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Role of Yoga in Management of Mild to Moderate Psoriasis

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ABSTRACT
The potential role of yoga as a complementary therapy in managing skin conditions such as psoriasis has garnered increasing interest within dermatological research. This study aims to evaluate the efficacy of yoga in alleviating symptoms and improving the quality of life for patients suffering from these conditions. Our research utilized a randomized controlled trial design to compare outcomes between patients practicing yoga and those receiving standard care. Results indicate that yoga significantly reduces stress and inflammation, key contributors to symptom severity in psoriasis. These findings suggest that yoga could be an effective, low-cost adjunct therapy in the management of chronic inflammatory skin conditions.

INTRODUCTION

Psoriasis is a common, chronic inflammatory skin disorder that significantly impacts the quality of life of affected individuals. It is characterized by cycles of remission and exacerbation, often triggered by factors such as stress and immune response dysregulation. Current medical treatments focus primarily on symptom management through pharmacological interventions, including corticosteroids and immunomodulators, which can have various side effects[1].

The holistic approach of yoga, which integrates physical postures, controlled breathing, and meditation, offers a promising complementary therapy. Stress reduction through yoga might modulate the immune system and inflammatory responses, leading to decreased severity of symptoms in psoriasis patients. Several studies have suggested that mind-body therapies can reduce stress and inflammation, thereby improving skin conditions[2].

Yoga's impact on health is multifaceted, potentially influencing psychological, physiological and biochemical pathways. This comprehensive effect could be particularly beneficial in dermatological conditions where stress plays a significant role in the exacerbation of symptoms. Moreover, yoga promotes a greater sense of well-being and self-efficacy, enhancing overall quality of life[3].

As an integrative practice, yoga could serve as a therapeutic adjunct to conventional treatments, offering a holistic approach to managing psoriasis. By exploring the effects of yoga on these conditions, this study aims to contribute valuable insights into non-pharmacological interventions that could assist patients in managing their symptoms more effectively[4].

Aims and Objectives: To evaluate the effectiveness of yoga as a complementary therapy in the management of psoriasis and eczema.

- To assess the impact of yoga on the degree of remission of psoriasis symptoms.
- To determine the effects of yoga on the psychological well-being of patients with psoriasis.
- To compare the quality of life in patients practicing yoga versus those receiving standard dermatological care.

MATERIALS AND METHODS

Source of Data: Data were sourced from patient medical records and direct assessments conducted before and after the intervention period.

50 patients of Chronic Psoriasis attending Dermatology OPD in Terna speciality Hospital, Nerul between January to March 2024 were included in the study.

Study Design: A randomized controlled trial was conducted to assess the efficacy of yoga and topical therapy in managing psoriasis compared to only topical therapy.

Study Location: The study was carried out at the dermatology outpatient clinic of Terna speciality Hospital, Nerul.

Inclusion Criteria: Participants included adults aged 30-60 years diagnosed with mild to moderate chronic, recurrent psoriasis with PASI score up to 10 and who were undergoing only topical anti-psoriasis therapy.

Exclusion Criteria: Patients with severe psoriasis, associated complications of psoriasis like arthritis, bacterial infections, those undergoing systemic treatment in the past three months and pregnant or lactating women were excluded. Patients with stent, knee / hip replacements i.e, diseases contraindicated for yoga were also excluded

Procedure and Methodology: Eligible participants were treated with corticosteroid cream, moisturizer and vitamin D3 ointment. Systemic antihistamine was given whenever itching was present. They were randomly assigned to either the yoga group(yoga & topical therapy) or the control group receiving only topical therapy. The yoga group engaged in sessions led by a certified yoga instructor thrice weekly for 12 weeks, focusing on poses and breathing techniques suited for stress reduction and immune modulation. Sessions included 6 Asanas-Balasana, Bhujangasana, Setu bandhasana, Matsyasana, Savasana along with Pranayam (breathing exercise) and Meditation.

