Exploring Patients' Cognition of Living with Psoriasis

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Abstract

Background: Psoriasis is a chronic inflammatory skin condition that has a significant impact on the patient's daily life. Understanding the illness cognition of psoriasis patients is critical for better disease management and improved quality of life. **Aim of the study**: Explore illness cognition of psoriasis patients**. Subjects and method: Research design**: The study was conducted using a descriptive research design. **Setting**: The study was carried out at Zagazig University Hospitals' dermatological outpatient clinic. **Sample:** A purposive sample of 120 psoriasis patients. **Tool of data collection**: An interview questionnaire was utilized to collect data about the following parts; (1) Socio-demographic data, (2) Disease characteristics, and (3) Illness Cognition Questionnaire (ICQ). **The results** revealed that 76.7% of psoriasis patients had low illness cognition. Also, 62.5% of the patients had high feeling of helplessness of living with psoriasis. Meanwhile, 54.2% of them had low acceptance and perceived benefits of living with psoriasis. Patients' illness cognition had significant relation with onset and duration of the disease. Patients' age, occupation, family income, commitment with treatment, and number of treatment were statistically significant negative predictors of their illness cognition. Conversely, gender, residence, educational level, and disease duration were positive ones. **Conclusion**: The majority of the studied patients had low illness cognition reflecting that living with psoriasis can be unacceptable and generate feeling of helplessness for the patients. **Recommendations**: Tailored interventions can be designed and provided to those patients with low Illness cognition for better management and adaptation with psoriasis.

Key words: Psoriasis, Dermatology, and Illness cognition.

Introduction

Psoriasis is a chronic autoimmune and non-communicable inflammatory disease affecting skin, hair and joints (1). It is a form of hyperkeratosis which is characterized by excessive production of keratin. Normally, cells at the basement membrane of the epidermis take about 28 days to reach the outermost layer where they are shed. In a person with psoriasis, the rate of cell division is speeded up so that cells are shed every 4 to 5 days (2, 3). It affects both men and women of all racial groups worldwide, and can start to manifest at any age, with peak of 50 to 69 years (4).

The exact cause of psoriasis has not yet been determined, but a variety of elements such as genetic predisposition, family history, and environmental factors, are involved (5). Additionally, defects in the immune system, regulation of inflammation and certain medication, are thought to play major roles in etiology of psoriasis. (6).

Psoriasis symptoms appear in the form of dry or red areas of the skin, typically covered in silvery-white scales, and occasionally with raised edges. It also include rashes on the scalp, genitalia, or in the skin folds, itching and skin pain; joint pain, edema, or stiffness; and nail abnormalities such as pitted, discoloured, or brittle nails *(7)*. Typically, diagnosis of psoriasis depend on symptoms and previous family history. In rare cases, a skin sample may be taken to identify the type of psoriasis and to exclude other medical diseases *(8)*.

Although there are many different types of treatments available to reduce the symptoms and appearance of the disease, psoriasis remains an incurable condition. These therapies depend upon the general health and age of the patient, comorbidities, type and severity of psoriasis ***(9)***.

Patients may experience severe physical discomfort and some disability depending on location and severity of outbreaks **(4)**. Thus, negative impact of psoriasis on people's lives can be immense (10). Beyond physical effects of scaling, itching, and pain, the patients can also have feelings of embarrassment or humiliation due to their illness, which impacts their social life by avoiding social situations and activities **(11)**. Besides that, perceived stigmatization, discrimination and social isolation are psychologically overwhelming for psoriasis patients and their families **(12)**. Additionally, psoriasis has detrimental effect on patients' ability to work, relationships with family, relatives and friends, and partners **(10)**. Patients' quality of life can also be impaired by the burden of dealing with many treatments, care of the skin, and treatment satisfaction ***(13)***.

Patients' cognitions about their illness play a crucial role in mediating the relationship between health and quality of life of patients with chronic diseases. It also help to explain the occurrence of individual differences in individuals' adjustment to chronic disease **(14)**. Patients' illness cognition play an important role in determining their responses to chronic diseases. Through illness cognition, patients perceive the state of illness into their physical and psychological health condition ***(15)***. Illness cognitions can be described as a patient's perception, interpretation, and understanding of the disease and its treatment **(16)**.

Nurses have a unique role in patient education, and planning nursing interventions aimed at minimizing the effects of psoriasis and enhancing patients' quality of life through appropriate management. They also have to encourage patients to adhere to their prescribed course of treatment and suggest lifestyle modifications that could improve their quality of life (17)***.*** Furthermore, nurses could benefit from closer working and collaboration to provide the essential mutual support through nursing consultations, follow-ups, integrated health actions and proposed interventions. Such strategy would enable the nurse to participate in identifying potential problems and making care-related decisions **(18)**.

