PSORIASIS AND PSORIATIC ARTHRITIS: CHARACTERISTICS AND RISK FACTORS AMONG ADULT PATIENTS IN EGYPT

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ABSTRACT

Background: Psoriasis and psoriatic arthritis are common, chronic, immune mediated disease of the skin and joints. Interaction between genes and environment are important in disease causation.

Objectives: The aim of the present study was to determine the socioemographic and clinical characters of adult patients with psoriasis and those with psoriatic arthritis, to define psoriasis and psoriatic arthritis etiological risk factors, and to define the relationship between psoriasis severity and these items.

Subjects and methods: This study was conducted at Dermatology Clinic, Al-Hussein University Hospital. A case-control study design was chosen to perform this research. The study was conducted on 100 adult patients with psoriasis and an equal number of free adults as controls. Criteria for diagnosis of psoriasis and psoriatic arthritis were used. A comprehensive questionnaire was used to survey the studied groups. Body surface area of the affected patients was used as a marker of disease severity.

Results: The study showed that 44.0% of the cases had psoriasis age of onset; 22-45 years. Stress was the most common etiological risk factor, 67.0%. While, the most important risk factors were family history of psoriasis, recurrent pharyngitis, smoking ≥20 cigarettes/ day and higher level of education, odds ratio (OR)=7.58, 5.94, 2.78 and 2.69, respectively. Also, 32.0% of the patients had psoriatic arthritis. Psoriatic arthritis comes after psoriasis and had mild severity in 65.6% and 68.7% of the cases, respectively. The most important etiological risk factors were severe psoriasis, smoking ≥20 cigarettes/day and early onset of psoriasis, OR=9.64, 3.06 and 2.72, respectively.

Conclusions and recommendations: The epidemiology of psoriasis is not well defined in Egypt. The heredity and environmental factors are the most important risk factors. Also, psoriatic arthritis is an important associated disease. The fact that it has no cure has important implications for how it should be viewed, prevented and treated. We recommend that more research should be carried out to understand the true epidemiological features of the disease in Egypt and its impacts on quality of life of the patients.

Key words: PSORIASIS, PSORIATIC ARTHRITIS, PATIENTS, EGYPT

INTRODUCTION

Psoriasis is a common, chronic, immune mediated disease of the skin and joints **(Langley et al., 2005** and **Griffiths et al., 2010)**. It affects about 1.0-3.0% of the general population **(Koo, 1996; Grob & Folchetti, 1999** and **Stern et al., 2004)**. In the U.S., it affects over 7 million with approximately 260,000 new cases each year **(Sander et al., 1993** and **Weiss et al., 2002)**. While, incidence study indicates that 6 subjects/10000/year seeking care for psoriasis for the first time **(Bell et al., 1991)**. Psoriasis is characterized by thick, scaling, red plaques that can be localized

or widespread. Morphological variants are common **(Griffiths et al., 2010)**. The disease can be disfiguring and associated with itching and arthritis **(Lebwohl & Ali, 2001a** and **Lebwohl & Ali, 2001b)**.

It appears that psoriasis has a bimodal distribution of age of onset; the larger, early peak between 16 and 22 years and the later one at 57-60 years **(Henseler and Christophers, 1985; Smith et al., 1993** and **Ferrandiz et al., 2002)**. Also, males and females are equally affected **(Griffiths et al., 2010)**.

Hereditary plays an important role in the genetics of psoriasis **(Griffiths et al., 2010)**. Support comes from analysis of various family pedigrees in which psoriasis appears throughout multiple generations **(Elder et al., 1994)**. Also, twins' studies are the most robust evidence that support a genetic basis to psoriasis **(Farber and Nall, 1974; Brandrup et al., 1982; Duffy et al., 1993** and **Griffiths et al., 2010)**.

Evidence indicates that interaction between genes and the environment are important in disease causation **(Bhalerao and Bowcock, 1998)**. Many environmental factors have been linked to psoriasis, and have been implicated in, such as disease process initiation or exacerbation. However, conclusive evidence is so far lacking **(Griffiths et al., 2010)**. Environmental risk factors include; trauma **(Eyre and Krueger, 1984)**, infections **(Tervaert & Esseveld, 1970** and **Telfer et al., 1992)**, drugs **(Griffiths et al., 2010)**, sunlight **(Ros and Eklund, 1987)**, the 3-month postpartum period **(Dunna and Finlay, 1989)**, stress **(Griffiths et al., 2010)**, seasonal variation **(Bell et al., 1991)**, and smoking and alcohol **(Griffiths et al., 2010)**.

There is no cure for psoriasis; the aim of treatment is to control the disease **(Krueger et al., 2001)**. Further, treatment of psoriasis adds substantial costs to the health care system **(Javitz et al., 2002)** and may also be associated with many problems **(Stern, 2003)**. Psoriasis in elderly patients represents a more challenge for many reasons related to both of the patient and disease. Older and married patients reported less affection than younger and those living alone **(Yosipovitch & Tang, 2002** and **Zachariae et al., 2002b)**.

Psoriatic arthritis is an inflammatory arthritis, immune mediated disease of the joints, associated with psoriasis **(Moll and Wright, 1973a** and **Langley et al., 2005)**. It presents more burdens for psoriasis patients. Estimates of the prevalence of psoriatic arthritis in patients with skin psoriasis vary from 5.0% to 42.0% **(Mease and Goffe, 2005)**. Accurate studies place the prevalence towards the higher end of the range **(Gladman, 2002)**. The prevalence of psoriatic arthritis in patients with skin psoriasis is 23.0% in the U.S. **(Griffiths et al., 2010)** and 30.0% in Scandinavia **(Zachariae et al., 2002b)**. Although, there are no large studies taking psoriatic arthritis into consideration when studying psoriasis **(Zachariae et al., 2002b** and **Griffiths et al., 2010)**. Recent community-based epidemiologic studies have suggested a prevalence rate of psoriatic arthritis of 1/1000, male to female ratio is 1:1 and peak incidence between ages 45-54 years **(Petros and Joseph, 2006)**.

