

## ASSESSMENT OF QUALITY OF LIFE AND EFFECTIVENESS OF DIFFERENT THERAPIES IN THE MANAGEMENT OF PSORIASIS AT TERTIARY CARE HOSPITAL IN HYDERABAD

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### ABSTRACT

**Aim & Objectives:** To assess Quality of life and effectiveness of different therapies in the management of psoriasis with patient counselling. **Methodology:** This is a prospective interventional study conducted in the Department of Dermatology with a sample size of 94 patients and were divided into two groups based on the intensity of disease i.e., Mild- Moderate and Severe Psoriasis. Based on therapies received mild- moderate psoriatic patients were subdivided into 2, one group received topical therapy, the other group received omega-3 fatty acids along with topical therapy and severe group received Methotrexate, Phototherapy and the combination of Methotrexate + Phototherapy as 3 different groups. SF-36 questionnaire and ZUNG

scale were used to assess the quality of life and the presence of depression respectively. SF-36 questionnaire, ZUNG scale and PASI score calculation was done initially and after 45 days. Improvement in the quality of life was assessed through patient counselling. **Results:** Data of 94 patients was collected for both zero degree and first degree follow up. The patients demonstrated good compliance with the different combination of therapies. A significant increase after patient counselling in overall quality of life scoring ( $p=0.0028$ ) was observed. **Conclusion:** The study showed that use of omega -3-fatty acids along with topical agents in moderate patients has decreased the disease severity by decreasing the comorbid conditions and use of methotrexate along with phototherapy in severe psoriatic patients has decreased

the PASI score significantly. This study also showed that providing patient counselling also improved patient's quality of life irrespective of disease severity.

**KEYWORDS:** Psoriasis, Patient Counselling, Quality of Life, Omega-3-Fatty Acids, Phototherapy + Methotrexate, Comorbid Conditions.

## INTRODUCTION

Psoriasis is a chronic, non-communicable, painful, disfiguring and disabling disease for which there is no cure and with great negative impact on patient's quality of life (QOL).<sup>[1]</sup> Patients with psoriasis have a genetic predisposition for the illness, which most commonly manifests itself on the skin of the elbows, knees, scalp, lumbosacral areas, intergluteal clefts, and glans penis. The joints are also affected by psoriasis in up to 30% of patients with the disease.<sup>[2]</sup>

Patients with moderate to severe psoriasis have a higher association with co morbidities, like metabolic syndrome, depression, arthritis etc.; which may still worsen the disease state. The most common feature of the metabolic syndrome among patients with psoriasis was abdominal obesity, followed by hypertriglyceridemia and low levels of HDL cholesterol, where obesity itself is an independent risk factor for developing psoriasis. Studies had shown that obese people were more prone to severe psoriasis (> 20% body area) and intra-abdominal obesity was directly linked to the metabolic syndrome.<sup>[3]</sup> Psoriasis is associated with a variety of psychological problems like experiencing anger or helplessness, and they disclose a higher rate of suicidal ideations than other patients,<sup>[1]</sup> it is essential to include measures of psychosocial morbidity when assessing psoriasis severity and treatment efficacy because of the substantial role that psychosocial burden plays in patient's perception of disease severity, quality of life, and disease course.<sup>[4]</sup>

The disease can be triggered by certain medications and environmental factors. Hence it becomes essential to educate and counsel the patients about the disease, its triggering factors and management as this may have a positive impact on QOL of patient. Management is still based on symptomatic therapy. As biological agents are not economical, topical and systemic therapies as well as phototherapy are the other primary options available. Management of mild – moderate psoriasis generally constitutes topical agents but recent studies shows the Omega – 3 – fatty acids have a role in controlling the progression of disease as well as co morbidities associated with it especially cardiovascular disorders. In severe psoriasis, many

studies showed a better effect with combination therapy of Methotrexate and Phototherapy instead of individual therapies.

### **Need for The Study**

The worldwide prevalence of psoriasis is estimated to be approximately 2–3%. In a diverse country such as India, the prevalence of psoriasis may vary from region to region due to variable environmental and genetic factors.<sup>[5]</sup> Psoriasis being a chronic condition takes its toll on the quality of life of the patient as it is associated with many co morbidities. There are many precipitating factors for psoriasis and usage of few drugs can also trigger the psoriasis. Lack of awareness on these often leads to exacerbation of the condition. Therefore, it becomes essential to educate, counsel the patient on disease, life style modifications, comorbid conditions and to replace psoriasis triggering drugs. Management of psoriasis should include drugs that can effectively treat the condition in the least possible time, as it can interfere with the normal functions and decreases the quality of life of patient.

**Role of Clinical Pharmacist:** Psoriasis causes great physical, emotional and social burden on the patient. HRQoL is significantly impaired in patients with psoriasis. Factors such as disease severity, gender, age, anatomical sites of lesion, involvement of co morbidity (e.g. Arthritis) and psychological distress can all be associated with reduced HRQoL. Therefore, assessment of QoL is vital to ensure the overall wellbeing of patient and one of the reasons for a decreased QoL is lack of awareness and information of patient as well as healthcare providers.

The clinical pharmacist is well equipped with the knowledge and skills to educate patient's regarding disease advances in management and lifestyle practices. He/ she can counsel regarding proper use of medications, lifestyle changes like managing stress, exercising, weight management etc., food habits like adding omega 3 fatty acids to diet, avoiding junk food etc; can prevent the disease from worsening. He/ she can also educate the healthcare providers regarding recent advances in treatment such as omega 3 fatty acids and also drugs that can trigger the psoriasis & suggesting alternative drugs.

As many conditions are associated with psoriasis it can add to the financial burden of the patient due to polypharmacy. A clinical pharmacist can optimize the patient's therapy, minimize the ADR's and thereby reduces the cost to patient and improve QoL. Multiple studies have concluded that psoriasis sufferers feel self-conscious, depressed, disturbed or

inconvenienced by the shedding of the skin, live in a constant fear of relapse, has high suicidal ideation and avoid social interactions.<sup>[3]</sup> The clinical pharmacist not only counsels regarding physical health and drugs, but also about the mental well-being of the patient.

Dermatologists should not only focus and treat the signs and symptoms of psoriasis but also on the existence of co morbid conditions such as PsA, metabolic syndrome, and CV disease. An integrative approach, between dermatologists and other specialists like clinical pharmacist will reduce pill burden associated with comorbid conditions, when left untreated can worsen the disease, improves compliance and quality of life in psoriasis patients.

## OBJECTIVES

The primary objectives were to 1. Improve quality of life through patient counselling, assessed with SF-36 questionnaire, 2. Assess the effectiveness of combination therapies of omega 3 fatty acids + topical agents in mild- moderate and Methotrexate + Phototherapy in severe psoriasis patients. The secondary objectives were to 3. Assess the incidence of psoriasis associated conditions (Comorbidities), 4. Incidence of depression using ZUNG scale and 5. Monitor the drug therapy in psoriasis with co morbidities and cessation /withdrawal of drugs that trigger psoriasis.