Significance of the study

Over 100 million people worldwide suffer from psoriasis, with reported prevalence ranges between 0.09% and 11.43% in different countries. So, psoriasis has become a serious global health problem associated with a significant humanistic and economic burdens. Also, research review indicates upward increase in the worldwide prevalence of psoriasis ***(10)***. This prevalence is between 1.5 and 5% in most developed countries (19)**.** In Egypt, it is estimated that psoriasis affects around 3% of the Egyptian population ***(20)***.

Illness cognition is an essential link between the patient's wellbeing and the disease as people's cognitive beliefs about their illnesses are important determinants and predictors of different outcomes. The higher acceptance and perception of the benefits felt by the patient to the disease have a positive impact on coping and adjustment. On the other hand, negative illness perceptions have been associated with poor functioning and well-being (21).

Therefore, studying the determinants of illness cognition and perceptions may help to identify psoriasis patients who are at greater risk of poor coping with the burdens of their illness (22). Subsequently, effective interventions can be designed in the light of the patients' cognition of the disease in order to improve their adaptation and management of psoriasis throughout life.

Aim of the study:

The present study aim was to explore illness cognition of psoriasis patients.

Research Question:

1. What is illness cognition of psoriasis patients?
2. What are the predictors of illness cognition of psoriasis patients?

Subjects and methods:

Research design:

A descriptive research design was utilized for conducting this study.

Study setting:

The study was conducted in dermatology outpatient clinic at Zagazig University Hospitals.

Study subjects:

A purposive sample of 120 psoriatic patients were eligible according to the following criteria;

Inclusion criteria

- Patients' age ≥ 18 years .
- Patients who have confirmed diagnosis with psoriasis for at least 6 months

Exclusion criteria

- Patients with other skin conditions or serious illnesses that could affect their quality of life.
- Female patients who are pregnant or lactating.

Sample size calculation:

The sample size was computed to find the mean ISDL score for psoriasis with a standard deviation of 6.37 and an absolute precision of 1.25 at 95% level of confidence. The needed sample size is determined by using the UCSH computer software programme to be 100 patients. This was increased to 120 patients to compensate for an expected non-response rate of about 20%.

Tool of data collection*:*

Using a three-part interview questionnaire, data were gathered;

Part 1: Socio-demographic data: This contains questions to collect data about;

- **Personal data** as age, gender, place of residence, level of educational, and working status.
- **Socio-economic data** such as family income, home utilities and the crowding index.

Part 2: Disease characteristics which include questions about extent and severity of psoriasis plaques, duration of the disease, age at onset of psoriasis, medical history, previous and current treatment regimens, and patients' commitment with treatment.

Part 3: Illness Cognition Questionnaire (ICQ) adapted by the researcher from ***Evers et al*** *(23)*

ICQ was translated by the researcher to assess an individual's cognition of his or her illness. This is a self-report instrument which measures generic illness beliefs about various chronic conditions. The scale consists of 18 statements and the responses are on a 3-point scale: slightly, to large extent, and completely. The tool items are categorized under three subscales as follow;

- **Acceptance subscale**: It includes 6 items reflecting positive adaptation to chronic illness with emphasis on decreasing its negative aspects. Example of items is "I have learned to live with my illness" **(Items 2, 3, 10, 13, 14 and 17).**
- **Helplessness subscale:** It entails six items assessing the negative consequences of the disease on the daily life of patients. Example of helplessness items is "My illness limits

me in everything that is important to me". **(Items 1, 5, 7, 9, 12 and 15).**

- **Perceived benefits**: It includes 6 items presenting the positive meaning of illness, e.g. "My illness has taught me to enjoy the moment more". **(Items 4, 6, 8, 11, 16 and 18).**

Scoring system: The responses are scored 1 for "Slightly", 2 for "To large extent", and 3 for "Completely". Item scores are summed for each subscale with higher score indicating higher levels of the illness cognition. e.g higher scores on acceptance scale represent greater acceptance of the disease and higher score on helplessness reflects poor adaption to the disease. The patients were considered to have a low illness cognition if the total score obtained < 60% and high illness cognition if the total score obtained was up to or above 60%.

Content validity& Reliability:

The study tool was revised by three experts in community health nursing, community medicine and dermatology medicine in Zagazig University who conducted face and content validity of all items of the study tool. There were no recommended modifications. The reliability of the tool was tested through measuring its internal consistency by calculating Cronbach alpha coefficient. Internal consistency of the tool was proved to be satisfactory (r= 0.674).

Pilot study:

A pilot study was carried out on 12 psoriatic patients, representing about 10 % of the total studied sample. It test the clarity, feasibility, applicability and the required time for the study tool. The patients, enrolled in the pilot, were included in the main study sample as there were no modifications done on the data collection tool.