Psoriasis can have a tremendous effect on patients' lives; physical and psychosocial **(Langley et al., 2005** and **Choi & Koo, 2008)**. Also, psoriasis patients are more likely to be anxious and depressed **(Devrimci-Ozguven et al., 2000** and **Stein et al., 2005)**. Further, stress has an important role in onset and

exacerbation of psoriasis **(Griffiths et al., 2010)**.

The aim of this study is to determine the sociodemographic and clinical characters of adult patients with psoriasis and psoriatic arthritis, to define the epidemiological risk factors of both of them, and to determine the relationship between psoriasis severity and these items.

SUBJECTS AND METHODS

I- Research Setting: This study was conducted at Dermatology Clinic, Al-Hussein Hospital, Al-Azhar University.

II- Research Desiegn: A case-control, clinic-based study design was chosen to perform this study.

III- Research Sample: According to sample size equation the studied group was calculated to be 45 patients with current clinical diagnosis of psoriasis. To guard against bias and cases dropout we doubled the sample size to be 100 adult cases. An equal number of free, normal adults were chosen randomly as controls. Both psoriasis patients and controls were matched in age; their ages were 20-64 year.

IV- Ethical Consederations: The purpose and procedures to be performed were explained to the patients and controls. Accordingly, a verbal consent to participate in the study was taken from both of the patients and controls.

V- Research Tools: A comprehensive questionnaire was used to survey the studied groups. The questionnaire included sociodemographic and clinical characteristics, and etiological risk factors of the disease.

VI- Research Methods: Extent of psoriasis was determined by the body surface area (BSA) of the affected patient, which could be covered by the palm of the patient's hand. This method has been used as a marker of psoriasis severity. BSA was classified as 1.0-2.0% BSA= no or very little psoriasis (mild), only a few patches that could be covered by 1-2 palms; 3.0-10.0% BSA= scattered patches that could be covered by 3-10 palms (moderate), and >10.0% BSA= extensive disease covering large areas of the body that could be more than 10 palms (severe) **(Feldman et al., 1996** and **Gelfand et al., 2004)**.

Psoriatic arthritis was diagnosed by presence of joint symptoms as pain, swelling and restriction of joint mobility; absence of rheumatoid nodules, negative serological test for rheumatoid factor and radiological manifestations, which also indicate degree of arthritis severity **(Moll and Wright, 1973a)**. Also diagnosis of psoriatic arthritis was based on:

1– The distinct patterns of it as i) Oligoarticular especially DIP joint affection, associated with ductylitis (sausage appearance), ii) Assymmetric involvement of DIP joints of hands and feet with nail changes, iii) Arthritis (disabling form) due to osteolysis, iv) Symmetric polyarthritis as RA but-ve RF, v) Psoriatic spondyloarthropathy, vi) Enthesopathy, vii) Extra-articular manifestations as conjunctivitis, uveitis and aortic insufficiency, and viii) Saphoo syndrome.

2– Physical examination shows cardinal signs of i) Inflammation of peripheral joints, spine and SI joints, ii) Skin psoriasis, and iii) Nail changes.

3- No definite laboratory tests.

4- Radiographic erosions in fingers of hands and feet (with pencil-in-cup appearance of DIP joints), spine and SI joints **(Petros and Joseph, 2006)**.

VII- Statistical Analysis: Chi-Square (χ^2), Fisher exact (FE) or odds ratio (OR) were used as tests of significance. The significance level for χ^2 and FE was accepted if the P-value <0.05. The significance level for OR was the

confidence interval (CI) or exact confidence limits (ECL).

RESULTS

As regard distribution of the studied group of adult patients with psoriasis according to their clinical characteristics **(table 1)**, 37.0%, 44.0% and 19.0% of the patients their disease age of onset was <25, 25-45 and >45 years, respectively. The average age of onset was 31 years. Also, 52.0% of the cases were females. Further, 68.0% and 32.0% of the patients had disease duration <15 and ≥15 years, respectively. Also, 72.0%, 16.0% and 12.0% of the patients had stationary, regression and progressive course, respectively. As respect severity, 36.0%, 38.0% and 26.0% of the cases had mild, moderate and severe forms of disease. Also, 56.0% of the patients had psychological disturbances. In details, 27.0%, 17.0% and 12.0% of them had pathological worry, anxiety and depression, respectively. Further, 32.0% of the cases had associated psoriatic arthritis. Also, 71.0% of the patients' disease was more in winter. Further, 82.0% of the patients suspected their disease etiological risk factors; 81.7% of them suspected stress, 46.9% of the married female patients suspected that disease worsens in the 3-month post-partum, and in 9.4% of them the disease worsens during pregnancy. Also, 17.1% of the patients the disease was found in uninvolved skin due to trauma, sun light was recognized as a cause of psoriasis in 2.4% of the patients, and medical therapy was accused in 2.4%. Lastly, psoriasis suspected to improve in 43.8% and 12.5% of the patients during pregnancy and post partum period, respectively.

Regarding distribution of psoriasis patients and controls according to their sociodemographic risk factors **(table 2)**, single was significant risk factor (OR= 2.93, 95% CI: 1.50-5.74). Also, secondary and university education was significant risk factor for psoriasis (OR= 2.69, 95% CI: 1.13-6.49). While, semi-skilled & skilled, and professional jobs were insignificant risk factors (OR=1.62, 95% CI: 0.87-3.04 and OR=1.38, 95% CI: 0.51-3.77; respectively). Collectively, middle and high social classes were insignificant risk factors (OR=1.30, 95% CI: 0.70-2.43 and OR=2.07, 95% CI: 0.82-5.35; respectively).

