

Effect of Supportive Nursing Intervention on Feeling of Stigmatization and Quality of Life among Older Adults with Psoriasis

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Abstract

Background: Psoriasis is an inflammatory, chronic, recurrent immune skin disease that severely affects the quality of life of older adults and contributes to increased disability and feelings of stigma. Therefore, effective and appropriate nursing interventions are essential to improve older adults' knowledge and self-care practices regarding the disease and reduce its harmful effects. **Aim:** This study aimed to evaluate the effect of supportive nursing Intervention on feeling of stigmatization and the quality of life among older adults with psoriasis. **Method:** A quasi-experimental design (one group pre/post design) was used in this study. A purposive sample of 40 elderly patients attended dermatological outpatient clinic at Mansoura University Hospital and psoriasis outpatient clinic at Dermatology, Venereal, and Leprosy Hospital in Mansoura City. **Tools:** demographic and clinical data, the Psoriasis knowledge questionnaire, the self-care practice questionnaire, the 33-item feelings of stigmatization questionnaire, and the Psoriasis Disability Index. **Results:** Mean age The elderly participants were 64.53 ± 4.69 . There was a significant improvement in the older adults' total mean scores of psoriasis knowledge, practices, and quality of life, as well as a statistically significant reduction in disability levels and stigmatization related to psoriasis one month and three months post implementation of the nursing intervention ($P = 0.000^{**}$). **Conclusion:** Supportive nursing intervention significantly improves older adults' knowledge of psoriasis, self-care practices, and quality of life and reduce stigmatization feelings and disability levels. **Recommendations:** Dissemination of the developed illustrated supportive nursing intervention program booklet about psoriasis to all older adults with psoriasis attending Mansoura University Hospital should be done.

Keywords: Feeling of Stigmatization , Older Adults , Psoriasis, Quality of Life, Supportive Nursing Intervention

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Introduction

Psoriasis is a permanent disease, and its prevalence in older populations continues to increase. Psoriasis is an inflammatory chronic skin disease in which the immune system incorrectly recognizes a healthy skin cell as a pathogen and sends out false signals, causing an increase in the production of new skin cells. The skin patches become inflamed and scaly ⁽¹⁾. The World Health Organization (WHO) acknowledges psoriasis as a severe, non-transmittable skin condition. The incidence of psoriasis is believed to be associated with genetics, lifestyle, and environmental factors such as smoking, stress, and physical trauma. Although

psoriasis is not a contagious disease and cannot be transmitted from one person to another, it sometimes occurs in families ^(2,3) .

One of the main symptoms of psoriasis is painful, itchy, thick red skin lesions that frequently affect the extensor surfaces of legs and arms but also encompass the scalp, soles, palms, and entire body areas. These skin lesions are associated with increased disease severity and reduced quality of life, as severe forms of psoriasis are associated with multiple comorbidities such as cardiovascular, mental, and metabolic disorders ^(4,5).

It is recognized that stigmatization has a discrediting mark that prevents a person from developing normal relationships, leading to social isolation and discrimination. Stigma can be a visible physical mark, attitude, feature, or past event commonly associated with negative stereotypes ⁽⁶⁾. Psoriatic patients often experience feelings of stigmatization and persuade themselves that they have definite disease-related attributes that are socially unaccepted, which increases their feeling that these attributes are serious and gradually triggers self-image alteration. They also, believed that the appearance of their skin problem was affected people around them ^(7, 8).

They believe that people will avoid them or be uncomfortable being around them owing to their skin problems. The localization of skin plaques on the body, itchiness, and sites not covered with clothes are common factors that affect the feeling of stigmatization among psoriatic patients ⁽⁹⁾. Additionally, Quality of life is defined as a person's awareness of their roles in life regarding their measurements, objectives, concerns, and forecasts concerning their value and culture ^(10,11) . Psoriasis is a long-lasting disease that may be a reason for feelings of stigmatization, a rise in disability, and decreased quality of life ^(12,13).

Providing supportive nursing care is a fundamental sources of patient support during illness and stress ⁽¹⁴⁾. According to Marks and Radusky ⁽¹⁵⁾, the integration of knowledge and self-care practices for psoriatic geriatric patients enriches their health competency, as health education is the cornerstone of psoriatic management. Therefore, the role of the gerontological nurse is very critical, as nurses must provide educational opportunities for geriatric patients to enhance their knowledge and self-care practices and correct any misconceptions regarding the disease, its management, factors that aggravate it, hygienic practices, and skin care practices that are essential for lessening psoriasis severity, which subsequently decreases feeling of stigmatization, disability, and improves their quality of life ^(16,17).

Significance of the study

Psoriasis is a serious global health problem that affects people of all ages, with a peak onset at 50–69 years. Both males and females are equally affected ⁽¹⁸⁾ . It affects two to four percent of the world's population, accounting for more than 200

million people ⁽¹⁹⁾. In Egypt, more than one million people have psoriasis, including 145,000 with moderate to severe disease ⁽³⁾. The rise in life expectancy has caused an increase in the prevalence of chronic diseases in the older population, including psoriasis. Globally, three to thirteen percent of patients have an onset of psoriasis older than 60 years, while of those with psoriasis, approximately fifteen percent have a moderate-to-severe degree of the disease ⁽²⁰⁾. In addition, psoriasis has profound consequences for geriatric patients and management challenge owing to the high prevalence of multiple comorbidities, possible adverse drug reactions, progressive weakening of the immune system, and increased infection risk with aging ^(12,21).

Psoriasis is considered a disabling and disfiguring skin disorder. Older adults with psoriasis have a deteriorated quality of life, and a higher feeling of stigmatization due to the visibility of lesions and their frequent exacerbation and recurrence ^(22,23). They also, have low social support and increased disability ⁽²⁴⁾. To the best of our knowledge, few studies have addressed the role of nursing care for older adults with psoriasis. Therefore, the current study aimed to determine the effect of supportive nursing intervention on the quality of life and stigmatization of older adults with psoriasis.

Aim of the study

To evaluate the effect of supportive nursing intervention on feeling of stigmatization and quality of life among older adults with psoriasis.

Research hypothesis

- H1: Older adults with psoriasis who receive supportive nursing intervention will exhibit an improvement in their quality of life.
- H2: Older adults with psoriasis who receive supportive nursing intervention will display reduced feeling of stigmatization.

Operational definition

Supportive nursing intervention: a set of nursing practices involving knowledge and self-care skills to be followed discretely by each older adult with psoriasis enrolled in the current study, empowering them to take an active role in managing their quality of life and reducing feeling of stigmatization.

Subjects and Method

Design

A quasi-experimental research design (one group pre/post design) was used in this study.

Setting

This study was carried out at dermatological outpatient clinics at Mansoura University Hospital and psoriasis outpatient clinics at Dermatology, Venereal, and Leprosy Hospital in Mansoura City, affiliated with the Ministry of Health and located at Teraat El Mansourieh Street, El Mina Residences in Mansoura City, over eight months from the beginning of March 2023 until the end of September 2023.

Subjects

A purposive sample of 40 older adults attending the previous settings and meeting the following criteria: age 60 years or older, able to communicate, diagnosed with psoriasis and confirmed by dermatologists, disease duration at least one year and above and under treatment, free from any physical impairment, amputation, or handicap, and free from any severe heart, lung, or liver failure or fatal illness that is severe enough to limit patient autonomy, with no previous psychiatric history or illnesses, and free from any other skin diseases.

Sample size

The Sample size was calculated based on the patients' psoriasis disability index before and after three months of a self-management educational program in the intervention group, which was 15.6 ± 6.9 and 9.9 ± 5.1 , respectively ⁽⁴²⁾. For sample size calculation, we used <https://clincalc.com/stats/samplesize.aspx>. At $\alpha = 0.01$ and power = 95%, the beta error was 0.01, so the sample size was 30, and the researchers added 10% because of dropout to become 40 patients.

Tools:

Five tools were used in the current study:

Tool I: structured interview of demographic and clinical data.

This tool was developed by the researchers after a literature review ^(12,26,27,28,29,30) and consists of three parts:-

- Part 1:** Demographic characteristics; sex, age, level of education, marital status, current occupation if present, residence, and income.
- Part 2:** Older adult's Health Profile: other diseases, BMI, smoking, and medication consumed.
- Part 3:** Disease-related factors that consisted of four domains:
 - a. Family history of disease
 - b. Duration of the disease
 - c. Disease visibility is considered by the presence of prevalent psoriasis lesions in any one of the three most visible areas of the body; scalp and hairline, face, neck, ears, hands, fingers, and fingernails⁽⁷⁾.

Tool II: Psoriatic older adults' Knowledge structured interview schedule

This tool was developed by the researchers after reviewing the relevant literatures ^(31,32,33,34 ,35,36) to assess the baseline knowledge of geriatric patients with psoriasis and how to deal with it. This tool was applied as a pre-, post, and follow-up test for study subjects. It consists of fifteen (15) MCQ questions (Q1-Q15) and covers

the following items: definition of psoriasis, how psoriasis occurs, causes, risk factors, types, signs and symptoms, management, and complications of psoriasis.

