With Systemic Lupus Erythematosus". who reported that limitations in both basic and instrumental activities of daily living were common among patients with SLE, particularly in transferring, bathing, dressing, and continence. The authors further reported that higher disease activity was strongly associated with greater limitations in both IADLs and BADLs, highlighting the potential impact of SLE on functional independence.

Finally, the findings of the current study provided a comprehensive answer to the second research question, "What is the level of symptoms burden among patients with systemic lupus erythematosus?", demonstrating that a considerable proportion of the studied patients experienced a high overall symptom burden. The level of Lupus Impact Tracker showed that more than one-third of the studied patients experienced a high level of lupus impact, which indicates that SLE exerted a substantial impact on their daily life. The level of pain was mild to moderate in the majority of participants.

The level of fatigue demonstrated that more than half of the studied patients experienced severe fatigue. The level of stress demonstrated that nearly half of the studied patients experienced a moderate level of perceived stress, whereas approximately one-third reported a high level of perceived stress, According to the level of sleep quality showed that nearly three-quarters of the studied patients had poor sleep quality, while about one-quarter had good sleep quality. The level of Barthel ADLs revealed that more than one-quarter of them had severe dependency, followed by one quarter who were independent.

Part IV: Assessment of compliance categories among patients with SLE.

Regarding the overall compliance rating scale categories among Patients with SLE, the current study revealed that the overall level of compliance, revealed that more than three quarters of the patients had an unsatisfactory level of compliance, whereas only less than one quarter had a satisfactory level of compliance. the mean compliance score was 70.12 ± 19.22, reflecting an overall low level of compliance among the studied patients, with a relatively wide variation in compliance scores.

Thus, the findings of the current study provided a clear answer to the third research question: "What is the level of compliance among patients with SLE?" , revealed that more than three quarters of the patients had an unsatisfactory level of compliance, whereas only less than one quarter had a satisfactory level of compliance.

From the researcher's point of view, the overall unsatisfactory level of compliance may reflect the challenges of living with a chronic disease that requires lifelong treatment, lifestyle modifications, and regular follow-up. Long-term medication use, regular physical activity, dietary modifications, and continuous follow-up require sustained commitment, which may be difficult for many patients to maintain. In addition, disease-related symptoms such as pain, fatigue, and physical limitations may further reduce patients' ability to adhere consistently to all recommended therapeutic measures.

The findings of the current study are supported by **Fanouriakis et al., (2024),** in the updated EULAR recommendations entitled "European Alliance of Associations for Rheumatology (EULAR) Recommendations for the Management of Systemic Lupus Erythematosus: 2023 Update". This includes a series of specific recommendations on the management of general SLE and LN. Furthermore, the recommendations highlighted the importance of integrating non-pharmacological interventions, including a healthy balanced diet, regular physical exercise, and regular follow-up, into the management of patients with SLE. They also stressed that a trusting physician–patient relationship plays a fundamental role in minimizing the risk of non-adherence.

Regarding the correlation between variables,

Part V: Relations and correlations between the variables studied among patients with SLE.

Regarding Relation between Total Scores of Self-Efficacy, Symptoms Burden, and Compliance among Studied Patients with SLE, The findings of the current study demonstrated that a significant positive correlation was found between self-efficacy and patient compliance ($r = 0.629$, $p < 0.001$) and between self-efficacy and activities of daily living (ADL) ($r = 0.420$, $p < 0.001$). Conversely, self-efficacy was significantly negatively correlated with all assessed symptom burden variables, including stress ($r = -0.684$, $p < 0.001$), poor sleep quality (PSQI) ($r = -0.677$, $p < 0.001$), lupus impact (LIT) ($r = -0.632$, $p < 0.001$), fatigue ($r = -0.584$, $p < 0.001$), and pain ($r = -0.550$, $p < 0.001$).

Regarding symptoms burden, the Lupus Impact Tracker (LIT) showed significant negative correlations with patient compliance ($r = -0.586$, $p < 0.001$) and self-efficacy ($r = -0.632$, $p < 0.001$). Similarly, fatigue, pain, stress, and poor sleep quality were significantly negatively correlated with patient compliance and self-efficacy. Fatigue was negatively correlated with compliance ($r = -0.514$, $p < 0.001$) and self-efficacy ($r = -0.584$, $p < 0.001$), while pain was negatively correlated with compliance ($r = -0.557$, $p < 0.001$) and self-efficacy ($r = -0.550$, $p < 0.001$). Stress showed negative correlations with compliance ($r = -0.462$, $p < 0.001$) and self-efficacy ($r = -0.684$, $p < 0.001$), while poor sleep quality was negatively correlated with compliance ($r = -0.598$, $p < 0.001$) and self-efficacy ($r = -0.677$, $p < 0.001$).

Regarding patient compliance, it was significantly positively correlated with self-efficacy ($r = 0.629$, $p < 0.001$) and ADL ($r = 0.577$, $p < 0.001$). These findings indicate that higher self-efficacy and better functional status were associated with higher compliance, while greater symptom burden was associated with lower self-efficacy and compliance.

These findings indicate that higher self-efficacy was associated with better treatment compliance, whereas greater symptom burden was associated with lower self-efficacy and compliance. The strongest positive correlation was observed between self-efficacy and patient compliance ($r = 0.629$), while the strongest negative correlations were found between self-efficacy and stress ($r = -0.684$) and sleep disturbances ($r = -0.677$).

From the researcher's point of view, these associations may be attributed to the chronic and unpredictable nature of SLE, as increased symptom burden may make disease self-management more challenging. Therefore, nursing interventions focusing on strengthening self-efficacy, managing symptoms, reducing stress, and improving sleep may help support treatment compliance and disease self-management.

