Effectiveness of Innovative Electronic Health Education Program on Self-Care Practices for Patients with Psoriasis

Sahar Mahmoud Sayed Ahmed El Awady [1], **Nora Salah Eldin Saad** [2] &
Ons Said Mohamed El-Zayat [3]

(1,3) Assistant Professor in Community Health Nursing
(2) Assistant Professor in Medical Surgical Nursing, Faculty of Nursing, Helwan University, Egypt

Abstract

Psoriasis is a chronic autoimmune non-communicable inflammatory skin condition. High stages of self-care are necessary for psoriasis to improve health outcomes. **Aim:** This study aimed to evaluate the effectiveness of innovative electronic health education program regarding self-care practices for psoriasis patients. **Design:** A quasi- experimental design was used. **Setting:** It was conducted at outpatient clinics in Al Houd El Marsoud Hospital for Dermatology and Venereology, Cairo, Egypt. **Sample:** Purposive sample include 110 patients diagnosed with psoriasis. **Tools of data collection:** Two tools, **1st tool:** A structured interviewing questionnaire covering three parts: **Part 1:** Demographic characteristics of patients, **Part 2:** Past and present medial history of patients, **Part 3:** Patients' knowledge about psoriasis. **2nd Tool:** Patients' self-care reported practices about psoriasis. **Results:** The study results revealed that, 10.9 % of studied patients had good total knowledge pre apply electronic health education program, which improved to 86.4 % of them had good total knowledge post program. While, 47% of them had adequate self- care reported practices at pre apply electronic health education program, which improved to 92% of them had adequate self- care reported practices at post with highly statistically significant improvement. There was a highly statistically significant correlation between total knowledge level and total self- care reported practices level of studied patients at post electronic health education program about psoriasis **Conclusion:** There was an improvement in patients' total knowledge and total self-care reported practices after implementation of innovative electronic health education program. **Recommendation:** Continues health education program to enhance awareness of patients about psoriasis.

Keywords: Electronic Health Education, Innovative, Psoriasis, & Self-Care Practices.

Introduction:

Psoriasis is an immunological inflammatory disorder that is chronic and recurrent, with varying degrees of severity. The number of individuals affected is the same for men and women, and the condition can manifest at any age. Numerous factors, such as stressful life events and psychological anguish, can have a major impact on how a disease manifests or worsens. Psoriasis can appear anywhere on the body and is characterized by thick, red, scaly plaques, dry, cracked skin that can bleed, itching, burning, or pain, and recurring rashes that flare up for a few weeks or months before going away. Psoriasis treatment is intricate and requires continuing observation *(Lee & Kim, 2023).*

The most familiar kind of psoriasis, plaque psoriasis, appears as raised, red skin patches with silvery-white scales covering them. Usually developing in a symmetrical pattern on the body, the patches usually appear on the scalp, trunk, and limbs, especially the elbows and knees. Guttate psoriasis, which primarily affects children or young adults, is characterized by tiny red dots that are typically found on the limbs or chest. Inverse psoriasis, this type appears as smooth, red patches in folds of skin, such as beneath the breasts or in the groin or armpits *(Korman, 2022).* Nail psoriasis, this type can cause pitting, irregular nail development, and discoloration on the fingernails and toenails. The rare but extremely severe psoriasis identified as erythrodermic psoriasis is characterized by spreading redness from head to toe. In addition, other forms of psoriasis such psoriatic arthritis and pustular psoriasis *(Stoppler, 2024).*

A physical examination, medical history, Psoriasis Severity Assessment (PSA), and, if necessary, a skin biopsy are the most common methods used to diagnose psoriasis. Topical treatments, phototherapy (Light Therapy), systemic medications, oral retinoids, biologic

therapies, complementary and alternative therapies are effective ways to treat psoriasis, depending on the condition's type, severity, and location as well as personal factors like age and general health *(Egilman et al., 2024).*

Patients with psoriasis normally have a lower quality of life than the general population and are more prone to have concurrent issues. Numerous patients have psoriatic arthritis, cardiovascular disease, metabolic syndrome, obesity, type 2 diabetes, eye complaints, psoriatic arthritis, psoriatic arthritis, and an elevated risk of infection. Patients commonly express dissatisfaction with their care, show poor adherence to medical treatments, and seem to know little about the disease *(Schön & Wilsmann, 2023).* In latest years, the links between disease activity and lifestyle characteristics such as smoking, stress, and physical activity have been discovered as areas where psoriasis sufferers can affect their illness in a favorable or negative direction. Therefore, it seems that patients with psoriasis require instruction and self-management treatments more than others *(Perry, 2024).*

Self-care is the practices by which individuals take care of their own health by using the data and knowledge at their disposal. This decision-making process enables individuals to effectively and conveniently manage their own health, working with medical professionals when necessary. Self-care activities for psoriasis patients include skin care routines and avoiding triggers but goes beyond them to include a good diet, exercise, and applying relaxation techniques. Psoriasis patients need to be empowered by education and assistance for the disease's *(Omar & Ramadan, 2022).*