Scoring system:

The correct answer for each question gets a score (1) even though the incorrect answers had a score of 0. The total knowledge score was equal to fifteen. This has been changed to a percentage. The total scores were classified into two categories:

Categories	Scores (Total score 15)	Percentage
• Satisfactory knowledge	If score 9 or more	If score $\geq 60\%$
• Unsatisfactory knowledge	If score less than 9	If score less than 60%

Tool III : Psoriatic older adults' self-care practices checklist

This tool was developed by the researchers after relevant literature reviewing (16,34,37,38,39) to assess the self-care practices of psoriatic geriatric patients and how to deal correctly with it. It was applied as a pre-, post-, and follow-up test for study subjects. It consists of twenty-five (25) questions and covers the following items; Practices should be done daily to decrease the degree of psoriasis and prevent complications. A diet that may increase psoriasis degree, a diet that may decrease or relieve psoriasis degree, how to deal with psoriasis in winter, how to take a healthy diet and lifestyle, such as avoiding smoking, performing physical exercise, taking measures to alleviate stress, getting good sleep, medications that must be avoided, and important tips during bathing.

Scoring system:

If the practice point was always done, it was scored (2); if it was sometimes done, it was scored (1); if not, it was scored zero. These scores were summed and converted into percentages. Responses were classified into two categories:

Categories	Scores (Total score 50)	Percentage
• Satisfactory self-care practices	If score 30 or more	If score $\geq 60\%$
• Unsatisfactory self-care practices	If score less than 30	If score less than 60%

Tool IV: 33-Items Feelings of Stigmatization Questionnaire

This scale was developed by Ginsburg et al. (40) , translated into Arabic, and tested for its validity and reliability by Dimitrov et al. (41). It was used to measure the level of stigmatization related psoriasis through six domains: feeling rejected (8 items), feeling worse (6 items), sensitivity to opinions of others' (5 items), shame and guilt (5 items), secretiveness (5 items), and positive attitude (4 items). An Arabic version was used in this study. The tool reliability was tested using an

interclass correlation coefficient of $r = 0.92$ and a Cronbach's alpha coefficient of 0.89. It involves 33 questions.

Scoring: all question had five possible responses: 5'definitely yes'', 4'yes'', 3'rather yes'', 2'rather no'', 1'no'', and zero "definitely no". Question numbers 9, 11, 12, 16, 17, 20, 23, 25, and 33 are inverted. The higher score the higher stigmatization level. The total score ranges from zero (lack of stigmatization) to 165 (maximum stigmatization level).

Tool V: (Quality of life scale) The Psoriasis Disability Index (PDI)

It was developed by Finlay and Coles ⁽⁴²⁾ as a psoriasis-specific questionnaire that was used to measure the effects of psoriasis on patient quality of life. This scale was translated into Arabic and tested for its validity and reliability by Zedan et al. ⁽⁴³⁾. An Arabic version was used in this study. The reliability of this tool was tested by test-retest reliability using Spearman's correlation coefficient ($r = 0.86$) and the validity was 0.85. The tool consists of 15 questions about the life disability of psoriasis, including the effects of treatment, daily activities, leisure time, occupational circumstances, and personal relationships over the past four weeks. The scoring of questions was scored on a 4-point Likert scale ranging from "not at all" (score of 0) to "very much" (score of 3). The total score is calculated by summing the scores of each of the 15 questions, higher scores indicate greater disability that ranges from zero to 45. the higher scores indicate greater disability caused by the disease and a lower quality of life.

Procedure

Preparatory phase

- An official letter was delivered from the Faculty of Nursing, Mansoura University to the managers of the previously mentioned settings to obtain their approval to perform the study.
- After a comprehensive review of the related literature, Tool I (Demographic and clinical data structured interview schedule), Tool II (Psoriatic geriatric patients' Knowledge structured interview schedule), and Tool III (Psoriatic geriatric patients' self-care practices checklist) were established by the researchers.
- The Arabic version of Tool IV (33-Items Feelings of Stigmatization Questionnaire) and Tool V (The Psoriasis Disability Index "PDI") were used for data collection.
- **Content Validity:** A jury of seven (7) specialists in the fields of gerontological nursing, psychiatric and mental health nursing, and medical-surgical nursing evaluated the study tools' feasibility and content validity, and then the suggested modifications were performed. Every specialist rated the relevance of each item of Tool II (psoriatic older adults' Knowledge Structured Interview Schedule) and Tool IV (psoriatic older adults' Self-Care Practices Checklist) using the following rating system: one: not relevant, two: somewhat relevant, three: quite relevant, and four: highly relevant. The item Content Validity Index (I CVIs) was 0.89 and

0.85, and the total scale CVI (S CVI) was 0.90 and 0.87, respectively, based on ratings received from the specialists.

- **Face validity:** The Arabic version of the tools was tested on 10% of the sample size (5) of the total study participants to assess the feasibility and clarity of the study tools before the initiation of the data collection process. Those tested in the pilot study were excluded from the total sample of the study.
- **Reliability of the tools:** Reliability of the tools: The reliability of tools I and II was applied to five geriatric psoriatic patients selected from the previously mentioned setting and reapplied two weeks later. The reliability of Tools I, II, and IV was confirmed using Spearman's correlation coefficients, which were $r = 0.89$, $r = 0.90$, and $r = 0.87$, respectively.
- **Ethical considerations:** Ethical approval was obtained from the Research Ethics Committee of the Faculty of Nursing – Mansoura University (**Ref.No.P.0412**). Informed consent from the study participants after an explanation of the study's aim must be taken and the researchers confirmed that the collected data were used only for the study's purpose. The privacy and confidentiality of the collected data was assured. Each geriatric patient was assured that the participation was voluntary and that they had the right to withdraw from the study at any time without any penalties.

Fieldwork

The intervention program was achieved in four phases (assessment, planning, implementation, and evaluation).

I- Assessment phase

- In line with the dermatological Outpatient Clinic in Mansoura University Hospital's schedule, the researchers visited the clinic every day per week except Friday from 8 am to 1 pm and in psoriasis outpatient clinic at Skin and Venereal Hospital and Leprosy every Sunday from 8 to 1 pm.
- First, the researchers introduced themselves to geriatric patients and provided them with a concise explanation of the study's purpose.
- Individualized interviews were conducted with each study participant in the waiting area of outpatient clinics.
- Assessment of each study participant was performed using Tool I: Demographic and clinical data structured interview schedule, Tool II: Psoriatic older adults' Knowledge structured interview schedule, Tool III: Psoriatic older adults' self-care practices checklist, Tool IV: 33-Items Feelings of Stigmatization Questionnaire and Tool V: The Psoriasis Disability Index (PDI) before nursing intervention program application (pre-test). The time taken to accomplish the study tools ranged from nearly 30 to 45 minutes.

II- Planning phase

- The intervention program was developed by the researchers based on the actual results obtained from the studied participant's assessment by the interview

questionnaires, in addition to, reviewing the related literature to fulfill the studied participants' deficit knowledge about psoriasis and how to deal with it.

- The intervention program booklet included knowledge about the disease and how to deal with it. was appropriately written in simple Arabic language with colored pictures and large-sized font to accommodate age-related visual changes and enrich the learning process.

III-Implementation phase

- The researchers started by introducing themselves to psoriatic older adults' and giving them a concise idea about the study's aim.
- Each older adult who decided to join in the study and accomplish the inclusion criteria was interviewed individually to collect the data using all the study tools (pre, one-month post, and three months after).
- The researchers used to read each question to the participants and marked exactly the answer they gave.
- The researchers started to collect data from the older adults with psoriasis via the pre-constructed tools in the previously mentioned setting.
- The program content was covered in four sessions. Two sessions weekly for two weeks, each session was taken thirty to forty-five minutes as follows;

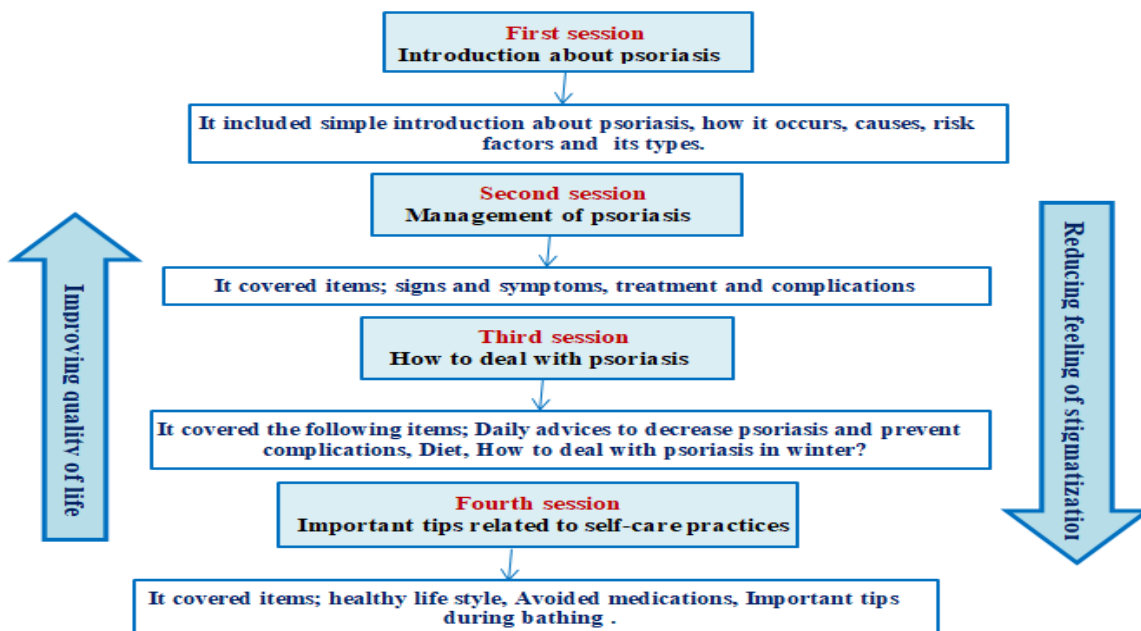


Figure (A): The four sessions of the supportive nursing intervention

-The first session (Introduction to psoriasis): relationship building at the beginning of this session, the researchers introduced themselves and explained the aim of the program and the methods of teaching to be used. It included a simple introduction to psoriasis, how it occurs, its causes, risk factors, and types. The researchers used simple, clear, brief words and images appropriate to psoriatic

older adults, and they were allowed to ask questions and get explanatory answers to ensure their understanding.