## MATERIALS AND METHODS

**Study Site:** Department of Dermatology, Venerology and Leprosy (DVL) at Malla Reddy Multi speciality Hospital, Suraram, Jeedimetla, Hyderabad.

**Sample Size:** Ninety-four (94) patients.

**Study Duration:** 6 months.

**Study Criteria:** Patients older than 6 years are included in the study and those above 18 years are assessed for quality of life. Patients with psychological disorders excluding depression, pregnant women and those who are not willing to participate are excluded from the study.

**Study Type:** The study is a Prospective, Interventional study.

**Study Motivation:** The reason for choosing this department for study was that it offers a wide scope for improving patient care and patient quality of life. The patients with psoriasis

have a poorer quality of life due to lack of information on the diseases and are treated with specific drugs.

**Study Procedure:** Approval was taken from institutional ethical committee. The study details were explained to the patients and written consent was taken after assuring confidentiality of the data. The consent form was also translated to two other local languages. The total population (n=94) was divided into two groups using PASI score; Mild- moderate and Severe. The mild- moderate psoriatic patients were again subdivided by the treatment received i.e. one group was treated with topical agents and the other with combination of topical agents and Omega- 3- fatty acids. On the other hand, patients with severe psoriasis were divided into three namely; groups receiving Methotrexate, Phototherapy and combination of Methotrexate and Phototherapy. QoL, PASI score and ZUNG score were taken at day 1 and patient counselling was provided along with their respective treatments. After 45 days at first follow-up the scores are assessed again, noted and statistical analysis of data is done by using paired T- test and Pearson correlation. Graph pad prism 7 & Microsoft Excel were used for the analysis.

#### **Aids used in the study**

- a) **Patient Proforma:** The collected data was incorporated in specially designed patient proforma and information regarding demographics, past medical history, social history, past medication history and relevant laboratory and other data were collected. The information was collected by direct interaction with patient or attendee of the patient for laboratory reports. It also contains the details like type of Psoriasis, PASI score calculation, presence of comorbid conditions, treatment being received and extent of involvement of other organs.
- b) **Disease Severity:** The intensity of the disease is classified as mild, moderate and severe based on PASI (Psoriasis Area and Severity Index) scale. It was calculated using online PASI calculator and on the formula (6) (given below) which relays on four parameters i.e. Erythema (redness), Induration (thickness), Desquamation (scaling) and Area of involvement.

**Figure 1: Showing PASI score calculation.**<sup>[7]</sup>

$$\text{PASI} = 0.1(\text{Eh} + \text{Ih} + \text{Dh}) \text{ Ah} + 0.2(\text{Eu} + \text{Iu} + \text{Du}) \text{ Au} + 0.3(\text{Et} + \text{It} + \text{Dt}) \text{ At} + 0.4(\text{El} + \text{Il} + \text{Dl}) \text{ Al}$$

Where,

E- Erythema, I- Induration, D- Desquamation, A- Area Involved, h- Head, u- Upper Limbs, t- Trunk And l-Lower Limbs.

### Scoring of severity

**Mild:** Psoriasis is usually classified as mild when: a PASI score of  $\leq 10$ . As the PASI score takes into account both the appearance and the area of the plaques, mild psoriasis could involve slight redness, thickness and/or scaling that covers a large area of the body.<sup>[8]</sup>

**Moderate to severe:** Psoriasis is usually described as moderate-to-severe when a PASI score of  $> 10$  and involves severe redness, thickness and or it may involve moderate redness and thickness covering large areas with severe scaling.<sup>[8]</sup> In some cases of mild psoriasis (PASI  $\leq 10$ ), certain features may change the classification to moderate-to-severe which includes: major parts of the scalp are affected, the genitals are affected, palms of the hand and/or soles of the feet are affected, at least two fingernails are separated from the nail bed or deformed, itching that leads to scratching.

**Note: A higher PASI score indicates severe psoriasis**

c) **SF- 36 Questionnaire:** The WHO SF-36 questionnaire was used to assess the Quality of life. It is widely used questionnaire for measuring self-reported physical and mental health status<sup>[9]</sup> and has become one of the most widely used for the health-related quality of life measures.<sup>[10]</sup> It is a generic, multi-dimensional measure of self-reported health status.<sup>[11]</sup> The calculation and consideration of QoL is based on “**Greater the score,**

**better is the QOL”**. The SF-36 questionnaire consists of 36 questions (items) measuring physical and mental health status<sup>[12]</sup> in relation to nine health concepts:

- Physical Functioning (D1).
- Role Limitations Due to Physical Health (D2).
- Role Limitation Due to Emotional Health (D3).
- Energy / Fatigue (D4).
- Emotional Well Being (D5).
- Social Functioning (D6).
- Pain (D7).
- Health Change (D8).
- General Health (D9).

**d) ZUNG SCALE:** The ZUNG self-rating depression scale was designed by W.W. ZUNG to assess the level of depression. It is a self-rating depression scale to quantify the depressed status of a patient.<sup>[13]</sup> There are 20 items on the scale that rate the four common characteristics of depression: the pervasive effect, the physiological equivalents, other disturbances, and psychomotor activities.<sup>[14]</sup> There are ten positively worded and ten negatively worded questions. Each question is scored on a scale of 1-4. The scores range from 25-100. The patients condition can be classified based on the score obtained into<sup>[13]</sup>:

- 25-49- normal range
- 50-59 -mildly depressed
- 60-69 -moderately depressed
- 70 and above severely depressed.

**e) Patient Information Leaflet (PIL):** Patient counselling was done using specially designed patient information leaflet, regarding psoriasis (non-pharmacological therapy, diet modification, risk factors, avoiding triggers) to improve patients Quality of life and was also translated to two local languages.