Electronic health education for patients with psoriasis can be an actual way to afford accessible and comprehensive information about the condition, its management and lifestyle strategies. The goal of health education is to increase people's capacities through instructional, inspiring, skill-building, and consciousness-raising methods. Developing an interactive website or mobile application especially for psoriasis sufferers and offering webinars and video lessons on a range of psoriasis management-related subjects are two

ways that electronic health education might help *(Ou et al., 2024).*

Self- care managing has appeared as a critical feature of care for patients with psoriasis. It can encourage empowerment by recognizing possible flare-ups. In order to provide comprehensive and individualized care, nurses must also comprehend how their patients cope with this disorder. The active involvement of patients in preserving and advancing their own health and treatment is the cornerstone of self-care management. By taking part in a disease management intervention, patients can lessen the effects of their illness, improve medication adherence, create mental equilibrium, get enough sleep, and maintain a balanced diet *(Duncan & Lyall, 2020).*

Nurses act a vital role in patient education and in the prevention and management of disease. Nurses' main goal is to ensure that patients receive continuity of care by utilizing nursing practices and working together to meet their requirements. Reducing misconceptions about psoriasis can therefore be achieved by educating patients on the condition's symptoms, triggers, treatment options and management techniques *(Hilhorst et al., 2023).*

Significance of the study

Concurring to the National Psoriasis Foundation reports that 125 million individuals worldwide suffer with psoriasis, which accounts for between 2 and 4% of the global population. Although psoriasis may appear at any age, it habitually manifests in two stages. The first is in the 20–30 age range, and the second is in the 50–60 age range. Moreover, a significant amount of genetic predisposition has been found, and about 36% of these patients have a family history of psoriasis *(National Psoriasis Foundation, 2022).* There are between 0.19% and 3% of Egyptians who have psoriasis, which indicates that about 2 million people have moderate to severe cases *(Aboeldahab et al., 2023).*

Nurses play an essential role in helping psoriasis patients by offering individualized care, education, and counseling. Provide advice on how to control psoriasis and lessen flare-ups by changing one's lifestyle. Talk about the value of regular exercise, stress-reduction

strategies, a beneficial diet, and quitting smoking. Patients should be encouraged to prioritize self-care activities that enhance their general well-being and lead balanced lives. Nurses educate patients about their prescribed medications, containing proper usage, dosage, potential side effects, and precautions *(Wu et al., 2024).* So, this study was conducted to evaluate effectiveness of innovative electronic health education program regarding self-care practices for psoriasis patients

Aim of the study:

The study aimed to evaluate effectiveness of innovative electronic health education program regarding self-care practices for psoriasis patients

Research hypothesis:

H$_1$: Innovative electronic health education program will improve patients' knowledge regarding psoriasis

H2: Innovative electronic health education program will enhance patients' self-care reported practices regarding psoriasis

H3: There will be a significant correlation between knowledge and self-care reported practices regarding psoriasis

Subjects & Methods:

Research design:

A quasi-experimental research design was used in this study.

A quasi-experimental design looks for a relationship of cause and effect among an independent and dependent variable. However, unlike true experiments, it does not use random assignments. Instead, participants are grouped based on non-random criteria.

Setting:

This study was carried out at outpatient clinics in Al Houd El Marsoud Hospital for Dermatology and Venereology, Cairo, Egypt. Al-Hawd Al-Marsoud Hospital is located at 18 Al-Hawd Al-Marsoud Street, Birkat Al-Fil, Al-Darb Al-Ahmar, Sayeda Zeinab, Cairo governorate and consider the important hospital in its field in the Middle East

Sampling: Purposive sample was used in this stud

Sample size: Total numbers of patients in last

year begin of November 2022 to end of October 2023 were 250 patients in Al Houd El Marsoud Hospital. So, the target population of this study was 110 patients. The sample size calculation was done based on the power analysis Herbert Equation.

$$n = \frac{p(1-p)}{(SE \div t) + \left[p(1-p) \div N\right]}$$

N = 250
t = 1.96
SE = 0.05
P = 0.50

$$n = \frac{0.50\,(1\text{-}0.50)}{(0.05 \div 1.96) + [0.50\,(1\text{-}0.50) \div 250)} \qquad \textbf{n = 110}$$

Inclusion Criteria:

1- Patients diagnosed with psoriasis
2- Patients should be able to read, write and have smart phone
3- Accept to participate in this study.

Tools for data collection:

Data was gathered by using two tools as the following:

1st Tool: A Structure interview questionnaire developed by researchers after reviewing the national and international related literature. It was written in simple Arabic language and contains of three parts as the subsequent:

Part (I): Demographic characteristics of studied patients consisted of 7 items as: Age, gender, marital status, level of education, job, place of residence and monthly income.

Part (II): Medical history: It split to 2 sub-items:

A- Past medical history for studied patients comprised of 4 closed ended questions as period of psoriasis, family history of psoriasis, type of psoriasis and complaining from any other health troubles.

B- Present history for studied patients involved of 3 closed ended questions as: Present complains, follow up and current medication.

