- *Basic Research*

Effect of Coping strategies on Patient's Reported Outcomes among Patients with Psoriasis

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Abstract

Background: Psoriasis is a chronic inflammatory skin disorder that related to significant psychological and physical burden. While medical treatments aim to control disease severity, the coping strategies have an essential role in shaping patient-reported outcomes (PROs). **Aim of the study:** was to evaluate the influence of coping strategies on patient's reported results among cases with psoriasis. **Setting**: This research has been performed at the Dermatology outpatient clinic at Ain Shams University hospital. **Design:** A quasi-experimental/ study and control design has been applied to attain and guide the purpose of the recent study. **Sample:** A Purposive non-probability/nonrandomized sample of seventy-eight cases with psoriasis. **Tools of data collection:** Information has been gathered utilizing five tools:1- Patients with psoriasis interviewing questionnaire, 2- Patients' Self-care practices assessment, 3- The Psoriasis Disability Index (PDI), 4- Katz Index of Independence in Activities of Daily Living, 5- A Disease-Specific Version of the Euro Quality of life-5 Dimensions-5 Level (EQ-5D-5L) and 6- Coping Strategies for Skin Problems Questionnaire. **Results:** This study illustrates a highly positive correlation in the matrix between patient's levels of knowledge, self-care practices, PDI, katz index of independence, quality of life-5 dimensions, and coping strategies for skin problems three months' after coping strategies implementation at p-value below 0.001.**Conclusion:** The research found that implementing coping strategies improved knowledge, self-care practices, psoriasis disability index, Katz Index activities, and euro quality of life levels amongst study group patients. **Recommendation:** Coping strategy guidelines must be suggested as a nursing intervention guideline throughout the management of all patients suffering from psoriasis.

Keywords: Coping Strategies, Patient's Reported Outcomes, Psoriasis.

Introduction

Psoriasis is a chronic inflammatory dermatological disorder in which the immune system wrongly identifies healthy skin cells as pathogens and sends wrong signals, leading to increased production of new skin cells. Psoriasis may occur at any age, ranging from early childhood to the eighth decade of life. Also, it is not a contagious disease and cannot be transmitted from one person to another. Although the real cause of psoriasis is unclear, there are known risk factors include psychological influences, family history, altered immune function, in addition to environmental risk factors like obesity, stress, and smoking **(Ibrahim et al., 2024)**.

Psoriasis can appear on the extensor sides of the knees or elbows, on the hairy head as well as on the low back. In certain cases, psoriasis spreads throughout extensive areas of the body. In numerous cases, the nails are additionally influenced. Individual inflammatory lesions have well-defined borders and are frequently scaly. Furthermore, a large percentage of those influenced areas can progress and cause skin pain or itching at these lesions. A smaller percentage of approximately ten percent of those influenced have a diverse appearance of skin, characterized by pustules instead of scaling, or the inflammation influences the skin’s folds and curves **(Petersen et al., 2022).**

Psoriasis types involve plaque psoriasis, the most prevalent form, marked by elevated, red patches covered with silvery scales. These patches most frequently appear on lower back, elbows, the knees, as well as scalp, and they are frequently painful and itchy, and they may bleed and crack. Guttate psoriasis; mainly influences youth and kids. It is typically activated by the infection of bacteria (like strep throat). It is marked via water-drop-shaped, small, scaling lesions which occur on the trunk (abdomen, chest, in addition to back), in addition to the legs, scalp, and arms. Guttate psoriasis may spontaneously appear and progress independently. Inverse psoriasis: results in large patches of inflamed, red skin appearing in folds of the body (like behind the knees, between the thighs, the armpits, and below the breasts), & it may influence all or some these regions simultaneously. Other fewer prevalent forms of psoriasis involve Pustular psoriasis which categorized by elevated blisters which are filled with noninfectious pus. Pustular psoriasis may arise in any body part. Erythrodermic psoriasis may cover the whole body with a red, peeling rash which may cause burning sensation or itching **(Elzehiri et al., 2022).**

Treatment of psoriasis depends on many factors such as: surface areas of involvement, the presence or absence of arthritis, the thickness of the plaques and scale and body sites affected. It includes Topical treatment and is considered as first-line treatment of psoriasis. Practical aspects of implementation, case preference, cosmetic acceptability, and the location and the degree of psoriasis to be managed require to be regarded. Forms of topical agents like emollients, coal tar, dithranol, calcipotriol and corticosteroids. Second-line or third-line treatment choices like phototherapy or systemic treatment can be provided simultaneously as topical treatment when topical therapy alone is insufficient to effectively manage psoriasis **(National Institute for Health & care Excellence, 2019)**.

Patient-reported outcomes (PRO), in which cases document their condition directly, also might accompaniment clinician measures as a marker of illness grade and progress with management. The main domains determined by different tools such as physical disabilities, i.e., insomnia, pain, difficulty walking , itching, psychosocial problems such as frustration, embarrassment, depression, anger; social effects, such as difficulty attending social functions, impaired emotional functioning, relationships; occupation influences, such as lost time from work, reduced work productivity, daily burdens, such as wearing particular clothing to cover psoriatic plaques; and management effect, such as potential side effects, treatment costs and time demands **(Abdat et al., 2017).**

Psoriasis as any chronic disease can be connected to be predisposed by many factors, including personal psychological alterations which can disturb a patient's perceptions of themselves and initiate or aggravate psychological conditions such as depression. When a stressor happens, people may produce different cognitive appraisals and assume different disease management strategies, some of which may be extremely adaptive and some of which may be maladaptive. Mild cases of psoriasis can experience sever psychosocial disability. Pruritus is a common and significant problem in cases with psoriasis and is especially related to lower quality of life (QoL) and sleep problems. Strategies which can assist the psoriatic cases are the importance of attending visits in the healthcare setting, compliance with medical regimen and follow up instructions **(Cvitanović et al., 2020)**.

Coping strategies means the behaviors and thoughts used to manage the external and internal demands of stressful situations**.** living with psoriasis can take a toll on one's self-esteem and emotional health. Nevertheless, there are strategies to assist individuals cope and circumnavigate the challenges associated with the condition. This includes knowledge and Awareness about the condition, its triggers and available treatment options. Having this knowledge can allow individuals to take control of their condition and advocate for their health. Building Support Networks: through creating connections with others who share similar experiences offers valuable emotional support and validation **(Stephenson, & Delongis, 2020).**

There are various online support groups, community organizations, and therapy sessions made available for those suffering from psoriasis. Engaging in these groups may provide a sense of belonging and mutual understanding. Stress Management: Stress is a prevalent stimulant for psoriasis flare-ups. Practicing relaxation techniques may decrease the stress levels and promote emotional well-being. Some of these practices include deep breathing, yoga, meditation, and mindfulness. Positive Self-Talk: Counter the negative thoughts and perceptions about psoriasis. Engage in positive self-talk and cultivate self-compassion to combat these ideas. Embracing Healthy Lifestyle Choices: Adopting a healthy diet and prioritizing regular exercise and adequate sleep can help support overall well-being, and potentially reduce psoriasis symptoms **(Bryant, 2025).**

The integration of self-care practices and knowledge for psoriatic cases enriches their health competency, as health education is the cornerstone of psoriatic management. Therefore, the role of the nurse is very important, as nurses must provide supportive nursing care during illness and stress. Educational opportunities for those patients to enhance their self-care practices, knowledge and correct any misconceptions related to disease, factors that aggravate it, hygienic practices, management and skin care practices are crucial for decreasing psoriasis severity, which afterward declines feeling of disability, stigmatization, and improves their QoL **(Radeef and Abdulwahhab, 2023).**

Significance of the study

Psoriasis is a chronic, recurrent immune dermatological disorder and it is a prevalent condition globally and is regarded a frustrating illness for both caregivers and cases. It severely affects the QoL of patients and contributes to elevated feelings of stigma and disability. Psoriasis was regarded as a compound prolonged disorder containing physical, psychological, and social difficulties, containing an important effect on daily living. Cases with knowledge deficiency regarding the illness and its self-care practices, in addition to scientific proof for these self-care practices remains restricted cases with psoriasis. Consequently, efficient and proper nursing interventions are crucial to increase cases' self-care practices and knowledge concerning the illness and decrease its harmful influences **(Ibrahim, et al., 2024).**

The prevalence of psoriasis 125 million persons globally two percent to three percent of the overall population- have psoriasis (**National psoriasis foundation, 2024**). In United States is more than eight million people and one hundred twenty-five million people all over the world (**Ministry of Health, 2024)**. The occurrence of psoriasis in Egypt ranges from 0.19 percent to three percent. This indicates that it influences about two million Egyptian people **(Elzehiri et al., 2022**). More than one million people have psoriasis in Egypt, including 145,000 with moderate to severe disease **(Ibrahim, et al., 2024)**.