-Second educational session (management of psoriasis): It covered the following items: Signs and symptoms, treatment options, side effects, complications of psoriasis, treatment adverse effects, and drug interaction

-Third educational session (how to deal with psoriasis correctly): It covered the following items: daily advice that must be done to decrease psoriasis degree and prevent complications, how to prevent infection and enhance skin integrity, a diet that may increase psoriasis degree; diet that may decrease or relive psoriasis degree, and how to deal with psoriasis in the winter.

-Fourth educational session (important tips related to psoriatic older adults' self-care practices): It included items related to healthy lifestyle such as how to eat a healthy diet, avoiding smoking, perform physical exercise, using coal tar shampoos, measures to alleviate stress, good sleep, medications that must be avoided, important tips during bathing, and how to deal with sunlight during and after therapy.

- Throughout each session the researchers used PowerPoint presentation via laptop. In the last part of each session, a concise summary was given by the researchers, highlighting the most main points.
- Likewise, before beginning the following session, the researcher asked questions about the previous session; any unexploited or unclear points were reemphasized by the researchers.

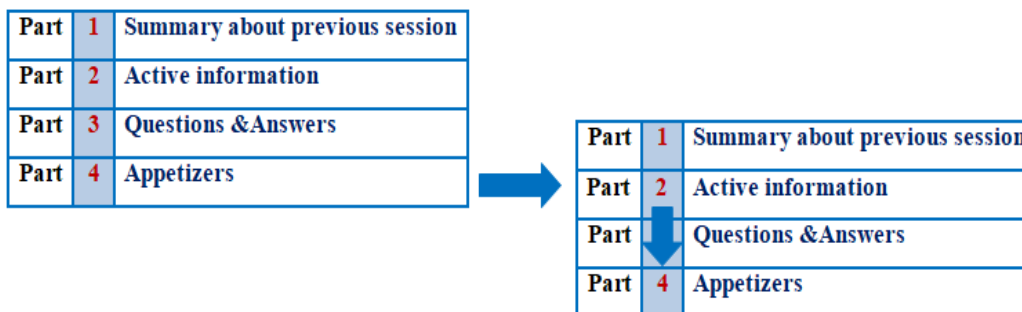


Figure (B) : The structure of the sessions

- In addition, the educational booklet was given to studied psoriatic older adults' to attract their attention, encourage them, and allow for reviewing and supporting their practices at home.
- Moreover, the researchers performed a weekly telephone call for psoriatic older adults' to clarify any unclear points and answer any questions to give reinforcement.
- Data collection was utilized over seven months from the beginning of March 2023 till the end of September 2023.

IV. Evaluation phase

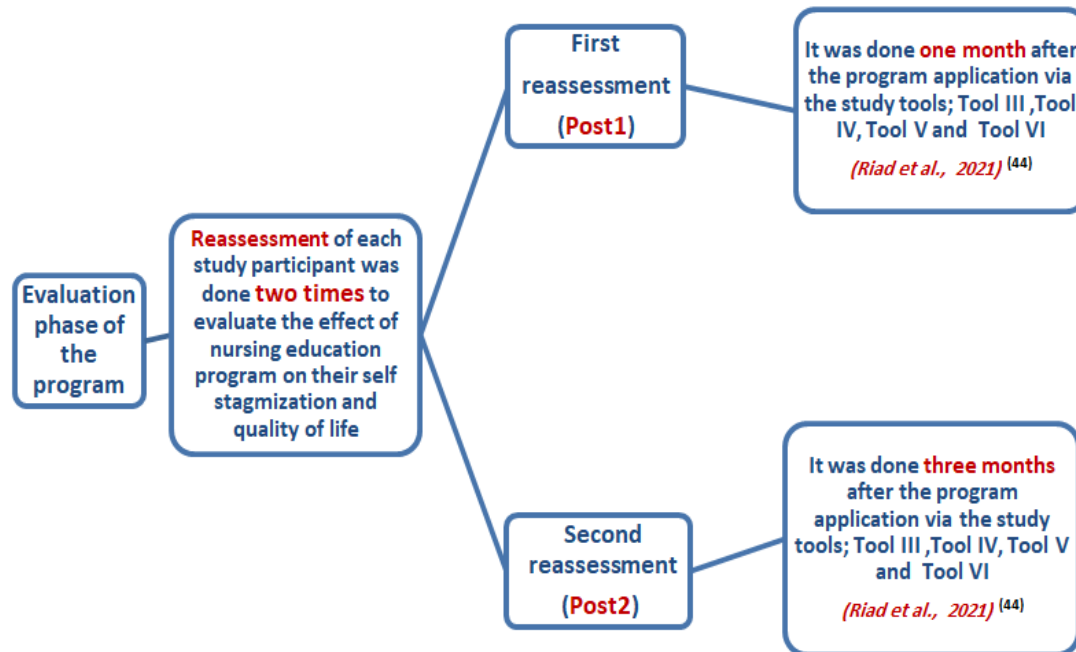


Figure (C): Evaluation phase of the supportive nursing program

Statistical Analysis

Data were collected via Statistical Package for Social Sciences (SPSS) version 22. The Kolmogorov-Smirnov test was used to determine whether the study variables were normal. For continuous variables, means and standard deviations were used to represent descriptive statistics. Frequencies and percentages were used to display categorical variables, and the mean scores for the two studied variables were compared using the paired sample t-test. To determine if the means of two independent groups differed statistically from one another, the Student's t-test of significance was utilized to compare the two sample means. On the other side, the one-way ANOVA (F) test was used for comparing more than two mean scores of the study variables. The Pearson correlation coefficient (r) was used to measure the correlation between variables. To create graphs, Microsoft Excel was used. Finally, the results were considered significant if the chance of error was less than 5% ($P < 0.05$) and very significant if it was less than 0.1% ($P < 0.001$).

Results

Table (1) shows that more than half of psoriatic older adults' were male, approximately three-quarters of them aged from 60 to 70 years with a mean age of 64.53 ± 4.696 years. Two-thirds of them were married, while about three-quarters of them were not working and lived in urban areas with enough income.

Table (2) shows that 57.5% of psoriatic older adults' were without a family history of psoriasis, over half of them (60%) were smokers, 72.5% of them had diabetes mellitus, and 37.5% of them had arthritis. The majority of studied patients (88.9%) were of normal weight. Regarding drugs received by the studied patients, 100% of them received topical therapy for psoriasis. While 15% of them received systemic therapy for psoriasis, furthermore, more than half of the studied older adults had psoriasis at more than one site and more at visible disease sites. Finally, about three-quarters of them (82.5%) suffered from disease from 1 year to less than 5 years.

Figure (1): reveals that the majority of studied older adults had unsatisfactory knowledge regarding psoriasis before the supportive nursing intervention program, but after the application of the program, the majority of the participants gained satisfactory knowledge about psoriasis. There was a statistically significant difference in the level of knowledge about psoriasis before and after the application of the nursing program ($P < 0.001$).

Figure (2): noticed that the majority of studied older adults had unsatisfactory practices regarding psoriasis before the supportive nursing program. After the application of the nursing program, the majority of the elderly studied developed satisfactory practices regarding psoriasis. There was a statistically significant difference in the level of self-care practices about psoriasis before and after the application of the nursing program ($P < 0.001$).

Table (3): shows that there was a statistical improvement in the studied geriatric patients' knowledge and self-care practices about psoriasis and how to deal with it. after one month and after three months from the program application than before.

Table (4): states that there was a statistically significant difference in scores of feelings of stigmatization and psoriasis disability before and after application of the supportive nursing program ($P = (0.000)$ **).

Table (5): indicates a statistically significant improvement in knowledge and self-care practices among young old, male, married, did not have enough income and who did not have visible disease sites one month later ($P = 0.05$, $P = 0.002$, $P = 0.003$, $P = 0.018$, $P = 0.000$ ***, respectively) and three months after the application of the nursing program ($P = 0.003$, $P = 0.015$, $P = 0.000$ ***, respectively).

Moreover, there was a statistically significant relation between both age and income and feeling of stigmatization and quality of life according to the Psoriasis Disability Index, as middle-old psoriatic geriatric patients with not enough income had higher feelings of stigmatization, a higher disability level, and a lower quality of life than others one month later ($P = 0.031$, $P = 0.015$, 0.000^{**} , respectively) and 3 months after application of the nursing program ($P = 0.043$, $P = 0.015$, 0.000^{**} , respectively).

Table (6): demonstrates that a statistically significant, strong negative correlation was found between the total knowledge score, total self-care practices scores and both feelings of stigmatization and quality of life according to the psoriasis disability index after application of the program. The feeling of stigmatization and disability index were higher among geriatric patients with lower total scores of knowledge and self-care practices ($p = 0.000$)^{**}.

