

12-2020

## The Effects of Moderate-Severe Plaque Psoriasis on Patient Well-Being and Prevention of Flares

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<https://doi.org/10.33015/dominican.edu/2020.NURS.ST.04>

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### Recommended Citation

Devera, Glenn, "The Effects of Moderate-Severe Plaque Psoriasis on Patient Well-Being and Prevention of Flares" (2020). *Nursing | Senior Theses*. 12.  
<https://doi.org/10.33015/dominican.edu/2020.NURS.ST.04>

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**The Effects of Moderate-Severe Plaque Psoriasis on  
Patient Well-Being and Prevention of Flares**

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NURS 4500

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August 24, 2020

### **Abstract**

Psoriasis is a chronic skin condition that is indicated by red, patchy and scaly skin that can be painful when irritated. Patients with psoriasis have an increased risk for a number of chronic diseases. Despite the expansion of treatments for moderate-to-severe psoriasis over the last decade, patients may still find that treatment strategies are not as successful, leaving them dissatisfied with their treatments. A relationship built upon trust between the nurse and the patient diagnosed with psoriasis may serve to help ensure optimal care.

A comprehensive literature review was performed and found that best practices for patient management need to include education that covers information regarding treatments, biological therapies, optimizing patient fidelity to treatment, and management of other side effects/ comorbidities.

A study is proposed to investigate the impact of the nurse-patient relationship on patients' perceptions about their disease management in relation to psoriasis and outcomes of care.

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## **Introduction**

Psoriasis is a chronic skin condition that is indicated by red, patchy and scaly skin that can be painful when irritated. Patients with psoriasis have an increased risk for more than one chronic disease such as Psoriatic Arthritis, Crohn's Disease, Psychological Disorders, Hypertension, Diabetes, and Heart Disease, which may emerge due to the buildup of plaques along with chronic inflammation (Aldredge, & Young, 2016). Despite the expansion of treatments for moderate-to-severe psoriasis over the last ten years, alleviation of symptoms remains suboptimal.

Patients often find that their therapies are not as successful, leaving them dissatisfied with their treatments (Takeshita et al., 2014). A trusting relationship between the nurse and the patient diagnosed with psoriasis must be built to ensure optimal and appropriate plans of care.

In this thesis, a comprehensive literature review was performed and found that best practices for patient management need to include education that covers information regarding treatments, biological therapies, optimizing patient fidelity to treatment, and management of other side effects and comorbidities.

A qualitative study of patients and nurses is proposed to investigate the impact of the nurse-patient relationship on patients' perceptions about the disease management in relation to psoriasis and outcomes of care. In addition, the proposed study will explore patients' and nurses' perceptions of experiences that contribute to exacerbation and strategies that may work to improve symptoms and quality of life.

## **Literature Review**

The research literature was searched by looking through the various databases using the Dominican University of California's Library, including MedLine, IceBerg, CINAHL, and Elsevier. Seven primary research articles were compiled to review the issue of psoriasis.

Keywords included: psoriasis, chronic, stress, Psoriasis Area and Severity Index, psychological distress, Quality of life and Dermatology Life Quality Score Index.

The literature review section of this paper is divided into two categories. The first category notes the overlying causes of psoriasis and shows how psoriasis is exacerbated. The second category goes into the treatments (pharmacological and nonpharmacological) available for a person who has moderate-to-severe plaque psoriasis. Please see Appendix A for a table summarizing the studies.

### **Psoriasis: Causes & Exacerbation**

#### ***The Role of Stress in Children with Psoriasis***

The article *The Role of Stress in Children with Psoriasis* by Manolache, L., Petrescu-Seceleanu, D., & Benea, V. (2012) is an observational study that was to make note of any stressful situations that happen before or after the onset of psoriasis in children that were 16 years of age or younger. This article was drawn from the database Sagepub from the National Psoriasis Foundation. Some of the keywords that were used were psoriasis; stress; and children. The sample size used was Boys (n=18) and Girls (n=23) with a total of (n=41) who are 16 years old or less within the study. Data was collected from 2001 to 2007. The design of the study is

comparative/ correlational where the author attempted to observe if stress is one of the main factors of psoriatic flares between boys and girls.