Part (III): Knowledge of studied patients about psoriasis (pre- post format): It contained of 12 closed ended questions as definition, reasons, clinical features, predisposing factors, types, most common places for psoriasis, high risk group, diagnostic test, complications, preventive measures for psoriasis, health instructions to reduce the severity of psoriasis and treatment of psoriasis. Each question had 3 responses: complete correct answers (2 scores), incomplete correct answers (1 score), and incorrect answer or don't know (0 score).

Scoring system: The total knowledge scores were 24 scores for 12 questions. Knowledge answers were categorized as:
- Poor knowledge < 50 % (< 12 marks)
- Average knowledge 50- < 75 % (12- <18 marks)
- Good knowledge ≥ 75% (> 18 marks).

2ⁿᵈ Tool: Self-care reported practices of studied patients about psoriasis (pre - post format): adopted from *(Ricketts et al., 2010; (Mohamed et al., 2015)* used to evaluate practices of patients about psoriasis and divided to three sub items as

A-Self-care practices regarding hygienic care (bathing) comprised of eight questions that the patient must done when taking a bath, daily bathing, using warm water, avoiding hot baths, using moisturizing bath oil or emollient, avoiding scented soap or other irritating shampoos, and softly washing and patting the skin rather than vigorously rubbing it dry.

B- Self-care practices about skin care involved seven questions regarding care of psoriatic lesions, keeping the skin dry, using a moisturizer frequently, and refraining from scratching psoriatic lesions, regularly cutting the nails, getting a daily dose of non-burning sunlight, dressing in cotton, and avoiding wool or synthetic fabrics.

C- Self-care practices to inhibit exacerbation of psoriasis (psoriasis flares) included 16 questions about the prevention of psoriasis flares. It included the following: **Managing psoriasis triggers** which contain exposure to low temperatures, smoking, emotional stress, skin injuries, obesity, and streptococcal infections. **Modifying patients' diet** as eating foods high in omega-3 fatty acids, zinc, and vitamin D, vegetables, and avoid large meals, junk food, chili, and hot spices.

Scoring system for self-care reported practices of patients with psoriasis consisted of 31 questions with total scores equal to 62. **Two scores** were given for every patient who has always played self-care practices; **one** score was given for every patient who has sometimes done self-care practice and **zero** given to every patient who neglects the practice. All scores of self-care reported practices were summed up and then converted into percentage and calculated as follows:

Adequate practices ≥ 60% (38-62 marks)

Inadequate practices < 60 (<38 marks)

Validity:

To appraise the content validity of the tools, a panel of five experts from Community Health Nursing and Medical Surgical Nursing, Faculty of Nursing, Helwan University reviewed them for clarity, relevance, comprehensiveness, understanding, and applicability. The tools were then modified as needed.

Reliability:

Cronbach's Alpha was used to determine the internal reliability of the tools. Test-retest reliability was used to compare the responses from repeated testing. Cronbach's Alpha was 0.880 for self-care reported practices and 0.89 for knowledge

Ethical considerations:

An official permission to conduct the proposed study was obtained from the Scientific Research Ethics Committee Faculty of Nursing Helwan University. Participation in the study is voluntary, and subjects were given complete full information about the study and their role before signing the informed consent. The ethical considerations included describing the nature and goal of the study, saying the option to withdraw at any moment, and guaranteeing the confidentiality of the data so

that no other party could access it without the participants' consent. Respect patients' ethics, morals, culture, and beliefs.

Pilot study:

To evaluate the feasibility, practicability, clarity, and objectivity of the tools, a pilot study was conducted on 10% of the sample (11 patients). No changes were made after the patient data was analyzed, thus the patients who participated in the pilot study were included in the study.

Preparatory phase:

It included reviewing the available literature and diverse studies related to knowledge and self-care practices of patients with psoriasis using books, articles, and the internet to develop tools of data collection.

Field work:

After attaining consent to carry out the study, the researchers were available two days a week (Monday and Thursday) at outpatient clinics in Al Houd El Marsoud Hospital for Dermatology and Venereology from 9 a.m. to 2.00 p.m. Before patients participated in the study and their consents were obtained, the researchers gave an introduction about themselves and the purpose of the research. A total of six months were allocated to complete the fieldwork starting in March 2024 and ending in August 2024. It takes roughly 15 to 20 minutes for each patient to collect the study tools.

An electronic health education program was created by researchers to satisfy the actual needs of studied patients to improve their knowledge and self-care reported practices regarding psoriasis. There were four phases for the achievement of the program

Assessment phase to establish a baseline and develop an electronic health education program, the first step involved the researchers gave the patient a brief introduction and explanation of the study's goal then using a pretest to gauge patients' knowledge and self-care stated habits about psoriasis. For participation, each patient gave their informed consent. Patients were assured that their information would be kept confidential and used only for the study.