Fieldwork

The researcher visited the study setting and met with the director and nurses at the dermatology clinic, after obtaining the official approval. The initial visit was to explain the study purpose, and to seek cooperation in data collection. The researcher went to the clinic three times to be familiar with the workflow and working hours. The researcher then began to plan a data collection schedule based on the frequency with which psoriasis patients visited the dermatological clinic, which was on Saturday, Sunday, Monday and Wednesday.

The following visits were for actual data collection. The patients were met by the researcher, who explained the study aim, procedures, and rights to them. Patients, who fulfilled the eligibility criteria and agreed to participate, were enrolled in the study sample. Each patient was interviewed privately, and the questionnaire took about 20-30 minutes to be completed. The actual fieldwork took place from September 2020 to February 2021. The researcher went to the clinic two or three times a week.

Administrative and ethical considerations:

Official permissions were obtained from the director general of the outpatients clinics at Zagazig University Hospitals based on letters from Faculty on Nursing explaining the aim and procedures of the study. The director general referred the researcher to the director of the dermatology outpatient clinic with approval letter. The researcher then met the director to explain the study aim and the nature of data collection tool. The researcher gave the director a copy of the questionnaire and the formal letters.

In July 2020, the Zagazig University Faculty of Nursing's Postgraduate Committee and the Research Ethics Committee (REC) approved the study proposal. Patients' informed consent was gained after full explanation of the study aim and procedures. Voluntary and anonymous participation of the patients was assured. Patients also have the rights to withdraw or refuse to participate at any stage of data collection. They were also assured that any obtained information would be confidential and used for research purposes only.

Statistical analysis:

The SPSS 22.0 statistical software package was used for data entry and statistical analysis. For qualitative, quantitative variables, means, standard deviations and medians were presented using descriptive statistics. The reliability of the developed tool was evaluated through their internal consistency by calculating the Cronbach alpha coefficient. Using a chi-square test (X2), qualitative categorical variables were compared. In order to compare quantitative continuous data, non-parametric Mann-Whitney or Kruskal-Wallis tests were used. Instead, the fisher exact test was performed when the anticipated values in one or more of the cells in a 2x2 tables were fewer than 5. The interrelationships between ranked and quantitative variables were assessed using the Spearman rank correlation. Multiple linear regression analysis was utilized to find the independent predictors of ICQ, saSPI-s and DLQI scores after testing for normality, and homoscedasticity, and analysis of variance for the full regression models. A p-value <0.05 was used to determine statistical significance.

Results:

Table 1 shows that the mean age of the studied patients had mean age of 40.29 ± 16.67 years and 59.2% of them were males. Also, 65.0% of the patients were from rural areas and 73.3% were married. Concerning the educational level, 39.2% of the patients had university education. Clearly, 58 % of the patients were working. The crowding index for 98.3% of the patients was less than two persons per room, and 60.8% of them had sufficient and saving family income.

According to **table 2**, 59.2% of the patients had psoriasis for less than or equal to 10 years, with mean disease duration of 8.34±7.35 years. Meanwhile, 46.6% of the patients were diagnosed with psoriasis at 11 to 29 years. Also, 98.3% of the patients were not admitted to hospital due to psoriasis and 43.3% of them didn't visit dermatologists during the previous six months. As it is obvious**,** 40.0% of the patients are often committed with the dermatologist's treatment recommendations, typically 3-4 days each week.

According to **figure 1**, 51.7%, 40.8% and 7.5% of the patients had mild, moderate and severe psoriasis, respectively.

Figure 2 demonstrates that the knees, lower legs and ankles were the highest affected areas with widespread psoriasis (28.3%). On the other hand, the least affected area was the face, neck and ears (4.2%).

Table 3 reveals a 6-point scale of average plaque severity. As it is obvious, only 0.8% of the patients reported clear or just slight redness of stained plaques. Meanwhile, the skin plagues on 39.2% of the patients were very thick, scaly, inflamed and red.

Table 4 shows that 62.5% of the patients had high feeling of helplessness of living with psoriasis. Meanwhile, 54.2% of them had low acceptance and perceived benefits of living with psoriasis.

Figure 3 illustrates that 76.7% of the patients in the study sample had low illness cognition.

According to **table 5**, no significant relations were found between patients' ICQ and their socio-demographic characteristics.

Table 6 indicates statistically significant relations between patient's ICQ and duration of disease (p=.003), their age at onset of psoriasis (p=.04), and psoriasis severity (p=.000).

Table 7 indicates that the multivariate analysis identified that patients' age, occupation, family income, commitment with treatment, and number of treatment were statistically significant negative predictors of their illness cognition. Conversely, gender, residence, educational level, and disease duration were positive ones. The model explains 99% of illness cognition score as shown by the value of r-square.