The purpose of this article was to study was to observe if there were any stressful situations within children's lives which contributed to the extension or onset of their psoriasis. The findings from the article suggest that the incidence of psoriasis among other new dermatological conditions or morbidities was 0.43% , noting that the average age of children was 11.97 years (Manolache, Petrescu-Seceleanu, & Benea, 2012). In 29.26% of the cases, a family history of psoriasis was accounted. 31% of the children with psoriasis had a flare up less than 3 months before the evaluation and 38% had recently had new occurrences or extensions (Manolache, Petrescu-Seceleanu, & Benea, 2012). 14.6% of the cases noted that inflammation was a focus and 41% of the cases noted that stress was a factor in contribution to their psoriasis (Manolache, Petrescu-Seceleanu, & Benea, 2012). Most of these children mentioned at least one event that may have affected their development of psoriasis. Boys with guttate lesions and girls with psoriasis vulgaris were most affected by stress. Family problems such as disputes, illnesses, financial restrictions, and death were often brought up under the stress category. It is also noted that school plays a factor which influences psoriatic lesions.

The nursing implication for this article shows the importance of making sure patients are stress free hospitalized or not, to help to contribute in the slowing/ healing process of their psoriasis. A nurse-patient relationship must be built in order to maintain optimum levels of rapport. One limitation of this article notes that the recollection of past events from the patient or the patient's family may not be consistent. In conclusion, the presence of stressful situations can be considered influential in the extension of psoriasis in children.

***Association Between Psoriasis and Health-Related Quality of Life***

The article *The Association Between Psoriasis and Health-Related Quality of Life, Work, Productivity, and Healthcare Resource use in Brazil* by DiBonaventura, M., Carvalho, A., Souza, C., Squiassi, H., & Ferreira, C. (2018, March) is a quantitative study/ survey which helped to monitor the correlation between psoriasis and the psychological/ humane and lucrative burden among the people living in Brazil. The article was taken from the database PubMed from the National Center for Biotechnology Information. Some of the keywords that were used were Psoriasis; Health Impact Assessment; Quality of Life and Health Resources. The sample size used were (n=12,000) Surveys which were given to people to assess work productivity, available healthcare resources, and quality of life with present psoriasis skin conditions vs. no present skin condition. Data was collected in 2012 using the Brazil 2012 National Health and Wellness Survey (NHWS), which was a survey which focused on the health of adults ages 18 and older in Brazil. Use of the Internet combined with the Computer-Assisted Web Interviewing or CAWI was needed to lower the bias rates of people who had access or no access to the internet regarding the older population.

The purpose of this study was to use surveys to measure Sociodemographics, Health History, Work and Activity Impairment, and Healthcare Resource Use among people who have or do not have psoriasis within Brazil. Results show that a total of 210 people that responded had a diagnosis of psoriasis (n=157, 42, and 11) (DiBonaventura, Carvalho, Souza, Squiassi, & Ferreira, 2018). It was also noted that reports of mild, moderate, and severe forms of psoriasis were present. (DiBonaventura, Carvalho, Souza, Squiassi, & Ferreira, 2018). These respondents had noted low health utilities, with a decrease in efficiency at work, impairment of daily



activities, and a low number of physician visits over the last six months (DiBonaventura, Carvalho, Souza, Squiassi, & Ferreira, 2018). Physical health also deteriorated as severity of skin disease increased. Psoriasis severity was no different when factors regarding utilization of healthcare re- sources and work efficiency came into play, showing a high probability for economic burden (DiBonaventura, Carvalho, Souza, Squiassi, & Ferreira, 2018).

The nursing implication for this article supports that stress is a huge factor in psoriatic flares and shows a significant burden to patients who have psoriasis across both economic and humanistic ends. Limitations of this article were that cost analyses were not examined and the cross sectional patient responses may have bias. In conclusion, the study further verifies that life stressors and psoriasis are not compatible.

### ***The Associations Between Psychological Stress and Psoriasis: A Systematic Review***

The article *The Associations Between Psychological Stress and Psoriasis: A Systematic Review* by Thomas Stewart, Winnie Tong, and Margot Whitfeld (2018) is a correlational/comparative study that tries to determine if there is a link between psychological stress as the predictor and onset or extension of psoriasis. Their second objective was determining if there is a relationship between the severity of psychological stress and severity of psoriasis. This article was drawn from the database Wiley from the International Journal of Dermatology. Some of the keywords used were psoriasis, stress, stress psychological; psychological distress; mental strain; or mental distress. The sample size used were (n=19,617) people who were included in cross-sectional, case-control, and cohort studies who were 16 years or older with a diagnosis of psoriasis. Data was collected from 1987 to 2016.

The purpose of this study was to find any links between the presence of psychological stress and how it impacts psoriasis severity. The study extracted data based on factors such as age, gender, other dermatological conditions, proportioning of patients with psychological stress predicting, onset, recurrence, and severity of psoriasis with individual reports of stress measures (MJ;, 2018). Results showed that the largest available epidemiological study noted 7992 diagnoses of psoriasis in Italy. 27% of these cases self reported that their psoriasis had been triggered by “stressful events”(MJ;, 2018). The study also indicated that the influence of psychological stress on psoriasis extension happened to another 35% of patients noting that the onset had occurred during a “stressful period”, and that 66-71% stated their psoriasis was significantly affected by stress (MJ;, 2018). Overall epidemiological rates of stress related psoriasis range from 27-71% (MJ;, 2018).

