Research Article

Awareness of Physiotherapy, Perceived Benefits, and Self-Reported Pain and Activity Limitation Among Dermatology Outpatients: An Exploratory Cross-Sectional Survey from a Tertiary Care Hospital in North India

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Abstract

Background: Chronic dermatological conditions are associated with pain, functional limitation, and impaired quality of life, and physiotherapy may have an adjunctive role in selected conditions. Patient awareness of physiotherapy in dermatology settings has rarely been examined in India.

Objective: To estimate awareness of physiotherapy, perceived benefits, interest in physiotherapy information, and self-reported pain and activity limitation among dermatology outpatients, and to explore associations between these variables.

Methods: An interviewer-administered exploratory cross-sectional survey was conducted in the dermatology outpatient department (OPD) of a tertiary care hospital in North India in March 2026. Trained undergraduate physiotherapy students recorded patient responses on a structured electronic questionnaire. Proportions are reported with Wilson 95% confidence intervals (CIs); associations were explored using Fisher's exact test and odds ratios (ORs). Multiple exploratory comparisons were evaluated using Holm-adjusted p-values.

Results: Of 58 participants (60.3% male; 82.8% aged 18–50 years), 41 (70.7%) reported a current skin condition; acne (34.5%) and alopecia (32.8%) were the most frequently named conditions. Only 25 (43.1%; 95% CI 31.2–55.9) had heard of physiotherapy, and 14 (24.1%) believed that physiotherapy or exercise could improve overall health. Pain was reported by 16 (27.6%) and activity limitation by 14 (24.1%); 40 (69.0%; 95% CI 56.2–79.4) wanted information on physiotherapy. Exploratory analyses suggested possible associations between prior physiotherapy awareness and perceived general health benefits, and between pain and activity limitation. However, none of the inferential comparisons remained statistically significant after Holm adjustment for multiple testing.

Conclusion: In this exploratory sample, fewer than half of dermatology outpatients had heard of physiotherapy, whereas more than two-thirds wished to receive information about it. This interest supports the development and feasibility testing of brief patient-education approaches; any need for dermatology–physiotherapy referral pathways should be established in adequately powered multicentre studies using validated instruments.

Keywords: Skin Diseases; Physical Therapy Modalities; Health Knowledge, Attitudes, Practice; Patient Education as Topic; Pain; Cross-Sectional Studies

Introduction

Skin and subcutaneous diseases are among the leading causes of non-fatal disease burden worldwide.[1] In India, these conditions accounted for 4.02% of total years lived with disability in 2017, with dermatitis, urticaria, acne, and psoriasis contributing substantially.[2] Beyond visible lesions, chronic dermatoses can impair physical, psychological, and social functioning, as captured by dermatology-specific instruments such as the Dermatology Life Quality Index.[3]

Pain, pruritus, and physical discomfort are commonly reported in psoriasis, and greater symptom severity has been associated with poorer health-related quality of life and work productivity. [4,5] Hair-loss disorders, including androgenetic alopecia and alopecia areata, are associated with considerable psychosocial burden and reduced quality of life.[6,7] Certain dermatology-related conditions also carry musculoskeletal or neuromuscular consequences. In psoriatic arthritis, exercise and physical therapy form part of non-pharmacological recommendations, although high-quality trial evidence remains limited.[8–11] In systemic sclerosis, hand exercise programmes have been evaluated with mixed results,[12] and in leprosy, self-care and exercise form part of disability-prevention strategies.[13]

Most published studies of physiotherapy awareness have surveyed health workers, doctors, or patients already receiving physiotherapy. Awareness of physiotherapy was poor among Anganwadi workers in Dakshina Kannada,[14] whereas medical residents in Navi Mumbai reported good awareness of physiotherapy but variable referral practice.[15] Among adults receiving physiotherapy for musculoskeletal disorders in Delhi NCR, 65.4% could identify the physiotherapist's role in the health sector, and approximately half believed that physiotherapists treat only musculoskeletal disorders.[16] Patients attending physiotherapy services also report seeking education and prevention in addition to pain relief and improved function.[17] These studies, however, sampled populations already in contact with physiotherapy services or health-professional training; patients attending specialties in which physiotherapy is not routinely offered, such as dermatology, have rarely been studied.

Despite this potential adjunctive role, physiotherapy does not appear to be routinely integrated into dermatology care. Patients' awareness of physiotherapy, their beliefs about its benefits, and their interest in receiving information are likely to influence acceptance of referral; however, to the author's knowledge, these have been

little described among dermatology outpatients in India. This exploratory study therefore aimed to (i) estimate awareness of physiotherapy, perceived benefits, and interest in physiotherapy information; (ii) estimate the proportions reporting pain and difficulty in daily activities; and (iii) explore associations among these variables in patients attending a dermatology OPD.

Materials And Methods

Study design and reporting

An exploratory cross-sectional, interviewer-administered survey was conducted and is reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement.[18]

Setting and period

Data were collected in the dermatology OPD of a tertiary care teaching hospital in Gurugram, Haryana, North India, during multiple OPD sessions in March 2026.

Participants and sampling

Patients attending the dermatology OPD during the data-collection period were approached using convenience sampling. Patients who were willing to participate and able to communicate in Hindi or English were included. Each participant was interviewed once. The number of patients approached and the number who declined were not recorded; therefore, a participation rate could not be calculated.