Figure (3,4,5): reveals that a statistically significant strong positive correlation was found between the total knowledge score of the studied psoriatic older adults and total self-care practice scores after the application of the program. The total self-care practices were higher among studied psoriatic older adults who had higher knowledge scores and vice versa.

Table (7): shows that a statistically significant strong positive correlation was found between psoriatic older adults' feelings of stigmatization scores and psoriatic disability index scores after application of the program. The feeling of Stigmatization scores was higher among patients who had a high level of disability and low quality of life according to the psoriasis disability index ($P= 0.000$) ^{**}.

Table 1: Demographic characteristics of the studied psoriatic older adults

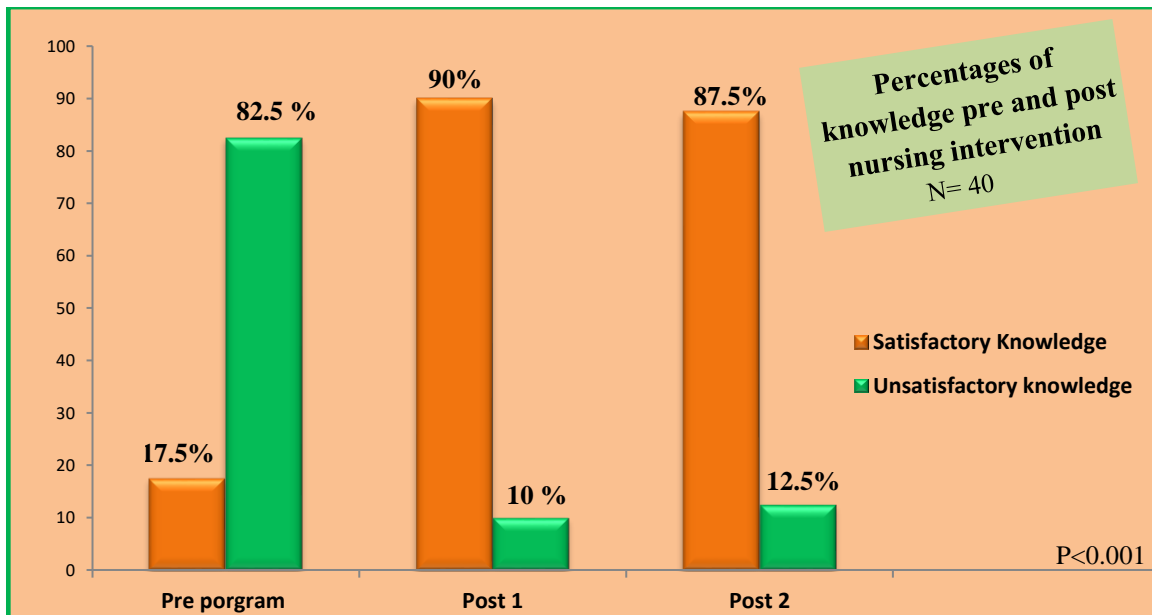
Demographic data		N=40	%
Age	• 60 to less than 75 years	31	77.5
	• 75 to less than 85 years	9	22.5
Mean ± SD 64.53±4.696			
Sex	• Male	24	60
	• Female	16	40
Marital status	• Married	28	70
	• Unmarried*	12	30
Educational level	• Illiterate	10	25
	• Read and write	13	32.5
	• Pre university	13	32.5
	• University	4	10
Residence	• Rural	9	22.5
	• Urban	31	77.5
Income	• Not enough	18	45
	• Enough	22	55
Current working condition	• Working	9	22.5
	• Not working	31	77.5

*Unmarried means= Single , Widow or Divorced

Table (2): Clinical data of the studied psoriatic older adults

	Items	N (40)	%
Family history of Psoriasis	• Yes	17	42.5
	• No	23	57.5
Smoking	• Yes	16	40
	• No	24	60
Body Mass Index	• Normal Weight	36	90
	• Under weight	4	10
Duration of Psoriasis	• From 1 years to less than 5 years	33	82.5
	• From 5 years to less than 10 years	7	17.5
Psoriasis site	• One site	13	32.5
	• More than one Site	27	67.5
Disease visibility	• Yes (visible sites)	24	60.0
	• No (Not visible sites)	16	40.0
Presence of other diseases#	• Hypertension	30	75
	• Diabetes Mellitus	29	72.5
	• Arthritis	15	37.5
Treatment of Psoriasis #	• Topical therapy	40	100
	• Systemic therapy	6	15
	• Phototherapy	3	7.5

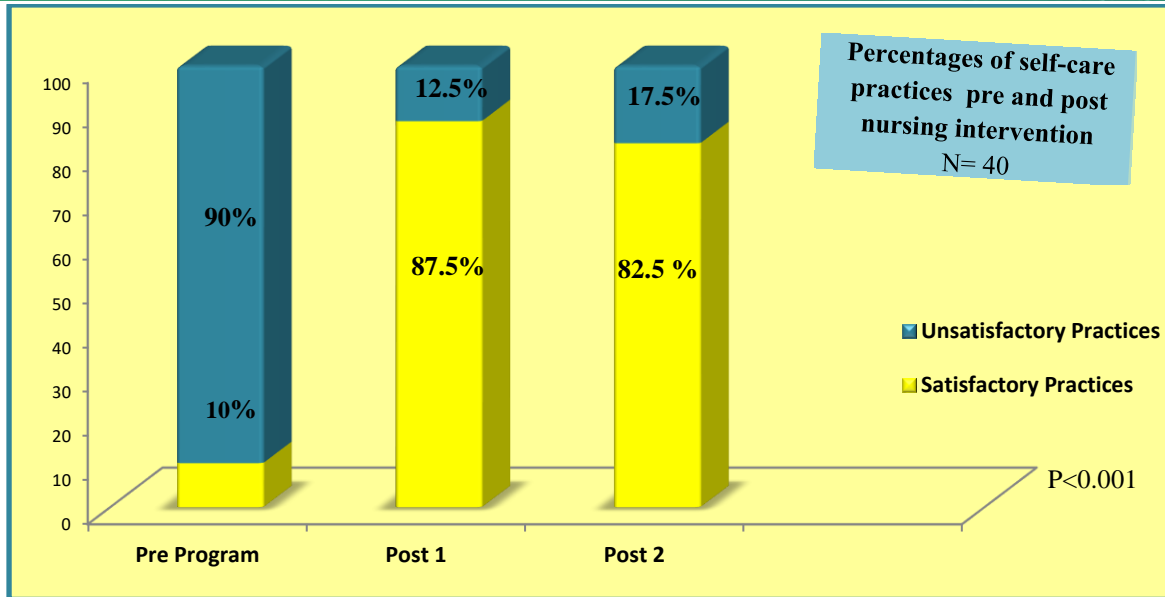
More than one response



Post 1 = after one month from supportive nursing intervention implementation

Post 2= after three months from supportive nursing intervention implementation

Figure (1): Percentages of total studied psoriatic older adults' knowledge pre and post nursing intervention



Post 1 = after one month from supportive nursing intervention implementation
Post 2= after three months from supportive nursing intervention implementation

Figure (2): Percentages of total studied psoriatic older adults' Self-care practices pre and post nursing intervention

Table (3): Effect of the Supportive Nursing Intervention Program on total knowledge score and self-care practices of the studied psoriatic older adults (N=40).

Items	Pre	Post 1	Post 2	Test of significance	
				P ¹	P ²
Total knowledge scores	5.08±2.39	11.55±1.97	10.73±1.96	t=35.474 (0.000) **	t=28.549 (0.000) **
Total self-care practices scores	19.73±4.14	41.38±6.75	40.18±6.97	t=30.062 (0.000) **	t=27.609 (0.000) **

t-test with paired samples (p) 1: comparing pre and 1 month after the program (post1).
t-test with paired samples (p) 2: comparing pre and 3 months after the program (post2).

Table (4): Difference in feelings of stigmatization and quality of life according to the Psoriasis Disability Index before and after application of the program (N=40).

Items	Pre	Post 1	Post 2	Test of Significance (P)	
				P1	P2
Mean ±SD					
Feelings of stigmatization	140.87±12.79	74.95±4.16	76.85±4.21	t= 44.795 (0.000)**	t=43.593 (0.000) **
Quality of life (QoI) according to Psoriasis Disability Index	36.63±6.71	14.55±6.71	16.55±2.86	t= 30.034 (0.000) **	t= 27.313 (0.000) **

t-test with paired samples (p) 1: comparing pre and 1 month after the program (post1).
t-test with paired samples (p) 2: comparing pre and 3 months after the program (post2).
Low disability index score indicates high quality of life

Table (5): Relation between Demographic characteristics, Clinical data of psoriatic older adults', and study variables after program application (N=40).