Discussion:

The current study results revealed that the majority of patients reported mild to moderate psoriasis. Similar to this, *Soliman* (24) found that mild, moderate, and severe psoriasis were self-reported in 57.5%, 24.4%, and 18.1% of the Arabic psoriasis patients, respectively. Consistently, the study of *Henry et al* (25), which carried out in 15 countries including one Arabic country, found that 59.1% and 30.6% of the patients reported mild and moderate psoriasis, respectively. However, study of *Dimitrov and Szepietowski* (26) in the United Arab Emirates, showed that 85.1% of the patients had mild psoriasis and the previous Egyptian study of *Sharaf and Ibrahim* (17) showed that psoriasis was moderate to severe in 77% of the patients. This discrepancy might be due the difference between the patient's and the physician's perspectives of the disease and different severity assessment tools.

Concerning the extent and intensity of psoriasis lesions, the current study found that the knees, lower legs and ankles were the most severely affected areas, followed by the area of arms and armpits. On the other hand, the face, neck and ears were the least affected body parts. This result reflects the fact that more psoriasis lesions were discovered on the extremities and that the visibility of these lesions depends on the patients' efforts to conceal them with clothing. Therefore, patients with visible psoriasis lesions had lower quality of life and employment status than those with non-visible lesions (27). Consistently, the Egyptian study of *El-Komy et al* (28), found that the lower limbs (75.8%) and upper limbs (70%) were the most commonly affected parts with psoriasis while the neck (17%) and soles (16.9%) were the least affected.

Contrary to this finding, *Soliman* (24) found that psoriasis patients reported that the feet, toes, and toenails was the least affected parts however, the scalp and hairline was the highest affected area. Additionally, the results of present study showed that only a minority of patients had clear or non-inflamed psoriasis plaques, whereas almost two-fifths of patients reported very red, inflamed, scaly, or thick plaques which is similar to the findings of *Soliman* (29).

According to the present study findings, low illness cognition was reported by the majority of the studied psoriasis patients. This finding might be attributed to the chronic nature, frequent relapses and unpredicted prognosis of psoriasis. In addition, lack of awareness regarding psoriasis among patients and general public, which could be a result of lack of relevant medical and health education resources, with the absence of psoriasis specialized centers. Similar results were found by the studies of *Jankowiak et al* (30) in Poland and *Noormohammadpour et al* (31) in

Iran. On contrary, *Thorneloe* (32) in England demonstrated that 61% of the patients believed that they understood their psoriasis well. Likewise, the Iranian study of *Nasimi et al* (33) found that patients had a relatively good perception of their illness and a correct awareness about chronicity and the recurring nature of psoriasis. This discrepancy could be attributed to differences in cultures affecting the patients' cognition of their own altered body image as well as the reactions of the society regarding the disease.

Concerning domains of illness cognition, the current study results revealed that more than half of the patients had low acceptance and perceived benefits of living with psoriasis. These findings might be attributed to the fact that psoriasis is painful, disfiguring, and disabling disease with presence of lesions on visible body parts, recurrent episodes and lifelong persistence. Similarly, a cross-sectional survey conducted among psoriasis patients from 12 Arabic countries including Egypt, found that 25.4% and 35.9 % of patients reporting a low and moderate acceptance of psoriasis *(29).* Conversely, the studies of *Kowalewska et al* (34) and *Budzińska et al* (35) in Poland revealed that most psoriasis patients showed high and moderate levels of psoriasis acceptance. This variance could be due to the extent of psoriasis and how it affects the patients' daily life and relationships.

According to the current study, three fifths of the patients had high feeling of helplessness of living with psoriasis. This might be due to that psoriasis exerted extreme physical and psychosocial burden on the patient, which may influence their ability to make significant life-changing decisions and shape their lives in ways that might have been different in the absence of psoriasis. On same line with the forgoing study results, *Beugen et al* (36) found that psoriasis patients are prone to feel helpless about their illness and also experience a greater impact of psoriasis and magnify negative reactions of others.

Moreover, patients with psoriasis are more likely to feel frustrated and disappointed due to the fact that the disease is persistent, incurable and requires ongoing treatment *(37).* Because of their skin condition, the patients believe that people will avoid them or feel uneasy near them. This could result in social withdrawal, precipitation of anxiety and depression, or even suicidal ideation (38). As a result, psoriasis patients use a variety of strategies to prevent exposing their body, such as avoiding activities that require them to reveal their bodies in public settings as the gym and swimming pool (39).