As respect distribution of psoriasis patients and controls according to presence of some etiological risk factors **(table 3)**, male sex was insignificant risk factor of psoriasis (OR=1.08, 95% CI: 0.60-1.96). History of recurrent pharyngitis was significant risk factor (OR=5.94, 95% CI: 2.53-14.30). While, smoking was insignificant risk factor (OR=1.64, 95% CI: 0.90-3.01). The risk became significant with increasing number of cigarettes/day to ≥20 cigarettes/day (OR= 2.78, 95% CI: 1.41-5.50). Further, stress or worry was significant risk factor of psoriasis (OR=1.83, 95% CI: 1.01-3.34). While, job exposing the psoriasis patients to sunlight was insignificant risk factor (OR=1.78, 95% CI: 0.79-4.05). Further, some medications and psoriasis at site of trauma were risk factors for psoriasis, with undefined risks.

Regarding distribution of psoriasis patients and controls according to family history risk factors **(table 4)**, family history of psoriasis was significant risk factor (OR=7.58, 95% ECL: 2.10-41.07). In details, family history of 1st and 2nd degree or more relatives with psoriasis were significant risk factors (OR=7.32, 95% ECL: 1.58-68.08 and OR=undefined; respectively). Also, in these patients with a family history of 1st degree relatives with psoriasis; the two parents and one sibling with psoriasis were undefined risk factors.

In more details, the risk to have psoriasis in patients with one parent with psoriasis was insignificant.

As regard distribution of psoriasis patients' severity status by risk factors **(table 5)**, 69.2% of the patients with severe psoriasis were singles (P=0.002). Further, 34.6% of the patients with severe psoriasis had secondary or university education (P=0.2). Also, the disease had late age of onset (>45 years) in 30.5% of the patients with mild disease (P=0.03). Also, 69.2% of the patients with severe psoriasis smoked ≥20 cigarettes/day (P= 0.001). Moreover, 88.5% of the patients with severe psoriasis had stress or worry (P=0.0003). Further, 100.0% of the patients with severe psoriasis had history of recurrent pharyngitis (P=0.01). Also, 34.6% of the patients with severe psoriasis had family history of psoriasis (P=0.05). Lastly, 57.7% of the patients with severe psoriasis had psoriatic arthritis (P=0.002).

As regard distribution of the studied group of adult patients with psoriatic arthritis according to their clinical characteristics **(table 6)**, 65.6%, 18.8% and 15.6% of psoriatic arthritis patients had disease onset after, before and simultaneously with psoriasis, respectively. Also, the average age of onset was 43 years. Regarding gender, 53.1% of the cases were females. At the same time, 56.2% of the patients had duration <10 years. Further, 84.3% and 9.4% of the cases had stationary and progressive course, respectively. Also, 68.7%, 25.0% and 6.3% of the cases had mild, moderate and severe diseases, respectively. Further, 71.9% of the patients had more disease in winter. Lastly, trauma as a suspected etiological cause was found in 9.4% of the patients.

Regarding distribution of psoriatic arthritis patients and controls according to some etiological risk factors **(table 7)**, the male gender was insignificant risk factor of psoriatic arthritis (OR=1.04, 95% CI: 0.43-2.47). Also, history of recurrent pharyngitis was insignificant risk factor of psoriatic arthritis (OR=2.1, 95% CI: 0.77-5.94). Further, family history of psoriatic arthritis was insignificant risk factor (OR=6.6, 95% ECL: 0.33-393.18). While, smoking was significant risk factor of psoriatic arthritis (OR=4.98, 95% ECL: 1.69-17.73). Further, the risk increase significantly with increasing number of smoked cigarettes/day; ≥20 (OR=5.85, 95% CI: 2.29-15.16). Lastly, psoriatic arthritis at site of trauma of patients and controls was insignificant risk factor of psoriatic arthritis (OR=10.24, 95% ECL: 0.77-542.86).

Regarding distribution of psoriasis patients according to presence of psoriatic arthritis by some clinical risk factors **(table 8)**, early age of onset (<25 years) was significant risk factor in patients with psoriasis to develop psoriatic arthritis (OR=2.72, 95% CI: 1.05-7.12). Also, smoking ≥20 cigarettes/day was insignificant risk factor in patients with psoriasis to develop psoriatic arthritis (OR=3.06, 95% CI: 1.18-8.02). Further, family history of psoriatic arthritis was insignificant risk factor in patients with psoriasis to develop psoriatic arthritis (OR=4.47, 95% ECL: 0.22-267.35). Lastly, severe psoriasis was significant risk factor in patients with psoriasis to develop psoriatic arthritis (OR=9.64, 95% CI: 3.15-30.55).

As regard distribution of psoriasis patients according to presence of psoriatic arthritis by some clinic-demographic characteristics **(table 9)**, 59.4% and 33.8% of the patients with- and without psoriatic arthritis were singles, respectively with a statistically significant difference (P= 0.02). Also, 18.8% and 25.0% of patients with- and without psoriatic arthritis,

respectively had secondary or university education with statistically insignificant difference (P=0.6). Further, 78.1% and 97.1% of the patients with- and without psoriatic arthritis, respectively had history of recurrent pharyngitis with a statistically significant difference (P=0.004). Further, 90.6% and 39.7% of the patients with- and without psoriatic arthritis, respectively had stress/worry with a statistically significant difference (P=0.000). Lastly, 9.4% and 0.0% of the patients with- and without psoriatic arthritis, respectively had arthritis at site of trauma with a statistically significant difference (P=0.03).

DISCUSSION

Psoriasis is a common, chronic disease of the skin and joints **(Langley et al., 2005** and **Griffiths et al., 2010)**. The disease affects up to 3.0% of the population **(Grob & Folchetti, 1999** and **Stern et al., 2004)**. In this study we try to explore risk factors and epidemiology of this disease in Egypt.