## RESULTS

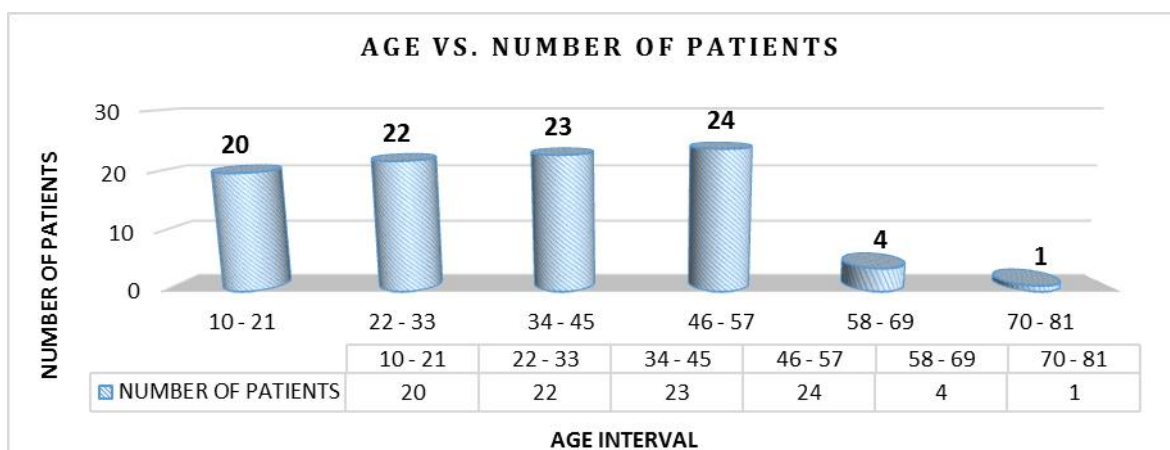
A total of 116 cases were collected out of which 23 patients dropped out, 94 patients were included in the study (N=94). As mentioned, the patients with mild- moderate psoriasis (n1=60) were categorized into - Group A (30 patients) received Topical Agents and Group B (30 patients) which is the experimental group received Omega-3 Fatty Acids (HHOMEGA™ with 90 mg Eicosapentaenoic acid and 60 mg Docosahexaenoic acid by Hedge and Hedge



Pharmaceutica LLP) along with topical agents. Topical agents used in patients are Coal tar + Salicylic acid topical application [1 % w/w, 3% w/v / COTAR- S/ Brawn Laboratories], Fusidic acid [FUDIC Cream in 2% w/w / Hedge and Hedge Pharmaceutica LLP], Glycolic acid [GLYCO- A cream in 12% w/w / Micro Pharmaceuticals and DECROMA 12 cream in 12% w/w / Ranbaxy Laboratories] , Liquid Paraffin [AGAROL emulsion / Pfizer Laboratories], Clobetasol propionate 0.05% w/v + salicylic acid 3% or 6% w/v [TOPISOL 3% or 6% lotion / Systopic Laboratories].

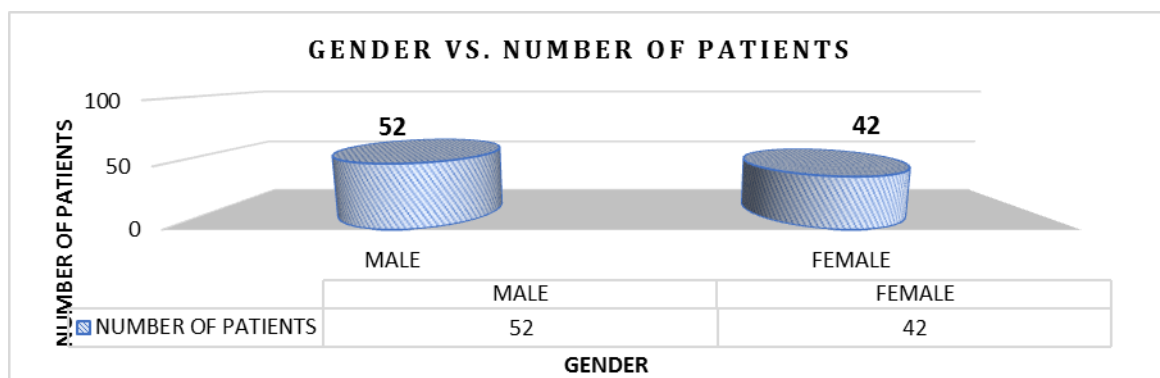
Whereas, the Severe psoriasis (n=34) group was divided into 3 groups; group X (11 patients) were treated with Methotrexate (FOLITRAX- 5, 7.5 and 10 at 5 mg, 7.5 mg and 10 mg respectively by Ipca Laboratories), group Y (11 patients) with Phototherapy (narrow band UVB at 310 nm) and group Z (12 patients) with combination of Methotrexate + Phototherapy.

On statistical analysis with overall study population (N=94), the majority of the patients in the study were between 22 and 57 years of age (figure 2). Mean age was found to be 36.4 and 13 patients were under 18 years and considered as paediatric group. Gender wise, population has shown a male predominance (55%) (figure 3) and the male to female ratio was 5.3:4.6. Majority of the population included in the study were daily wage labours (35%) followed by homemakers (figure 4).