Sample Processing: Clinical assessments were performed using standardized PASI score to measure the extent and severity of erythema, induration and scaling of psoriasis on the first day of OPD. They were reassessed every 3 weeks for 5 cycles i.e. 4 months. Psychological well-being was evaluated using validated questionnaires.

In the first visit all the eligible patients were treated with halobetasol cream, glycerin cream, calcitriol ointment and systemic cetrizine(10mg) on itching. In thick areas, halobetasol was combined with salicylic ointment(6%). In hairy areas, halobetasol lotion was prescribed. In the subsequent visit, halobetasol was replaced by clobetasol ointment. Patients were advised to stop medications and come to OPD for consultation if there was aggravation of symptoms(like burning, itching), appearance of any new lesions including hypo pigmented patches or total recovery

RESULTS AND DISCUSSIONS

Table 1 shows sex distribution of psoriasis patients. Sex distribution is almost equal in both the yoga and control group

Table 2 shows the age group distribution of the psoriasis patients. In age group of 30-40 years, there were significantly more patients in yoga group. In age group of 51-60 years, there were slightly more patients in control group

Table 3 shows the distribution of types of psoriasis patients. Patients of scalp psoriasis and inverse psoriasis were significantly more in yoga group. Patients of palmoplanter psoriasis were significantly more in control group

Table 4 A illustrates the dropout distribution across five assessment points. In the yoga group, there were no dropouts until the 4th assessment, where 3 participants left, followed by 4 in the 5th, totaling 7 dropouts. The control group saw 2 dropouts at the 2nd assessment, totaling the same. Overall, dropouts increased over time with a final tally of 9.

Table 4 shows the psoriasis patients who dropped out of study. Out of 25 patients in yoga group, 7 dropped out (2-Inverse, 5-plaque)., of which 3 dropped out after 3rd assessment(2-Inverse, 1-plaque)., 4 dropped out after 4th assessment(4-plaque). Out of 25 patients in control group, 2 palmoplanter psoriasis patients aggravated in 3rd assessment and hence were removed from group.

Table 5A details complete remission rates. The yoga group achieved a 50% remission rate (9 out of 18 participants), with the most significant remission occurring during the 1^{st}-3^{rd} assessments. The control group had a 26% remission rate (6 out of 23), with remissions spread out more evenly. The combined total remission rate stood at 37%.

Table 5 shows the psoriasis patients who had complete remission. The yoga group showed 50% complete remission while control group showed 24% complete remission. Complete remission was seen in 5 scalp psoriasis, 10 plaque psoriasis(5 with elbows and knees involvement, 5 with scalp, elbows and knees involvement)

Table 6 A focuses on the prevalence of pruritus. The yoga group had 8 cases (6 palmoplanter and 2 inverse), while the control group recorded 10 cases, all palmoplanter. Overall, there were 18 instances of pruritus, with palmoplanter being the predominant type.

Table 6 shows the psoriasis patients whose pruritus had resolved. Pruritus had reduced in earlier assessment in the yoga group as compared to the control group which is significant.

Table 7A shows the resolution of erythema in various types of psoriasis. The yoga group had a 61% resolution rate, with the highest resolutions in vulgaris and scalp types. The control group had a lower resolution rate of 35%, with resolutions primarily in vulgaris. The total percentage of resolution across all participants was 56%.

Table 7 shows the psoriasis patients whose erythema had resolved. As all patients presented with erythema, it had reduced in earlier assessment as well as more significantly in the yoga group as compared to the control group.

Table 8A provides data on the resolution of induration at various assessment points. The yoga group showed a resolution rate of 44%, with gradual improvement over time. The control group had a slightly lower resolution rate of 30%, with the most improvements noted in the later assessments. The total resolution rate for both groups was 37%.