Items	N	Knowledge		Self-care Practices		Feelings of stigmatization		quality of life according to Psoriasis Disability Index	
		Post 1	Post 2	Post 1	Post 2	Post 1	Post 2	Post 1	Post 2
		Mean ± SD		Mean ± SD		Mean ± SD		Mean ± SD	
Age									
• 60 to ↓ 75 y(young old)	31	12.00±1.83	11.16±1.75	42.87±5.53	41.84±5.65	74.19±3.69	76.12±3.75	13.96±2.46	15.96±2.46
• 75 to ↓85 y(Middle old)	9	10.00±1.73	9.22±1.99	36.22±8.30	34.44±8.32	77.56±4.82	79.33±4.94	16.55±3.35	18.55±3.35
Test of significance		T=2.924 P=0.002	T=2.838 P=0.001	T=2.824 P=0.001	T=3.095 P=0.004	T=-2.244 P=0.031	T=-2.096 P=0.043	T=-2.549 P=0.015	T=-2.549 P=0.015
Sex									
• Male	24	12.04±1.57	11.21±1.57	43.62±3.21	42.33±4.218	74.08±3.46	75.95±3.48	13.83±2.21	15.83±2.219
• Female	16	10.81±2.32	10.00±2.34	38.00±9.085	36.94±8.96	76.25±4.85	78.18±4.92	15.62±3.42	17.62±3.42
Test of significance		T=2.003 P=0.05	T=1.979 P=0.05	T=2.799 P=0.002	T=2.565 P=0.014	T=-1.650- P=0.107	T=-1.679- P=0.101	T=-2.013- P=0.051	T=-2.013- P=0.051
Marital status									
• Married	28	12.04±1.57	11.21±1.53	43.62±3.20	42.33±4.22	74.08±3.46	75.95±3.48	13.83±2.21	15.83±2.21
• Unmarried*	12	10.81±2.32	10.00±2.34	38.00±9.08	36.94±8.96	76.25±4.85	78.18±4.92	15.62±3.42	17.62±3.42
Test of significance		T=2.003 P=0.05	T=1.979 P=0.05	T=2.799 P=0.008	T=2.565 P=0.01	T=-1.650- P=0.107	T=-1.679- P=0.101	T=-2.013- P=0.051	T=-2.013- P=0.051
Educational level									
• Illiterate	10	10.90±2.33	10.10±2.42	39.00±8.21	36.60±8.97	75.80±5.20	77.80±5.20	15.30±3.56	17.30±3.56
• Read and write	13	11.23±1.59	10.46±1.56	39.85±6.07	39.15±5.71	76.23±2.7	78.23±2.77	15.30±2.21	17.30±2.21
• Pre university	13	11.92±2.10	11.08±2.06	43.15±6.11	42.31±5.88	73.61±4.61	75.46±4.55	13.69±3.03	15.69±3.03
• University	4	13.00±1.15	12.00±1.15	46.50±4.04	45.50±4.04	73.00±2.30	74.50±2.88	13.00±1.15	15.00±1.15
Test of significance		F=1.390 P=0.262	F=1.131 P=0.349	F=1.810 P=0.163	F=2.384 P=0.085	F=1.323 P=0.282	F=1.592 P=0.208	F=1.346 P=0.275	F=1.346 P=0.275
Residence									
• Rural	9	11.81±1.97	11.00±1.93	41.77±7.02	41.00±6.78	74.32±4.22	76.25±4.28	14.12±2.88	16.12±2.88
• Urban	31	10.67±1.80	9.78±1.86	40.00±5.89	37.33±7.25	77.11±3.25	78.89±3.40	16.00±2.39	18.00±2.39
Test of significance		T=1.553 P=0.129	T=1.684 P=0.100	T=0.689 P=0.495	T=1.407 P=0.168	T=-1.824- P=0.076	T=-1.689- P=0.099	T=-1.772- P=0.084	T=-1.772- P=0.084
Income									
• Enough	22	10.82±1.84	10.00±1.83	39.14±6.80	37.6818±7.03	76.09±4.35	77.95±4.434	15.36±3.01	17.36±3.01
• Not enough	18	12.44±1.89	11.61±1.79	44.11±5.74	43.22±5.69	73.56±3.53	75.50±3.58	13.55±2.38	15.55±2.38
Test of significance		T=-2.813- P=0.003	T=-2.803- P=0.003	T=-2.465- P=0.018	T=-2.695- P=0.010	T=1.991 P=0.054	T=1.895 P=0.066	T=2.068 P=0.045	T=2.068 P=0.045
Current working condition									
• Working	9	11.33±1.87	10.44±1.88	40.56±6.11	38.89±6.63	75.88±3.33	77.88±3.33	15.00±2.50	17.00±2.50
• Not working	31	11.61±2.03	10.81±2.01	41.61±7.00	40.55±7.127	74.67±4.37	76.54±4.43	14.41±2.98	16.41±2.98
Test of significance		T=-0.370- P=0.713	T=0.838 P=0.407	T=-0.409- P=0.685	T=0.530 P=0.599	T=0.766 P=0.449	T=0.838 P=0.407	T=0.530 P=0.599	T=0.530 P=0.599
Duration of Psoriasis									
• 1 to less than 5 years	33	10.33±2.08	9.33±2.08	37.00±9.54	36.33±8.96	77.66±3.78	79.66±3.78	16.33±3.21	18.33±3.21
• 5 to less than 10 years	7	12.80±2.44	12.00±2.11	46.40±4.53	45.60±4.22	73.30±4.21	75.10±4.35	13.50±2.91	15.50±2.91
Test of significance		T=-1.575- P=0.144	T=-1.926- P=0.080	T=-2.474- P=0.031	T=-2.606- P=0.024	T=1.601 P=0.138	T=1.629 P=0.132	T=1.448 P=0.175	T=1.448 P=0.175
Psoriasis site									
• One site	13	12.30±2.52	11.53±2.36	44.46±6.89	43.69±6.58	74.15±4.41	76.00±4.54	14.07±3.12	16.07±3.12
• More than one Site	27	11.18±1.56	10.33±1.64	39.88±6.27	38.48±6.61	75.33±4.05	77.25±4.06	14.77±2.76	16.77±2.76
Test of significance		T=1.727 P=0.092	T=1.879 P=0.068	T=2.091 P=0.043	T=2.339 P=0.025	T=-0.837- P=0.408	T=-0.884- P=0.382	T=-0.720- P=0.476	T=-0.720- P=0.476
Disease visibility									
• Visible	24	10.33±1.46	9.54±1.53	38.04±6.57	36.70±6.77	77.66±2.61	79.58±2.70	16.33±2.18	18.33±2.18
• Not visible	16	13.37±0.95	12.50±0.89	46.37±2.78	45.37±2.77	70.87±2.21	72.75±2.23	11.87±1.14	13.87±1.14
Test of significance		T=-7.314- P=0.000**	T=-6.957- P=0.000**	T=-4.776- P=0.000**	T=-4.834- P=0.000**	T=8.533 P=0.000**	T=8.375 P=0.000**	T=7.495 P=0.000**	T=7.495 P=0.000**

Post1: 1 month after the program Post 2: 3 months after the program t= independent t test F= One Way ANOVA
High disability index score indicates low quality of life

Table (6): Correlation between studied psoriatic older adults’ knowledge, self-care practices, feelings of stigmatization, and disability Index before and after application of the program (N=40).

Item	Total knowledge mean scores			Total self-care practices mean scores			
	Pre	Post 1	Post 2	Pre	Post 1	Post 2	
Feelings of stigmatization	r	-0.713	-0.865	-0.859	-0.666	-0.778	-0.802
	p	0.000 **	0.000 **	0.000 **	0.000 **	0.000 **	0.000 **
Disability Index (Low Quality of life)	r	-0.553	-0.908	-0.904	-0.485	-0.835	-0.846
	p	0.000 **	0.000 **	0.000 **	0.000 **	0.000 **	0.000 **

**Correlation is significant at the 0.01 level (2-tailed)

Low disability index score indicates high quality of life

Figures (3,4,5): Correlation between studied psoriatic older adults’ knowledge and self-care practices before and after application of the program (N=40)

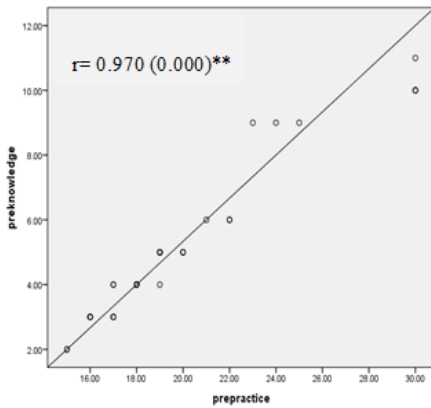


Figure (3): Correlation between studied psoriatic older adults’ knowledge and self-care practices before the program application

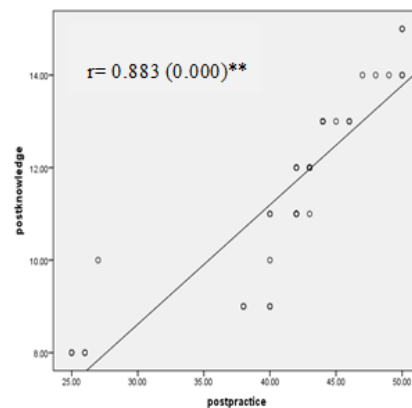


Figure (4): Correlation between studied psoriatic older adults’ knowledge and self-care practices one month after application of the program

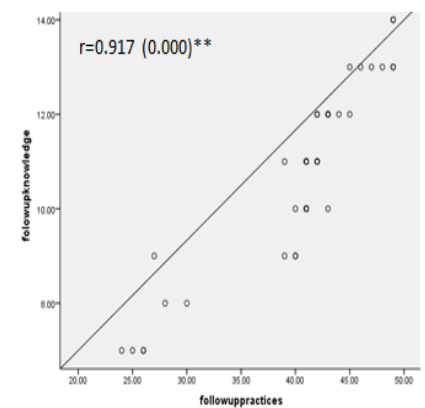


Figure (5): Correlation between studied psoriatic older adults’ knowledge and self-care practices 3 months after application of the program

Table (7): Correlation between studied psoriatic older adults’ feelings of stigmatization and quality of life according to Psoriasis Disability Index before and after application of the program (N=40).