The outcome of this article suggests that there is a significant correlation between using psychological stress as a predictor of psoriatic extension periods. Limitations of this study included the use of patients that were recruited from hospital outpatient departments which limit validity. In addition, environmental stressors affect every individual differently in which stressful events could be discriminated against.

### ***Outcomes in Psoriasis Patients with Clear Versus Almost Clear Skin in the Clinical Setting***

The article *Patient-Reported Outcomes in Psoriasis Patients with Clear Versus Almost Clear Skin in the Clinical Setting* by Takeshita et al. (2014) compares the quality of life between patients with clear skin vs. patients with psoriasis. This article was drawn from the database Iceberg from the National Center for Biotechnology Information. Some of the keywords used were Psoriasis; Quality of life; Dermatology Life Quality Index; Physician Global Assessment;

and Psoriasis Area and Severity Index. The sample size used was (n=97) patients with clear skin vs. (n=441) patients with almost clear skin with a total of (n=538). The design of the study was a correlational/ Comparative study which consisted of 97 patients with clear skin and 441 patients with almost clear skin but are receiving UV light therapy.

The purpose of this article was to observe and record the results of Dermatology Life Quality Index Scores of patients with clear skin vs. almost clear skin (Takeshita et al., 2014). The results showed that patients with clear skin noted psoriasis did not affect their quality of life (relative risk 1.60; 95% confidence interval, 1.37–1.86) vs. versus people with almost clear skin (Takeshita et al., 2014). Patients with clear skin also denied use of topical prescriptions (relative risk 2.08; 95% confidence interval, 1.73–2.49) (Takeshita et al., 2014). Both men and women were close to being equally balanced from the two groups. Majority of patients were Caucasian. Alcohol consumption was significantly different with patients with clear skin reporting no alcoholic drinks in the past year (45.4%) versus almost clear skin (27.4%) (p=0.001) (Takeshita et al., 2014).

The nursing implication of this article supports that patients' with psoriasis report lower quality of life. Some limitations of this article suggest that the cross-sectional design does not allow long term or longitudinal study. Topical medication use and quality of life were significantly different between these two groups.

**Available treatments (pharmacological and nonpharmacological) for plaque psoriasis*****Patient Satisfaction with Treatments for Plaque Psoriasis in Clinical Practice***

The article *Patient Satisfaction with Treatments for Moderate-to-Severe Plaque Psoriasis in Clinical Practice* by Horn et al. (2008) is an Online Survey/ Quantitative study which was to measure the satisfaction of treatment among people diagnosed with psoriasis. This article was taken from the database Iceberg from the National Center for Biotechnology Information. The sample size used was taken from the Dermatology Clinical Effectiveness Research Network which consisted of (n=1182) patients with moderate-to-severe psoriasis. The design of the study was cross sectional/ comparative study which looked at treatment efficacy for moderate-to-severe psoriasis. The data was taken by 12 clinicians.

The purpose of this article was to measure overall satisfaction of treatment. The results show that patients receiving biological therapies, UV light, and methotrexate prescriptions have higher satisfaction scores (83.3). Patients only utilizing topical medications had lower scores (66.7) (Horn et al., 2008).

The nursing implication for this article notes that patients who receive non-topical medications have better satisfaction ratings as compared to patients who took topicals. Limitations of this study show that a sample population was taken from a preset consumer panel then using random sampling. The panel was to represent the whole Canadian population, but no one in the panel was eligible and lived in the territories. Territorial population was not well represented. In conclusion, there were noticeable differences found in treatment satisfaction among different therapies for psoriasis with an emphasis on effectiveness and convenience. Treatment decisions and guideline developments must be implemented to improve study.

***Efficacy and safety of apremilast in patients with plaque psoriasis of the scalp***

The article *Efficacy and safety of apremilast in patients with moderate to severe plaque psoriasis of the scalp* by (Voorhees et al., 2020) is a multicentered, double blind, randomized, placebo-controlled study which was to evaluate the effectiveness of Apremilast (Otezla) for people with moderate-severe psoriasis of the scalp (Voorhees et al., 2020). This article was taken from the database Iceberg from the Journal of the American Academy of Dermatology. Some of the keywords used were: apremilast; psoriasis; quality of life; itching; pruritus; and scalp. The sample size used were (n=303) total randomized patients, (n=102), receiving placebo, (n=201) receiving apremilast. Patients were at least 18 years or older. Data was collected from May 2017 to January 2019. The design of the study is a phase 3, multicentered, double blind, randomized, placebo-controlled study (Voorhees et al., 2020).