In the present study we cleared that 37.0%, 44.0% and 19.0% of the patients their disease age of onset was <25, 25-45 and ≥46 years. It has been reported that 35.0% of cases have disease onset before age 20 years and 58.0% before age 30 **(Farber and Nall, 1985)**. While, it was found that 75.0% of cases have disease onset before the age of 40 and 46 years in tow studies **(Henseler & Christophers, 1985** and **Nevitt & Hutchinson, 1996)**. Also, our results were in consistent with **Smith et al. (1993)** who showed that psoriasis has a bimodal distribution of age of onset; the larger, early peak at 16- 22 years and the later one at 57-60 years. In the present study we cleared that we cleared that the average age of onset was 31 years. This figure was found between 28 and 36 years, the figures reported by **Farber & Nall (1974)** and **Yui Yip (1984)**, respectively. Also, we noticed that 48.0% and 52.0% of cases were males and females, respectively. **Griffiths et al. (2010)** stated that males and females are equally affected, but females may have a younger age of onset, 16 years than males, 22 years **(Henseler and Christophers, 1985)**. Also, we reported that 68.0% and 32.0% of the patients had duration of the disease <15 and ≥15 years, respectively. This is expected as psoriasis is a chronic, recurrent disease **(Langley et al., 2005** and **Griffiths et al., 2010)**. In the present study we observed that 72.0% of the patients had stationary course. Again, this is expected as psoriasis is a chronic, recurrent disease with no cure **(Krueger et al., 2001)**. On the other hand, 39.0% of patients reported complete remission of disease for between one and 54 years **(Farber and Nall, 1974)**. As regard severity, only 26.0% of cases were severe. This was in accordance with **McKenna et al. (2005)** who reported 30.6%. In the present study we showed that 56.0% of the patients had psychological disturbances. In details, 27.0%, 17.0% and 12.0% of them had pathological worry, anxiety and depression, respectively. Our results were more than **Savin (1970)** and **Fortune et al. (1997)**, they reported that pathological worry and anxiety occur in at least a third of patients with psoriasis and that psychological interpersonal difficulties impinge on all aspects of the patient's daily life **(Kirby et al., 2000&2001)**. Also, we cleared that 32.0% of the cases had associated psoriatic arthritis. Psoriasis is an immune mediated disease of the skin and joints **(Langley et al., 2005** and **Griffiths et al., 2010)**. Our figure was higher than **Griffiths et al. (2010)**, 23.0% and close to **Zachariae et al. (2002a)**, 30.0%. Regarding seasonal variation, 71.0% of the patients had disease more in

winter. This was consistent with **Bell et al. (1991)** who reported that 68.0% of cases first diagnosed in winter. In the present study we showed that stress as a suspected risk factor was found in 67.0% of the patients. This result was in accordance with **Fortune et al. (1998)**; they reported that more than 60.0% of their psoriasis patients believed that stress was a principle factor in causation of their disease. Also, stress reactivity was correlated with worse disease and more exacerbations **(Gupta et al., 1989)**. Further, psoriasis patients with pathological worry were less likely to clear with photo-chemotherapy than those with low worry **(Fortune et al., 2003)**. But how psychological distress exacerbates or triggers psoriasis is poorly understood **(Farberb & Nall, 1974** and **Langley et al., 2005)**. Also, we showed that 46.9.0% of the married female patients stated that the disease worsens at the 3-month post-partum. While, in 9.4% of them the disease worsen during pregnancy. Psoriasis deteriorated in 54.0% of the patients in the 3-month postpartum period and it worsened in 14.0% of pregnancies **(Dunna and Finlay, 1989)**. In the present study we cleared that 14.0% of the patients the disease was caused in uninvolved skin due to trauma. Psoriasis at the site of injury is well known, Koebner phenomenon. This figure is smaller than 38.0% reported by **Farberb and Nall (1974)**. This may be due to small number of our cases compared to their 5600 cases. A wide range of injurious local stimuli, such as physical, chemical, electrical, surgical and inflammatory insults has been recognized to elicit psoriasis **(Eyre and Krueger, 1984)**. Also, we reported that sun light was recognized as a cause of psoriasis in 2.0% of our patients. **Ros and Eklund (1987)** showed that in 5.5% of patients disease may be provoked by strong sunlight and cause exacerbation in exposed skin. Further, we observed that medical therapy was accused in 2.0% of our patients. **Griffiths et al. (2010)** stated that many drugs are responsible for the onset or exacerbation of disease. The most important among these drugs are lithium and anti-malarial drugs. Lastly, psoriasis improved in 43.8% and 12.5% of our patients during pregnancy and post partum period, respectively. **Dunna and Finlay (1989)** cleared that psoriasis improved in about 40.0% of pregnancies and in 11.0% of the 3-month postpartum period. So, it is more likely that psoriasis improve during pregnancy than worsen, while in postpartum period it is more likely to worsen **(Boyd et al., 1996)**.

In this study we observed that single state was significant risk factor of psoriasis (OR=2.93, 95% CI: 1.50-5.74). **Yosipovitch & Tang (2002)** and **Zachariae et al. (2002b)** stated that patients living alone reported more affection than married patients. At the same time, our result showed an interesting observation that higher social class in psoriasis patients was about double that of controls (17.0% vs. 9.0%) and present a 2-fold insignificant risk to have psoriasis. Social class determines a lot of lifestyle markers that could be risk factors for psoriasis; these factors include smoking, stress, jobs exposing subject to sunlight...etc.

We cleared males and females were equally affected with psoriasis; however females may have a younger age of onset **(Griffiths et al., 2010)**. Also, we showed that history of recurrent pharyngitis was significant risk factor of psoriasis. This result was consistent with **Tervaert & Esseveld (1970)** and **Telfer et al. (1992)**; they stated that streptococcal infection, especially of the throat, may be important in psoriasis. Also, our high figure of pharyngitis may be due to