Therefore, this research will be performed to assess the effect of coping strategies on reported outcomes among patients with psoriasis, with a focus on understanding how psychological and behavioral coping mechanisms influence the health-related quality of life and disease burden among individuals living with psoriasis. Identifying effective coping strategies is essential not only for better symptom control but also for enhancing treatment adherence, reducing psychological distress, and enhancing overall patient-reported outcomes.

Aim of the study

The goal of this research was to assess the effect of coping strategies on patient's reported outcomes among patients with psoriasis through the following:

- Assess patients with psoriasis reported self-care practices and level of knowledge
- Develop and implement coping strategies for patients with psoriasis.
- Evaluate the effect of coping strategies on results of patients with psoriasis.

Operational definition:

Coping strategies refers to the behavioral, emotional, and cognitive efforts that individuals use to manage the stress, symptoms, and challenges associated with living with this chronic skin condition.

Patients' Reported Outcomes: measures, in which cases directly document their state, as a marker of illness status enhancement. The core domains include perform essential ADLs on their own, disability level and quality of life-5 dimensions as (movement, usual activities, self-care, depression/anxiety and pain/discomfort).

Research Hypothesis

H 1: Patients with psoriasis who will implement coping strategies will have enhancement in reported self-care practices and level of knowledge than control group.

H 2: Patients with psoriasis who will implement coping strategies will have enhancement in level of psoriasis disability index than control group.

H 3: Patients with psoriasis who will implement coping strategies will have improvement in level of Katz Index of activities of daily living than control group.

H 4: Patients with psoriasis who will implement coping strategies will have improvement in level of EQ-5D-5L than control group.

H5: Patients with psoriasis who will implement coping strategies will have improvement in Skin Problems Factors than control group.

Subject and Methods

A-Research design:

This research utilized a quasi-experimental design with prior to and following tests for both control and study groups. It is utilized to appraise the influence of an intervention in the absence of randomization. The post-test / pre-test study proposal is utilized in assessments of attitudes or perceptions of participants relative to an event or to evaluate comfort in using the data provided during a training session or with introduction of a novel concept. By initiating experimentation in this direction, an investigator may worth modification is focused results to be wide-open to the stimulant **(Braddock, 2019).** The post-test allows investigators to determine the direct influences of the management on the result parameter(s). Added to the pre-test, following 1 month and 3 months, a delayed post-test(s) is frequently incorporated to study the management influences over a longer period of time (**Miller et al., 2024).**

B-Setting:

This research has been performed at the Dermatology outpatient clinic at Ain Shams University hospital. It is on the ground floor, and it contains doctor office, patient stretcher and chair. There is a reception and waiting area for patients.

Subjects:

A purposive non-probability/nonrandomized sample of 78 cases had psoriasis were selected based on specific inclusion criteria. The research participants have been randomly allocated utilizing a computer program into two equal groups, the study group (number=thirty-nine) who have been received traditional methods of treatment and coping strategies and a control group (number=thirty-nine) who were received traditional methods of treatment only.

The size of the sample has been estimated by adjusting the test power to eighty percent, and the confidence interval to ninety-five percent with an accepted margin of error adjusted to five percent utilizing the following equation:

Type I error (α) = 0.05 percent
Type II error (B) = 0.20 percent
With test power 0.80 percent

$$n = \frac{N \times p(1-p)}{\left[\left[N - 1 \times \left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

Nxp(1-p) =(97*(0.5*(1-0.5)
N-1 =(97-1)*
d2/z2 =0.0025 / 3.8416+
p(1-p) =0.5*(1-0.5)
N =seventy-eight
N= Size of community
z= Class standard corresponding to the significance level equal to 0.95 and 1.96
d= The error rate = 0.05
p= Ratio provides a neutral property = 0.50

Depending on above formula the size of the sample needed per group is thirty-nine cases.

Inclusion criteria

- Adult patients from both gender.
- Patients identified with psoriasis from at least one year and confirmed by dermatologists.
- Free from any psychiatric disorders, physical impairments and amputation.
- Never underwent the same intervention from additional investigators and health professionals and agree to participate to this research.

- Psoriasis Area and Severity Index (PASI) ranges from seven up to twelve (moderate to severe psoriasis)

Exclusion criteria:

- Patients suffer from other skin disorders.
- Patients suffer from severe heart, lung, or liver failure.

Tools of Data Collection:

I. Patients with psoriasis interviewing questionnaire:

It has been constructed by the investigators to gather baseline personal information, medical health history and knowledge. It covered the subsequent 3 parts:

Part 1: Demographic characteristics of patients; it has been utilized to evaluate personal characteristics of cases concerning sex, age, marital state, educational level, occupation, type of working, smoking habit, residence and living state.

Part 2: Patients' Medical history: It has been comprised information concerning medical history like duration of illness, type, area, site of psoriasis, presence of pain, main complaint, treatment and disease visibility sites.

Part 3: Psoriasis knowledge Questionnaire (PKQ):

The Psoriasis Knowledge Questionnaire is a simple index tool adopted from **Wahl et al., (2013)** to evaluate cases' knowledge concerning Psoriasis. It contained forty-nine statements about psoriasis (cause, features, occurrence, progress, and managements). There are 3 response choices for each statement: "valid," "uncertain," or "invalid."

Scoring system:

The correct answer (valid) for each statement has been provided 1 score while incorrect answer (uncertain or invalid) has been provided 0 score, with total score 49 scores. These scores have been summed up and transformed into percentage score, subsequently classified as follow: ≥ 75% (≥ 37 score) had satisfactory level of knowledge, whereas < 75 % (< 37 score) had unsatisfactory level of knowledge.

II: Patients' reported self-care practices assessment: It has been created via the researchers following reviewing relevant literature **(Ibrahim, et al., 2023, Omar & Ramadan, 2022 and Mohamed, et al., 2021)** It's aim was to evaluate psoriatic cases' reported self-care practices that involved twenty-one questions categorized as the following:

A. questions associated with personal hygiene (bathing): This section involved three closed-ended questions as well as two several-choice questions regarding the guidelines that the case should follow throughout bathing.

B. Questions related to skin care/ sleep practices: This section involved five closed-ended questions concerning care of psoriatic lesions.

C. Questions concerned with prevention of psoriasis complications: This section involved five closed-ended questions as well as six several-choice questions concerning psoriasis prevention.

Scoring system: The score for each question varied from zero to one, where 0 shown incorrect answer or lack of knowledge and 1 shown correct answer, with overall scores twenty-one scores. These scores have been summed up and transformed into percentage score, subsequently classified as follow: ≥ 75% (≥ 16 score) had better self-care practice level, while < 75 % (< 16 score) had worse self-care practice level.

III: The Psoriasis Disability Index (PDI): it is a disease-particular questionnaire adopted from **Zedan et al., (2016)** in Arabic version to measure disability caused via psoriasis and the burden of living with psoriasis. It involved fifteen questions under the heading related to daily activities, personal relationships, work / school, leisure, and management.

Scoring system:
each question score was answered on groups of four responses, not at all scored (0), a little (1), a lot (2), and very much (3). The PDI has been estimated through summing the score of each of the fifteen questions, leading to a 0-45. The higher scores indicate greater disability and a lower quality of life.

IV: Katz Index of Independence in Activities of Daily Living:
This tool's Arabic version has been adopted from **Sarsak, (2021)** in order to assess the patients with psoriasis independency level on performing their basic Activities of Daily Living (ADL). The Index ranked the sufficiency of performance of patients in "six functions" namely: toileting, dressing, bathing, feeding, grooming and physical ambulation.