Regarding the socio-economic and disease-related factors affecting patients' illness cognition, the present study multivariate analysis identified that female gender, rural residence, educational level, and disease duration were associated with a higher illness cognition score. While patients' age, occupation, family income, number of treatment and in commitment with treatment were associated with lower score. These findings are of considerable importance in patients' coping and adaptation to their disease. In this respect, *Wahl et al* (22) emphasized that knowing the determinants of psoriasis patients' illness perceptions may help to identify those with greater risk of poor coping with the burdens of their illness, so that tailored interventions can be provided to those with low self-management risk profiles.

The possible explanation of that female patients had high illness cognition might be, despite the fact that women are more likely to be concerned about their appearance, in our communities women tend to cover most of their body with clothes concealing their psoriatic lesions and this can be a protective factor from lesions visibility-related burden. On this way, *Wahl et al* ⁽²²⁾ study showed that women patients had less severe perceived consequences of psoriasis as they were more knowledgeable about psoriasis. Controversy, the study of *Kowalewska et al* ⁽³⁴⁾ concluded that the level of psoriasis acceptance among men was significantly higher than among women. Besides that, *Soliman* ⁽²⁹⁾ and the Egyptian study of *Aladi et al* ⁽⁴⁰⁾ showed that psoriasis acceptance did not differ in relation to gender.

Educational level seemed to be a positive predictor of high illness cognition. This might be explained by that patients' education could upsurge their knowledge and understanding of the disease in all its different aspects and how to manage it, and thus leading to more acceptance and effective adaptation. In correspondence with this, the German study of *Bubak et al* ⁽⁴¹⁾ found that all educated psoriasis patients had a much higher level of knowledge, self-expertise about their condition and general health. Additionally, according to *Soliman* ⁽²⁹⁾, psoriasis patients with lower levels of education were less willing to accept their condition, which may have contributed to overestimation of their disease severity. However, this finding comes in disagreement with the study of *Soliman* ⁽¹²⁾ who indicated that acceptance of psoriasis did not differ in relation to level of education of the patients.

Furthermore, the current study demonstrated that elderly patients had low illness cognition. This result is unexpected since with advancing age, there are better understanding and acceptance of the disease with more effective habituation process. This finding might be due to the burden of aging process itself magnifying impact of psoriasis on the life. In divergence with this, *Sakson-Obada* ⁽⁴²⁾ in Poland, found that older patients had higher levels of acceptance of psoriasis. Howevere, *Aladi et al* ⁽⁴⁰⁾ revealed that psoriasis acceptance scores showed no significant differences with the patients' age.

According to this study, low family income was a predictor of low illness cognition. In agreement with foregoing study findings, *Sakson-Obada et al* ⁽⁴²⁾ reported that patients in a good financial situation accepted psoriasis more, as compared to individuals with lower economic status. This could be due to that socio-economic status of the patients fulfills an important role in disease acceptance as it determined the process of coping with the disease and affected the ability to seek medical and cosmetic skincare. Nonetheless, *Aladi et al* ⁽⁴⁰⁾ conveyed that psoriasis acceptance scores showed no significant differences with socio-economic status of the patients.

The present study revealed that patients with longer disease duration for more than 20 years had high illness cognition. This might be due to that patients are more adapted to their disease over time as gradual adaptation occurring along with the progression of the disease. This is consistent with, *Wahl et al* ⁽²²⁾ who demonstrated that patients who had psoriasis for a longer time worried less about psoriasis and strongly held positive beliefs about the chronicity of psoriasis and a better personal understanding of the disease. In addition, the current study revealed that age at onset is significantly associated with illness cognition which is in contrast with the study of *Kowalewska et al* ⁽³⁴⁾ who illustrated that the level of illness acceptance did not differ considerably depending on time elapsed since diagnosis of psoriasis.

According to the present study results, illness cognition had statistically significant relation with psoriasis severity. This might be due to that patients with greater disease severity receive more attention and better care which, in turn, resulted in more acceptances and coping with disease. In disagreement with this, *Aladi et al* (40) demonstrated that there was negative moderate correlation between psoriasis severity and the patients' acceptance of the disease.

Conclusion:

The study results bring about the conclusion that the majority of the studied patients had low illness cognition reflecting that living with psoriasis can be unacceptable and generates feeling of helplessness for the patients. Also, the predictors of illness cognition of psoriasis patients were identified.

Recommendations:

Based on the current study findings, these recommendations are suggested:

- Health education to all newly diagnosed cases about the disease and the importance of treatment adherence.
- Continuous follow up to all psoriasis patients for updating their knowledge.
- Tailored interventions can be designed and provided to those patients with low Illness cognition for better management and adaptation with psoriasis.
- Further research is needed for better understanding of the effect of various factors on psoriasis patient's life.
- For generalization of the findings, the study should be replicated in other settings on a wider scale.