Planning phase:

Program sessions were created after a review of the relevant literature, considering the results of the assessment phase. The booklet included knowledge about psoriasis as meaning, causes, clinical features, predisposing factors, types, most common places for psoriasis, high risk group, diagnostic test, complications, preventive measures for psoriasis, health instructions to reduce the severity of psoriasis and treatment of psoriasis. Also, contain practices to promote self-care for psoriasis about hygienic care, skin care and practices to prevent exacerbation of psoriasis. Electronic booklet prepared by the researchers then applying QR code for psoriasis patients, this contains program about knowledge and self-care practices for psoriasis. After that, distribute this code to all patients through Whats App, this code scan by patients then the program appear. The teaching methods were lectures, group discussions, brainstorming, demonstration and re-demonstration and teaching media were PowerPoint presentations, pictures and electronic booklet were used.

Implementation phase:

The Electronic health education program was introduced to patients through sessions and Zoom meeting. The total numbers of patients were 110 patients divided into 5 groups each group consisted of 22 patients and applied through fifth sessions for each group (3 theoretical and 2 practical). Each session lasted range from 30 to 45 minutes. The researchers began by providing an overview of the previous session at the start of each one and outlining the goals for the current session, paying close attention to the use of simple Arabic language. An electronic booklet was given to studied patients in **the first session** in which the researchers described meaning of psoriasis, causes, clinical

features, predisposing factors, types and most common places for psoriasis. In **the second session** the researchers explained high risk group, diagnostic test, complications, preventive measures for psoriasis, health instructions to reduce the severity of psoriasis and treatment of psoriasis. While the content of **the third session** comprised practices to promote self-care for psoriasis patients regarding hygienic care. **The fourth session** contains practices about skin care. The researchers covered practices to prevent exacerbation of psoriasis in the **fifth session**. Each session ended with informing the studied patients about the content and timing of the next one. The researchers give them the chances to ask questions to identify their needs.

Evaluation phase:

Evaluation of electronic health education program was done immediately after its implementation by contrasting the change in studied patients' level of knowledge and self-care practices through applying the same tools of pre-test as a post-test.

Administrative approval:

Approval to conduct this study was obtained from Dean of Faculty of Nursing, Helwan University and official permission was took from the director of outpatients' clinics in Al Houd El Marsoud Hospital for Dermatology and Venereology for conducting the study.

Statistical design:

Upon completion of data collection, data was computed and analyzed using Statistical Package for Social Science (SPSS), version 26 for analysis. Descriptive statistics tests as numbers, percentage, mean $\pm$ standard deviation ($\pm$ SD), will be used to illustrate the results. The comparisons between two groups with categorical data were calculated using χ^2 test. Correlation between variables with continuous data was tested by the correlation coefficient test. Statistical significance was set at P less than 0.05, and a highly statistical significance was considered P less than 0.001.

Results

Table 1: Reveals that, 41.8 % of studied patients aged 30-< 40 years with a Mean± SD was 43.6 ±8.6, 52.7% of them were male, 80.9% of them were married, 60.9% of them had university education and 50.9 % of them were employed. Also, 70.9% of studied patients reside in urban areas and 53.6% of them had insufficient monthly income.

Table 2: Presents, past history of studied patients**,** 53.6 % of them reported that the duration of psoriasis was 6 months - < 2 yrs., 42.7 % of them had family history of psoriasis, 33.6% of them had plaque psoriasis and 60.1 % of them no complaining from any other health problems which 46.4% of studied patients who had health problems had diabetes mellitus. Regarding the present history of studied patients 59.1% of them had itching and 86.4 % of them had topical therapy

Figure 1: Illustrates that, 69.1% of studied patients had poor total knowledge level about psoriasis at pre-electronic health education program, which improved to 86.4% of studied patients had good total knowledge level at post electronic health education program about psoriasis ($\chi2$=131.117 at P < 0.001).

Figure 2: Clarifies that, 47% of studied patients had adequate self- care reported practices at pre-electronic health education program, which improved to 92% had adequate self- care reported practices at post with highly statistically significant improvement in post than pre ($\chi2$=39.568 at P < 0.001).

Table 3: Shows that, there was a highly statistically significant correlation between total knowledge level and total self- care reported practices level of studied patients at post electronic health education program about Psoriasis (r= 0.345 P < 0.001).

Table 4: Displays that, there were statistically significant relation between patients' demographic characteristics and their total knowledge level at post electronic health education program about psoriasis regarding age, education level and marital status.

Table 5: Reveals that, there were statistically significant relation between patients' demographic characteristics and their total self-care reported practices level at post electronic health education program about psoriasis regarding age and education level.

Table (1): Demographic Characteristics of the Studied Psoriasis Patients (n=110).