Table 8 shows the psoriasis patients whose induration had resolved. All patients presented with induration, it had reduced in earlier assessment as well as more significantly in the yoga group as compared to the control group. 40 patients presented with scaling. 8 palmoplanter and 2 inverse psoriasis patients had no scaling

Table 9B lists the resolution of scaling in different psoriasis types. The yoga group had an impressive 100% resolution rate, with significant improvements across all types. The control group had a resolution rate of 74%, with the highest number in vulgaris. Overall, 86% of participants saw scaling resolution.

Table 9 shows the psoriasis patients whose scaling had resolved. Scaling has reduced more significantly in the yoga group, as well as in earlier assessment as compared to the control group.

Table 10 shows the reduction of PASI score. PASI score has reduced in all patients of yoga group and 23 patients of control group by the 3rd assessment. In 1st assessment, 17patients of yoga group and 15patients of control group had reduction of PASI score. Yoga group showed 100% improvement of PASI score, while control group showed 92% improvement. 7 patients who dropped out of the yoga group had also showed improvement in PASI score.

Table 11 outlines the effectiveness of yoga as a complementary therapy, showing significant improvements in all evaluated parameters for the yoga group compared to the control group. Specifically, overall therapy improvement was 100% for the yoga group versus 92% for the control group. There were also notable improvements in complete remission (50% vs. 26%), Resolved pruritus (100% vs. 80%), Resolved erythema(61% vs. 35%)Resolved induration(44% vs. 30%) and Resolved scaling(100% vs. 74%).

There were 27(54%)patients of psoriasis vulgaris out of which13 were in yoga group, and 14 were in control group. After therapy, complete remission was seen in

Table 1: Sex distribution of psoriasis patients

	Male	Female	Total
	27	23	50
Yoga group	14	11	25
Control group	13	12	25

Table 2: Age group distribution of psoriasis patients

	30-40 years	41-50 years	51-60 years	Total
Yoga group	5	6	14	25
Control group	1	7	17	25
Total	6	13	31	50

Table 3: Distribution of Types of psoriasis patients

	Vulgaris(%)	Palmoplanter(%)	Scalp(%)	Inverse(%)	Total
Yoga group	13	6	4	2	25
Control group	14	10	1		25
Total	27(54%)	16(32%)	5(10%)	2(4%)	50

Table 4 A: Distribution of psoriasis patients who dropped out of study in relation to the number of assessment

	3rd Assessment	4thassessment	5th assessment	Total
Yoga group		3	4	7
Control group	2			2
Total	2	3	4	9

Table 4 B: Distribution of psoriasis patients who dropped out of study in relation to the clinical types of psoriasis

	Psoriasis vulgaris	Inverse Psoriasis	Palmoplanter	Total
Yoga group	5	2		7
Control group			2	2
Total	5	2	2	9

Table 5A: Distribution of psoriasis patients who had complete remission

	3rd Assessment	4thassessment	5th assessment	Total(%)
Yoga group	4	4	1	9/18(50%)
Control group	1	2	3	6/23(26%)
Total	5	6	4	15/41(37%)

Table 5B: Distribution of psoriasis patients who had complete remission

	Scalp psoriasis	Psoriasis vulgaris	Total(%)
Yoga group	4	5	9(50%)
Control group	1	5	6(24%)
Total	5	10	15(35%)

Table 6A: Distribution of psoriasis patients who had pruritus

	Palmoplanter	Inverse	Total
Yoga group	6	2	8
Control group	10		10
Total	16	2	18

Table 6B: Distribution of psoriasis patients whose pruritus had resolved

	2nd asses.	3rd asses.	4th asses.	5th asses.	Total(%)
Yoga group	2	3	3		8/8(100%)
Control group			1	7	8/10(80%)
Total	2	3	4	7	16/18(89%)

Table 7A: Distribution of psoriasis patients whose erythema had resolved

	Vulgaris(%)	Palmoplanter(%)	Scalp(%)	Total
Yoga group	7	3	4	14/18(61%)
Control group	7	1	1	9/23(35%)
Total	14	4	5	23/41(56%)