The purpose of this article was to observe the safety and effectiveness of the medication apremilast (Otezla) on people diagnosed with moderate-severe plaque psoriasis of the scalp. The results show that patients who took apremilast vs. patient with the placebo achieved a (43.3% vs. 13.7%) clearance rate based on the Physician Global Assessment regarding severity of psoriasis (Voorhees et al., 2020). There were also significant results based on the Scalp Itch NRS with (47.1%) patients taking apremilast) noting that their itching has been reduced as compared to the placebo group with (21.1%) (Voorhees et al., 2020). Whole Body Itch NRS also noted a (45.5%) itch reduction in people who took the medication, as opposed to the placebo (22.5%) (Voorhees et al., 2020). The Dermatology Quality of Life Index scores indicate that people who took the medication apremilast noted that there was a significant difference in skin clearance (6.7) as compared to the placebo group (3.8) noting little clearance of psoriasis (Voorhees et al., 2020).

The nursing implications of this article indicate that use of apremilast can result in having side effects of diarrhea (30.5%), nausea (21.5%), headaches (12.0%), and vomiting (5.5%) (Voorhees et al., 2020). Limitations of this article are that people with mild psoriatic spread were not indicated/ observed. In conclusion, this study shows a significant decrease in psoriatic spread of the scalp vs. people who do not take the medication apremilast (Otezla).

***Aggressive weight-loss program with a ketogenic phase for treatment of plaque psoriasis***

The article *Aggressive weight-loss program with a ketogenic induction phase for the treatment of chronic plaque psoriasis* by (Castaldo et al., 2020) is a single arm, open label trial where they evaluate the effectiveness of a weight loss program with the integration of a ketogenic diet for treatment of chronic plaque psoriasis. This article was taken from the database Iceberg from ScienceDirect. Some of the keywords are chronic plaque psoriasis; PASI; ketogenic diet; mediterranean diet; and weight loss. The sample size used was (n=37) adult patients who were either overweight/ obese and have never used any medication besides topical creams. All patients were diagnosed with chronic plaque psoriasis. The study consisted of 30% men and 70% female. The design of the study is a single-arm, open clinical trial.

The purpose of this study was to observe the effects of a weight loss program combined with the use of a ketogenic diet to be used as a first line treatment for chronic plaque psoriasis (Castaldo et al., 2020). Methods show that all of the patients went through a ten week, two phase weight loss program. The program consisted of four weeks of a protein sparing, very low calorie ketogenic diet, and a six week hypocaloric Mediterranean-like diet (Castaldo et al., 2020). The results show that there was an average body weight reduction of 12% (10.6 kg), strong reduction in the Psoriasis Area and Severity Index (PASI) (> 50% and >75%), and overall better scores

within itch severity and the Dermatology Life Quality Score Index (DLQI)(-13.4 points) (Castaldo et al., 2020).

The nursing implications of this article show the correlation between obesity and the spread of psoriasis influencing quality of life. Body image can be maintained through use of consistent exercise, further reducing buildup of plaque psoriasis. Visceral adipose tissue is the main source of adipocytokines, which stimulate the immune response. The use of a weight loss program with a low-calorie ketogenic diet proves an effective treatment for psoriasis.

### **Proposal for Further Study**

#### **Overall Research Question and Rationale**

The question that arises from the research is - what is the effect of nursing education on patients who have moderate-to-severe plaque psoriasis and how it can be changed to further implement a reduction on psoriatic flares and what are patient perceptions based on the different amount of therapies available? According to the literature review, it seems that there is an overwhelmingly strong focus on stress and how it affects people with psoriasis and makes their flaring episodes worse. When we take in account the patient as a whole, looking at their vitals, medical history, age, social background, economic standings (such as debt), employment, etc. We can try and isolate the main causes of stress within the client and see if we could provide support in order to reduce the overall spread of their psoriasis. In terms of medications, we also need to observe strength of therapy and consistency for optimal effectiveness. The purpose of this study

is to look at the nurse-patient relationship and how it affects the patient's underlying skin condition, while at the same time noting the consistency of treatments/ therapies. The author hopes that this study can be beneficial for dermatological nurses and especially patients suffering with plaque psoriasis to see potential results and get the help they need for faster clearance of the disease.