Demographic Characteristics	No.	%
Age (Years)		
20 - < 30	12	10.9
30 - < 40	46	**41.8**
40 - < 50	32	29.1
≥ 50	20	18.2
Mean ±SD	**43.6 ±8.6**	
Sex		
Male	58	**52.7**
Female	52	47.3
Marital status		
Single	17	15.5
Married	89	**80.9**
Divorced	3	2.7
Widow	1	0.9
Educational level		
Read and write	8	7.3
Basic education	11	10.0
Secondary education	14	12.7
University education	67	**60.9**
Above university education	10	9.1
Occupation		
Unemployed (housewife)	23	20.9
Employed	56	**50.9**
Students	10	9.1
Handicraftsman / Dealer	21	19.1
Place of residence		
Urban	32	29.1
Rural	78	**70.9**
Monthly income		
Sufficient	31	28.2
Insufficient	59	**53.6**
Sufficient & Save	20	18.2

Table (2): Past & Present Medical History of the studied patients (n=110)

| Past medical	No.	%
Duration of psoriasis		
< 6 months	26	23.6
6 months- < 2 years	59	**53.6**
2-4 years	20	18.3
≥ 4 years	5	4.5
Family history of psoriasis		
Yes	47	**42.7**
No	63	57.3
Type of psoriasis		
Plaque	37	**33.6**
Guttate	28	25.5
Inverse	21	19.1
Pustular	17	15.4
Erythrodermic	7	6.4
Complaining from any other health problems		
Yes	43	39.1
No	67	**60.1**
If yes, state the main reason*		
Diabetes mellitus	20	**46.5**
Cardiac disease	9	20.9
Renal diseases	11	25.6
Psoriasis arthritis	8	18.6
Asthma	15	34.8
Present history		
Current complains*		
Cracked spots which leads to bleeding and irritation	37	33.6
Burning or soreness.	25	22.7
Itching	65	**59.1**
Pain	16	14.5
Swelling and stiffness of joints	13	11.8
Redness	29	26.4
Fatigue	21	19.1
Current treatments*		
Systematic therapy	35	31.8
Photo therapy	9	32.7
Topical therapy	95	**86.4**

***Mutual exclusion**
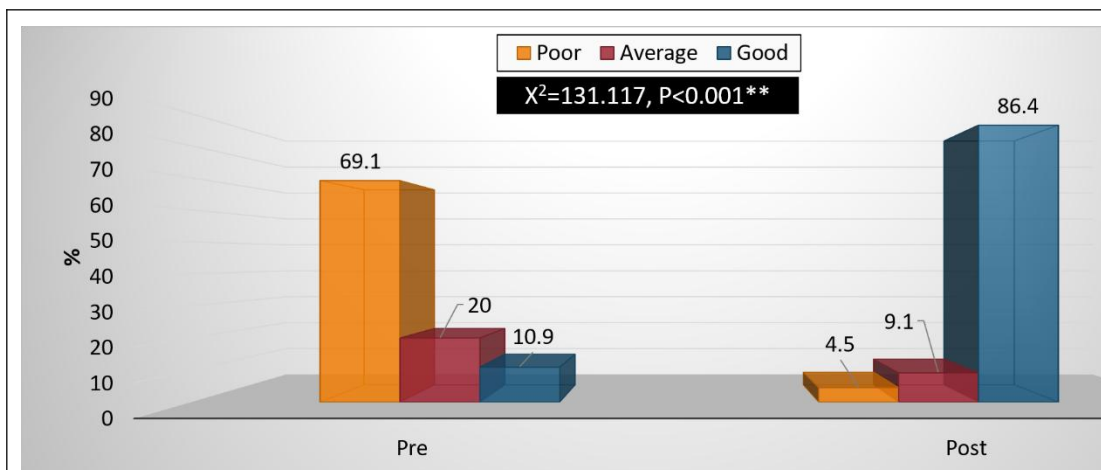
Figure (1): Total Knowledge level of Studied Patients at Pre⁄Post Electronic Health Education Program about Psoriasis (n= 110)
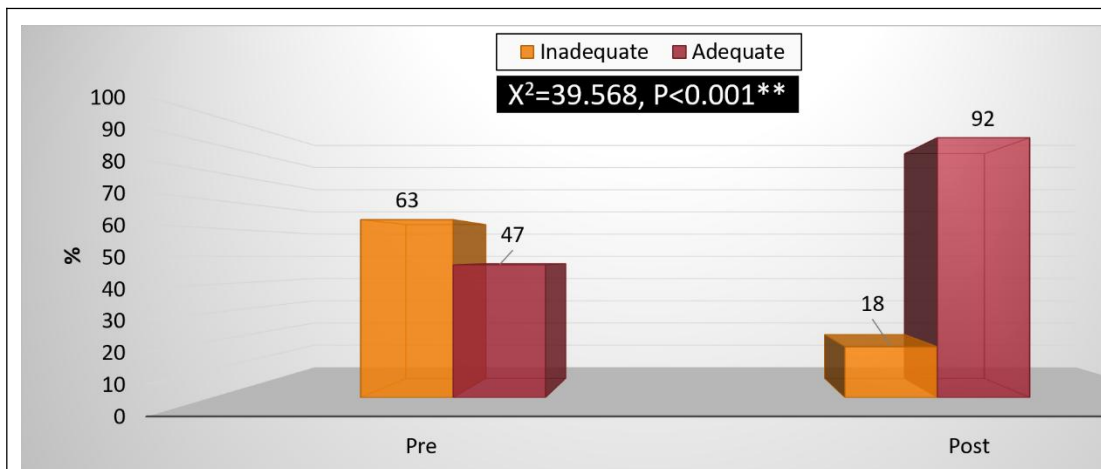