chronic streptococcal pharyngitis is common in Egypt. Further, we cleared that smoking was insignificant risk factor. It has long been stated that cigarettes has a detrimental effect on psoriasis **(Griffiths et al., 2010)**, although, recent epidemiological studies not observed conclusive support for that association **(Higgins, 2000)**. Also, we reported that patients who smoked ≥20 cigarettes/day had about 3 times risk to have psoriasis. Females who smoked >15 cigarettes/day had 3.9 times risk to have psoriasis, while males had 1.4 **(Naldi et al., 1999)**. Moreover, our result as regard stress was in accordance to **Gupta et al. (1989)**, who stated that stress reactivity was correlated with more exacerbations of disease. Psoriasis causes high level of emotional distress **(Rapp and Feldman, 2004)**. These emotional distresses include anxiety, depression and anger **(Choi and Koo, 2008)**. Also, **Devrimci-Ozguven et al. (2000)** cleared that psoriasis patients are more likely to be depressed. Further, **House and Stark (2002)** showed that anxiety is more common in patients with chronic medical illnesses as psoriasis. Moreover, our results were consistent with **Savin (1970)** and **Fortune et al. (1997)**, they identified that pathological worry and anxiety occur in at least a third of patients with psoriasis. The two main contributors to stress in patients with psoriasis are engaging in avoidance behavior and the belief that they are being evaluated on the basis of their skin disease. This constraining, avoidance behavior may lead to low grade persistent stress **(Kirby et al., 2000& 2001)**. So, stress management program was significantly shortened the time to clearance with standard therapies **(Fortune et al., 2002)**. Also, our finding that jobs exposing our cases to sunlight were risk factor was inconsistent with **Ros and Eklund (1987)**, they showed that strong sunlight may provoke disease and cause exacerbation in exposed skin in 5.5% of cases. Further, we noticed that psoriasis patients used to accused medical treatments as risk factor for psoriasis was in accordance with **Griffiths et al. (2010)**. Also, psoriasis at site of trauma might be considered risk factor for psoriasis was in consistent with **Farberb & Nall (1974)** and **Eyre & Krueger (1984)**.

In the present study, family history of psoriasis was significant risk factor. There is overwhelming evidence that psoriasis has an important genetic component **(Griffiths et al., 2010)**. In details, 13.0%, 6.0% and 2.0%, 0.0% of patients and controls respectively had family history of 1st and 2nd degree or more relatives with psoriasis. **Hellgren (1967)** reported that prevalence of psoriasis was 7.8% among first degree relatives compared with 3.1% in controls and about 2.0% in general population. Also, in these patients with a family history of 1st degree relatives with psoriasis there were 9.0%, 3.0% and 1.0% of the patients had one parent, two parents and one sibling with psoriasis. In more details, 4.0% and 1.0% of the patients with one parent with psoriasis had a paternal and maternal history of psoriasis respectively. The risk for a child to develop psoriasis was 14.0% if one parent was affected, 41.0% if both parents affected and 6.0% if one sibling affected, compared to 2.0% when no parent or sibling was affected **(Andressen and Henseler, 1982)**. Moreover, **Farber and Nall (1974)** showed concordance for psoriasis in 73.0% of monozygotic twins compared to 20.0% for dizygotic twins. Also, **Brandrup et al. (1982)** found concordance for psoriasis in 64.0% of monozygotic twins compared to 15.0% for dizygotic twins, corresponding to an estimated heritability of 91.0%. While,

Duffy et al. (1993) noticed lower concordance; 35.0% in monozygotic twins compared to 12.0% in dizygotic twins. Of interesting that concordance rates do not reach 100.0%, even when older twins are examined, indicating that the environment plays a key part in disease expression. So, it is likely that changes in multiple genes, interacting both with each other and the environment, are required for disease expression **(Barker, 2007** and **Griffiths et al., 2010)**.

We reported 69.2% of the patients with severe psoriasis were single. Patients with severe psoriasis might have no chance to be married due to their disease. **Yosipovitch & Tang (2002)** and **Zachariae et al. (2002b)** cleared that patients living alone have more affected QOL than married patients. Also, early age of onset was observed in 53.8% of the patients with severe psoriasis. This result concur with **Farber & Nall (1974)**; **Henseler & Christophers (1985)**; **Gudjonsson et al. (2002)** and **Stuart et al. (2002)**, they cleared that patients with early disease onset appear to have more severe psoriasis. Further, the disease had late age of onset in 30.5% of the patients with mild disease. This result concurs with **Henseler & Christophers (1985)** and **Gudjonsson et al. (2002)**; they noticed that the patients with late disease onset their psoriasis appears to be mild. Also, we showed that 69.2% of the patients with severe psoriasis smoked ≥20 cigarettes/ day. Smoking >15 cigarettes/day increased the risk to have psoriasis by 1.4 and 3.9 times in males and females, respectively **(Naldi et al., 1999)**, so smoking >20 cigarettes/day might be increased the risk to have, also, severe psoriasis. Moreover, 88.5% of our patients with severe psoriasis had stress and/or worry. Patients with severe psoriasis experienced episodes of higher rates of psychological morbidity **(Gupta et al., 1998)**. On the other hand, **Kirby et al. (2000&2001)** found no significant relation between both the physical severity and psychological disability. This observation implies that "severity" of psoriasis is a composite of physical and psychological factors, a disparity further highlighted by the Psoriasis Disability Index **(Finlay and Kelly, 1987)**. Recently, **Bos and DeCorte (2008)** showed that some new psoriasis therapies might relief symptoms of depression. Further, 100.0% of our patients with severe psoriasis had history of recurrent pharyngitis. **Tervaert & Esseveld (1970** and **Telfer et al. (1992)** cleared that streptococcal pharyngtis may be important in psoriasis. Moreover, association between severe psoriasis and HIV infection was noted **(Reveille et al., 1990)**. Lastly, 57.7% of our patients with severe psoriasis had psoriatic arthritis. This was in consistent with **Leonard et al. (1978)**; they stated that it appears that psoriatic arthritis is more common in patients with severe form of the disease.