Scoring system:
Cases' functional performances have been scored on dichotomous response scale representing either "Yes" or "No" responses for ADL independence in each of the six functions. Each activity was given response points score; "1" means the person is "Independent" & "0" = "The person requires supervision, assistance or total care". Thus, the overall estimated score was ranging from "0-6".

Where; a score of 6>4 shows "Full function" or "Independent", 4>2 shows "Moderate impairment" or "Almost Dependent", and not higher than two shows "Severe functional impairment" or "Dependent".

V: A Disease-Specific Version of the Euro Quality of life-5 Dimensions-5 Level (EQ-5D-5L): It has been sourced from **Herdman et al., (2011):** This scale has been utilized to evaluate social, mental in addition to physical functioning, it comprises 5 dimensions: pain/discomfort, regular activities, self-care, movement and depression/anxiety. Every dimension has five levels: no issues, slight issues, moderate issues, severe issues and extreme issues.

Scoring system: The euro quality of life-5 dimensions-5 level defines 5 dimensions. Every dimension defines 5 severity levels: no issue (one score), mild issue (two scores), moderate issue (three scores), sever issue (four scores) and unable/ extreme issue (five scores). The higher score indicates the worst health.

VI: Coping Strategies for Skin Problems Questionnaire: It has been adopted from **Hernández-Fernaud et al., (2009)**, this questionnaire has been utilized to evaluate the coping strategies for people with psoriasis. It consists of six coping factors with total 29 items; the first factor, (six items) demonstrates a desire which the situation had never occurred and/or its consequences have various, in addition to feelings of guilt and sadness, the second factor (five items) refers to seeking medical care as a means of discovering solutions to the issue and controlling it, the third factor, (five items) known as social support seeking, involves strategies for connecting with others to solve the issue or to feel superior, the 4th factor, (four items) known as information seeking, involves strategies aimed at discovering data and means to understand the issue, the 5th factor (five items) was termed positive thinking, refers to consider the positive parts of the situation and the sixth factor (four items) distancing, refers to methods for relativizing the issue so that it doesn't interfere with additional life regions. Standardized answer options are given five-point scale which varied from "Never" (1) to "Almost always/most of the time" (5). The total score ranging from 1- 145 scores, the higher scores indicating high coping with.

Coping strategies booklet for patients with psoriasis
Created via the investigators written in Arabic language directed through images, depend on the evaluation of cases' knowledge concerning psoriasis, in addition to revising the associated and current literature **(Ibrahim, et al., 2024, van Acht, et al., 2022)**. The booklet has been handed out for each case and comprised four parts as follow: Part (one): Introduction to

psoriasis included how it happens, its etiologies, risk factors, and types. Part (2): Management of psoriasis included signs and symptoms, treatment options, side effects, complications of psoriasis, treatment adverse effects, and drug interaction. Part (3): How to deal with psoriasis correctly included 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 and Part (4): Self-care practices included 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.

Tools validity and reliability

Validity: the content and face validity of the proposed instruments have been evaluated by a jury of 7 professionals, comprising 4 professors of Medical- Surgical Nursing as well as 3 assistant professors from the Faculty of Nursing at Ain Shams University, they reviewed the tool for comprehensiveness, relevance, clarity, ease of administration, and understanding, resulting in no modifications have been needed.

Reliability: Alpha Cronbach test has been applied to determine the internal consistency of the research instruments. patient' Psoriasis Knowledge Questionnaire (PKQ) were reliable at (0.89), Self-care practices assessment was reliable at (0.92), PDI was reliable at (0.848), Katz Index of Independence in ADL was reliable at (0.94), EQ-5D-5L was reliable at (0.87), Coping strategies for skin problems questionnaire was reliable at (0.826), 0.87for Wishful Thinking, 0.90 for Solutions Seeking, 0.82for Social Support Seeking, 0.83for Information Seeking, 0.76for Positive Thinking, 0.67 for Distancing.

Preparatory phase:

Administrative design: The needed official permissions have been attained from the administrators of the Ain Shams University Hospital for collection of data clarifying the purpose of the research to attain cooperation and permission.

Ethical considerations

An official permission to perform the suggested research has been attained from the Scientific Research Ethics Committee of the Faculty of Helwan University. Participation in the research was voluntary and individuals have been provided full data regarding the research and their role prior to signing the informed consent. The ethical considerations have been involved clarifying the nature and aim of the research, stating the probability to withdraw at any moment. To guard rights of cases in the scope of the research, prior to the 1^{ry} interview, informed consent has been obtained from each case or relative following being knowledgeable about the aim, nature, and advantages of the research. Cases have been instructed that participation is completely voluntary and might withdraw at any moment without providing causes. Anonymity as well as confidentiality of the information has been ensured through testifying that the personal data would remain private following being united with the investigators and cases were ensured that the information will be applied only for the goal of the study. Furthermore, the intervention utilized in the recent research is harmless and safe for participants. Ethics, values, and beliefs were respected.

Pilot Study:

Upon permission has been permitted for continuing with the suggested research, a pilot research has been performed prior to beginning collection of information on 8 targeted cases (ten percent of the sample) from the formerly mentioned setting based on the inclusion criteria to evaluate the feasibility, applicability, clarity of the instruments, and determine the duration necessary for collection of information to identify any possible interferences which could meet the investigators and restrict with gathering of information, pilot sample involved in the primary sample as no modifications have been performed.

Implementation phase

Field work: The research has been performed from the beginning of July 2024 to January 2025, involving the instruments development. It was depending on reviewing relevant and recent literature concerning psoriasis, coping strategies and patient's reported outcome. The researchers were visiting Dermatology outpatient clinic over 2 days per week. The goal of the research has been elucidated to cases who accepted to participate in the research prior to gathering of information. Gathering of information has been performed via the investigators utilizing the same instruments for the same case who met inclusion criteria; both prior to and following implementation of coping strategies (1 and 3 months).

The baseline assessment: The 1st duration; individualized interview session has been demonstrated to every participant via the investigators to gather patients' reported self-care practices assessment, patient's interview questionnaire, PDI scale, Katz Index of Independence in ADL and EQ-5D-5L. Depend on cases' knowledge level, the investigators created a Coping strategies booklet in Arabic language utilizing the relevant literature **(Eldesoky, et al., 2023 & Elzehiri, et al., 2022)**.

Implementation phase:

Coping strategies implementation has been performed at Dermatology outpatient clinic associated with Ain Shams University Hospital above 2 days for every two to three cases, based on their level of understanding and education. The sample has been separated into control group and study group randomly and equally (39 for the control group and 39 for the study group). The Coping strategies implementation has been performed through small group discussion supported by using booklet.

Implementation of the coping strategies are the primary intervention in the research. This coping strategies comprised 3 elements :1) Introduction about psoriasis definition, causes, types, symptoms & signs, risk factors, different management, the importance of adherence medication and the importance of follow up (class and booklet), 2) Self-care practices about sleep enhancing practices, healthy life style, avoided medications, physical hygiene practices during bathing, 3) ADL, regular daily exercises, dealing with psoriasis in winter and advices decreasing psoriasis through education and group exercises conducted in a large activity room (education on practices as well as exercises for a safe copying with psoriasis).

Evaluation phase:

The investigators assessed the influence of coping strategies on patients' reported outcomes among patients with psoriasis by matching the results pre implementation of coping strategies and two times of evaluation, the 1st evaluation following one month and 2nd evaluation following three months of coping strategies implementation through utilizing the same instruments of information collection.

Statistical Design:

The information has been coded and entered utilizing a personal computer. Statistical Package for Social Science (SPSS) version 26 has been applied. Information has been attainable utilizing descriptive statistics represented as percentages and frequencies. The chi-square test has been utilized to detect the correlation among qualitative parameters, ANOVA and Mean ±

SD have additionally been utilized. Statistical significance has been deemed at p-value not above 0.05, and p-value below 0.001 has been deemed greatly significant. r-test has been used as an inferential statistic has been utilized to discover the association between cases' knowledge, self-care practices, PDI level, total Katz Index of Independence, total quality of life-5 dimensions and total coping strategies for skin issues in the control and study groups prior to and following coping strategies implementation.