Table (1): Demographic characteristics of patients in the study sample (n=120)

Demographic characteristics	Frequency	Percent
Age:		
18-34	46	38.3
35-64	60	50.0
65-84	**14**	11.7
Mean±SD	**40.29 ± 16.67**	
Rang	**(18 – 84)**	
Gender:		
Male	71	59.2
Female	49	40.8
Marital status:		
Single	26	21.7
Married	88	73.3
Divorced	1	0.8
Widow	5	4.2
Residence:		
Rural	78	65.0
Urban	42	35.0
Level of education		
Illiterate	20	16.6
Read & write	6	5
Basic	2	1.7
Intermediate	45	37.5
University	47	39.2
Work status:		
Working	58	48.3
Not Working	62	51.7
Crowding index:		
<2	118	98.3
2+	2	1.7
Family income:		
Just sufficient	32	26.7
Saving	73	60.8
Insufficient	15	12.5

Table (2): Psoriasis characteristics as reported by patients in the study sample (n=120)

Item	Frequency	Percent
Duration of disease (years):		
≤10	71	59.2
11-20	37	30.8
>20	12	10.0
Mean ± SD **Range**	**8.34 ±7.35** **1-40 y.**	
Age at onset of psoriasis (years):		
≤ 10	6	5.0
11-29	56	46.6
30-50	41	34.2
>50	17	14.2
Mean ± SD **Range**	**31.89±15.53** **4-74 years**	
Hospitalization due to psoriasis:		
No time	118	98.3
Two times	1	0.8
10 times	1	0.8
Visit adherence during the last six months:		
No time	52	43.3
One time	21	17.5
2 times	35	29.2
3-4 times	12	10.0
Mean ± SD **Range**	**1.07±1.10** **0-4**	
Commitment with dermatologist's treatment recommendations:		
Always (7 days\ week)		
Usually (5-6 days\ week)	13	10.8
Often (3-4 days\ week)	29	24.2
Irregularly (1-2 days\ week)	48	40.0
Once a week or less	29	24.2
	1	0.8

Figure (1): Psoriasis severity among the patients in the study sample (n=120)

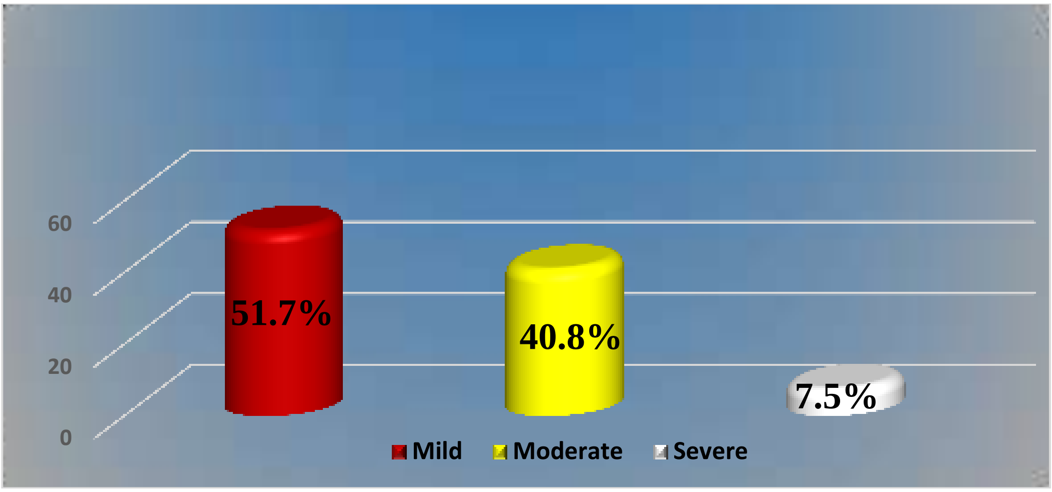

Figure (2): Extent of psoriasis in 10 unequal areas of the body among patients in the study sample (n=120)