### **Theoretical Framework**

The theorist that most relates to this study is Faye G. Abdellah and her theory of Patient-Centered Approaches to Nursing. Abdellah was the first nurse officer to earn the rank of a two star Rear Admiral and was also the first nurse and woman to serve as a Surgeon Deputy General during the Korean War (21 Nursing Problems). Her work within nursing was able to change the focus from disease-centered to patient-centered care. The Patient Assessment of Care Evaluation (also known as ADPIE) that she had developed is used across the United States and is considered the standard among nursing care in modern society. Abdellah believes that health is a state mutually exclusive of illness. She also states that there is no definition of health but points toward a patient's overall health needs and grounded mental foundation in her description of nursing as a service (21 Nursing Problems). Her goal of centering patient care ultimately looks at what the patient is feeling "right now" instead of the progress of their disease or injury. For psoriatic patients, this should be the standard that must be upheld because of how there are plenty of factors that can affect their underlying skin condition.



### **Primary Research Aims**

- To observe nurse-patient relationship quality and status of psoriasis
- Note effectiveness and consistency of pharmacological and nonpharmacological therapies for psoriasis

### **Ethical Considerations**

The proposed study will be reviewed for ethical considerations a by the university and the facilities internal review board before data collection begins. After approval, potential participants will be informed of their rights and provided information about the study. The study will ensure the privacy of clients and nurses who participate in the study. Informed consent will be obtained. Clients have the right to withdraw from the study if they choose. The nurse and client must agree to keep all information confidentiality. Confidentiality of the research study data will be ensured.

### **Research Method**

#### ***Type of Study***

Descriptive - Phenomenology Qualitative Study involving the patient with psoriasis and the dermatological nurse working in conjunction with the said patient. This study will be conducted by using interviews to find out about each client's quality of life living with psoriasis. The client's nurse also can give insight on various strategies they can implement when caring for these patients.

Therefore, after the study is explained, questions answered, and informed consent obtained, clients and their nurses will be interviewed as a dyad whenever possible. If the interviews cannot take place with both client and nurse present at the same time, then clients and nurses will be interviewed separately.

The interviews will use qualifying questions to narrow the target population and see if they are eligible for an interview, such as whether or not the person has been diagnosed with psoriasis, length of time since initial diagnosis, location of residence (in San Francisco or not), whether or not the client's age is greater than 18 years, status as student or working adult, or if the potential participant a nurse who cares for the psoriasis clients.

### ***Sample***

#### ***1) Patients diagnosed with psoriasis - Inclusion criteria:***

- Any patient with moderate-to-severe plaque psoriasis lasting for at least 5 years
- Patient must live in the San Francisco Bay Area
- Minimum age = 18
- Student or working adult
- Any socioeconomic status

#### ***2) Nurses who care for clients diagnosed with psoriasis - Inclusion criteria:***

- Any nurse working with an eligible patient

### ***Proposed Sample Size***

- The proposed sample size of this study is 10 patients diagnosed with psoriasis and 10 nurses who care for patients diagnosed with psoriasis

### ***Strategy for Recruitment***

Once the clients who are eligible for the interview are selected, they will be asked to meet on a mutually convenient date to conduct the interview. Clients who are eligible but are in the hospital will be able to have a one-on-one interview with the researcher. The semi-structured interviews will ask questions regarding certain stressors in the client's life such as socioeconomic status, employment status, social and family history, therapies (pharmacological and non-pharmacological), and progression of psoriasis. The client's nurse may also be interviewed and asked to offer nursing strategies to alleviate psoriasis symptoms and help the researcher gather insights. The interviews are expected to last approximately 45 minutes.

### ***Data Analysis***

A qualitative content analysis will be performed, including:

- Identification of similar words and phrases
- Organization into categories
- Description of themes

### **Conclusion**

The review of the research literature revealed several common threads. These include:

- Stress may be a precipitator of symptoms and exacerbation
- The problem may be more prevalent among patients of low socioeconomic class
- Lack of knowledge regarding therapies is often cited as a need
- Limiting the severity of psoriatic flares is an ongoing need.

Furthermore, effective communication and encouragement of patient receptiveness are essential for understanding patient needs within the nurse-patient relationship. Building rapport early on within a patient's stay can further ease the patient to provide the optimal care. In a clinical setting, nurses must be able to be empathetic to their patients to understand their needs. If a patient has other problems other than their underlying medical conditions, the nurse must be able to offer support/ point clients in the right direction through use of other resources relating to economic support, psychiatric help, etc.

By questioning the nurse-patient relationship and observing the various therapies for patients with psoriasis, this research could potentially help nurses become more effective in caring for patients with this disease.

The proposed study aims to learn more about the economic statuses of clients affected. There may be variability or bias within these results, so narrowing the target population could prove much more beneficial for the study. A correlation must be found to further find an observational target population.