Results

Table (1) demonstrates that the mean age of the study group and control group was 39.164 ± 10.91and 38.23 ± 9.84 years respectively. As regard to patients' gender in the control group and study was, 64.1% and 74.4% were females respectively. In relation to marital status, 82.1% and 76.9% of both control and study groups have been married, correspondingly. Concerning the education level, 38.5% and 46.2% of the control and study groups, correspondingly had 2^{ry} education. As well as 53.8 percent and 48.7 percent of the control and study groups were working and 63.2% & 61.9% of them were employees, respectively. 61.5% and 53.8% of the control and study groups were from the urban region, 82.1% and 87.2% of the control and study groups correspondingly were living with the family. Based on smoking habit, 74.4 percent and 79.5 percent of the control and study groups weren't smokers, correspondingly, with an insignificant statistical variance among the two groups concerning all personal features.

Table (2) demonstrates that, the mean period of illness of the study group was 4.92 ± 6.98 and 4.85 ± 7.54 years for the control and study groups, correspondingly. 46.1% and 48.7% of cases in the control and study groups had psoriasis in elbow, 59% and 53.8% of them had more than one site of psoriasis, respectively. 35.9% of study group suffered from moderate pain, compared to 23.1 percent of the control group.89.7 percent of the study group their main complaint was fatigue, while 89.7% of the control complaint of joint pain. 79.5 percent and 84.6 percent of the control and study groups correspondingly received systemic therapy. Regarding disease visibility, 64.1 percent and 69.2 percent of the control and study groups correspondingly had visible psoriatic sites.

Table (3) reveals a statistically insignificant variance has been observed between the patients' knowledge sub items scores regarding psoriasis pre implementation of coping strategies among control and study groups. Conversely, following 1 month and following 3 months after coping strategies implementation, a highly statistically significant variance has been observed between the patients' knowledge sub items scores following (1 month) and following (3 months) of coping strategies implementation in study group at p-value below 0.001.

Table (4) indicates a statistically insignificant variance has been observed between the patients' satisfactory level of self-care practices sub items scores concerning psoriasis pre implementation of Coping strategies among control and study groups. Conversely, post 1 month and post 3 months of Coping strategies implementation, a high statistically significant variance has been observed between the patients' self-care practices sub items scores regarding personal hygiene score, skin care score and prevention of psoriasis complications post Coping strategies (1 month) and after Coping strategies implementation (3 months) in study group at p-value below 0.001.

Table (5) shows a statistically insignificant variance has been observed between the patients' psoriasis disability index mean score concerning psoriasis pre implementation of Coping strategies among control and study groups. Conversely, following 1 month and following 3 months of Coping strategies implementation, a highly statistically significant variance has been observed between patients' psoriasis disability total mean score between study group at p-value below 0.001.

Table (6) demonstrates a statistically insignificant variance has been observed between the Katz Index of Independence in ADL sub items mean score pre implementation of Coping strategies among control and study groups. Conversely, following 1 month and following 3 months of Coping strategies implementation, a highly statistically significant variance has been observed between patients' Katz ADLS total mean score between study group at p-value below 0.001.

Table (7) reveals that the mean score of total EQ-5D in study group pre- implementation of Coping strategies was 9.852±3.4122 score, post one-month implementation was 21.9161 ± 7.47252 score and post three months implementation was 20.3185 ± 8.13009 score. Highly statistically significantly differences were found in all EQ-5D levels in study group following 1 month and following 3 months' after Coping strategies implementation (p-value below 0.001).

Table (8) indicates that the mean score of total Coping strategies factors in study group pre-implementation of Coping strategies was 7.3540±3.0267 score, post one-month implementation was 25.413 ± 6.923 score and post three months implementation was 24.45±6.768 score. A highly statistically significantly variances has been observed in all Coping strategies factors in study group following 1 month and following 3 months after Coping strategies implementation at (p-value below 0.001).

Table (9) shown that there was greatly positive correlation in the matrix between patient's levels of knowledge, self-care practices, PDI, katz index of independence, quality of life-5 dimensions, and Coping strategies for skin problems three months' after Coping strategies implementation at p-value below 0.001.

Table (1): Number and percentage distribution of the study and control groups based on their demographic data (number=seventy-eight)

Items	Studied Patients (n=78)				Chi-square	
	Study Group (39)		Control Group (39)			
	No	%	No	%	X2	P-value
Age						
- 20 ≤ 40	15	38.5	12	30.8	3.665	
- 40 ≤ 50	20	51.3	18	246.		0.160
- +50	4	10.2	9	23		
Mean ± SD	39.164 ± 10.91		38.23 ± 9.84			
Gender					0.617	
- Female	29	74.4	25	64.1		0.432
- Male	10	25.6	14	35.9		
Marital status					0.073	0.787
- Single	9	23.1	7	17.9		
- Married	30	76.9	32	82.1		
Educational level						
- Can't Read and write	3	7.7	5	12.8		
- Read and write	8	20.5	6	15.4	3.535	0.171
- Secondary	18	46.2	15	38.5		
- University	10	25.6	13	33.3		
Occupation						
- Not work	20	51.3	18	46.2	0.601	0.740
- Work	19	48.7	21	53.8		
Type of working					1.359	0.507
- Employee	12	63.2	13	61.9		
- Manual/Heavy work	7	36.8	8	38.1		
Residence					0.089	0.956
- Urban	21	53.8	24	61.5		
- Rural	18	46.2	15	38.5		
Living Status						
- Alone	5	12.8	7	17.9	0.501	0.779
- With Family	34	87.2	32	82.1		
Smoking habit					0.543	0.762
- Yes	8	20.5	10	25.6		
- No	31	79.5	29	74.4		

***Not Significant (NS) P-value above 0.05**

Table (2): Number and percentage distribution of the study and control groups concerning their medical history (number=seventy-eight)

Patients' Medical history	**Studied Patients (number=78)**				**Chi-square**	
	Study Group (39)		**Control Group (39)**		**X2**	**P-value**
	No	%	No	%		
Duration of Illness (in years)						
•< 1 year	10	25.6	12	30.8	1.414	0.493
•1< 5 years	17	43.6	20	51.3		
•5 ≤ 10 years	12	30.8	7	17.9		
Mean±SD	4.85 ± 7.54		4.92 ± 6.98			
Type of psoriasis						
• Plaque	8	20.5	6	15.4	1.822	0.768
• Nail	7	17.9	9	23.1		
• Qatari	5	12.8	8	20.5		
• Arthritis	3	7.7	2	5.1		
• Erythrodermic	6	15.4	5	12.8		
• Layered	6	15.4	4	10.3		
• Purulent	4	10.3	5	12.8		
(*) Areas of the psoriasis						
• Scalp	15	38.5	11	28.2	0.373	0.542
• Ears	18	46.2	10	25.6		
• Elbow	19	48.7	18	46.1		
• Knees	7	17.9	12	30.8		
• Back	14	35.9	15	38.5		
• Nails	12	30.8	14	35.9		
Psoriasis site						
• One site	16	41.1	18	46.2	0.067	0.796
• More than one Site	23	59	21	53.8		
Presence of pain						
• No	10	25.6	15	38.5	0.098	0.754
• Mild	5	12.8	7	17.9		
• Moderate	14	35.9	9	23.1		
• Severe	6	15.4	5	12.8		
• Worst	4	10.3	3	7.7		
(*)The main complaint						
• Irritation and crusts	30	76.9	33	84.6	0.071	0.791
• Itching, Irritation and dryness	14	35.9	20	51.3		
• Joint swelling	22	56.4	15	38.5		
• Fatigue	35	89.7	30	76.9		
• Thicken or wrinkled nails	12	30.8	10	25.6		
• Joint pain	32	82.1	35	89.7		
(*) Treatment						
• Topical therapy	30	76.9	29	74.4	1.270	0.260
• Systemic therapy	33	84.6	31	79.5		
• Phototherapy	32	82.1	28	71.8		
Disease visibility sites						
• Yes (visible sites)	27	69.2	25	64.1	0.644	0.725
• No (Not visible sites)	12	30.8	14	35.9		

(*) Responses are not mutually exclusive **Not Significant (NS) P-value above 0.05**

Table (3): Comparative analysis among study and control groups concerning psoriasis satisfactory level of knowledge pre, following 1 month and following 3 months after coping strategies implementation (number=seventy-eight).