Figure (2): Total Self- Care Reported Practices level at Pre⁄Post Electronic Health Education Program about Psoriasis (n= 110)

Table (3): Correlation between Total Knowledge level and Total Self- Care Reported Practices Level of Studied Patients at Post electronic health education program about Psoriasis (n= 110)

Total Self- Care Reported Practices Level	Total knowledge level at Post Electronic Health Education Program						r	P
	Poor (n=5)		Average (n=10)		Good (n=95)			
	No.	%	No.	%	No.	%		
Inadequate (n=18)	4	80.0	6	60.0	7	7.4	0.345	P <0.001**
Adequate (n=92)	1	20.0	4	40.0	88	92.6		

** Highly significant (p ≤ 0.001)

Table (4): Relation Between Total Knowledge level and Demographic characteristics of Studied Sample at Post electronic health education program about Psoriasis (n= 110)

Demographic Characteristics	Total Knowledge level						X^2	P
	Poor (n=5)		Average (n=10)		Good (n=95)			
	No.	%	No.	%	No.	%		
Age (Years)								
20 - < 30	2	40.0	1	10.0	9	9.5	64.49	<0.001**
30 - < 40	1	20.0	4	40.0	41	43.2		
40 - < 50	1	20.0	3	30.0	28	29.5		
≥ 50	1	20.0	2	20.0	17	17.9		
Sex								
Male	2	40.0	3	30.0	46	48.4	1.572	0.455
Female	3	60.0	7	70.0	49	51.6		
Marital status								
Single	2	40.0	1	10.0	14	14.7	14.861	0.021*
Married	3	60.0	7	70.0	79	83.2		
Divorced	0	0.0	1	10.0	2	2.1		
Widow	0	0.0	1	10.0	0	0.0		
Educational level								
Read and write	2	40.0	2	20.0	0	0.0	105.699	<0.001**
Basic education	1	20.0	4	40.0	8	8.4		
Secondary education	1	20.0	4	40.0	10	10.5		
University education	1	20.0	0	0.0	67	70.5		
Above university education	0	0.0	0	0.0	10	10.5		
Occupation								
Unemployed (housewife)	0	0.0	2	20.0	21	22.1	4.469	0.614
Employed	3	60.0	4	40.0	49	51.6		
Students	0	0.0	2	20.0	8	8.4		
Handicraftsman / Dealer	2	40.0	2	20.0	17	17.9		
Place of residence								
Urban	2	40.0	3	30.0	27	28.4	0.313	0.855
Rural	3	60.0	7	70.0	68	71.6		
Monthly income								
Sufficient	2	40.0	4	40.0	25	26.3	3.865	0.425
Insufficient	1	20.0	4	40.0	54	56.8		
Sufficient & Save	2	40.0	2	20.0	16	16.8		

Not significant (p > 0.05)   *significant at (p < 0.05)   ** Highly significant (p ≤ 0.001)

Table (5): Relationships between Total Self- Care Reported Practices Level and Demographic Characteristics of Studied Sample at Post Electronic Health Education Program about Psoriasis (n= 110)

Demographic Characteristics	Total Self- Care Reported Practices				X²	P
	Inadequate (n=18)		Adequate (n=92)			
	No.	%	No.	%		
Age (Years)						
20 - < 30	2	11.1	10	10.9	12.398	0.015*
30 - < 40	9	50.0	37	40.2		
40 - < 50	6	33.3	26	28.3		
≥ 50	1	5.6	19	20.7		
Sex						
Male	8	44.4	44	47.8	0.069	0.793
Female	10	55.6	48	52.2		
Marital status						
Single	2	11.1	15	16.3	1.215	0.749
Married	16	88.9	73	79.3		
Divorced	0	0.0	3	3.3		
Widow	0	0.0	1	1.1		
Educational level						
Read and write	8	44.4	0	0.0	74.178	<0.001**
Basic education	7	38.9	4	4.3		
Secondary education	3	16.7	11	12.0		
University education	0	0.0	67	72.8		
Above university education	0	0.0	10	10.9		
Occupation						
Unemployed (housewife)	0	0.0	23	25.0	6.975	0.073
Employed	10	55.6	46	50.0		
Students	2	11.1	8	8.7		
Handicraftsman / Dealer	6	33.3	15	16.3		
Place of residence						
Urban	5	27.8	27	29.3	0.018	0.893
Rural	13	72.2	65	70.7		
Monthly income						
Sufficient	5	27.8	26	28.3	0.817	0.665
Insufficient	11	61.1	48	52.2		
Sufficient & Save	2	11.1	18	19.6		

Not significant (p > 0.05)   *significant at (p < 0.05)   ** Highly significant (p ≤ 0.001)

Discussion

Psoriasis is a prolonged, stigmatizing systemic inflammatory condition, primarily localized to the skin and joints. It is one of the most common dermatologic disorders, affecting approximately 2% of the population worldwide. Patients suffer from life-long disease, characterized by a relapsing and remitting course of illness. Living with a chronic disease as psoriasis poses problem for the individual concerned with functioning and daily living activities *(Ferri, 2022)*.