In the future, a survey to compare patients' perceptions of two different educational programs, one in pharmacological therapies and the other in non-pharmacological therapies may a reasonable step toward finding the most effective treatments for psoriasis.

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## Appendix

| Authors/Citation   | Purpose/Objective of Study  | Sample - Population of interest, sample size | Study Design   | Study Methods   | Major Finding(s)  | Strengths   | Limitations   |
|--|---|--|--|---|---|---|---|
| <p><b>Manolache, L., Petrescu-Seceleanu, D., &amp; Benea, V. (2012). The role of stress in children with psoriasis. Psoriasis Forum, 18a(1), 22-25. doi:10.1177/247553031218a00103</b></p> | <p>The purpose of the study was to note any stressful situations that occur before the onset or extension of psoriasis in children aged 16 years and younger.</p> | <p>N = 41</p>                                | <p><b>Correlational/ Comparative/ Quantitative</b></p> | <p>The study comprised 41 children (23 girls, 18 boys) with psoriasis who were enrolled in a comparative study.</p> | <ul style="list-style-type: none"> <li>- The incidence of psoriasis among new dermatologic conditions was 0.43%.</li> <li>- The mean age of the children was 11.97 years.</li> <li>- There was a family history of the disease in 29.26% of cases; 31% of children with psoriasis had onset of psoriasis less than 3 months before the evaluation, and 38% had recent extensions or recurrence.</li> <li>- In 14.6% of psoriasis cases, an inflammatory focus was identified.</li> <li>- Stressful events had occurred in 41% of the psoriasis group, compared with 17% of controls.</li> </ul> | <p><b>- Provides demographic data, stressful events in relation to school and education, familial issues, personal events, and psychosocial trauma.</b></p> | <p>- The recollection of past events within the patient's family or by the patient and the dimensions of the sample could not be consistent</p> |



## Appendix

| Authors/Citation   | Purpose/Objective of Study  | Sample - Population of interest, sample size | Study Design                    | Study Methods  | Major Finding(s)  | Strengths  | Limitations   |
|--|---|--|---------------------------------|--|---|--|---|
| <p>DiBonaventura, M., Carvalho, A., Souza, C., Squiassi, H., &amp; Ferreira, C. (2018, March). The Association between psoriasis and health-related quality of life, work productivity, and Healthcare resource use in Brazil. Retrieved February 11, 2020, from <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5916390/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5916390/</a></p> | <p>The current study contributes to the psoriasis outcomes literature by offering a comprehensive assessment of the humanistic and economic burden in Brazil.</p> | <p>N = 12,000</p>                            | <p>Survey/<br/>Quantitative</p> | <p>The 2012 Brazil National Health and Wellness Survey (N=12,000) was used to assess health-related quality of life (Short Form-12, version 2), work productivity, and healthcare resource use associated with experiencing psoriasis vs. no psoriasis, along with varying levels of psoriasis severity.</p> | <p>Nevertheless, these results suggest a significant burden to patients with psoriasis across both humanistic and economic outcomes. The association between psoriasis and mental health aspects and health utilities were particularly strong and exceeded what would be considered clinically meaningful.</p> | <ul style="list-style-type: none"> <li>- Large sample size</li> <li>- Data were collected using a dual methodology of Internet and computer-assisted Web interviewing (CAWI). This dual approach was used to minimize bias related to Internet access, particularly among the elderly</li> </ul> | <p>Cost analyses were not performed, and cross-sectional patient-reported data limit causal conclusions and may reflect reporting biases.</p> |