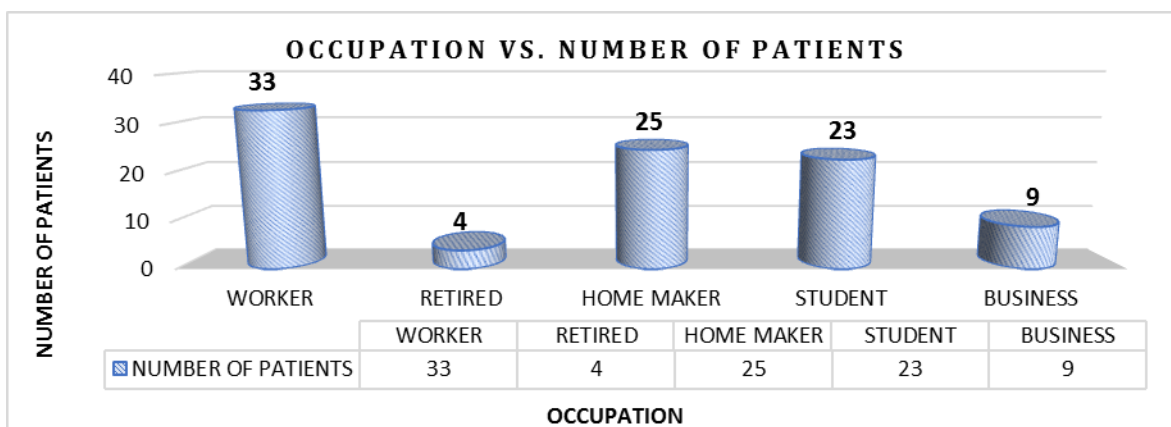


**Figure 2: Graph representing number of patients based on age in each class interval.**



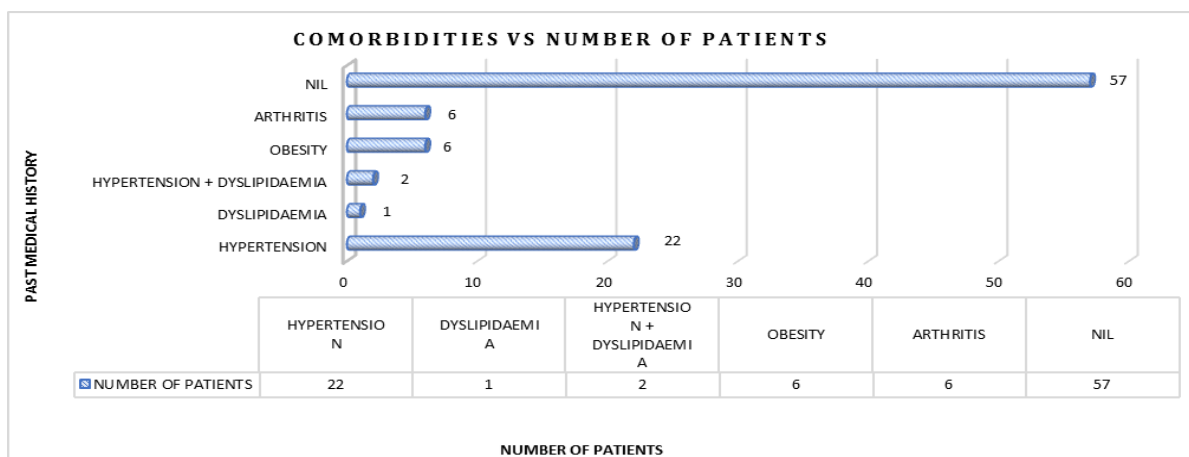


**Figure 3: Graph showing gender wise distribution in the population.**

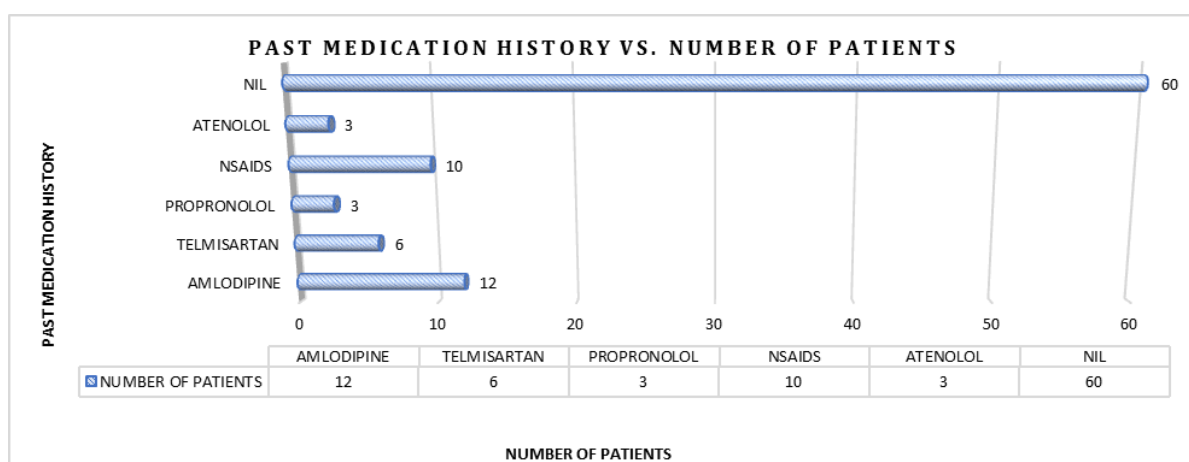


**Figure 4: Graph showing occupation wise distribution in the population.**

Hypertension (23.4%) was the most common co-morbid condition and 60% of the study population did not present with any other co-morbidity (figure 5). Obesity, arthritis and dyslipidaemia were the other co-existing conditions. The patient's past medication history with certain medications were considered as triggers that can worsen the condition. And necessary interventions were made to discontinue those particular drugs and suggest a more appropriate therapy. Most (25.5%) of the study population were using anti-hypertensives like atenolol, propranolol, telmisartan and amlodipine as this was the commonest condition found (figure 6) in the study population followed by NSAIDs (10.6%). The usage of NSAIDs was more in the daily wage labour class as they were frequently suffering from pain.



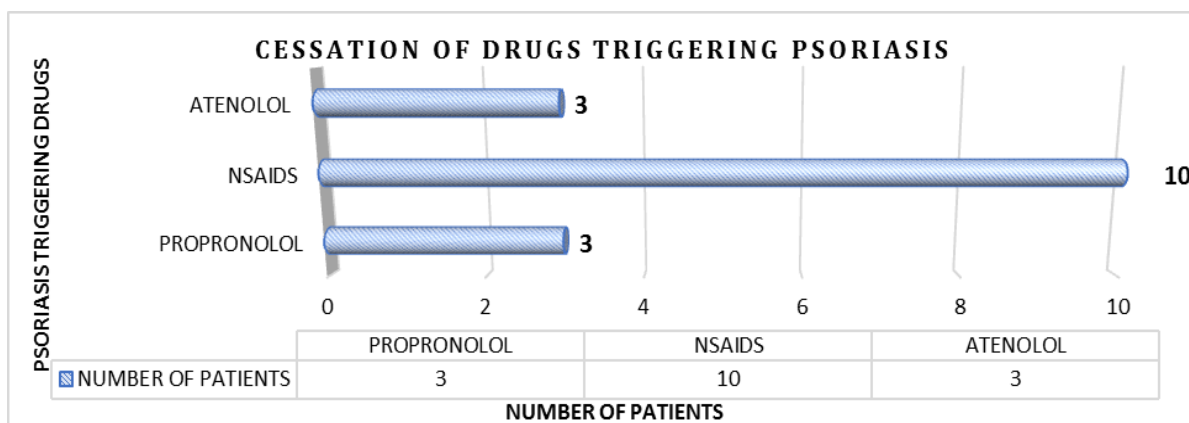
**Figure 5: Graph representing distribution of the population based on co morbidities.**



**Figure 6: Graph representing past medication history of the patient.**

### Cessation of drugs triggering psoriasis

Anti-hypertensives like propranolol, atenolol and NSAIDs were discontinued in 6.3 % and 10.6% of the study population (figure 7) respectively as these drugs can worsen psoriasis and suitable alternative therapy was suggested as Pharmacist's intervention.



**Figure 7: Graph representing cessation of drugs triggering psoriasis.**

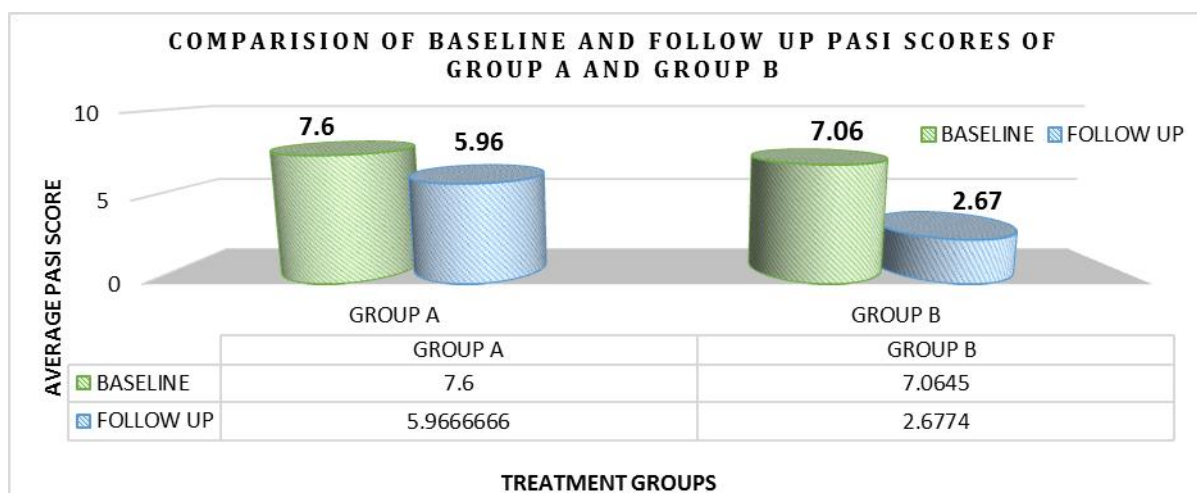
### Comparing improvement of disease condition (with PASI scale)

Based on the disease severity using PASI scale the patients were divided into mild- moderate (60) and severe (34) psoriasis groups. “A higher PASI score indicates severe psoriasis”.