Items	Study group (number=39)			Control group (number=39)		
	Pre	Post one month	post 3 months	Pre	Post one month	Post 3 months
The nature of the disease	12.8	61.5	38.5	10.3	25.6	7.7
Etiology	30.8	69.2	61.5	33.3	38.5	28.2
Signs and symptoms	46.2	76.9	56.4	30.8	41	23.1
Prevention of itching	41	58.9	48.7	38.5	53.8	33.3
Factors that aggravate psoriasis	30.8	51.3	38.5	20.5	48.7	35.8
Complications of disease	35.9	71.7	66.7	33.3	46.2	30.8
Treatment	33.3	69.2	64.1	38	56.4	23.4
Mean± SD	1.66±1.50	5.63±3.12	12.75±1.39	0.40±0.49	2.08±1.18	2.10±1.25
Control group F value and P value			18.460		0.572	
Study group F value and P value			233.304		0.000***	

*** F: repeated measure ANOVA ** Not Significant (NS) P-value above 0.05 *** P-value below 0.001 (Highly Significant)**

Table (4): Comparative analysis among study and control groups concerning reported self-care practices satisfactory level pre, post and follow up following 3 months' post implementation coping strategies (number=seventy-eight).

Items	Studied patients (n=78)					
	Study Group (39)			Control group (39)		
	Pre	Post one month	Post 3 months	Pre	Post one month	Post 3 months
Personal hygiene	28.2	58.9	30.7	35.9	69.2	58.9
Skin care	17.9	56.4	25.6	30.8	64.1	69.2
prevention of psoriasis complications	33.3	61.5	30.8	20.5	79.5	71.7
Mean± SD	4.166±2.532	11.716±4.150	8.200±0.935	13.766±1.566	23.633±2.262	18.500±2.6200
Control group F value and P value			17.198		0.638	
Study group F value and P value			232.282		0.000***	

*** F: repeated measure ANOVA ** Not Significant (NS) P-value above 0.05 *** P-value below 0.001 (Highly Significant)**

Table (5): Mean scores of the study and control groups concerning their Psoriasis Disability Index (PDI) sub items pre, following 1 month and following 3 months post coping strategies implementation (number=seventy-eight).

PDI sub items	Psoriasis Disability Index (PDI)								
	Pre			Post one month			Post (3 months)		
	study group (number=39)	Control group (number=39)	t1 P-value	study group (number=39)	Control group (number=39)	t2 P-value	study group (number=39)	Control group (number=39)	t3 P-value
	Mean ±SD	Mean ±SD		Mean ±SD	Mean ±SD		Mean ±SD	Mean ±SD	
Daily activities	2.816±0.724	4.216±0.613	0.589 0.443	17.000±4.242	4.250±2.685	29.457 0.000**	13.428±2.267	3.711±3.942	8.113 0.000**
Work	3.294±1.104	4.463±3.899	0.492 0.545	14.117±2.276	4.819±1.837	17.453 0.000**	16.466±2.642	4.750±5.650	10.471 0.000**
Personal relationships	4.400±2.898	5.000±7.0710	1.794 0.541	18.000±1.414	5.964±4.194	11.162 0.000**	15.000±1.414	4.000±1.414	10.889 0.000**
Leisure	3.216±2.626	4.405±4.119	0.492 0.4553	14.117±4.196	5.750±3.240	27.318 0.000**	11.650±1.830	6.650±1.132	10.625 0.000**
Treatment	3.500±2.707	3.066±3.473	0.074 0.654	16.117±1.932	5.625±5.040	10.536 0.000**	12.966±1.314	4.571±2.872	8.534 0.000**
Total PDI	7.983±2.127	8.950±4.763	1.354 0.564	20.529±2.267	26.233±2.272	29.330 0.000**	19.926±2.338	20.195±2.193	25.849 0.000**

*** Not Significant (NS) P-value above 0.05 **Highly Significant P-value below 0.001**

t1 indicates to the comparison among control and study group before implementation of coping strategies. t2 indicates to the comparison among control and study group following one month of coping strategies implementation. t3 indicates to the comparison among control and study group following three months of coping strategies implementation.

Table (6): Mean scores of the study and control groups concerning Katz Index of Independence in Activities of Daily Living sub items pre, following 1 month and following 3 months after coping strategies implementation (number=seventy-eight).

sub items	Katz Index of Independence in Activities of Daily Living								
	pre			Post one month			Post (3 months)		
	Study group (number=39)	Control group (number=39)	t1 [p-value]	Study group (number=39)	Control group (number=39)	t2 [p-value]	Study group (number=39)	Control group (number=39)	t3 [p-value]
	Mean ±SD	Mean ±SD		Mean ±SD	Mean ±SD		Mean ±SD	Mean ±SD	
Bathing	3.257±1.367	3.625±1.06066	0.658 0.5476	9.950±1.294	6.274±1.8742	21.931 0.000**	8.855±1.6545	4.654±1.6458	11.800 0.000**
Dressing	3.548±1.548	2.538±3.098	0.599 0.387	8.985±1.297	4.857±1.2574	24.997 0.000**	8.247±1.8455	2.645±32655	9.786 0.000**
Toileting	4.155±1.855	3.500±1.069	1.642 0.875	9.856±1.857	5.574±1.2541	22.786 0.000**	8.521±1.2584	4.965±1.654	9.874 0.000**
Transferring	4.322±1.8485	3.941±1.951	1.589 0.758	9.638±1.358	5.217±1.8524	22.621 0.000**	8.7412±1.3587	3.854±1.662	9.874 0.000**
Continence	5.121±1.321	3.328±1.879	2.384 0.987	9.869±1.368	5.982±1.47521	22.907 0.000**	7.9547±1.2147	3.978±1.3211	10.529 0.000**
Feeding	3.152±1.4512	3.398±1.578	0.9875 0.784	8.958±1.385	4.965±1.8965	24.465 0.000**	8.742±1.7552	3.958±1.985	9.547 0.000**
Total	11.546±4.546	12.166±2.532	5.257 0.564	21.716±4.150	14.745±6.451	27.282 0.000**	19.563±4.954	12.987±6.874	25.218 0.000**

*** Not Significant (NS) P-value above 0.05 **Highly Significant P-value below 0.001**

t1 indicates to the comparison among control and study group before implementation of coping strategies. t2 indicates to the comparison among control and study group following one month of coping strategies implementation. t3 indicates to the comparison among control and study group following three months of coping strategies implementation.

Table (7): Mean scores of the study and control groups concerning Disease-Specific Version of the Euro Quality of life-5 Dimensions-5 Level (EQ-5D-5L) pre/following 1 month and following 3 months after Coping strategies implementation (number=seventy-eight).