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|---|--|--|---|--|--|--|--|
| <p>MJ;, S. (n.d.). The Associations Between Psychological Stress and Psoriasis: A Systematic Review. Retrieved from <a href="https://pubmed.ncbi.nlm.nih.gov/29516474-the-associations-between-psychological-stress-and-psoriasis-a-systematic-review/">https://pubmed.ncbi.nlm.nih.gov/29516474-the-associations-between-psychological-stress-and-psoriasis-a-systematic-review/</a></p> <p>**Open through Alemany Lib &gt; Pub Med &gt; Wiley</p> | <p>The primary objective of this review was to determine whether there exists a temporal association between psychological stress as the predictor and onset and/or recurrence of psoriasis as the outcome measure. Our secondary objective was to establish whether there is a relationship between the degree of psychological stress and clinical severity of psoriasis</p> | <p>N = 19,617</p>                            | <p>Correlational/ Comparative/ Quantitative</p> | <p>We included cross-sectional, case-control, and cohort studies involving adult (16 years or older) patients with a clinical and/or histological diagnosis of psoriasis. Psychological stress was assessed by the presence of self-reported stress, stressful life events on event scales, or the presence of stress on self-reported rating scales. A rapid assessment to determine basic eligibility was performed using the approach described by Michael al.6Studies were scored based on five design criteria using a scale of 0 or 1 (superior). The five criteria were appropriateness and reporting of inclusion and exclusion criteria, assessment of outcome control of confounding and evidence of bias. Lower quality studies score 0–3 and higher quality studies 4–5. Only higher quality studies were included</p> | <p>Our systematic review demonstrates a probable temporal association between different measures of psychological stress and onset, recurrence and severity of psoriasis</p> | <p>- Mixture of various studies such as cross sectional, case control, cohort studies, patient with clinical disorders, and patients with histological diagnosis of psoriasis.</p> | <p>Most participants were recruited from hospital outpatient departments, limiting external validity. Included studies used a number of different methods to measure psychological stress which introduced heterogeneity in our outcomes assessments. In addition, an individual's reaction to an environmental stressor depends on how stressful they perceive it to be, for which life events scales can be poorly discriminatory. Mental health conditions are associated with higher baseline stress levels,<sup>29</sup>and none of the included studies actively screened for psychiatric disorders. Studies asked subjects to remember life events up to 12 months prior to onset and/or recurrence of their psoriasis introducing recall bias.</p> |

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|---|---|--|--|---|--|---|--|
| <p>Takeshita, J., Callis Duffin, K., Shin, D., Krueger, G., Robertson, A., Troxel, A., . . . Gelfand, J. (2014, October). Patient-reported outcomes for psoriasis patients with clear versus almost clear skin in the clinical setting. Retrieved February 11, 2020, from <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4165851/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4165851/</a></p> | <p>To compare Dermatology Life Quality Index scores and prescription topical medication use between patients with clear versus almost clear skin.</p> | <p>N = 538</p>                               | <p>Correlational/ Comparative/<br/>Descriptive/<br/>Quantitative</p> | <p>Multicenter cross-sectional study of 97 patients with clear skin and 441 patients with almost clear skin receiving current systemic therapy or phototherapy for a primary indication of plaque psoriasis evaluated at one of ten US outpatient dermatology sites participating in the Dermatology Clinical Effectiveness Research Network.</p> | <p>In adjusted analyses, patients with clear versus almost clear skin were more likely to report no impact of psoriasis on quality of life (relative risk 1.60; 95% confidence interval, 1.37–1.86). Patients with clear versus almost clear skin were also more likely to report no prescription topical medication use in the preceding week (relative risk 2.08; 95% confidence interval, 1.73–2.49).</p> | <p>- Broad inclusion criteria, patient population drawn from multiple clinical practices across the United States, and use of multivariable statistical models to account for potential confounding factors</p> | <p>Cross-sectional design prohibits longitudinal assessment of outcomes.</p> |

## Appendix

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|---|--|--|--|---|--|--|--|
| <p>Horn, E. J., Fox, K. M., Patel, V., Kimball, A. B., Gordon, K. B., &amp; Lebwohl, M. G. (2008). Treatment satisfaction and HEALTH-RELATED quality of life among individuals WITH Psoriasis: National Psoriasis Foundation survey findings. <i>Psoriasis Forum</i>, 14a(2), 27-34. doi:10.1177/247553030814a00205</p> | <p>To describe practice patterns for care of Canadian patients with moderate to severe plaque psoriasis.</p> | <p>N = 3845</p>                              | <p>Online Survey/<br/>Quantitative</p> | <p>A population-wide, cross-sectional sample representative of the adult Canadian population and balanced by region and sex was identified using proprietary consumer databases. These databases consisted of information on members of the general public who had consented to be contacted to complete surveys voluntarily. E-mail invitations were sent to a national sample of 3845 Canadian adults (≥ 18 years) with self-reported psoriasis</p> | <p>Overall physician care was reported to be satisfactory by 62% of respondents. Most respondents receiving over-the-counter therapies (55%) or prescribed topical therapies (61%) reported that their psoriasis was managed by FPs. Respondents receiving prescription oral or injectable medications or phototherapy were mainly managed by dermatologists (42%, 74%, and 71% of respondents, respectively). Ongoing management of respondents with body surface area involvement of 10% or greater was mainly split between dermatologists (47%) and FPs (45%), compared with rheumatologists (4%) or other health care professionals (4%). Of those respondents receiving medications for concomitant health conditions, treatment for high blood pressure was most common (92%), followed by treatment for heart disease (75%) and elevated cholesterol and lipid levels (68%).</p> | <p>- Regions of population was organized and balanced based by region and sex.</p> | <p>Limitations of this study included a sample population derived from a pre-existing consumer panel rather than by random sampling. The consumer panel was constructed to represent the general Canadian population, but no eligible panelists lived in the territories. As a result, the territorial population was not represented, although it is known that most Canadians (99.68%) reside within the provinces</p> |