One of the most effective strategies for treatment and preventing various chronic illnesses is self-care, which is also seen as crucial while managing psoriasis. Self-care practices play an important role in helping psoriasis patients manage their myriad complaints. Periods of remission and flare-ups are common features of psoriasis. When psoriasis flares up, self-care techniques might help reduce symptoms. It may prolong the period of remission. Thus, it's critical to learn patients' self-care techniques and create self-management programs *(Larsen et al., 2023)*.

Referring to demographic characteristics of the studied patients, the current study shown that more than two-fifths of studied patients aged 30-<40 years with a Mean± SD was 43.6 ±8.6. This result matched with *Gad Allah et al.,*

(2023) in Egypt (n= 43) in their recent study titled "Effectiveness of an Educational Program on Self-care practices and Functional Status among Patients with Psoriasis " and revealed that 41.5% of studied patients was in age group from 30 - < 40 and the mean age of the study group was 37.49 ± 10.99 years.

Concerning sex, the results of current study displayed that, more than half of the studied patients were males. These results were agreed with *Mohamed et al., (2021)* (n= 30) who carried out a study entitled "Knowledge and Self-Care Practices among Psoriatic Patients in Benha City" and found that 57.2% of the study sample of psoriatic patients were males.

Concerning marital status, the findings of the present study denoted that, more than four fifths of the studied patients were married. This study results were supported by *Eid & Elweshahi, (2021)* in Egypt (n= 274) in a study entitled "Quality of life of Egyptian patients with psoriasis A hospital-based cross-sectional survey" who revealed that the majority of the patients were married.

Regarding Educational level, the current study's results showed that less than two thirds of the studied patients had university education. This result was in contrast with Soliman, (2020), in Sadia Arabia (n= 209) whose study about "Acceptance of illness and need for education to support dermatology self-care in psoriasis patients: a cross-sectional study" and report that 61.8% of the sample had higher education.

Pertaining to occupation, the results of the current study showed that more than half of studied patients were employees. This finding was in the same line with *Bulat et al., (2020)*, in Croatia (n=51) whose study titled "The impact of psoriasis on quality of life psychological, social and financial implications" and showed that 52.8% of studied patients were employees.

Regarding place of residence, the result of the present study showed that less than three quarters of studied patients reside in urban area. This finding agreed with *Omar & Ramadan, (2022)* in Egypt (n= 110) who carried out a study entitled "Self-practice among patients with psoriasis: University hospital experience" and found that 70.5% of patients were living in urban areas.

Pertaining to monthly income, the result of the current study showed that more than half of studied patients had insufficient monthly income. This result disagreed with *Gad Allah et al., (2023)* who revealed that 54.2% of studied patients had enough monthly income for treatment expenses.

Regarding the patients' present and past medical history, the current study findings showed that more than half of the studied patients reported that the duration of psoriasis was 6 months-< 2 yrs. This finding was corresponded with *Eldesoky et al., (2023),* in Egypt (n= 90) in their recent study titled " Effect of Self - Management Nursing Intervention on Quality of Sleep and Daily Living Activities among Patients with Psoriasis", who revealed that, 52.3% of patients had been suffering from the disease for 1 to less than 5 years.

The results of the present study demonstrated that more two fifths of the studied patients had a positive family history of psoriasis, The findings matched with *Jun et al., (2024)* in China (n= 526) the study titled "Knowledge, attitude, and practice of psoriasis patients toward their diseases: a web-based, cross-sectional study", who found that approximately one-third of the study sample had a positive family history of psoriasis. This result is in contradiction to a research conducted in Egypt by *Moselhy & Abdallah (2022)*, in Egypt (n= 226) entitled "The Effectiveness of an Educational Program on the Severity and Disability of People with Psoriasis", who found that 74.2% of the study and control groups had a negative family history.

According to the current study, more than one-third of the patients of the studied patients had plaque psoriasis. This finding supported by *Godse et al., (2021)* in India (n=80) who conducted a study titled "Counseling in psoriasis: Overcoming the concerns and challenges" who highlighted plaque psoriasis as the most prevalent variety of the condition.

As regards the complaining from any other health problems, The current study's findings showed that three fifths of studied patients had no complaints from any other health problems and more than two fifths of the studied patients who had health problems have diabetes mellitus. This finding agreed with *Moselhy & Abdallah (2022),* who revealed that 43.8% of the participants had

many psoriasis-related comorbidities, including diabetes mellitus.

Regarding present history, the present results indicated that more than half of studied patients had itching. These results were agreed with ***Riad et al., (2021),*** In Egypt **(**n= 60) In study titled "Effect of Asynchronous Mobile Health Nursing Intervention on Medications Adherence and Quality of Life among Patients with Psoriasis", who stated that the primary complaints from participants were skin dryness, irritation, and itching. In addition to the existence of crusts, psoriasis patients also complain of itching.