EQ-5D-5L level	A Disease-Specific Version of the Euro Quality of life-5 Dimensions-5 Level (EQ-5D-5L)								
	Pre			Post one month			Post (3 months)		
	study group (number=39)	Control group (number=39)	t1 [p-value]	study group (number=39)	Control group (number=39)	t2 [p-value]	study group (number=39)	Control group (number=39)	t3 [p-value]
	Mean ±SD	Mean ±SD		Mean ±SD	Mean ±SD		Mean ±SD	Mean ±SD	
Mobility	3.852±1.478	2.645±1.658	0.623 0.465	10.947 ± 3.457	3.2168 ± 1.026	12.495 0.000**	9.402 ± 4.538	2.327± 1.608	11.132 0.000**
Self-care	3.458±1.965	3.1296±2.854	0.448 0.323	11.221 ± 2.225	4.344± 2.673	13.449 0.000**	9.540 ± 2.861	3.442 ± 2.162	11.967 0.000**
Usual activities	3.686±1.2698	3.125±1.854	0.475 0.854	10.863 ± 3.321	2.663 ± 1.544	13.887 0.000**	9.221 ± 3.627	3.021 ± 3.195	11.681 0.000**
Pain/discomfort	3.525±1.7458	2.955±1.654	0.855 0.4588	10.472 ± 2.575	3.365 ± 1.672	12.307 0.000**	8.217 ± 4.527	2.680 ± 2.801	9.356 0.000**
Anxiety/depression	4.852±1.452	3.848±1.795	1.247 0.4524	10.455 ± 1.766	4.702 ± 5.173	12.612 0.000**	9.254± 11.325	3.846±4.284	11.350 0.000**
Total EQ-5D	9.852±3.4122	7.524±.1874	6.451 0.5476	21.916 ± 7.472	7.856 ±1.319	23.774 0.000**	20.318 ± 8.130	7.968 ± 7.384	19.950 0.000**

*** Not Significant (NS) P-value above 0.05 **Highly Significant P-value below 0.001**

t1 indicates to the comparison among control and study group before implementation of coping strategies. t2 indicates to the comparison among control and study group following one month of coping strategies implementation. t3 indicates to the comparison among control and study group following three months of coping strategies implementation.

Table (8): Mean scores of the study and control groups concerning skin problems questionnaire pre, following 1 month and following 3 months after coping strategies implementation (number=seventy-eight).

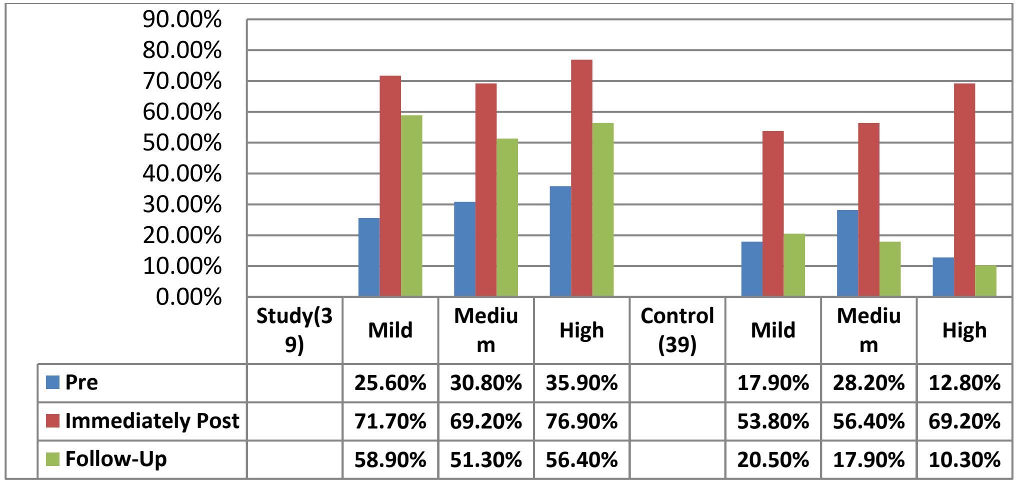
Coping strategies for Skin Problems factors	Coping strategies for Skin Problems								
	pre			Post one month			Post (3 months)		
	study group (number=39)	Control group (number=39)	t1	study group (number=39)	Control group (number=39)	t2	study group (number=39)	Control group (number=39)	t3
	Mean ±SD	Mean ±SD	[p-value]	Mean ±SD	Mean ±SD	[p-value]	Mean ±SD	Mean ±SD	[p-value]
factor 1: wishful thinking	4.165±3.498	3.235±1.998	1.270 0.204	512.795 ± .615	4.105±3.90445	14.876 0.000**	7.234 ± 4.113	3.722±4.4846	7.235 0.000**
Factor 2: solutions seeking	3.738±7.467	3.636±2.164	0.479 0.632	13.403 ± 7.721	5.725±2.3458	16.047 0.000**	12.295 ± 6.010	3.645±2.658	13.964 0.0000*
Factor 3: social support seeking	3.840±2.263	3.735±5.698	2.036 0.058	14.479 ± 7.871	5.865±3.8656	12.903 0.000**	13.05±1.765	4.536±2.919	13.575 0.000**
Factor 4: information seeking	3.670±1.527	2.565±4.787	1.560 0.119	14.413 ± 6.923	7.550±2.6988	14.590 0.000**	14.035±5.599	5.349±2.129	12.907 0.000**
Factor 5: positive thinking	4.955±2.973	3.365±2.4664	0.652 0.514	15.1378±6.383	5.9870±3.0688	16.200 0.000**	14.35±1.758	3.262±2.216	14.901 0.000**
Factor 6: distancing	3.237±3.278	2.3650±6.016	1.947 0.378	16.85±6.078	8.525±2.3983	11.630 0.000**	14.985±2.769	6.456±2.667	13.904 0.000**
Total Coping factors strategies	7.354±3.026	7.057±6.042	1.208 0.547	25.413 ± 6.923	14.280±1.390	17.214 0.000**	24.45±6.768	14.046±1.332	18.350 0.000**

*** Not Significant (NS) P-value above 0.05 **Highly Significant P-value below 0.001**

t1 indicates to the comparison among control and study group before implementation of coping strategies. t2 indicates to the comparison among control and study group following one month of coping strategies implementation. t3 indicates to the comparison among control and study group following three months of coping strategies implementation

Table (9): Correlations matrix between patient's levels of knowledge, reported self-care practices, PDI, Katz Index of Independence, quality of life-5 dimensions, and coping strategies in Skin Problems three months' after coping strategies implementation (n= 78).

Post 3 months.		Knowledge level	PDI level	Total Katz Index of Independence
PDI level	r	-0.949	-------	-0.992
	P-value	0.001**		0.001**
Total Quality of life-5 Dimensions	r	0.942	-0.950	-0.987
	P-value	0.001**	0.001**	0.001**
Total Coping strategies for Skin Problems	r	-0.964	0.969	-0.897
	P-value	0.001**	0.001**	0.001**
Total reported self-care practices	r	0.892	0.863	0.913
	P-value	0.001**	0.001**	0.001**



	Study(39)	Mild	Medium	High	Control (39)	Mild	Medium	High
🟦 Pre		25.60%	30.80%	35.90%		17.90%	28.20%	12.80%
🟥 Immediately Post		71.70%	69.20%	76.90%		53.80%	56.40%	69.20%
🟩 Follow-Up		58.90%	51.30%	56.40%		20.50%	17.90%	10.30%

Figure (1): Percentage distribution of study and control groups concerning their total Psoriasis Disability Index (PDI) pre, following 1 month and following 3 months' post coping strategies implementation (n=78).

Figure (1): Clarifies a highly statistically significant variance has been observed in total psoriasis disability index in following one month and following three months after coping strategies implementation at (p-value below 0.001*).

Discussion

Psoriasis is a chronic, non-communicable illness which is harming, painful and hindering. it has a significant negative influence on the cases' QoL. It may occur at any age; however, it is most prevalent in persons aged fifty to sixty-nine **(WHO, 2020)**. It is an immune intermediate inflammatory illness with a complex cause which involves a complicated interaction of genetic and environmental risk factors as the illness's beginning event **(Singh et al., 2019).**

Because of the daily life difficulty resulted from psoriasis, it is creating for psoriatic cases certain struggles in living with psoriasis. Understanding the psoriasis pathogenesis may elevate the case's sense of control, and paying attention to the provoking factors may elevate the case's adherence to treatment and improve positive lifestyle behaviors **(Nagarajan & Thappa, 2020).**

Patient-reported results measures, in which cases directly document their state, can additionally set clinician measures as marker of illness state and enhancement with management **(Snyder et al., 2023)**.The core domains determined through physical disabilities, such as insomnia, pain, difficulty walking, itching; psychologic influences, such as anger, depression, shame frustration; social influences, such as difficulty attending social functions, impaired emotional functioning, relationships; occupation influences, such as reduced work efficiency, lost time from work; daily loads, such as. wearing particular clothing to cover psoriatic plaques; and management effect, such as time demands, treatment costs, possible side effects **(Strober et al., 2013).**