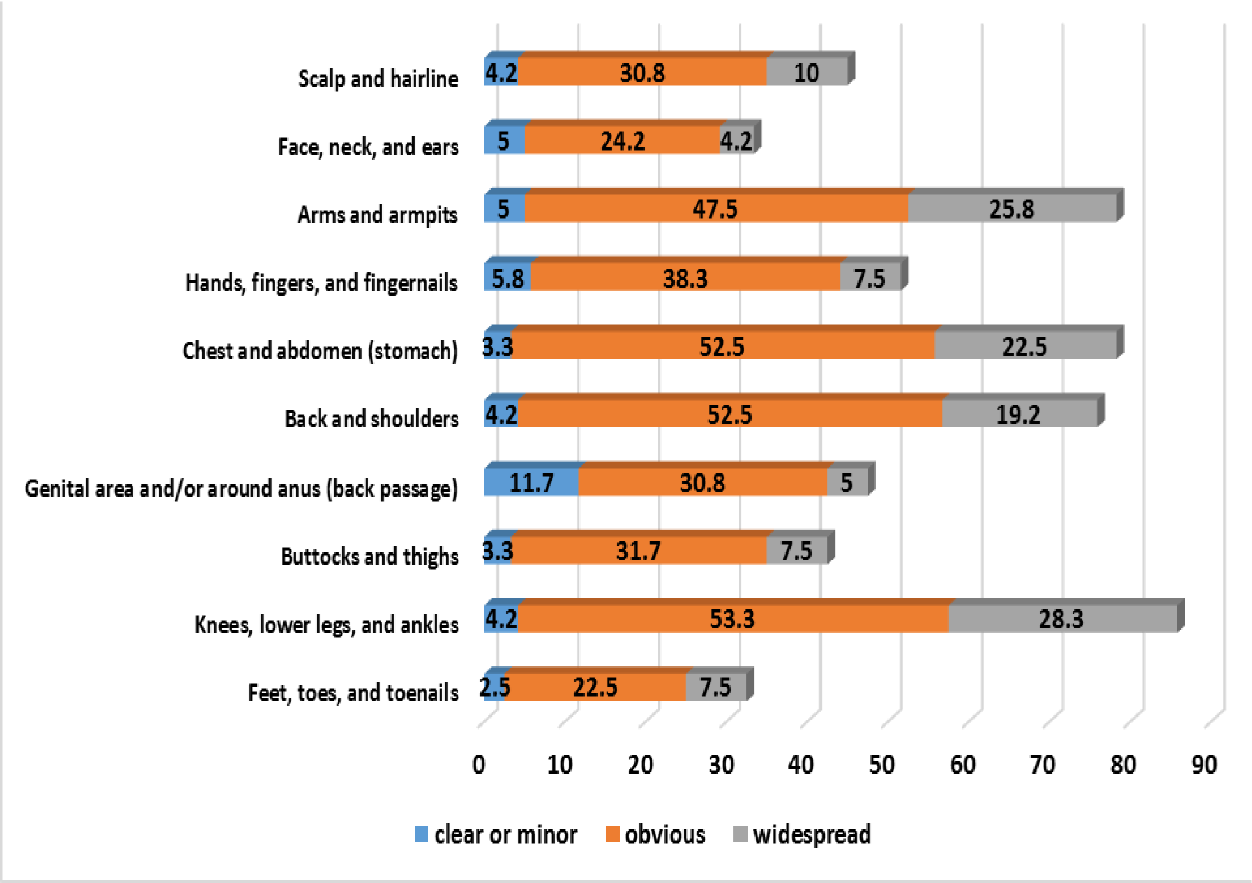

Table (3): Severity of psoriasis plaques among the patients in the study sample (n=120)

Items	No.	%
Intensely inflamed skin with \ without pus	**4**	**3.3**
Very thick, scaly, inflamed and red skin	**47**	**39.2**
Moderately severe with obvious thickening, scaling, or redness	**30**	**25.0**
Definite thickening, scaling, or redness	**22**	**18.3**
Mild redness or scaling with no more than slight thickening	**16**	**13.3**
Clear or just slight redness of staining	**1**	**0.8**

Table (4): Illness cognition among the patients in the study sample (n=120)

ICQ domains	No.	%
Helplessness		
High level	75	62.5
Low level	45	37.5
Acceptance		
High level	55	45.8
Low level	65	54.2
Perceived benefits		
High level	55	45.8
Low level	65	54.2

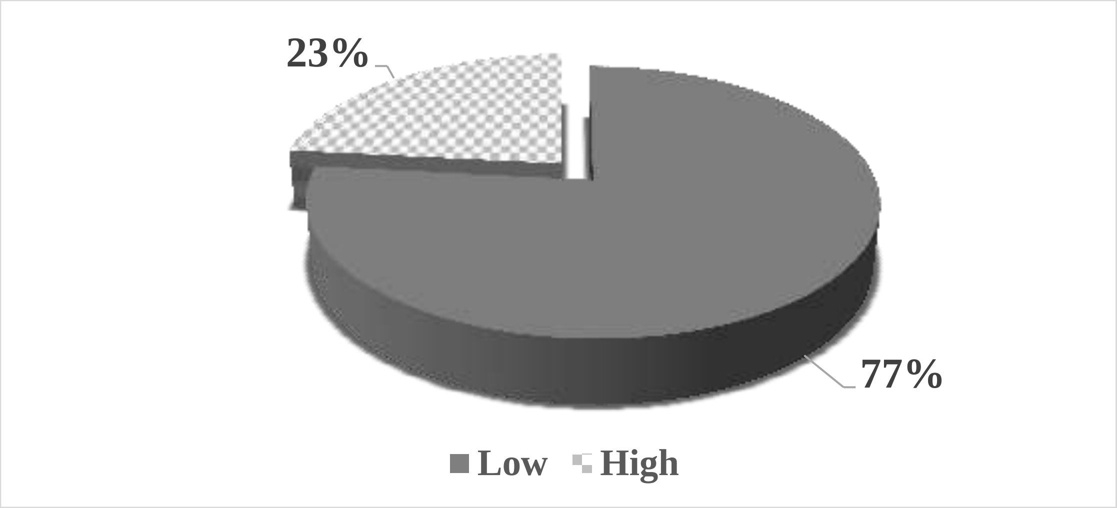

Figure (3): Total illness cognition among the patients in the study sample (n=120)