Regarding total knowledge at pre ∕ post electronic health education program about psoriasis; the finding of current study showed that, more than two thirds of studied patients had poor total knowledge level about psoriasis at pre-electronic health education program, which improved to majority of the studied patients had good total knowledge level at post program about psoriasis. The findings matched with ***Gad Allah et al., (2023)*** who showed that none of the studied patients had satisfactory level of knowledge at pre-program implementation, while at post program 79.4% of patients had satisfactory knowledge level. Also, these results were in same line with ***Moselhy & Abdallah (2022)*** who found that majority of study group had good knowledge about psoriasis at post program among study group compared with control group. In addition, these findings were in harmony with ***Bubak et al., (2019)*** in Germany (n=53), who studied "Analyzing the value of an educational program for psoriasis patients: a prospective controlled pilot study" and mentioned that most of intervention group had satisfactory level of knowledge at post an educational program about psoriasis than majority of control group had unsatisfactory level of knowledge at post program. From the researchers' points of view, this result may be electronic health education program led to great improving of studied patients' total knowledge and this reflected in raising level of patients' awareness about psoriasis and the need for continuous refreshment of their knowledge.

Concerning total self-care reported practices at pre ∕ post electronic health education program about psoriasis, the present study displayed that, less than half of the studied patients had adequate self- care reported practices at pre-electronic health education program, which improved to most of them had adequate self-care reported practices at post with highly statistically significant improvement in post than pre-electronic health education program. This result supported by ***Karimipour et al., (2021),*** in Iran **(**n= 32**)** whose study entitled about "The Effects of a Self-Care Program on Promoting Self-Care Behaviors in Patients with Psoriasis" and reported that comparison between self-care behaviors before and after the intervention showed that the frequency of most self-care behaviors significantly increased after program. Also, this finding was in the same line with ***Elzehiri et al., (2022)***, in Egypt (n= 100) whose research title about "Effect of individualized guidance on knowledge and self-care practices of psoriasis patients" and mentioned that study group had a statistically significant improvement in the level of reported self-care practices at post individualized guidance as compared to the control group. In addition, these results were congruent with a study done by ***Nabhan et al., (2021),*** in Egypt (n=70) who carried out a study entitled "Effect of self-care management program on quality of life and disease severity among patients with Psoriasis" and revealed that the self-care management program significantly improved the psoriasis patients' practices. This may be due to that change in patients' knowledge which reflected on their self-care practices toward psoriasis and the effectiveness of the electronic health education program led to empowering and prompt patients for their self-care management.

In relation to correlation between total knowledge level and total self-care reported practices level of studied patients at post electronic health education program about psoriasis. The current study found that there was a highly statistically significant correlation between total knowledge level and total self-care reported practices level of studied patients at post electronic health education program about psoriasis. This finding agreed with ***Gad***

Allah et al., (2023), who revealed that there is a positive correlation with statistical significance difference between total knowledge and total self-care practice. Also, this finding was in the same line with *Mohamed et al., (2021),* who illustrated that there was a positive correlation between the studied patients' total knowledge score and their total self-care practices score toward psoriasis. From the researcher' point of view, this result may be due to the fact that logically, when the knowledge level increases, the level of self-care practices increases or vice versa

Concerning relation between patients' total knowledge level and demographic characteristics post electronic health education program about psoriasis; the study reveals that there was statistically significant relation between patients' demographic characteristics and their total knowledge level at post electronic health education program about psoriasis with age, education level and marital status. This result was in agreement with *Moselhy & Abdallah (2022),* who found that significant relation between patients' demographic characteristics and their total knowledge post educational program regarding age and level of education. Also, this study was supported by *Sawicka et al., (2022)*, in Poland (n=130) who conducted a study entitled "Evaluation of knowledge in the field of proper skin care and exacerbating factors in patients with psoriasis" and revealed that statistically significant relation between patients' education level, marital status and total level of knowledge. This may be due to educational level being a determinable factor that was associated positively with knowledge, as more than half of studied patients have a university education and also middle age of them encourage easily acquired of information about their condition

Concerning relation between studied patients' total self-care reported practices level and demographic characteristics post electronic health education program about psoriasis. The present study showed that there was statistically significant relation between patients' demographic characteristics and their total self- care reported practices level at post electronic health education program about psoriasis regarding age and education level.

These results were congruent with a study done by *Karimipour et al., (2021)* and found that there is a significant relation between patients' age and education level and total self- care practices. Also, this study results were in agreement with *Elzehiri et al., (2022)* and mentioned that statistically significant relation between participants' level of education and their self-care practices. This may be due to the high educational level playing a role in improving self-care practices.

Conclusion:

In the light of the current study results, there were statistically significant improvements of patients' knowledge and self-care reported practices about psoriasis post applying electronic health education program than pre. More than three fifths of patients had poor knowledge and inadequate self-care reported practices at pre-electronic health education program about psoriasis while majority of them had good knowledge and adequate self-care reported practices at post. Furthermore, there was a statistically significant positive correlation between the studied patients' total knowledge and their total self-care reported practices.

Recommendations:

- Continues health education program to increase awareness for patients about psoriasis
- Dissemination of a colorful and illustrated pamphlet that describes self-care methods as controlling psoriasis triggers, skin care, sanitary care guidelines and diet for each psoriatic patient.
- Further research done on a large sample and in other settings.

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