In mild- moderate group, the baseline score in both the groups was almost similar and has shown a decrease in the PASI score during their follow-up but, Group-B has shown a greater significant decline i.e. from  $7.06 \pm 3.9$  to  $2.6 \pm 3.9$  (p value= 0.005) than Group-A, which showed a decrease from  $7.6 \pm 3.1$  to  $5.9 \pm 3.1$  (p value= 0.012).

**Table 1: Comparison of PASI baseline and follow up score of Group A and Group B.**

	GROUP A (Topical Agents)	GROUP B (Topical + Omega-3- Fatty Acids)
<b>Baseline</b>	$7.6 \pm 3.1$	$7.0645 \pm 3.9$
<b>Follow Up</b>	$5.966 \pm 3.1$	$2.6774 \pm 3.9$
	P VALUE = 0.012	P VALUE =0.005



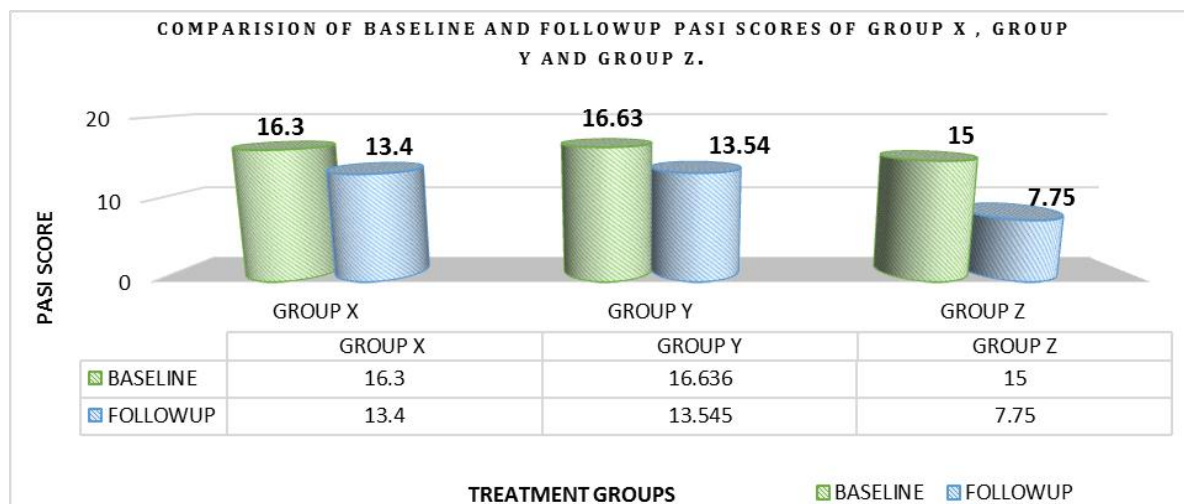
**Figure 8: Graph representing improvement in baseline and follow up PASI score of Group A and Group B.**

In severe psoriasis patients, Group Z (combination of Methotrexate and Phototherapy) has shown a significant decrease in PASI score (figure 9) than Group X (Methotrexate) and Group Y (Phototherapy), which is from  $15 \pm 1.0$  to  $7.75 \pm 1.0$  and with p value of 0.0012 which indicates improvement in psoriasis health status.

In patients with Methotrexate, Folic acid supplements were added and in patients undergoing phototherapy, topical application of Liquid Paraffin was advised which increases the rate of absorption and penetration of the UVB rays.

**Table 2: Comparison of PASI baseline and follow-up score of Groups X, Y and Z.**

	<b>GROUP X (Methotrexate)</b>	<b>GROUP Y (Phototherapy)</b>	<b>GROUP Z (Methotrexate + Phototherapy)</b>
<b>Baseline</b>	16.3 ± 2.4	16.636 ± 2.1	15 ± 1.0
<b>Follow-up</b>	13.4 ± 2.4	13.545 ± 2.1	7.75 ± 1.0
	P VALUE = 0.002	P VALUE = 0.005	P VALUE = 0.0012

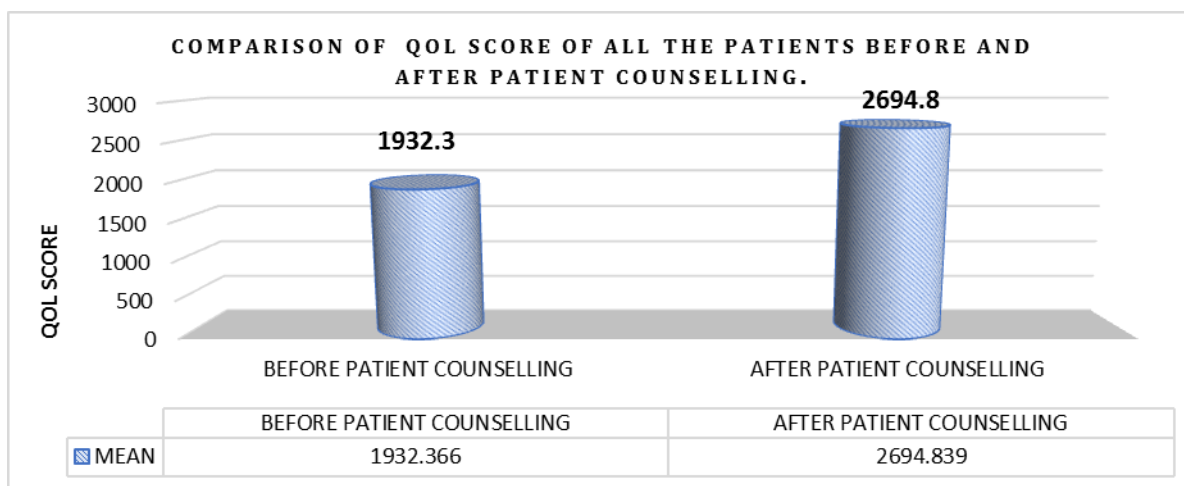
**Fig. 9: Graph comparing the PASI baseline and follow up score of Group X, Y and Z.**

### Comparison of Quality of life improvement before and after patient counselling (with SF-36 Questionnaire)

QOL was assessed in patients above 18 years of age through SF – 36 questionnaires. “Greater the score, better the QOL”. Among 81 patients (above 18 years), irrespective of treatment received the baseline average score of QOL was  $1932.366 \pm 256.5$  and after patient counselling, at first degree follow-up (after 45 days) there was a significant increase in the QOL score to  $2694.839 \pm 256.5$  (p value=0.0028).