Table (5): Relations between patients' total ICQ scores and their demographic characteristics

Demographic characteristics	ICQ High level (n=28) No.	%	Low level (n=92) No.	%	X^2 test	p-value
Age:						
18-34	10	35.7	36	39.1		
35-64	18	64.3	42	45.7	5.817	.055
≥65	0	0.0	14	15.2		
Gender:						
Male	16	57.1	55	59.8	Fisher	.829
Female	12	42.9	37	40.2		
Marital status:						
Single	7	25.0	19	20.7		
Married	21	75.0	67	72.8	2.027	.567
Divorced	0	0.0	1	1.1		
Widow	0	0.0	5	5.4		
Residence:						
Rural	17	60.7	61	66.3	Fisher	.653
Urban	11	39.3	31	33.7		
Education:						
Illiterate	2	7.1	18	19.6		
Read and write	1	3.6	5	5.4	4.057	.398
Basic	1	3.6	1	1.1		
Intermediate	10	35.7	35	38.0		
University	14	50.0	33	35.9		
Work:						
Working	13	46.4	45	48.9	Fisher	.833
Not Working	15	53.6	47	51.1		
Crowding index:						
<2	28	100.0	90	97.8		
2+	0	0.0	2	2.2	Fisher	1.0
Income:						
Just sufficient	18	64.3	53	57.6		
Saving	4	14.3	8	8.7	1.880	.391
Insufficient	6	21.4	31	33.7		

(*) Statistically significant at p<0.05

Table (6): Relation between patients' ICQ scores and their disease characteristics

Disease characteristics	ICQ				X^2 test	p-value
	High level (n=28)		Low level (n=92)			
	No.	%	No.	%		
Duration of disease (years):						
≤10	10	35.7	61	66.3	11.892	**.003***
11-20	16	57.1	21	22.8		
>20	2	7.2	10	10.9		
Age at onset of the disease (years):						
≤10	2	7.1	4	4.3	8.303	**.040***
11-29	12	42.9	44	47.8		
30-50	14	50.0	27	29.3		
>50	0	0.0	17	18.5		
Hospitalization due to Psoriasis:						
No time	27	96.4	91	98.9	3.604	.165
Two times	0	0.0	1	1.1		
10 times	1	3.6	0	0.0		
Visit adherence during last six months:						
No time	10	35.7	42	45.7	7.236	.124
One time	2	7.1	19	20.7		
2 times	12	42.9	23	25.0		
3-4 times	4	14.3	8	8.7		
Number of treatment:						
≤ 4	11	39.3	50	54.3	Fisher	.198
>4	17	60.7	42	45.7		
Commitment with treatment						
Always	4	14.3	9	9.8	2.437	.656
Usually	5	17.9	24	26.1		
Often	10	35.7	38	41.3		
Irregularly	9	32.1	20	21.7		
Less than once a week	0	0.0	1	1.1		
Psoriasis severity:						
Mild	7	25.0	55	59.8	15.929	**.000****
Moderate	15	53.6	34	37.0		
Severe	6	21.4	3	3.3		

(*) Statistically significant at p<0.05

Table (7): Best fitting multiple linear regression model for ICQ scores

Items	**Unstandardized Coefficients**		**Standardized Coefficients**	**t-test**	**p-value**
	B	Std. Error			
(Constant)	-19.117	4.046		-4.725	.009
Age	-4.295	.765	-.466	-5.616	.005
Gender	1.445	.560	.125	2.580	.061
Residence [Reference: rural]	5.829	.485	.611	12.013	**.000**
Education level	.597	.153	.205	3.889	.018
Occupation[Reference: worker]	-8.490	.583	-.849	-14.569	**.000**
Family income	-2.129	.319	-.429	-6.674	.003
Disease duration [reference: >20]	4.693	.679	.692	6.907	.002
Commitment with treatment [Reference: no]	-1.129	.264	-.278	-4.278	.013
Number of treatment	-1.724	.486	-.172	-3.546	.024

R-square=0.99
Model ANOVA: F=92.295, p<0.001
Variables entered and excluded (not significant): Marital statu

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