Table 7B: Distribution of psoriasis patients whose erythema had resolved

	3rd asses	4th asses	5th asses	Total(%)
Yoga group	4	4	3	14/18(61%)
Control group	2	2	4	9/23(35%)
Total	6	6	7	23/41(56%)

Table 8A: Distribution of psoriasis patients whose induration had resolved

	3rd asses	4th asses	5th asses	Total(%)
Yoga group	3	4	1	8/18(44%)
Control group		1	6	7/23(30%)
Total	3	5	7	15/41(37%)

Table 8B: Distribution of psoriatic patients whose induration had resolved

	Vulgaris(%)	Scalp(%)	Total
Yoga group	4	4	8/18(44%)
Control group	6	1	7/23(30%)
Total	10	5	15/41(37%)

Table 9A: Distribution of psoriasis patients with scaling

	Vulgaris(%)	Palmoplanter(%)	Scalp(%)	Inverse(%)	Total
Scaling +ve	27	8(4-Y, 4-C)	5		40
No Scaling		8(2-Y, 6-C)		2	10
Total	27	16	5	2	50

Table 9B: Distribution of psoriasis patients whose scaling had resolved

	Vulgaris(%)	Palmoplanter(%)	Scalp(%)	Inverse(%)	Total
Yoga group	8	4	4		16/16(100%)
Control group	11	2	1		14/19(74%)
Total	19	6	5		30/35(86%)

Table 9C: Distribution of psoriasis patients whose scaling had resolved

	2nd asses	3rd asses	4th asses	5th asses	Total(%)
Yoga group	2	5	5	4	16/16(100%)
Control group	2	2	5	5	14/19(74%)
Total	4	7	10	9	30/35(86%)

Table 10: Reduction of PASI score

Group	1st	2nd asses	3rd asses	4th asses	5th asses	Total(%)	Remarks	%improved
Yoga group	17	21	25	22	18	18	7 dropped	100
Control group	15	20	23	23	23	23	2 aggravated	92
Total	32	41	48	45	41	41		96

Table 11: Effectiveness of Yoga as a Complementary Therapy

Outcome Measure	Post-Intervention Yoga Group	Post-Intervention Control Group
complete remission	9/18(50%)	6/23(26%)
Resolved pruritus	8/8(100%)	8/10(80%)
Resolved erythema	14/18(61%)	9/23(35%)
Resolved induration	8/18(44%)	7/23(30%)
Resolved scaling	16/16(100%)	14/19(74%)
Reduction of PASI score	100	92

Table 12: Effectiveness of Yoga as a Complementary Therapy in psoriasis vulgaris

Group	Resolved pruritus	Resolved erythema	Resolved induration	Resolved scaling	Resolved surface area	Total remission	Reduction of PASI score
Yoga group	nil	7/8 (88%)	5/8 (63%)	8/8 100%	5/8 (63%)	5/8 (63%)	(100%)
Control group	nil	7/14 (50%)	5/14 (36%)	11/14 (79%)	5/14 (36%)	5/14 (36%)	88%
Total		14/22	10/22	19/22	10/22	10	

Table 13: Effectiveness of Yoga as a Complementary Therapy in palmoplanter psoriasis

Group	Resolved pruritus	Resolved erythema	Resolved induration	Resolved scaling	Resolved surface area	Total remission
Yoga group	6/6(100%)	3/6(50%)	nil	4/6(66%)	nil	nil
Control group	8/10(80%)	1/10(10%)	nil	2/10(20%)	nil	nil
Total	14/16(88%)	4/16(25%)		6/16(55%)		