Item	Feelings of stigmatization			
	Pre	Post 1	Post 2	
Psoriasis Disability Index	r	0.960	0.989	0.985
	P	0.000 **	0.000 **	0.000 **

**Correlation is significant at the 0.01 level (2-tailed)

Low disability index score indicates high quality of life

Discussion

Psoriasis is an inflammatory skin disease that is immune-mediated and complex, requiring long-term therapy and follow-up due to its multiple developing relapses⁽⁴⁵⁾. There is evidence to suggest that patients would rather have a personalized approach to their care; they want to be treated as persons, not as cases⁽⁴⁶⁾. As a chronic disease involving the largest human organ (the skin), psoriasis has a profound consequence on the quality of life and feeling of stigmatization⁽¹³⁾.

The current study's findings showed that the patients' mean age was 64.53 ± 4.696 , with somewhat more men than women. This finding is consistent with studies conducted in Germany by Bubak et al. (2019) ⁽⁴⁷⁾ and Romania by Brihan et al. (2020) ⁽⁴⁸⁾, which discovered that, respectively, more than half (68.6% and 58.92%) of the individuals were male. Regarding marital status, more than two-thirds of the participants were married. This was in line with studies conducted in Egypt by Nabawy et al., (2021)⁽³⁴⁾ who reported that 70% of the sample was married, and by Moselhy & Abdallah, (2022) ⁽⁴⁹⁾ who found that 71.7% and 76.1 of both the control and study group were married, respectively. According to our perspective, this outcome can be the result of Egyptian cultural norms that value marriage as a significant life milestone and encourage it.

According to the current study's findings, over half of the participants had a family history of psoriasis that was negative. This finding is constant with a study performed in Egypt by Moselhy & Abdallah (2022) ⁽⁴⁹⁾, who found that 69.9% and 73.5%, of the study and control groups had a negative family history respectively. Additionally, Naga (2018) ⁽⁵⁰⁾ in another study conducted in Egypt found that almost two-thirds of the study group had a negative family history of psoriasis. According to Wei et al. (2022) ⁽⁵¹⁾, Smoking is thought to be one of the factors that raises the chance of getting psoriasis and also impact how severe the condition is for individuals who already have it. Conversely, the findings of this study revealed that over half of the participants in the study did not smoke, which is consistent with research done in Egypt by Moselhy & Abdallah (2022) ⁽⁴⁹⁾ and the United Kingdom by Chiriac et al. (2017) ⁽⁵²⁾, which reported that the majority of the study samples did not smoke. However, a study by El-Komy et al. (2020) ⁽¹²⁾ made it clear that the majority of the sample were smokers.

As stated by the current study, most of the patients were poorly informed about psoriasis before the implementation of the supportive nursing program. However, following the program's implementation, the majority of the patients developed satisfactory knowledge and self-care practices regarding psoriasis. The level of knowledge and self-care techniques regarding psoriasis before and after the nursing program was implemented differed statistically significantly. These findings were consistent with a study that examined the self-care behaviors of psoriasis patients and the factors that influence them. The study also discovered that the majority of the patients had inadequate knowledge when it came to evaluating before beginning any kind of intervention.

In the same direction a study conducted in Germany by Bubak et al.,(2019) ⁽⁴⁷⁾ entitled "Analyzing the Value of an educational program for Psoriasis Patients: a prospective controlled pilot study " discovered that while neither the intervention group nor the control group reported a statistically significant increase in knowledge before the implementation of the educational program, the intervention group did

report a statistically significant increase in general knowledge about psoriasis than the control group after implementation of the intervention ($p = < 0.0001$).

Additionally, Elzehiri et al., (2022) ⁽³⁸⁾ a study from Egypt entitled "Effect of Individualized Guidance on Knowledge and Self-Care Practices of Psoriasis Patients," found a highly significant difference ($p > 0.001$) between the study group and the control group in all items related to psoriasis knowledge and self-reported practices following the implementation of individualized guidance. Similarly, Nabhan et al., (2021) ⁽⁵³⁾ a study conducted in Egypt that revealed that the self-care management program significantly improved the psoriasis patients' practices ($p=0.000$; $t=7.901$). Consistent with the researchers' point of view, the effectiveness of the health education provided to each patient individually through various teaching strategies, such as lectures and colored booklets tailored to their level of education and understanding, may account for improvements observed after the program was put into place. Additionally, the provision of accurate, comprehensible, and trustworthy medical information is crucial in empowering and motivating patients to take charge of their care. Additionally, it makes sense because geriatric patients in particular, and those with psoriasis in general do not receive the care they require, and the media plays essentially no role in educating the public about the disease and effective coping mechanisms. Consequently, this program was a great way for them to raise their knowledge level.

The current study aimed to evaluate how a supportive nursing intervention program affected the quality of life and self-stigmatization of older adults with psoriasis. Every psoriasis patient in the study displayed some level of stigma. This was similar to 88.0% in Arabic Emirati patients Dimitrov et al., (2019) ⁽⁴¹⁾ and 90.2% in Polish patients Hrehorów et al., (2012) ⁽⁵⁴⁾. This study also demonstrated that the studied sample had greater levels of stigma and psoriasis-related impairment. This is in line with a study conducted in Egypt by Soliman., (2020) ⁽⁷⁾, which found that based on the 6-item Stigmatization Scale, only 8 (4.0%) of the patients had no stigmatization feelings (score of 0), while the remaining patients had stigmatization feelings to some extent in at least one of the six items.

In the same direction, Van Beugen et al. (2017) ⁽⁵⁶⁾ found that patients with psoriasis who had lower levels of education were more likely to be stigmatized and exhibit higher levels of stigmatization. Furthermore, our study showed a statistically significant difference between the ratings for psoriatic disability and feelings of stigmatization before and after the supportive nursing program was implemented. Furthermore, a study conducted in Egypt by Elzehiri et al., (2022) ⁽³⁸⁾ revealed that, following the implementation of the tailored guidance program, there was a significant difference ($P > 0.001$) in the overall degree of impairment between the study and control groups.

On the same line, Moselhy& Abdallah (2022) ⁽⁴⁹⁾ a study from Egypt found that the study group's mean total disability index score improved significantly from 15.45 ± 8.85 during the pretest to 8.75 ± 6.21 during the follow-up phase, compared to the control group's 14.37 ± 8.23 during the follow-up phase ($p < 0.000^{**}$). This can be understood as giving patients more information about the nature and reality of their disease as well as coping mechanisms, which has been shown to significantly lessen stigma and lessen the impact of the disease on both life in general and its disability in particular.

Furthermore, the current study clarified that, compared to other patients, males who were married, had low incomes, were not visible disease sites, and had satisfactory knowledge, self-care practices, and high quality of life. The same outcomes were discovered in an Egyptian study carried out by Elbaramony & Ibrahim (2021)⁽⁵⁷⁾. This is not in line with additional studies conducted in Egypt by Sharaf & Ibrahim (2017) ⁽¹⁸⁾ and in Iraq by Al Raddadi et al.(2016) ⁽⁵⁸⁾; Soliman (2020) ⁽⁷⁾ found that there was a significant positive correlation between the studied samples' demographic characteristics and their self-reported practices, level of knowledge, and quality of life, with geriatric patients having worsening quality of life and patients with lower incomes having the lowest level of practices and worsening quality of life than other patients ($p < 0.001$).

Furthermore, the current study clarified that there was a statistically significant relationship between age, income, and the perception of stigmatization and quality of life according to the Psoriasis Disability Index. One month later, middle-old psoriatic geriatric patients with inadequate income reported higher levels of disability and a lower sense of stigmatization than other patients. These results are comparable to a Polish study by Sawicka et al., (2021) ⁽³⁵⁾ which showed statistically significant differences between quality of life and all socio demographic variables, with patients 60 years of age and older and those with low incomes showing the highest levels of stigmatization and the most severe declines in quality of life ($p < 0.001$). From the perspective of the researchers, these results could be explained by the fact that psoriasis can be an expensive condition to treat, requiring regular doctor visits and expensive medication. As a result, patients with insufficient or low income may find it difficult to afford appropriate treatments and to take care of their general health. This financial strain can lead to a reduced quality of life and a greater sense of stigmatization since patients may feel imprisoned with few options for efficiently treating their condition and few resources.

The current study's findings addressing the correlation between study variables showed that the overall knowledge score and the total self-care behaviors score of the patients under study had a high positive link with psoriasis ($P=0.000^{**}$). The same conclusion was also supported by Nabawy (2021) ⁽³⁴⁾; and Omar & Ramadan (2022) ⁽¹⁶⁾ in Egypt who found that self-care behavior was positively correlated with the

degree of disease knowledge in those with poor self-care behaviors. The low Psoriasis Area and Severity Index score and limited disease awareness were substantially correlated with poor self-care practices.