**Table 3: Comparison of QOL score of all the patients before and after patient counselling.**

<b>Parameter</b>	<b>Mean</b>	<b>Statistical Values (P &lt; 0.05)</b>
QoL Before Patient Counselling	$1932.366 \pm 256.5$	<b>P Value=0.0028</b> T Value=1.98
QoL After Patient Counselling	$2694.839 \pm 256.5$	

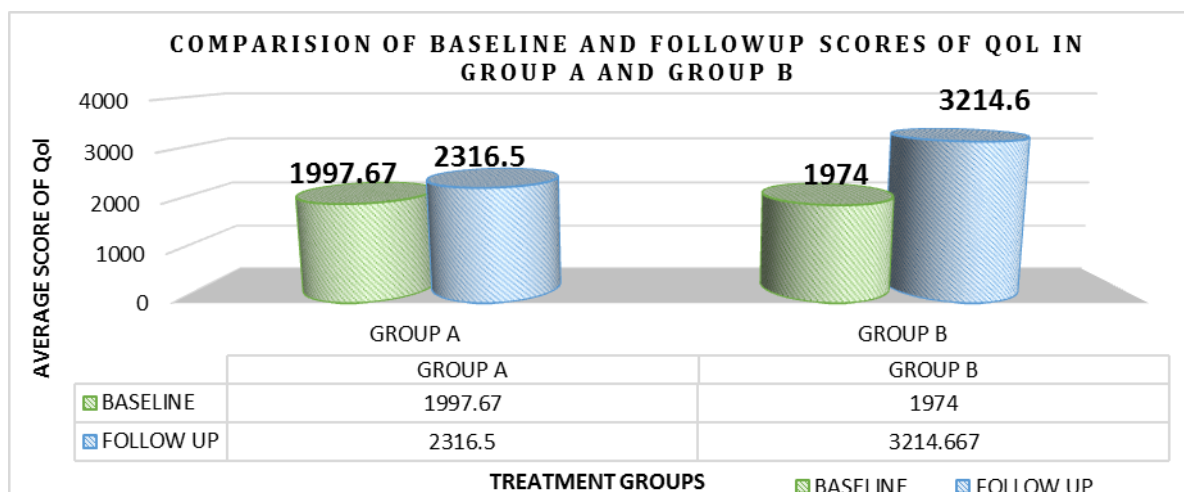


**Figure 10: Comparison of QOL score of patients before and after patient counselling.**

In both the groups, mild- moderate and severe; the QOL scores were compared before and after patient counselling and treatments. Group B (table 4 and figure 11) and group Z (table 5 and figure 12) being the test groups has shown a significant improvement than the other groups with P value of 0.021 and 0.011 done by paired t- test.

**Table 4: Comparison of baseline and follow up QOL score of group A and group B patients individually.**

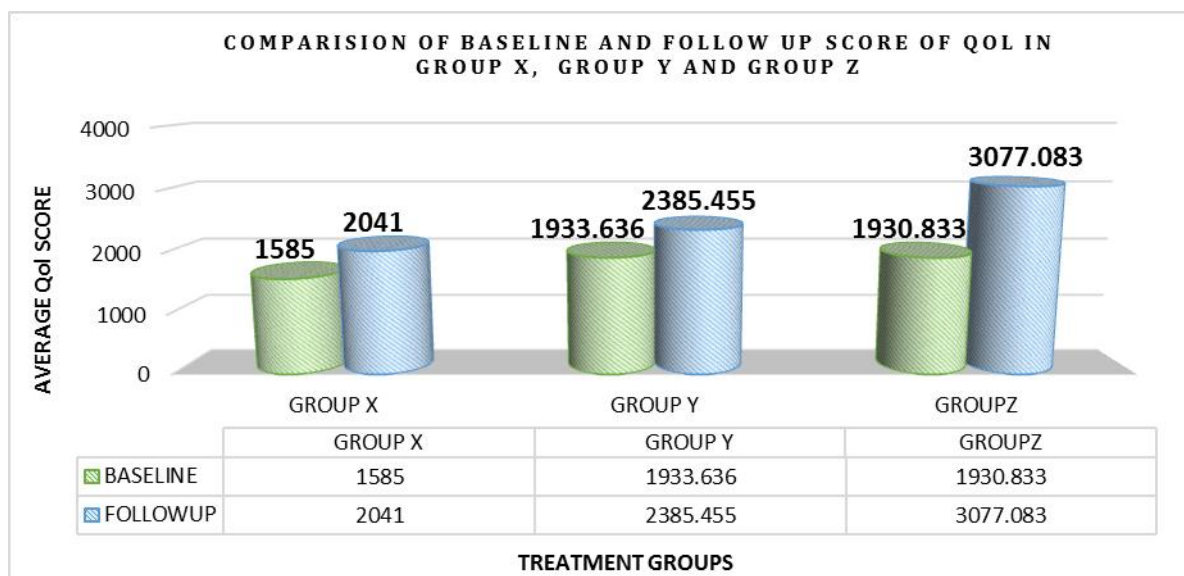
	GROUP A (30)	GROUP B (30)
<b>Baseline</b>	1997.67± 231.36	1974 ± 465.57
<b>Follow-up</b>	2316.5 ± 231.36	3214.667 ± 465.57
	P VALUE = 0.014	P VALUE = 0.021



**Figure 11: Graph representing average baseline and follow up QOL scores of group A and group B patient.**

**Table 5: Comparison of baseline and follow up QOL scores of group X, group Y and group Z patients.**

	GROUP X (11)	GROUP Y (11)	GROUP Z (12)
<b>Baseline</b>	1585	1933.636	1930.833
<b>Follow-Up</b>	2041	2385.455	3077.083
	P VALUE =0.008	P VALUE = 0.007	<b>P VALUE =0.011</b>