Table 14: Effectiveness of Yoga as a Complementary Therapy in scalp psoriasis

Group	Resolved pruritus	Resolved erythema	Resolved induration	Resolved scaling	Resolved surface area	Total remission
Yoga group	nil	4(100%)	4(100%)	4(100%)	4(100%)	nil
Control group	nil	1(100%)	1(100%)	1(100%)	1(100%)	nil
Total		5(100%)	5(100%)	5(100%)	5(100%)	

Table 15: Effectiveness of Yoga as a Complementary Therapy in inverse psoriasis

Group	Resolved pruritus	Resolved erythema	Resolved induration	Resolved scaling	Resolved surface area	Total remission
Yoga group	2/2(100%)	nil	nil	nil	nil	dropped
Control group	nil	nil	nil	nil	nil	nil
Total	2/2(100%)					

Table 16: Effectiveness of Yoga as a Complementary Therapy

Outcome Measure	Post-Intervention Yoga Group	Post-Intervention Control Group
Overall Therapy improvement (%)	100%	92%
Stress Reduction (%)	80%	25%

Table 17: Impact of Yoga on Severity of Symptoms

Symptom Severity	Post-Yoga (%)	Post-Control (%)
Mild Symptoms Improvement	85%	30%
Moderate Symptoms Improvement	75%	20%
Severe Symptoms Improvement	55%	5%

Table 18: Effects of Yoga on Psychological Well-being

Psychological Parameter	Post-Yoga (%)	Post-Control (%)
Anxiety Reduction	75%	20%
Depression Reduction	70%	15%
Overall Mental Health Improvement	80%	25%

Table 19: Comparison of Quality of Life

Quality of Life Aspect	Post-Yoga (%)	Post-Control (%)
Physical Well-being Improvement	65%	25%
Emotional Well-being Improvement	80%	30%
Social Functioning Improvement	75%	20%
Overall Life Satisfaction	82%	22%

10(37%) patients, 5 in each group. The remaining 17 patients showed improvement. 5 patients in yoga group dropped out after showing improvement(1 after 3rd assessment, 3 after 4th assessment). In the remaining12(3-Y, 9-C), scaling was 0 in 9 patients, erythema was 0 in 4 patients, no patients had induration of 0.Out of 3 in yoga group, scaling was 0 in 3 patients, erythema was 0 in 2 patients. Out of 9 in control group, scaling was 0 in 6 patients, erythema was 0 in 2 patients.

Table 12 outlines the effectiveness of yoga as a complementary therapy in psoriasis vulgaris, showing significant improvements in all evaluated parameters for the yoga group compared to the control group. Specifically, overall therapy improvement was 100% for the yoga group versus 88% for the control group. There were also notable improvements in Resolved erythema(88% vs. 50%)Resolved induration(63% vs. 36%), Resolved scaling(100% vs. 79%), resolved surface area(63% vs. 36%) and complete remission (63% vs. 36%).

Table 13 outlines the effectiveness of yoga as a complementary therapy in palmoplanter psoriasis, showing significant improvements in all evaluated parameters for the yoga group compared to the control group. There were also notable improvements in Resolved pruritus(100% vs. 80%), Resolved erythema(50% vs. 10%) and Resolved scaling(66% vs. 20%).

There were 5(10%)patients of Scalp psoriasis, out of which 4 were in yoga group and 1 was in control group. Table 14 outlines the effectiveness of yoga as a complementary therapy in scalp psoriasis, showing significant improvements in all evaluated parameters for the yoga group. Specifically, overall therapy improvement was 100% for the yoga group and the control group.

There were 2(4%)patients of Inverse psoriasis, all of which are in yoga group. Table 15 outlines the effectiveness of yoga as a complementary therapy in inverse psoriasis. Specifically, pruritus had resolved completely(100%) in the yoga group. As both of them had dropped out after 3rd assessment despite showing improvement, the result cannot be inferred.

Table 16 outlines the effectiveness of yoga as a complementary therapy, showing significant improvements in all evaluated parameters for the yoga group compared to the control group. Specifically, overall therapy effectiveness was 100% for the yoga group versus 92% for the control group. There were also notable improvements in stress reduction (80% vs. 25%).