In the present study we observed that 65.6%, 18.8% and 15.6% of the psoriatic arthritis patients had disease onset after, before and simultaneously with psoriasis, respectively. All these are expected as psoriasis is a chronic, immune mediated disease of the skin and joints **(Langley et al., 2005** and **Griffiths et al., 2010)**. These results were in consistent with **Scarpa et al. (1984)**; they showed that psoriasis found to proceed, after and with arthritis in 65.0%, 19.0% and 16.0% of their psoriasis patients, respectively. Also, these results were in consistent with **Biodi-Oriente et al. (1989)**, as they reported 68.0%, 21.0% and 11.0%. Also, we showed that the average age of disease onset was 43 years. In general the peak age of onset for psoriatic arthritis is in 4th decade. So, our figure was in consistent

with **Biodi-Oriente et al. (1989)** figure. Further, we noticed that 46.9% and 53.1% of our cases were males and females, respectively. **Griffiths et al. (2010)** stated that males and females appear equally affected. Also, 56.2% and 43.8% of the patients had duration of the disease <10 and ≥10 years, respectively. This is expected as psoriatic arthritis is a chronic inflammatory disease **(Moll & Wright, 1973a** and **Griffiths et al., 2010)**. Further, we showed that 84.3% and 9.4% of the cases had stationary and progressive course, respectively. Also, 68.7%, 25.0% and 6.3% of the cases were mild, moderate and severe, respectively. These results were in accordance with **Roberts et al. (1976)** and in contrast with **Gladman et al. (1987)**. Thus there is no conclusive data regarding prognosis. In the present study we reported that 71.9% of the patients had more disease in winter. This was concurring with **Bell et al. (1991)**. Lastly, trauma as a suspected etiological factor was found in 9.4% of the patients. **Punzi et al. (1998)** stated that trauma as a precipitating factor for psoriatic arthritis was observed and might be appear important.

We cleared that males and females were equally affected by psoriatic arthritis; 46.9% and 53.1%, respectively. This result was in accordance with **Griffiths et al. (2010)**; they stated males and females are equally affected. Also, environment may have a good component in pathogenesis of the disease; studies indicate that the disease aggregates in certain families **(Moll and Wright, 1973b)**. Further, we reported that history of recurrent pharyngitis was insignificant risk factor (OR=2.10, 95% CI: 0.77-5.94). So, increase positive streptococcal immunoreactivity in these patients' sera was noticed **(Vasey et al., 1982)**. The high figures of chronic pharyngitis in the patients and controls may be due to the disease is chronic in Egypt. At the same time, family history of psoriatic arthritis was insignificant risk factor of psoriatic arthritis (OR=6.60, 95% ECL: 0.33-393.18). **Hellgren (1969)** cleared that psoriatic arthritis had familial clustering, although **Griffiths et al. (2010)** stated that it less is common than for psoriasis. Also, we observed that smoking was significant risk factor of psoriatic arthritis (OR=4.98, 95% ECL: 1.69-17.73). It has long been stated that cigarettes has detrimental effects **(Griffiths et al., 2010)**. Lastly, psoriatic arthritis at site of trauma was considering insignificant risk factor (OR= 10.24, 95% ECL: 0.77-542.86). This result was concurring with **Punzi et al. (1998)** and **Griffiths et al. (2010)**.

In the present study we showed that early age (<25 years) of onset was found in 53.1% of patients with psoriatic arthritis. This was in contrast with **Scarpa et al. (1984)**, they cleared that the peak age of onset of psoriatic arthritis in their psoriasis patients was 40-60 years. Also, 40.6% of the patients with psoriatic arthritis their disease had 25-45 years age of onset. Moreover, the disease had late age (<45 years) of onset in 6.3% of the patients with psoriatic arthritis. These results were expected as late age of onset is associated with less severe disease. Also, family history of psoriatic arthritis was insignificant risk factor (OR=4.47, 95% ECL: 0.22-267.35). **Hellgren (1969)** showed that familial clustering of psoriatic arthritis has been observed. But, there is no evidence that psoriatic arthritis follows Mendelian patterns of inheritance **(Griffiths et al., 2010)**. Lastly, 56.2% and 11.8% of the patients with- and without psoriatic arthritis, respectively had severe psoriasis (OR=9.64, 95% CI: 3.15-30.55). **Leonard et al. (1978)** noticed an association between psoriatic arthritis and

severe psoriasis, psoriatic arthritis is common in patients with severe psoriasis.

In this research we observed that 59.4% and 33.8% of the patients with- and without psoriatic arthritis were single, respectively. This result is concurring with **Yosipovitch & Tang (2002)** and **Zachariae et al. (2002a)**; they showed that patients living alone were more affected than married patients. Further, 78.1% and 97.1% of the patients with- and without psoriatic arthritis, respectively had history of recurrent pharyngitis. **Moll and Wright (1973b)** cleared that shared environment might plays an important role in the disease pathogenesis, as studies indicate that the disease is aggregates in certain families. Also, **Vasey et al. (1982)** noticed that positive immunoreactivity in the sera of these patients was increased, although establishing a pathogenic link has proved elusive and appears more tenuous than for psoriasis **(Griffiths et al., 2010)**. Further, 90.6% and 39.7% of the patients with- and without psoriatic arthritis, respectively had stress/worry. Intriguingly, there is no significant relation between both the physical severity and psychological disability **(Kirby et al., 2000&2001)**. Lastly, 9.4% and 0.0% of the patients with- and without psoriatic arthritis, respectively had arthritis at site of trauma. This result concurring with **Punzi et al. (1998)** and **Griffiths et al. (2010)**, as they cleared that trauma may be more important in psoriatic than in rheumatoid and other inflammatory forms of arthritis.

CONCLUSIONS AND RECOMMENDATIONS

Psoriasis is a common skin disease. The epidemiology of disease is not well defined in Egypt. The heredity and environment, the most important risk factors, interact to play an essential role in psoriasis pathogenesis. Also, psoriatic arthritis is an important associated disease. The fact that it has no cure has important implications for how it should be viewed, prevented and treated. So, it could be recommended that more research should be carried out to understand the true epidemiological features of the disease in Egypt and its impacts on quality of life of the patients.

Table (1): Distribution of clinical characteristics of the studied group of adult patients with psoriasis.