In a similar line, Moselhy and Abdallah (2022) ⁽⁴⁹⁾ a study conducted in Egypt, that revealed a positive association ($p < 0.030$) between the study group's overall self-care behaviors and their total psoriasis knowledge score level throughout the program intervention's pretest phase. Similar findings were reported in a study carried out in Egypt by Soliman, M. (2020) ⁽⁷⁾, which showed that patients with less disease awareness had a lower quality of life ($p = 0.004$). Further studies conducted in Norway by Larsen et al., 2021 ⁽³³⁾; in Poland by Sawicka et al., 2021⁽³⁵⁾; in Romania by Mazzuocolo et al., 2019 ⁽⁵⁹⁾; and in France by Jendoubi et al., 2022⁽⁵⁵⁾, revealed the same conclusion, noting a strong positive correlation between knowledge, practices, and quality of life as studied samples with high levels of disease-related knowledge and practices had lower levels of disability, stigmatization, and good quality of life ($p < 0.001$). This outcome can be explained by the fact that patients are more likely to adopt appropriate self-care practices when they have a better understanding of their condition, including its causes, triggers, symptoms, and available treatments. Having sufficient knowledge also gives patients the power to make decisions about how best to manage their condition, which reduces disability and feelings of stigmatization and ultimately improves quality of life.

Conclusion

The supportive nursing intervention has a significant positive effect on improving psoriatic geriatric patients' knowledge, self-care practices about psoriasis, quality of life, and reducing stigmatization and disability levels. Furthermore, there was strong positive correlation was found between the knowledge and self-care practices after the application of the program. In addition, was strong negative correlation was found between the knowledge, self-care practices, feeling of stigmatization, and quality of life according to the psoriasis disability index among psoriatic geriatric patients after the application of the program.

Recommendations

- Dissemination of the developed illustrated supportive nursing intervention program booklet about psoriasis to all psoriatic older adults attending Mansoura University Hospital should be done.
- Engage the nursing program for psoriatic patients' management plan side by the traditional management to equip them with the knowledge essential for empowering self-care practices, improving quality of life, and reducing disability and feelings of stigmatization.
- Caring for the elderly who suffer from stigmatization diseases such as psoriasis to increase their quality of life and reduce disability

- Further research is needed to deeply address the factors that enhance feelings of stigmatization among psoriatic geriatric patients.

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Conflicts of interest disclosure

The authors declare that they have no conflict of interest. All data including statistics, are available from the corresponding author and will be made available upon reasonable request.

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References

1. Meng, S., Lin, Z.& Wang, Y. (2018): Psoriasis therapy by Chinese medicine and modern agents, *Chin Med.* Vol. (13), No.(16),Pp.1-10. <https://doi.org/10.1186/s13020-018-0174-0>.
2. World Health Organization. (2018): Global Report on Psoriasis available at <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health> accessed on 23 December , 2023.
3. Farag, A., Samaka, R., Elshafey, N., Shehata, A., El Sherbiny, G., & Hammam, A. (2019): Immunohistochemical study of janus kinase 1/signal transducer and activator of transcription 3 in psoriasis vulgaris, *Clinical, Cosmetic and Investigational Dermatology*.Pp. 497-508.
4. Korman, NJ.(2019):Management of psoriasis as a systemic disease: what is the evidence?, *British Journal of Dermatology* . Vol. (182), No. (4), Pp.840-848.
5. Bakirtzi, E., Sotiriou, I., Papadimitriou, N., Sideris, E. & Vakirlis, A. (2022): Elderly patients with psoriasis: long-term efficacy and safety of modern treatments, *J Dermatolog Treat.* Vol.(33), Pp. 1339-1342.
6. Alyousef, S., Sami, Alhamidi., Monirah, Abloushi.&Thurayya, Eid. (2010):Perceptions of media's contribution toward stigmatization of mental health by Saudi Arabian nurses, *Journal of the American Psychiatric Nurses Association*, Vol.(26), No.(6), Pp .568-575.
7. Soliman, M. (2020):Acceptance of illness and need for education to support dermatology self-care in psoriasis patients: a cross-sectional study, *Advances in Dermatology and Allergology/Postępy Dermatologii i Alergologii.* Vol. (38), No. (5), Pp. 842-849.
8. Zhang, H., Yang, Z, Tang, K., Sun, Q. & Jin, H. (2021): Stigmatization in patients with psoriasis: a mini review,*Front Immunol.* Vol. (12), Pp.71583.
9. Kowalewska, B., Cybulski, M., Jankowiak, B., & Krajewska-Kułak, E. (2020):Acceptance of illness, satisfaction with life, sense of stigmatization, and quality of life among people with psoriasis: a cross-sectional study, *Dermatology and therapy.* Vol. (10), Pp. 413-430.
- 10.Meneguin, S., de Godoy, A., Pollo, F., Miot, A., & de Oliveira, C. (2020): Quality of life of patients living with psoriasis: a qualitative study,*BMC dermatology.* Vol. (20), No.(1), Pp. 1-6.
- 11.Nada, H., Fikry, S. & Hagag, W. (2023): Quality of Life among Psoriasis Patients; Correlation with Severity and Response to Psoralen Ultraviolet-A phototherapy, *Suez Canal University Medical Journal.*Vol.(26), No. (2), Pp.6-10.

- 12.El-Komy, H., Mashaly, H., Sayed, S., Hafez, V., El-Mesidy, S., Said, ER., Amer, MA., AlOrbani, AM., Saadi, DG., El-Kalioby, M. & Eid RO.(2020):Clinical and epidemiologic features of psoriasis patients in an Egyptian medical center,JAAD international. Vol. (1) , No.(2),Pp.81-90.
- 13.Jankowiak, B., Kowalewska, B., Krajewska-Kuřak, E.& Khvorik, DF.(2020):Stigmatization and quality of life in patients with psoriasis, Dermatology and therapy. Vol. (10), No.(2), Pp.285-96.
- 14.Chalco, K., Wu, D. Y., Mestanza, L., Munoz, M., Llaro, K., Guerra, D., & Sapag, R. (2022). Nurses as providers of emotional support to patients with MDR- TB. International nursing review, 53(4), 253-260.
- 15.Marks, L. & Radusky, R. (2021) : What Is Psoriasis? Symptoms, Causes, Diagnosis, Treatment, and Prevention available at <https://www.everydayhealth.com > psoriasis > guide> accessed on 20 November,2023.
- 16.Omar, I. & Ramadan, A.(2022): Self-practice among patients with psoriasis: University hospital experience, Journal of Dermatological Treatment. Vol. (33), No. (4), Pp.2203-8.
- 17.Radeef, RH.& Abdulwahhab, MM.(2023): Prevalence of Psychological Problems Upon Patients with Psoriasis, Migration Letters. Vol. (22), No. (20) .Pp. 629-35.
- 18.Sharaf, AY. & Ibrahim, AF. (2017): Quality of life of patients with Psoriasis in Alexandria-Egypt, IOSR Journal of Nursing and Health Science. Vol. (6), No. (1), Pp.17-29.
- 19.Damiani, G., Bragazzi, L., Aksut, K., Wu, D., Alicandro, G., McGonagle, D., Guo, C., Dellavalle, R., Grada, A., Wong, P., Vecchia, L., Tam, S., Cooper, D.& Naghavi, M.(2021):The global, regional, and national burden of psoriasis: results and insights from the global burden of disease 2019 study, Front. Med. Vol (8),Pp. 743180. doi: 10.3389/fmed.2021.743180.
- 20.Teixeira, A., Ribeiro, C., Gaio, R., Torres, T., Magina, S., Pereira, T., Teixeira, M., Rocha, C., Lobo, J., Almeida , F., Vidal , G., Pedrosa , E , Sousa, F., Dinis, M., & Almeida, V. (2022):Influence of psoriasis lesions' location and severity on psychosocial disability and psychopathology. Observational study and psychometric validation of the SAPASI Portuguese version, Journal of psychosomatic research . Vol. (154).Pp. 110714. <https://doi.org/10.1016/j.jpsychores.2021.110714>.
- 21.Sandhu, K., Ighani, A., Fleming, P. & Lynde, W., (2020): Biologic treatment in elderly patients with psoriasis: a systematic review, Journal of Cutaneous Medicine and Surgery. Vol. (24), No. (2),Pp.174-186.
- 22.Tseng, IL., Yang, CC., Lai, EC. & Lee, CN. (2021): Psoriasis in the geriatric population: A retrospective study in Asians, The Journal of dermatology. Vol. (48), No. (6), Pp.818-24.
- 23.Uzunçakmak, K., Gümüř, S., Eser, A.Ö. & Engin, B. (2023):Demographic and Clinical Characteristics of Geriatric Patients with Psoriasis: A Single-center, Cross-sectional, Retrospective Study in Turkish Population, Coronary artery disease Journal. Vol. (20).Pp.8-20.
- 24.Özer, İ. &Yıldırım, Dİ. (2020):Social awareness about psoriasis: Misconceptions, negative prejudices and discriminatory behavior, Dermatologic Therapy. Vol. (33), No. (6), Pp.e14059.
- 25.Nagarajan P., and Thappa D. (2018): Effect of an educational and psychological intervention on knowledge and quality of life among patients with psoriasis." Indian dermatology online journal. 9(1): 27.
- 26.Magdi, S., Ghada, M. & Said, M. (2021): Dermatology Life Quality Index Correlation with Different Demographic and Clinical Factors in Psoriasis Patients: A Hospital-Based Cross-Sectional Study,The Medical Journal of Cairo University. Vol. (89).Pp. 243-50.
- 27.Asili, P., Tootoonchi, N., Nasimi, M., Daneshpajoo, M., Sedaghatzadeh, M.& Mirahmad, M.(2022):Demographic aspects, clinical characteristics, and therapeutic approaches in geriatric psoriasis: A study from a tertiary center,Dermatologic Therapy Journal. Vol. (35), No.(8),Pp.15628.
- 28.Kowalewska, B., Krajewska-Kuřak, E. & Sobolewski, M.(2022):The impact of stress-coping strategies and the severity of psoriasis on self-esteem, illness acceptance and life satisfaction, Dermatology and Therapy. Vol. (12), No. (2), Pp.529-43.
- 29.Ricardo, JW. & Lipner , SR. (2022): Where are the older adults? Age distribution of nail psoriasis randomized clinical trials' participants: a systematic review, International Journal of Dermatology. <https://doi.org/10.1111/ijd.16333>.
- 30.Nabil, N., Nasr, N.& Shebl, EM.(2023): Dermatology life quality index and work limitation among psoriasis patients, The Egyptian Journal of Hospital Medicine. Vol.(90), No. (1), Pp.268-74.
- 31.Almutairi, S., Alotaibi, A. & Almohideb, A. (2020):Perception and assessment of psoriasis in the general population of Riyadh, Saudi Arabia. Saudi Journal for Health Sciences, Vol. (9) , No.(2), Pp