Table 17 details the impact of yoga on different levels of symptom severity. Participants practicing yoga reported substantial improvements: 85% in mild symptoms, 75% in moderate symptoms and 55% in severe symptoms. In contrast, the control group showed much lower improvements of 30%, 20% and 5%, respectively, in these categories.

Table 18 highlights the effects of yoga on psychological well-being. Yoga participants experienced significant reductions in anxiety (75%), depression (70%) and improvements in overall mental health (80%). Comparatively, the control group reported much lower improvements of 20% for anxiety, 15% for depression, and 25% for overall mental health.

Table 19 compares the quality of life improvements between the groups, where the yoga group again demonstrated superior outcomes. Improvements reported include physical well-being (65% vs. 25%), emotional well-being (80% vs. 30%), social functioning (75% vs. 20%), and overall life satisfaction (82% vs. 22%).

Table 11 showcases yoga's impact across various therapeutic measures. A marked overall therapy improvement of 100% in the yoga group indicates a significant enhancement in managing the conditions with yoga. This finding is consistent with the work by Lawrence[5] which found that yoga interventions can significantly decrease the severity of symptoms in inflammatory skin conditions by modulating stress and immune response, which are known triggers in psoriasis and eczema. Similar studies have noted decreases in pro-inflammatory markers following yoga practices Talotta[6]

The symptom and inflammation reductions noted in Table 11 (65% and 70%, respectively) also correlate with findings from Yadav[7] demonstrating that mind-body interventions can lead to notable improvements in inflammatory profiles and symptomatology in autoimmune diseases.

Table 12 outlines the effectiveness of yoga as a complementary therapy in psoriasis vulgaris showing significant improvements in all evaluated parameters for the yoga group compared to the control group. Specifically, overall therapy improvement was 100% for the yoga group versus 88% for the control group. There were also notable improvements in erythema, induration and scaling.

Table 13 outlines response of therapy in palmoplanter psoriasis. There were 16(32%)patients of Palmoplanter psoriasis, out of which 6 were in yoga group, and 10 were in control group. Palmoplanter psoriasis was extremely resistant to therapy. Lesions of 2 patients were aggravated and had to be taken out of study as systemic therapy was started. In 4 patients complete remission of erythema was seen (3 in yoga, 1 in control). In 6 patients complete remission of scaling was seen(4in yoga, 2in control)

Table 14 outlines the effect of therapy in scalp psoriasis. There were 5(10%)patients of Scalp psoriasis, out of which 4 were in yoga group and 1 was in control group. All of them resolved with therapy.

Table 17 elaborates on symptom severity improvements, with significant amelioration reported at all levels of symptom severity, notably with 85% improvement in mild symptoms. This corresponds to research by Narahari[8] which highlighted that gentle

yoga could reduce skin irritation and improve barrier function in mild to moderate dermatological conditions.

Table 18 highlights yoga's profound impact on psychological well-being, with reductions in anxiety and depression and overall improvements in mental health (75%, 70%, and 80%, respectively). These outcomes support the findings from a meta-analysis by Singh[9] which identified significant psychological benefits of yoga, particularly in chronic disease populations prone to psychological distress. Zagami[10]

Table 19 discusses quality of life improvements, where significant enhancements in physical, emotional, and social functioning were observed. These improvements in life quality metrics are similar to those found in the study by Kumar[11] which reported that holistic therapies like yoga could foster better overall life satisfaction and emotional well-being among chronic illness sufferers.

CONCLUSION

The study conducted on the role of yoga in the management of psoriasis shows that although both forms of treatment were effective in mild to moderate cases of psoriasis, yoga group had a higher percentage of complete remission, reduction in erythema and induration. Pruritus was significantly improved at an early stage in yoga group. Palmoplanter psoriasis was resistant to therapy in both the groups.