Clinical characteristics	Patients (n=100)	Percent
Age of onset (year):		
Early: 20-<25	37	37.0
25-45	44	44.0
Late: >45-64	19	19.0
Average age of onset: 31 years	--	---
Gender:		
Male	48	48.0
Female	52	52.0
Duration of psoriasis (year):		
<15	68	68.0
≥15	32	32.0
Course:		
Regression	16	16.0
Stationary	72	72.0
Progressive	12	12.0
Severity:		
Mild	36	36.0
Moderate	38	38.0
Severe	26	26.0
Psychological disturbances:		
Yes:	56	56.0
Pathological worry	27	27.0
Anxiety	17	17.0
Depression	12	12.0
Associated psoriatic arthritis:		
Yes	32	32.0
Seasonal variation:		
More in winter	71	71.0
More in summer	29	29.0
Suspected etiological risk factors:		
Yes:	82	82.0
Stress	67	81.7
3-month post-partum period (32 female patients)	15	46.9
Pregnancy (32 female patients)	3	9.4
Trauma	14	17.1
Sunlight	2	2.4
Medication	2	2.4
Suspected protective factors:		
Pregnancy (32 female patients)	14	43.8
3-month post-partum period (32 female patients)	4	12.5

Table (2): Distribution of psoriasis patients and control group according to their sociodemographic risk factors.

Sociodemographic factors	Psoriasis patients (n=100)		Control group (n=100)		OR• (95% CI••)
	No.	%	No.	%	
Marital status:					
- Single	42	42.0	23	23.0	2.93 (1.50-5.74)
- Married	27	27.0	63	63.0	0.22 (0.11-0.41)
- Divorced and widowed	21	21.0	14	14.0	1.63 (0.73-3.66)
Educational level:					
- Illiterate and read & write	43	43.0	57	18.9	0.57 (0.31-1.03)
- Elementary	34	34.0	33	48.9	1.05 (0.56-7.96)
- Secondary and university	23	23.0	10	32.2	2.69 (1.13-6.49)
Occupation:					
- Unskilled	47	47.0	61	25.6	0.57 (0.31-1.03)
- Semi-skilled and skilled	41	41.0	30	51.1	1.62 (0.87-3.04)
- Professional	12	12.0	9	23.3	1.38 (0.51-3.77)
Social class:					
- Low	45	45.0	59	59.0	0.57 (0.31-1.03)
- Middle	38	38.0	32	32.0	1.30 (0.70-2.43)
- High	17	17.0	9	9.0	2.07 (0.82-5.35)

• Odds ratio •• Confidence interval

Table (3): Distribution of psoriasis patients and controls according to presence of some etiological risk factors.

Etiological and protective factors	Psoriasis patients (n=100)		Controls (n=100)		OR• (95% CI••)
	No.	%	No.	%	
Gender:					
Male	48	48.0	46	46.0	1.08 (0.60-1.96)••
Female	52	52.0	54	54.0	0.92 (0.51-1.67)••
History of recurrent pharyngitis:					
Yes	91	91.0	63	63.0	5.94 (2.53-14.30)••
Smoking:					
Yes:	64	64.0	52	52.0	1.64 (0.90-3.01)••
<20 cigarettes per day	23	23.0	32	32.0	0.63 (0.32-1.24)••
≥20 cigarettes per day	41	41.0	20	20.0	2.78 (1.41-5.50)••
Stress / worry:					
Yes	56	56.0	41	41.0	1.83 (1.01-3.34)••
Occupation exposing subject to sunlight: Yes	21	21.0	13	13.0	1.78 (0.79-4.05)••
Medication:					
Yes	2	2.0	0	0.0	Undefined
Psoriasis at site of trauma:					
Yes	14	14.0	0	0.0	Undefined

• Odds ratio •• Confidence interval

Table (4): Distribution of psoriasis patients and controls according to family history (FH) risk factors.

Family history risk factors	Patients (n=100)		Controls (n=100)		OR• (95% ECL••)
	No.	%	No.	%	
Family history of psoriasis:					
Yes:	19	19.0	3	3.0	7.58 (2.10-41.07)
1st degree relatives	13	13.0	2	2.0	7.32 (1.58-68.08)
2nd degree relatives or more	6	6.0	0	0.0	Undefined
FH of 1st degree relatives:					
One parent:	9	9.0	2	2.0	4.85 (0.96-46.94)
Father	4	4.0	1	1.0	4.13 (0.40-205.16)
Mother	5	5.0	1	1.0	5.21 (0.56-248.88)
Two parents	3	3.0	0	0.0	Undefined
One sibling	1	1.0	0	0.0	Undefined

• Odds ratio •• Exact confidence limits

Table (5): Distribution of psoriasis patients' severity status by risk factors.

Risk factors	Psoriasis severity (n=100)						χ^2	P-Value
	Mild (n=36)		Moderate (n=38)		Severe (n=26)			
	No.	%	No.	%	No.	%		
Marital status:								
Single	9	25.0	15	39.5	18	69.2	12.28	0.0021
Educational level:								
Secondary& university	6	16.7	8	21.1	9	34.6	2.88	0.2372
Age of onset (year):								
Early: <25	10	27.8	13	34.2	14	53.8	4.61	0.0999
25-45	15	41.7	18	47.4	11	42.3	0.28	0.8672
Late: >45	11	30.5	7	18.4	1	3.9	7.01	0.0300
Smoking:								
≥20 cigarettes per day	9	25.0	14	36.8	18	69.2	12.65	0.0017
Stress/worry								
Yes	14	38.9	19	50.0	23	88.5	15.95	0.0003
Recurrent pharyngitis:								
Yes	29	80.6	36	94.7	26	100.0	8.01	0.0181
Psoriasis family history:								
Yes	4	11.1	6	15.8	9	34.6	5.83	0.0542
Psoriatic arthritis:								
Yes	6	16.7	11	29.0	15	57.7	11.94	0.0025

Table (6): Distribution of clinical characteristics of the studied group of adult patients with psoriatic arthritis.