Regarding the positive relationship between self-efficacy and treatment compliance, the current finding is consistent with **Wang et al., (2024),** in study entitled "Current status and influential factors of self-management ability in patients with systemic lupus erythematosus". who reported that self-efficacy was positively associated with self-management ability among patients with SLE. The authors identified self-efficacy as an important factor influencing patients' ability to manage their disease and may enhance quality of life.

Also, the positive relationship between self-efficacy and stress, the current finding is consistent with **DeQuattro et al., (2024),** in study entitled "Positive psychosocial factors may protect against perceived stress in people with systemic lupus erythematosus with and without trauma history". who reported that higher self-efficacy was associated with lower perceived stress among patients with SLE. The authors suggested that strengthening positive psychosocial factors, including self-efficacy, may reduce stress and improve patients' ability to cope with disease-related challenges.

Moreover, the positive relationship between self-efficacy and activites of daily living , the current finding is consistent with **Ugarte-Gil et al., (2023),** entitled "A better self-efficacy is predictive of better health-related quality of life (HRQoL) in patients with systemic lupus erythematosus: data from the Almenara Lupus Cohort". who reported that better self-efficacy was significantly associated with better HRQoL among patients with SLE. Notably, self-efficacy for managing daily activities was among the domains that predicted better mental health-related quality of life.

Additionality, the positive relationship between self-efficacy and fatigue - pain, the current finding is consistent with **Drenkard et al., (2022),** in study entitled " Cross-sectional study of the effects of self-efficacy on fatigue and pain interference in black women with systemic lupus erythematosus". who reported that higher self-efficacy was significantly associated with lower fatigue and pain interference among patients (black women) with SLE. The authors concluded that self-efficacy-enhancing interventions may reduce the impact of these symptoms and improve patients' ability to manage their disease.

Similarly, the positive relationship between sleep quality and stress, the current finding is consistent with **Richter et al., (2026),** in study entitled "Depression, stress, and sleep quality in a systemic lupus erythematosus cohort: a prospective observational study". who reported that poor sleep quality, moderate-to-high stress, and moderate-to-severe or severe depression were common among patients with SLE. Poor sleep quality was significantly associated with nighttime pain, stress, and depression, highlighting the close relationship between sleep disturbances and psychological and pain-related factors.

Likewose, the positive relationship between symptoms burden and treatment compliance, the current finding is consistent with **Tharwat and Shaker (2023),** who reported a strong association between medication non-adherence and the frequency of cumulative clinical manifestations among Egyptian patients with SLE and medication adherence was associated with better clinical outcomes and fewer hospitalizations.

In the same line, the positive relationship between symptoms burden, fatigue, pain and stress, the current finding is consistent with **Patterson et al. (2023),** who reported that an increase in perceived stress was independently associated with greater disease activity, more pain, and more fatigue among patients with SLE. The authors found that patients who experienced increased stress had greater disease activity and symptom burden at follow-up compared with those whose stress levels remained stable or declined**.**

Finally, the positive relationship between fatigue and symptoms burden, daily activities , the current finding is consistent with **Mertz et al. (2020),** in the study entitled "Towards a practical management of fatigue in systemic lupus erythematosus", which reported that fatigue in SLE is a highly multifactorial symptom and represents one of the most common and disabling manifestations of the disease influenced by disease-related, psychological, and other clinical factors. The authors found that fatigue is strongly associated with multiple factors including pain, psychological distress, reduced physical activity, and poor sleep quality, all of which contribute to increased disease burden and impaired daily functioning. Importantly, the study highlighted that fatigue negatively affects patients' ability to perform daily activities and is associated with reduced treatment adherence and self-management capacity.

The present findings answered the fourth research question: "What is the relationship between symptom burden, compliance, and self-efficacy among patients with systemic lupus erythematosus?". The results demonstrated statistically significant correlations among symptom burden, patient compliance, and self-efficacy ($P < 0.001$). Specifically, self-efficacy was positively correlated with patient compliance, whereas symptom burden, stress, pain, fatigue, and poor sleep quality were negatively correlated with both patient compliance and self-efficacy. Conversely, activities of daily living showed positive correlations with both compliance and self-efficacy.

CONCLUSION

In light of the current study results, it can be concluded that The majority of the studied patients with systemic lupus erythematosus (69.6%) had negative self-efficacy, indicating limited confidence in their ability to manage disease-related challenges and self-care activities.

The studied patients experienced a considerable symptom burden, with 57.8% experiencing severe fatigue and 74.1% having poor sleep quality. The majority of the studied patients (76.3%) had unsatisfactory compliance with recommended treatment and self-care behaviors, including medication, exercise, healthy nutrition, and follow-up. Furthermore, self-efficacy was significantly positively correlated with patient compliance ($r = 0.629$, $p < 0.001$), while greater symptom burden was significantly associated with lower self-efficacy and compliance.

Overall, the findings highlight the important interrelationship between self-efficacy, symptom burden, and compliance among patients with systemic lupus erythematosus.

Recommendation

Based on the results of this study, the following recommendations were proposed:

- Develop and implement structured educational programs for patients with systemic lupus erythematosus to improve their knowledge regarding disease management, symptom control, treatment adherence, and self-care practices.

- Design and distribute educational booklets, brochures, and simplified guidelines written in clear and understandable language to increase patients' awareness regarding SLE and its management.

- Conduct longitudinal studies to evaluate changes in symptom burden, compliance, and self-efficacy among patients with systemic lupus erythematosus over time.

- Utilize social media platforms such as Facebook, WhatsApp, Instagram, and YouTube to disseminate reliable information about SLE, treatment adherence, symptom management, and healthy lifestyle practices.

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