Part I: Demographic Characteristics and Medical History of studied patients

A descriptive analysis of the demographic parameters in both the control group and study group shown that the mean age was 39.164 ± 10.91 for the study group, while 38.23 ± 9.84 for the control group. The similarity in age spread between control and study groups shows an insignificant variance, thus removing error because of sampling bias. This outcome aligns with the outcomes of **Revathi et al., (2014)** who mentioned that most of cases in his research on "Effectiveness of sleep hygiene practices on quality of sleep, psoriasis severity and activities of daily living among patients with psoriasis at selected hospital in Chennai" were aged 41-50 in both the control and study groups, furthermore, the mean age was 41.3±12.4 between the cases in a research performed via **Melikoglu (2017)** whose study was about "Sleep quality and its association with disease severity in psoriasis" . Otherwise, the outcome of research performed by **Guillet, et al., (2022**) on **"**The impact of gender and sex in psoriasis: What to be aware of when treating women with psoriasis". who disagreed with the current outcome and reported that psoriasis usually occurs at a younger age in males compared to females, with a mean start age of thirty-three years. This is additionally close to **Kouris, et al., (2017)** who observed that the age group between the cases in his research on "Psychological parameters of psoriasis" varied from twenty to below forty-five years and noted that the younger cases appear to be more vulnerable to psoriasis.

In relation to the gender, near about three quarter of study group while control group near about two-thirds were females in both groups. This outcome aligns with **Rzeszutek et al., (2021)**, whose research titled "Comparative study of life satisfaction among patients with psoriasis versus healthy comparison group: the explanatory role of body image and resource profiles" and documented that approximately three quarters of cases were women.

Concerning marital status, about three quarters of the study group and four fifth of the control group were married. From the investigator's point of view, this outcome can be due to the culture of Egyptian society that promote marriage. This outcome is consistent with **Daglioglu et al, (2020)**, whose research titled "Effects of disease severity on quality of life in patients with psoriasis' and observed that approximately two thirds of cases were married. This is consistent with research performed in Egypt via **Mohamed et al., (2021)** about "knowledge and self-care practices among psoriatic patients in Benha city" who reported that 70% of the sample was married, this outcome can be the result of Egyptian cultural norms that value marriage as a significant life milestone and encourage it.

Regarding living areas, the outcome of the recent research said that above half of the cases examined were living in urban regions. This outcome disagreed with research performed via **Sawicka et al., (2021)** on "Evaluation of knowledge in the field of proper skin care and exacerbating factors in patients with psoriasis" who reported that approximately three quarters of cases were living in urban regions.

Pertaining to level of education, the outcome of the recent research indicated that approximately above two-fifths and above one-quarter of the study group correspondingly had secondary and university degrees. This outcome can be due to the fact that approximately 2/3 of study group were living in urban regions, where the lifestyle necessitates education. This outcome is consistent with **Soliman (2020)** whose research titled "Acceptance of illness and need for education to support dermatology self-care in psoriasis patients: a cross-sectional study" and documented that approximately two thirds of psoriatic cases had elevated level of education (university degree). This outcome is consistent with **Mohamed et al., (2021)** who observed that approximately 1/3 of the study group had intermediate education.

Relating to occupation, the outcomes of the recent research shown that approximately two-thirds of study group were employees. This outcome has been approved with **Bulat et al., (2020)** in their research titled "Study on the impact of psoriasis on quality of life psychological, social and financial implications" who reported that approximately half of the study group were employees. Likewise, this outcome is consistent with **Zhong et al., (2021**), in their research titled "Impact of moderate-to-severe psoriasis on quality of life in China: a qualitative study" who learned that approximately quarter of cases were employee.

Concerning smoking, it has been observed that nearly four fifths of the study group and three quarters of control group weren't smokers. From the investigator's point of view, this can be caused; elevating consciousness between the cases concerning the harmful efficacy of the smoking on the severity of illness and the two-thirds of the patients were females in both groups, and the smoking habit is lesser between females. This outcome totally aligns with the outcomes of study about "Effectiveness of an educational program on the severity and disability of people with psoriasis "were conducted by **Moselhy, and Attia Abdallah (2022**) and another study "An interdisciplinary approach to psoriasis" done by **Chiriac, et al., (2017)** who clarified that most patients who enrolled in the study were nonsmokers, whilst this result disagrees totally with **El-Komy, et al., (2020)** who said that most of the patients who participated in his study were smokers in his study on "Clinical and epidemiologic features of psoriasis patients in an Egyptian medical center" .Additionally, **Roszkiewicz, et al., (2020)**in his study "Environmental risk factors and epigenetic alternations in psoriasis" who proved that in his study on smoking is a definite risk factor for psoriasis.

The study findings showed that no statistically significant difference was detected among the study and control groups in all socio demographic characteristics. This could be indicated that both the study and control group were homogeneous. This finding was matched with

Ghezeljeh et al., (2018) in his study "The effect of self-management education on the quality of life and severity of the disease in patients with severe psoriasis: A non-randomized clinical trial" who informed that there is no statistical difference between both groups in all socio-demographic characteristics.

Regarding the duration of illness, the current study results realized that the mean duration of disease was 4.85 ± 7.54 and 4.92 ± 6.98 years for the study and control groups, respectively. This result was consistent with **Eldesoky et al., (2023)** who mentioned that more than two thirds of patients had been suffering from the disease for one to less than five years. This finding corresponded with **Sharaf and Ibrahium (2017)** in study on "Quality of life of patients with Psoriasis in Alexandria-Egypt" who found that almost half of the patients had been suffering from the disease for more than one year. This result was in consistent with **Ghezeljeh et al., (2018)** who declared that the mean duration of the disease in the study and control groups were 8.545 ±8.2 and 14.463 ±8.4 respectively. This result from the researchers' clinical experience proved the urgent need of those patients for continuous follow-up for disease duration and multiple disease problems throughout their life.

As regards the area of psoriasis, approximately half of both groups elbow were the affected areas of psoriasis, this finding is well-matched with **Nowowiejska et al., (2021)** in his study on **"**Mutual relationship between sleep disorders, quality of life and psychosocial aspects in patients with psoriasis" who stated that psoriasis commonly affects the scalp, elbows and knees but can affect any part of the body. These findings were in accordance with **Alhammad et al., (2021**) in his study on "A review on updates in management and treatment of psoriasis" who detailed that the most common sites were on the extensor surfaces of the limbs. **In term of main complaints,** it is noticed that more than one complaint was reported by studied patients as irritation and crusts, fatigue and joint pain were more common complaints. These findings were disagreement with a recent study conducted at Banha city by **Mohamed et al., (2021)** and presented that the principal complaints of the studied patients were scaling of the skin, itching, erythema, and fatigue. In the same line with the above-mentioned findings **Alhammad et al. (2021)** confirmed that classical clinical manifestations are sharply demarcated raised lesions covered in silvery scales.

Part II: Effect of Coping strategies on studied patients Knowledge and self-care practices satisfactory level

The present study shown that there was highly statistically significant difference between the patients' knowledge and patients' self-care practices scores post Coping strategies implementation after one month and three months in study group (p-value <0.001). These results supported the research hypothesis (H1) which stated patients with psoriasis who will receive Coping strategies will have improvement in level of knowledge and reported self-care practices than control group. These results were in the same line with **Elzehiri et al., (2022)** 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. Additionally, **Nagarajan and Thappa (2018)** study the "Effect of an educational and psychological intervention on knowledge and quality of life among patients with psoriasis" and described an increase in the mean of knowledge scores among the experimental group subjects to post the implementation of an educational intervention than pre-intervention of their study. Similarly, **Larsen et al., (2021),** whose study was about "Associations between disease education, self-management support, and health literacy in psoriasis" and reported that psoriasis knowledge were significantly higher in patients who had participated repeatedly the effect size for the difference in psoriasis knowledge.