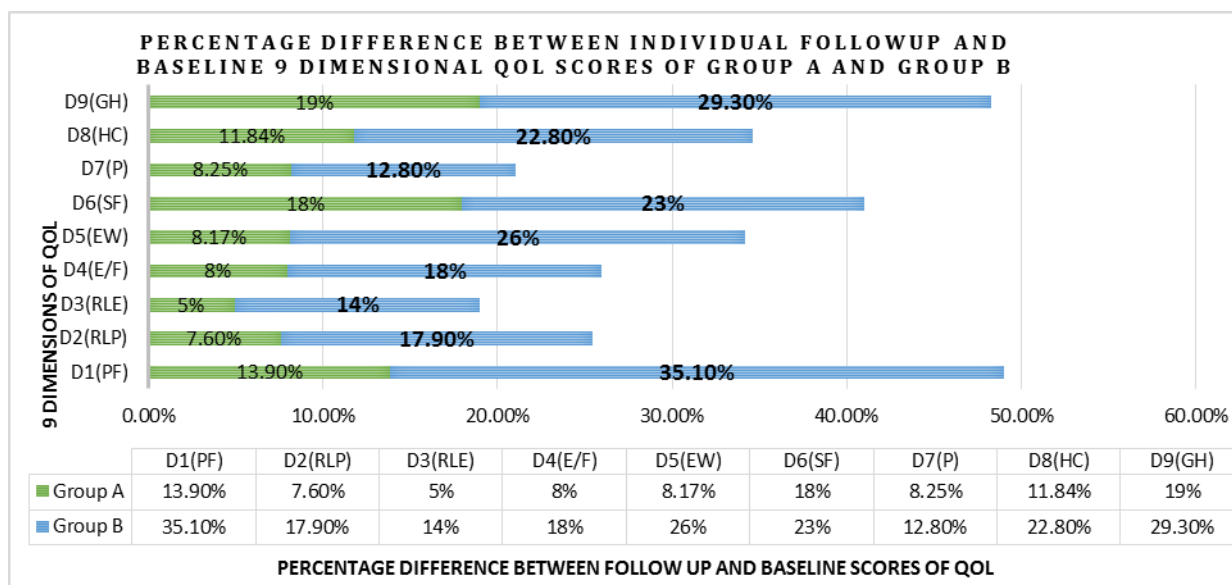
**Figure 12: Comparison of baseline and follow up QOL scores of group X, group Y and group Z patients.**

Out of all the nine dimensions in SF-36 Questionnaire in both mild- moderate group (table 6 and figure 13) and severe group (table 7 and figure 14), the highest improvement was seen among Physical functioning dimension (D1) followed by general health dimension (D9) in experimental groups i.e.; Group B and Group Z, which was calculated by the percentage difference between follow-up and baseline QoL scores of individual dimensional for each group.

**Table 6: Percentage difference between follow-up and baseline QoL scores of 9 dimensions in Groups A and B.**

	D1(PF)	D2(RLP)	D3(RLE)	D4(E/F)	D5(EW)	D6(SF)	D7(P)	D8(HC)	D9(GH)
Group A	13.9%	7.6%	5%	8%	8.17%	18%	8.25%	11.84%	19%
Group B	35.1%	17.9%	14%	18%	26%	23%	12.8%	22.8%	29.3%

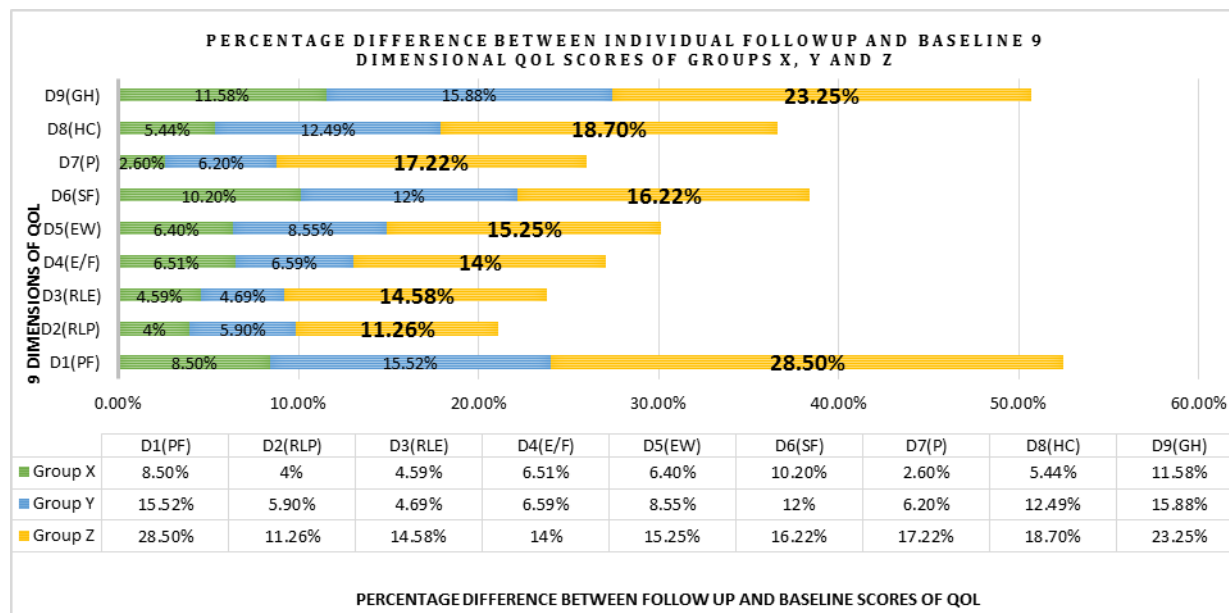




**Figure 13: Comparison of percentage difference in follow up and baseline scores of 9 dimensions in QOL of Group A and Group B patients.**

**Table 7: Table comparing improvement in QoL dimensions by percentage difference in follow up and baseline scores of Group X, Group Y and Group Z.**

	D1(PF)	D2(RLP)	D3(RLE)	D4(E/F)	D5(EW)	D6(SF)	D7(P)	D8(HC)	D9(GH)
<b>Group X</b>	8.5%	4%	4.59%	6.51%	6.4%	10.2%	2.6%	5.44%	11.58%
<b>Group Y</b>	15.52%	5.9%	4.69%	6.59%	8.55%	12%	6.2%	12.49%	15.88%
<b>Group Z</b>	28.5%	11.26%	14.58%	14%	15.25%	16.22%	17.22%	18.7%	23.25%