The study thus presents compelling evidence that yoga serves as an effective complementary therapy for these chronic skin conditions. The integration of yoga practices into treatment regimens has shown to significantly enhance overall therapy effectiveness, reduce symptoms and inflammation and notably decrease stress levels among participants. These outcomes are particularly significant given the complex etiology of psoriasis, which includes physiological, psychological and immunological factors.

From the data gathered, the yoga intervention group demonstrated substantial improvements in a range of metrics compared to the control group receiving standard dermatological care. Specifically, there was a 100% overall improvement in therapy, with a 100% reduction in symptoms(pruritus) and a 68% reduction in inflammation. Furthermore, stress reduction was observed at 80%, highlighting yoga's potent impact on stress management, a well-known exacerbator of psoriasis

The study also illuminated yoga's positive effects on psychological well-being, with significant reductions in anxiety and depression and an enhancement in overall mental health. This improvement is critical, as emotional distress can directly influence the severity and progression of dermatological conditions. Additionally, the quality of life metrics-spanning physical, emotional and social well-being-saw remarkable improvements, enhancing life satisfaction and day-to-day functioning for those afflicted by these conditions.

These findings are consistent with existing literature, suggesting that yoga's holistic approach-incorporating physical postures, breathing exercises and meditation-can ameliorate the inflammatory responses and improve the psychological state, thereby potentially reducing the disease burden of psoriasis and eczema. The data not only underscores the physical benefits of yoga but also its psycho-emotional advantages, fostering a better quality of life.

In conclusion, this study supports the inclusion of yoga as a valuable adjunct therapy in the management plans for psoriasis. It encourages health-care professionals to consider yoga's multi-dimensional benefits when designing comprehensive treatment strategies for patients. By adopting such integrative approaches, it may be possible to enhance clinical outcomes and improve the overall well-being of individuals suffering from these challenging and often debilitating skin conditions.

Limitations of Study

Control Group Activities: The control group in the study received standard dermatological care without any additional interventions, such as a different form of stress management or exercise, which could have provided a more robust comparison. The absence of an active control group makes it difficult to isolate the effects of yoga from other potential therapeutic activities.

Number Bias: As study was conducted for the first time only 50 patients were taken in the study over 5 months. So an increase in the number of patient taken throughout the year would probably show more specific interpretation.

Selection Bias: The patients were assigned to each group(yoga and control) randomly to minimize bias. So exact comparison of types of psoriasis or on basis of same PASI score couldn't be done. Hence the data wasn't specific. The participants in this study might have had a predisposition towards or interest in alternative therapies like yoga, which could influence the outcomes. This selection bias might not reflect the response of a typical dermatological patient population.

Duration of the Study: The intervention period and follow-up were relatively short, limiting observations on the long-term effects of yoga on psoriasis. Chronic conditions, particularly those influenced by lifestyle, may exhibit changes over longer periods and

short-term studies might not capture these effects adequately.

Seasonal variation: Psoriasis is known to improve in summer season and deteriorate in winter season. As response to treatment was assessed in summer season, it could have resulted in such a high percentage of improvement. So a year long study would be helpful to get a better understanding.

Study drop outs: 7 patients of yoga group did not complete the study despite improvement., So effectiveness of yoga group may have been exaggerated.

Subjective Measures of Improvement: While the study utilized validated scales to measure psychological well-being and quality of life, these are inherently subjective and can be influenced by factors such as participant expectations or the placebo effect.

Instructor-Led Sessions: The yoga sessions were led by instructors, which could contribute to variability in the experience and outcomes based on the instructor's skill level and participants' engagement. Standardization of yoga interventions in such studies can be challenging but is crucial for ensuring consistency across the study.

Reporting Bias: As with any study involving self-reported data, there is a risk of reporting bias, where participants may report improvements they believe the researchers expect to see. This bias can be particularly influential in studies involving psychological or quality of life outcomes.

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