- .102-8.
32. Yong, S., Tan, L., Ch'ng , C., Yahya, F., Pok, L., Ch'ng, Y., Ong, M., Siew, S., Aminuddin, I., Ong, S. & Lee, Y. (2020): Personal experience and knowledge about psoriasis reduce misconceptions and discriminatory behavior toward people living with psoriasis in Malaysia, *Dermatologica Sinica*. Vol.(38), No. (1),Pp.35-8.
 33. Larsen, MH., Strumse, YS., Andersen, MH., Borge, CR. & Wahl , AK. (2021):Associations between disease education, self-management support, and health literacy in psoriasis, *Journal of Dermatological Treatment*. Vol.(18), No.(32), Pp.603-9.
 34. Nabawy, E., Mohamed, E. & Abdallah , M. (2021): Knowledge and self-care practices among Psoriatic patients in Benha City, *Journal of Nursing Science Benha University*. Vol. (2) , No.(2) , Pp.261-72.
 35. Sawicka, M., Żaba, R. & Adamski, Z. (2021): Evaluation of knowledge in the field of proper skin care and exacerbating factors in patients with psoriasis, *Advances in Dermatology and Allergology/Postępy Dermatologii i Alergologii*. Vol. (39), No. (2), Pp. 401-6.
 36. Strober, B., Leman, J., Mockenhaupt, M., Nakano , J., Nassar, A., Prajapati, VH., Romanelli, P., Seneschal, J., Tsianakas, A., Wei, LY. & Yasuda, M. (2022): Unmet educational needs and clinical practice gaps in the management of generalized pustular psoriasis: global perspectives from the front line, *Dermatology and therapy*. Vol. (1), Pp.1-3.
 37. Gorrepati, PL.& Smith, GP. (2021):A cross-sectional study analyzing the quality of YouTube videos as a source of patient education for treatments on psoriasis, *Journal of Psoriasis and Psoriatic Arthritis*. Vol.(6), No.(1), Pp.8-11.
 38. Elzehiri, DA., Srour, OA. & Salime, RA. (2022):Effect of Individualized Guidance on Knowledge and Self-Care Practices of Psoriasis Patients, *Tanta Scientific Nursing Journal*. Vol. (24), No.(1), Pp.293-328.
 39. Heng, Y.(2022):Standardized self-management education of psoriasis patients under New Coronavirus Pneumonia, *Pacific International Journal*. Vol. (30), No. (5),Pp.134-9.
 40. Ginsburg, H. & Link, G. (1989): Feelings of stigmatization in patients with psoriasis, *Journal of the American Academy of Dermatology*. Vol. (20), No. (1), Pp.53-63.
 41. Dimitrov, D., Matusiak, Ł. & Szepietowski, J. (2019): Stigmatization in Arabic psoriatic patients in the United Arab Emirates—a cross sectional study, *Advances in Dermatology and Allergology/Postępy Dermatologii i Alergologii*. Vol. (36), No. (4), Pp. 425-30.
 42. Finlay, AY. & Coles, E. (1995):The effect of severe psoriasis on the quality of life of 369 patients, *British Journal of Dermatology*. Vol. (132), No. (2), Pp. 236-44.
 43. Zedan, H., Gaber, H., Ibrahim, A. & Refaa, E.(2016): Reliability and validity of the Arabic version of the Psoriasis Disability Index questionnaire , *Journal of the Egyptian Women's Dermatologic Society*. Vol. (13), No.(3), Pp. 143-50.
 44. Riad, N., Othman, A., Deeb, Sh. and Masry, S. (2021): Effect of asynchronous mobile health nursing intervention on medications adherence and quality of life among patients with psoriasis, *Egyptian Journal of Health Care*. Vol. (12), No. (2),Pp.1430-1444.
 45. Dahy, A., El-Qushayri, A., Mahmoud, R., Adel Al-kelany, T.& Salman, S. (2021):Telemedicine approach for psoriasis management, time for application. A systematic review of published studies, *Dermatologic Therapy*. Vol.(33), No.(1), Pp. 13908.
 46. Houry, R., Skov, L., & Møller, T. (2017):Facing the dilemma of patient-centred psoriasis care: a qualitative study identifying patient needs in dermatological outpatient clinics, *British Journal of Dermatology*. Vol. (177), No. (2), Pp. 436-444.
 47. Bubak, C., Schaarschmidt, L., Schöben, L., Peitsch, K., & Schmieder, A. (2019): Analyzing the value of an educational program for psoriasis patients: a prospective controlled pilot study,*BMC Public Health*, Vol.(19) , Pp.1-12. <https://doi.org/10.1186/s12889-019-7778-x>.
 48. Brihan, I., Ianoși, L., Boda, D., Hălmăjan, A., Zdrîncă, M. & Fekete, LG. (2020): Implications of self-esteem in the quality of life in patients with psoriasis, *Experimental and Therapeutic Medicine*. Vol. (20), No.(6), Pp.1-1.
 49. Moselhy , M. & Abdallah, Z. (2022): The Effectiveness of an Educational Program on the Severity and Disability of People with Psoriasis, *Egyptian Journal of Health Care*. Vol. (13), No.(3),Pp.138-158.
 50. Naga, S. (2021):Assessment of psoriatic patient's knowledge about the disease and their Self-care practices, *B. SC, Medical-Surgical Nursing* . Vol. (1) , No. (2), Pp.64-65.

51. Wei, J., Zhu, J., Xu, H., Zhou, D., Elder, T., Tsoi, C. & Li, Y. (2022): Alcohol consumption and smoking in relation to psoriasis: a Mendelian randomization study, *British Journal of Dermatology*. Vol. (187), No. (5), Pp. 684-691.
52. Chiriac, A., Foia, L., Coros, F., Podoleanu, C. & Stolnicu, S. (2017): Umbilical psoriasis versus tinea corporis in infants: A simple clinical diagnosis/image view, *Pediatrics & Neonatology*. Vol. (58) , No.(3), Pp .291-2.
53. Nabhan, Gh., Mohammed, L. & Abd El-Naby, A. (2021): Effect of self-care management program on quality of life and disease severity among patients with Psoriasis, *SYLWAN*. Vol. (165), No. (1).
54. Hrehorów, E., Salomon, J., Matusiak, Ł., Reich, A., & Szepietowski, J. C. (2012): Patients with psoriasis feel stigmatized, *Acta dermato-venereologica*. Vol. (92), No. (1), Pp. 67-72.
55. Jendoubi, F., Balica, S., Richard, A., Chiaverini, C., Bernier, C. & Quiles, N. (2022): Psoriasis Research Group. A multicentre randomised controlled study evaluating the effect of a standardised education programme on quality of life, disease severity, and disease knowledge in patients with moderate-to-severe psoriasis: the EDUPSO study, *Dermatology*, Vol. (238), No. (4), Pp. 630-639.
56. Van Beugen, S., Van Middendorp, H., Ferwerda, M., Smit, J.V., Zeeuwen-Franssen, M.E., Kroft, E.B., De Jong, E.M., Donders, A.R., Van de Kerkhof, P.C. & Evers, A.W. (2017): Predictors of perceived stigmatization in patients with psoriasis, *British Journal of Dermatology*. Vol. (176), No. (3), Pp. 687-94.
57. Elbaramony, M. & Ibrahim, A. (2021): Effect of psoriasis on patient's Quality of life and disability, *Assiut Scientific Nursing Journal*. Vol. (9), No. (26), Pp.106-113.
58. Al Raddadi, A., Jfri, A., Samarghandi, S., Matury, N., Habibullah, T., Alfarshoti, M. & Mahdi, A. (2016): Psoriasis: Correlation between severity index (PASI) and quality of life index (DLQI) based on the type of treatment, *Journal of Dermatology & Dermatologic Surgery*. Vol. (20), No. (1), Pp. 8-15.
59. Mazzuocolo, L.D., Esposito, M.N., Luna, P.C., Seiref, S., Dominguez, M. & Echeverria, C.M. (2019): WhatsApp: a real-time tool to reduce the knowledge gap and share the best clinical practices in psoriasis, *Telemedicine and e-Health*. Vol.(25), No.(4), Pp.294-300.