Part III: Effect of Coping strategies on a patient’s level of disability

As regards psoriasis disability index**,** the present study illustrated that there was a high statistically significant difference between patients’ psoriasis disability total mean score among study group (p-value <0.001) post one month and post three months of Coping strategies implementation. These results proved the second research hypothesis (H2) which confirmed patients with psoriasis who will receive Coping strategies will have improvement in level of disability index than control group. Rendering to researchers’ point of view 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 revealed to significantly reduce shame and reduce the effect of the disease on both life in general and its disability in particular. These results were supported by **Elzehiri et al., (2022)** who declared that total psoriasis disability mean scores were dropped from 32.22±7.23 to 17.82±4.57 post implementation period among the study group with no change in the control group with statistically significant improvement in patient's total level of disability and looked through patients’ daily activities, studying /work, personal relationship, leisure time and regular treatment with totally highly significant differences between study and control group at (p value < 0.001) post individualized guidance implementation. In addition, **Mohamed et al., (2013)** in his study” Effect of self-care instructional guidelines on quality of life of patients with psoriasis” who presented that statistically significant enhancement in disability level of case, personal relationship, daily activities, leisure, work, and management capabilities (p-value below 0.05) with totally greatly significant enhancement at (p-value below 0.001) following instruction implementation. This outcome in contrast with **Ghezeljeh et al. (2018)** who demonstrated that both control and intervention groups had insignificant variances in the score alterations of leisure, daily activities, and personal relationships prior to and following the program.

Part IV: Effect of Coping strategies on patient's level of independence in activity of daily living

Regarding katz index of independence, following 1 month and following 3 months of Coping strategies implementation, a highly statistically significant variance has been observed between patients’ Katz ADLS total mean score between study group (p-value below 0.001). These outcomes authorized the third study hypothesis (H3) that specified patients with psoriasis who will receive Coping strategies will have improvement in level of Katz Index of ADL than control group. These results were proven by **Abu Bakr Mohamed, et al., (2022)** in his study on “Effectiveness of sleep hygiene measures on sleep quality, activity of daily living and disease severity among patients with psoriasis “who observed that below half of the cases between the study group had moderate impairment of their ADL throughout pre-test stage, while nearly above one-third of cases in the control group had completely functional of their activities of daily living. Conversely, this outcome dramatically altered for the study group and changed to most of cases in the examined sample were completely functional of their ADL following implementation of the sleep hygiene measures, whereas the ADL of cases in the control group exhibited a small modification and documented below half of them were completely functional with statistically significant variances among the two groups in post-test stage. This aligns with **Revathi (2014)** who demonstrated that there was an enhancement in the activities of daily living score in the study group from before test to following test, nevertheless the control group established that there was a decrease in activities of daily living score.

Part V: Effect of Coping strategies on patient's Euro Quality of life-5 Dimensions-5 Level (EQ-5D-5L)

The outcomes of the current research shown that there are greatly statistically significant variances were found in all EQ-5D levels in study group following 1 month and following 3 months after implementation of Coping strategies (p-value below 0.001). These outcomes showed that the research hypothesis (H4) that indicated patients with psoriasis who will receive coping strategies will have improvement in level of EQ-5D-5L than control group. The outcomes were consistent with **Ibrahim et al., (2023)** who presented in their research titled "Effect of self- care management program on quality of life and disease severity among patients with psoriasis" and revealed a statistically insignificance variance has been observed among the control and study groups prior to implementation of the self- care treatment program in QoL, whereas statistical significant variance have been observed among the two groups following implementation of the self-care treatment program at three evaluation intervals: 4 weeks, 8 weeks and 12 weeks.

Part VI: Effect Coping strategies on patient's Coping strategies in Skin Problems Factors

The findings of the current research discovered a greatly statistically significant variances were found in all Coping strategies in skin problems factors in study group following 1 month and following 3 months after implementation Coping strategies (p-value below 0.001). These outcomes showed that the research hypothesis (H5) that indicated patients with psoriasis who will receive Coping strategies will have improvement for skin problems factors than control group. The outcomes were supported by **Kowalewska et al., (2022)** in his investigation "The impact of Stress-Coping strategies and the severity of psoriasis on self-esteem, illness acceptance and life satisfaction "who show that coping with skin issues needs numerous strategies, that are shown through the nature and diversity of the factors doesn't have a one-dimensional pattern. In contrast, psoriatic respondents included in the study presented significantly higher indices for solutions seeking, information seeking, wishful thinking, support seeking, social positive thinking, and distancing in comparison with other individuals not receiving skin disease management strategies.

Finally, the recent research confirmed that there was great positive association in the matrix between patient's levels of knowledge, self-care practices, PDI, katz index of independence, quality of life-5 dimensions, and coping strategies in skin problems three months' post implementation disease management strategies, p-value below 0.001. These outcomes were in consistent with research performed via **Mohamed et al. (2021)** who documented a positive association has been observed among the overall knowledge score and overall reported practices score of the examined group. Similarly, **Whal et al., (2017)** in his research "Psoriasis Patients' Knowledge about the Disease and Treatments" observed a robust association has been observed among the knowledge level and overall reported self-care practices of participants.

Conclusions:

The findings of the recent research concluded that there was an enhancement in reported self-care practices, knowledge level, level of psoriasis disability index, level of EQ-5D-5L, level of Katz Index of ADL after implementation of coping strategies amongst the patients in the study group.

Recommendation:

Depending on the outcomes of the research, the following recommendations proposed:

1. Additional research must be performed in Egypt utilizing a larger sample size involving their families to generalizability of the outcomes and wider implementation of coping strategies guidelines.
2. The coping strategies guidelines must be suggested as a nursing intervention guideline throughout the management of each psoriasis case.
3. Integrate an interdisciplinary care strategy for the management of psoriasis cases.
4. Comparison may be performed amongst different settings.

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الملخص العربي

تأثير استراتيجيات التكيف على النواتج الملبغه بواسطه مرضى الصدفيه

مقدمه: الصدفية اضطراب جلدي التهابي مزمن يُسبب عبئًا نفسيًا وجسديًا كبيرًا. في حين تهدف العلاجات الطبية إلى السيطرة على شدة المرض، فإن لاستراتيجيات التكيف دورًا أساسيًا في تحديد النواتج المُبلغ عنها من قِبل المرضى. **هدف الدراسة:** تقييم تأثير استراتيجيات التكيف على النواتج المُبلغه بواسطه مرضى الصدفية. المكان: أُجري هذا البحث في العيادة الخارجية للأمراض الجلدية بمستشفى جامعة عين شمس. **التصميم:** تم تطبيق تصميم شبه تجريبي/ عينه مقارنه/ دراسة لتحقيق وتوجيه غرض الدراسة. العينة: عينة مقارنه/عينه الدراسة من ثمانٍ وسبعين حالة مصابة بالصدفية. أدوات جمع البيانات: تم جمع المعلومات باستخدام خمس أدوات: 1- استبيان مقابلة مرضى الصدفية، 2- تقييم ممارسات الرعاية الذاتية للمرضى، 3- مؤشر إعاقة الصدفية *(PDI)*، 4- مؤشر كاتز للاستقلال في أنشطة الحياة اليومية، 5- نسخة خاصة بالمرض من مقياس جودة الحياة الأوروبي - 5 أبعاد - 5 مستويات (*EQ-5D-5L*) و 6- استبيان استراتيجيات التأقلم مع مشاكل الجلد.

النتائج: توضح هذه الدراسة وجود علاقة إيجابية بين مستويات معرفة المرضى، وممارسات الرعاية الذاتية، ومؤشر إعاقة الصدفية، ومؤشر كاتز للاستقلالية، وأبعاد جودة الحياة الخمسة، واستراتيجيات التأقلم مع مشاكل الجلد بعد ثلاثة أشهر من تطبيق استراتيجية التأقلم عند قيمة احتمالية أقل من 0.001. **الخلاصه والتوصيات:** خلصت الدراسة أن تطبيق استراتيجيات التكيف تحسّن مستوى المعرفة، وممارسات الرعاية الذاتية، ومؤشر إعاقة الصدفية، وأنشطة مؤشر كاتز، ومستويات جودة الحياة الأوروبية لدى مرضى مجموعة الدراسة. التوصية:اوصت الدراسة باقتراح إرشادات استراتيجية التأقلم كدليل إرشادي للتدخل التمريضي خلال إدارة جميع مرضى الصدفية.