## Appendix

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|---|--|--|------------------------------|--|--|---|---|
| Castaldo, G., Rastrelli, L., Galdo, G., Molettieri, P., Aufiero, F. R., & Cereda, E. (2020). Aggressive weight-loss program with a ketogenic induction phase for the treatment of chronic plaque psoriasis: A proof-of-concept, single-arm, open label clinical trial. <i>Nutrition</i> , 74, 110757. doi:10.1016/j.nut.2020.110757 | A very low-calorie ketogenic diet (VLCKD) has been associated with a significant reduction in visceral adipose tissue and ketone bodies that likely possess anti-inflammatory properties. We evaluated the efficacy of an aggressive weight-loss (WL) program with a ketogenic induction phase as first-line treatment for chronic plaque psoriasis. | n = 37                                       | Single-arm, Open Label Trial | Adult patients who were overweight or obese and drug-naïve with stable chronic plaque psoriasis underwent a 10-wk, 2-phase WL program consisting of a 4-wk protein-sparing, VLCKD and 6-wk balanced, hypo caloric, Mediterranean-like diet. The primary endpoint was the reduction in Psoriasis Area and Severity Index (PASI) score at wk 10. Major secondary endpoints included PASI score responses of 50% and 75%, reduction in body surface area involved, improvement in itch severity, and Dermatology Life Quality Index score at wk 10. | With a mean body weight reduction of 12.0% (10.6 kg), the dietary intervention resulted in a significant reduction in PASI (baseline score: 13.8 § 6.9; range, 732), with a mean change of 10.6 (95% confidence interval, 12.8 to 8.4; P < 0.001). PASI score responses of 50% and 75% were recorded in 36 patients (97.3%) and 24 patients (64.9%), respectively. Treatment also resulted in a significant reduction (P < 0.001) in the body surface area involved (17.4%) and an improvement in itch severity (33.2 points) and Dermatology Life Quality Index score (13.4 points) | - Study has a small sample size, resulting in better close observation/analysis of data | The main limitation of the study is the open-label, single-arm design, which could be associated with an overestimation of treatment effects, although the analysis was based on the evaluation of major efficacy endpoints by 2 independent dermatologists |

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|---|--|--|--|--|---|---|---|
| <p>Voorhees, A. S., Gold, L. S., Lebwohl, M., Strober, B., Lynde, C., Tyring, S., . . . Wang, Y. (2020). Efficacy and safety of apremilast in patients with moderate to severe plaque psoriasis of the scalp: Results of a phase 3b, multicenter, randomized, placebo-controlled, double-blind study. <i>Journal of the American Academy of Dermatology</i>. doi:10.1016/j.jaad.2020.01.072</p> | <p>To evaluate the efficacy and safety of apremilast for moderate to severe scalp psoriasis.</p> | <p>n = 303</p>                               | <p>Multicenter, randomized, double-blind, placebo-controlled study</p> | <p>For the placebo-controlled phase, study personnel randomly assigned patients (2:1), using a permuted block randomization and centralized interactive response technology, to receive apremilast 30 mg twice daily or placebo for 16 weeks. To mitigate potential gastrointestinal adverse effects, doses were titrated over the first week of treatment (in 10-mg increments). At week 16, all patients continued or switched to apremilast 30 mg twice daily through week 32, with dummy titration or titration during week 16 for patients initially randomized to apremilast or placebo, respectively. The study sponsor, site, contract research organization personnel, and patients were blinded to treatment allocation through week 16; after week 16, the study sponsor, site, and contract research organization personnel directly involved with study conduct remained blinded until the final database lock. The study drug was administered twice daily, approximately 12 hours apart, without restriction of food or drink</p> | <p>There were 303 randomized patients (placebo: n = 102; apremilast: n = 201). With apremilast, significantly more patients achieved Scalp Physician Global Assessment (43.3% vs 13.7%), Scalp Itch NRS (47.1% vs 21.1%), and Whole Body Itch NRS (45.5% vs 22.5%) response, and significantly greater DLQI improvement was observed versus placebo (-6.7 vs -3.8; all P &lt; .0001). Common adverse events with apremilast were diarrhea (30.5%), nausea (21.5%), headache (12.0%), and vomiting (5.5%).</p> | <p>- Study consists of a generally large sample size, further influencing the reliability and correlation of the study.</p> | <p>- Patients with mild psoriatic disease were not observed</p> |