Clinical characteristics	Patients (n=32)	Percent
Onset of psoriatic arthritis:		
After psoriasis	21	65.6
Before psoriasis	6	18.8
With psoriasis	5	15.6
Average age of onset: 43 years	--	---
Gender:		
Male	15	46.9
Female	17	53.1
Duration of psoriatic arthritis (year):		
<10	18	56.2
≥10	14	43.8
Course:		
Regression	2	6.3
Stationary	27	84.3
Progressive	3	9.4
Severity:		
Mild	22	68.7
Moderate	8	25.0
Severe	2	6.3
Seasonal variation:		
More in winter	23	71.9
More in summer	9	28.1
Suspected etiological risk factor:		
Trauma	3	9.4

Table (7): Distribution of psoriatic arthritis patients and controls according to some etiological risk factors.

Etiological risk factors	Psoriatic arthritis (n=32)		Controls (n=100)		OR• (95% CI••) OR (95% ECL•••)
	No.	%	No.	%	
Gender:					
Male	15	46.9	46	46.0	1.04 (0.43-2.47)••
Female	17	53.1	54	54.0	0.97 (0.40-2.31)••
History of recurrent pharyngitis:					
Yes	25	87.1	63	63.0	2.10 (0.77-5.94)••
Psoriatic arthritis family history:					
Yes	2	6.3	1	1.0	6.60 (0.33-393.18)•••
Smoking:					
Yes:	27	84.4	52	52.0	4.98 (1.69-17.73)•••
<20 cigarettes per day	8	25.0	32	32.0	0.71 (0.26-1.89)••
≥20 cigarettes per day	19	59.4	20	20.0	5.85 (2.29-15.16)••
Arthritis at site of trauma:					
Yes	3	9.4	1	1.0	10.24 (0.77-42.86)•••

• Odds ratio •• Confidence interval ••• Exact confidence limits

Table (8): Distribution of psoriasis patients according to presence of psoriatic arthritis by some clinical risk factors.

Clinical risk factors	Psoriasis patients (n=100)				OR• (95% CI••) OR (95% ECL•••)
	With arthritis (n=32)		Without arthritis (n=68)		
	No.	%	No.	%	
Psoriasis age of onset (year):					
Early: <25	17	53.1	20	29.4	2.72 (1.05-7.12)
25-45	13	40.6	31	45.6	0.82 (0.32-2.08)
Late: >45	2	6.3	17	25.0	0.33 (0.03-1.52)•••
Smoking:					
≥20 cigarettes per day	19	59.4	22	32.4	3.06 (1.18-8.02)
Family history of psoriatic arthritis:					
Yes	2	6.3	1	1.5	4.47 (0.22-267.35)•
Psoriasis severity:					
Mild	6	18.8	30	44.1	0.29 (0.09-0.86)
Moderate	8	25.0	30	44.1	0.42 (0.15-1.17)
Severe	18	56.2	8	11.8	9.64 (3.15-30.55)

• Odds ratio •• Confidence interval ••• Exact confidence limits

Table (9): Distribution of psoriasis patients according to presence of psoriatic arthritis by some clinic-demographic characteristics.

Clinic-demographic characteristics	Psoriasis patients (n=100)				χ^2 FE•	P-Value
	With arthritis (n=32)		Without arthritis (n=68)			
	No.	%	No.	%		
Marital status:						
Single	19	59.4	23	33.8	4.83	0.0279
Educational level:						
Secondary/university	6	18.8	17	25.0	0.19	0.6613
History of recurrent pharyngitis:						
Yes	25	78.1	66	97.1	FE	0.0044
Stress / worry:						
Yes	29	90.6	27	39.7	20.88	0.0000
Psoriatic arthritis at site of trauma:						
Yes	3	9.4	0	0.0	FE	0.0306

• Fisher exact

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الصدفية و التهاب المفاصل المصاحب لها:
الخصائص و عوامل الخطورة فى البالغين المصابين بالمرض فى مصر

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أجريت هذه الدراسة على 100 مريض بالغ مصاب بالصدفية من المترددين على عيادة الأمراض الجلدية بمستشفى الحسين الجامعى وكذلك على عدد مساوٍ من البالغين السالمين من هذا المرض كمجموعة ضابطة. وتهدف هذه الدراسة إلى تحديد العوامل الاجتماعية – الديموجرافية و الاكلينيكية لهولاء المرضى و كذلك المصابين منهم بالالتهاب المفصلى بسبب هذا المرض و تحديد عوامل الخطورة لكلا المرضين وكذلك تحديد العلاقة بين شدة المرض الجلدى و تلك العوامل. وقد اخُتير نمط الدراسة المقطعية التحليلية بالعيادة لإجراء هذا البحث. ولقد أستخدمت استمارة استبيان متكاملة بهدف أستقصاء مجموعات الدراسة. كما أستخدمت مساحة الجلد المصابة بالمرض كمعيار لشدة المرض. وقد حددت معايير تشخيص الالتهاب المفصلى الناتج عن الصدفية. وكذلك حددت معايير تشخيص للقلق والاكتئاب.

وقد بينت الدراسة أن 44.0% من المصابين بالصدفية بدأ المرض لديهم فى سن 22-45 عام. و قد وجد أن القلق كان من أكثر الأسباب شيوعا لحدوث المرض (67.0%). بينما كانت أهم عوامل الخطورة هى التاريخ المرضى العائلى الأيجابى (نسبة أودز = 7.58) و التهاب الحلق المتكرر (نسبة أودز = 5.94) و تدخين ≤20 سيجارة/اليوم (نسبة أودز = 2.78) و الأشخاص ذوى التعليم العالى (نسبة أودز = 2.69). و قد وجد أن 32.0% من المرضى مصابين بالتهاب المفاصل الناتج عن المرض الجلدى و قد حدث هذا الالتهاب المفصلى بعد المرض الجلدى فى 65.5% من المرضى و كان من نوعيه الالتهاب الخفيف فى 68.7% من الحالات. و كان من أهم أسباب الخطورة لحدوث الالتهاب المفصلى الناتج عن المرض الجلدى هو شدة المرض الجلدى (نسبة أودز = 9.64) و تدخين ≤20 سيجارة/اليوم (نسبة أودز = 3.06) و حدوث المرض الجلدى مبكرا (نسبة أودز = 2.72) .