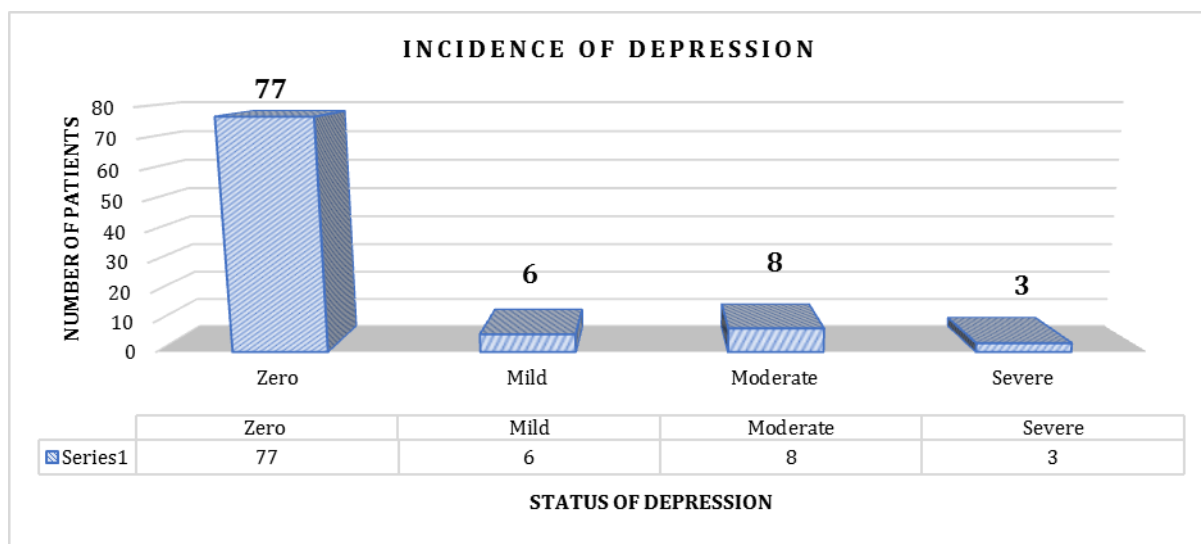


**Figure 14: Graph comparing improvement in QoL dimensions by percentage difference in follow up and baseline scores of Group X, Group Y and Group Z.**



### Incidence of Depression

ZUNG scale was assessed to check the incidence of depression in the population. 81.9% that is 77 patients has normal score representing good mental health status. Whereas, 6 patients were with mild, 8 with moderate and 3 with severe depression. These patients were then referred to psychiatry department.



**Figure 15: Graph representing incidence of depression.**

### Correlation between various aspects of study

**Table 8: Correlation between Dimensions of QOL with PASI score and Age of patients in the study.**

QOL DIMENSIONS	Correlation Coefficient (R) Of PASI Score/ QOL	Correlation Coefficient (R) Of Age/QOL
D1 (PF)	-0.8032	-0.762
D2 (RLP)	-0.7557	-0.820
D3 (RLE)	-0.4819	-0.105
D4 (E/F)	-0.1132	-0.826
D5 (EW)	-0.3986	-0.0747
D6 (SF)	-0.4004	-0.3096
D7 (P)	-0.4479	-0.6743
D8 (HC)	-0.2161	-0.6390
D9 (GH)	-0.6147	-0.6529

While correlating dimensions of QoL and PASI scores, D1 (physical functioning), D2 (role limitations due to physical health) and D9 (general health) with R value near to -1 shows negative correlation means, an increase in PASI score (disease severity) decreases the QoL. The other dimensions which fell near to 0 states that, they are independent of PASI score. Meanwhile R values of D1(physical functioning), D2 (role limitations due to physical health),

D4 (Energy/ fatigue), D7 (pain), D8 (health change) and D9 (general health) has negative correlation with Age, concluding that with aging the QoL declines. The remaining dimensions D3 (role limitation due to emotional health), D5 (emotional well-being) and D6 (social functioning) stood independent of Age (nearer to 0).

**Table 9: Correlating various parameters with PASI score.**

Correlation	Correlation Coefficient (R)
PASI / Smoking	1.033
PASI / Alcohol	0.953
PASI / ZUNG Scale (Depression)	0.0937
PASI / Age	-0.1961

PASI on correlation with smoking and alcohol has positive correlation ( $R=1$  and nearer to 1) showing an increase in severity of psoriasis in smokers and alcoholics. Age and ZUNG scale remain independent of PASI score (disease severity).

## DISCUSSION

Psoriasis ravages the quality of life (QoL) of afflicted individuals. It is a disease with profound impact on the physical, psychological and social aspect of the patient, particularly because of its visibility. Thus, assessment by a health professional of the extent of apparent disease in terms of the clinical severity alone may not suffice, and a more holistic approach to the quality of life is mandatory.<sup>[15]</sup>

A total of 94 patients with psoriasis were enrolled into our study. The male to female ratio was 5:4 which adds that there is no gender wise probability of being affected by psoriasis and the maximum number of people affected was between the range of 22-57 years when compared with *Okhandiar et.al.*<sup>[16]</sup> demonstrated that the ratio of male to female (2.46:1) varied greatly and highest incidence was noted in the age group of 20-39 years. Similar to our study, Omega-3- fatty acids show positive results in psoriatic patients by suppressing the cytokine production and in addition it lowers the LDL and VLDL levels in patients with metabolic syndrome as the main co morbidity. In a study conducted by *Soumia Peter et.al.*<sup>[17]</sup> added that Omega 3 fatty acid supplementation has been proven to have beneficial action on lipid profile, cytokine cascade, oxidant -anti-oxidant balance, parasympathetic and sympathetic tone, and vasodilator Prostaglandin I<sub>2</sub> and Nitric Oxide synthesis, a dietary approach to increasing Omega 3 fatty acid intake is preferable. The QOL was also assessed with SF-36 questionnaire, has shown that psoriasis has negative impact on the QOL. This is

similar to the study conducted by *SV Rakesh et.al*<sup>[15]</sup> it provides that there is compelling evidence that psoriasis affects the quality of life.

*Ajith Vettuparambil et. al*<sup>[18]</sup> concluded that study does not provide evidence that impairment of QoL is related to severity of psoriasis. In contrast, this QOL impairment was found to be associated with the disease severity (PASI scale) in our study. Likewise, patients with severe psoriasis had higher impairment in QOL in almost all the areas of physical, mental and social well-being when compared with mild-moderate group in contrast. *K. E. Mc Kenna et.al*<sup>[19]</sup> concluded that psoriasis has a substantial impact on the quality of life. This impact seems to decrease with increasing age which supports the statement of Age having negative correlation with QoL in our study.

## CONCLUSION

Psoriasis is a chronic, non-communicable, painful, disfiguring and disabling disease for which there is no cure and has a great negative impact on patient's quality of life (QOL). The health care practitioners must be familiar with triggers, preventive strategies and diagnosis of psoriasis to minimize its severity. In order to manage and prevent the disease condition, the healthcare practitioners and dermatologists should not just diagnose and treat the signs and symptoms but, should also screen patients to detect the existence of comorbid conditions which are the main underlying factors causing psoriasis. A combination of topical agents with omega -3- fatty acids (HHOMEGA, 90 mg of EPA and 60mg of DHA) and Methotrexate with Phototherapy showed better improvement in patients with mild-moderate and severe psoriasis when compared with individual treatments. There is also a decline in the QOL of psoriasis patients which showed improvement with patient counselling on follow-ups. This highlights the pivotal role of patient counselling especially in chronic conditions. This study also showcases the importance of clinical pharmacist in health care scenario by their role in patient counselling and also in the withdrawal of drugs triggering psoriasis. Therefore, we can say that omega-3 fatty acids show promising benefits in the treatment of psoriasis.

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## CONFLICTS OF INTEREST

No conflicts of interest have been declared.

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