Sample size

No a priori sample-size calculation was performed. The achieved sample (N = 58) was determined by convenience recruitment during the data-collection period, and all eligible patients interviewed were included. With N = 58, a proportion of 50% is estimated with a 95% CI half-width of approximately 13 percentage points; the precision achieved for each estimate is reported.

Questionnaire

A structured, investigator-developed questionnaire was administered using Google Forms. It recorded age group (below 18, 18–30, 31–50, more than 50 years) and gender, followed by items with response options "Yes", "No", and "Maybe" on: (i) current skin disease or condition; (ii) having heard of physiotherapy; (iii) belief that physiotherapy or exercise may improve overall health in people with skin conditions or chronic diseases; (iv) belief that physiotherapy may help people with skin diseases manage pain, stiffness, or difficulty in daily activities; (v) pain or discomfort related to the condition; (vi) whether the condition affects daily activities such as walking, working, or household activities; and (vii) interest in receiving information about exercise or physiotherapy. Pain intensity was rated on an 11-point numerical rating scale (NRS; 0 = no pain, 10 = worst possible pain). An optional open-ended item recorded additional information, including the name of the skin condition. The questionnaire was not formally validated and was not pilot-tested for reliability.

Data collection procedure

Data were collected from patients attending the dermatology OPD during OPD sessions in March 2026. Trained undergraduate physiotherapy students, supervised by the author, administered the structured questionnaire face to face and recorded responses electronically using Google Forms. Questions were explained in Hindi or English according to participant preference. The original responses were exported from Google Forms to a spreadsheet and compiled for statistical analysis without alteration.

Data management

Free-text responses naming a skin condition were reviewed and categorised as acne (including comedones), alopecia, psoriasis, eczema/dermatitis/rash, vitiligo/leucoderma, non-dermatological complaint, or none named. Each participant was assigned to a single category; one participant who reported both alopecia and white patches was classified under alopecia. Conditions were self-reported and were not verified clinically or against medical records. For association analyses, "Maybe" responses were combined with "No". One participant who selected both "No" and "Maybe" for the daily-activity item was coded as "Maybe". Responses that were internally contradictory (for example, answering "No" to having a skin condition while naming one, or discordance between the categorical pain item and the NRS score) were retained as originally recorded and were not altered; these inconsistencies are reported separately.

Statistical analysis

Categorical variables were summarised using frequencies and percentages. Wilson score 95% CIs were calculated for the primary descriptive proportions.[19] NRS scores were summarised using medians and interquartile ranges (IQRs) because of their skewed distribution.

Exploratory associations between categorical variables were assessed using two-sided Fisher's exact tests. For these comparisons, responses were dichotomised as "Yes" versus "No/Maybe". Odds ratios and 95% CIs were estimated using the conditional maximum-likelihood (exact) approach. Trends in physiotherapy awareness across ordered age groups were assessed using the Cochran–Armitage trend test.[20] Differences in NRS scores were explored using the Mann–Whitney U test or Kruskal–Wallis test, as appropriate.

Given the multiple exploratory comparisons, Holm adjustment was applied across the 12 reported inferential tests (nine Fisher's exact tests, one Cochran–Armitage trend test, one Kruskal–Wallis test, and one Mann–Whitney U test) to control the family-wise error rate.[21] Both unadjusted and Holm-adjusted p-values are reported. A two-

sided adjusted p-value below 0.05 was considered statistically significant. The reported 95% CIs for odds ratios are nominal and are not adjusted for multiplicity. All association analyses were treated as exploratory and hypothesis-generating because of the small sample size and non-probability sampling.
Analyses were performed using IBM SPSS Statistics for Windows, version 23.0 (IBM Corp., Armonk, NY, USA).

Results

Participant characteristics

A total of 58 patients participated. Most were aged 18–30 years (41.4%) or 31–50 years (41.4%), and 60.3% were male (Table 1). Forty-one participants (70.7%) reported a current skin condition. Acne (34.5%) and alopecia (32.8%) were the most frequently named conditions, followed by psoriasis (8.6%) and eczema/dermatitis/rash (6.9%). Overall, 50 participants (86.2%) named a dermatological condition, including eight who had answered "No" to having a skin condition.

Table 1. Sociodemographic and clinical characteristics of participants (N = 58)

Characteristic	n (%)
Age group	
Below 18 years	1 (1.7)
18–30 years	24 (41.4)
31–50 years	24 (41.4)
More than 50 years	9 (15.5)
Gender	
Male	35 (60.3)
Female	23 (39.7)
Self-reported current skin condition	
Yes	41 (70.7)
No	15 (25.9)
Maybe	2 (3.4)
Condition named (self-reported)	
Acne (including comedones)	20 (34.5)
Alopecia	19 (32.8)
Psoriasis	5 (8.6)
Eczema/dermatitis/rash	4 (6.9)
Vitiligo/leucoderma	2 (3.4)
Non-dermatological complaint	1 (1.7)
None named	7 (12.1)

Conditions were self-reported by participants and were not clinically confirmed.

Awareness, perceived benefits, and interest in information

Twenty-five participants (43.1%; 95% CI 31.2–55.9) had heard of physiotherapy, whereas 32 (55.2%) had not (Table 2). Only 14 (24.1%) believed that physiotherapy or exercise could improve overall health in people with skin or chronic conditions, with 39.7% uncertain. A higher proportion, 22 (37.9%), believed that physiotherapy could help people with skin diseases manage pain, stiffness, or difficulty in daily activities. Forty participants (69.0%; 95% CI 56.2–79.4) wished to receive information about exercise or physiotherapy, including 23 of the 32 (71.9%) who had not heard of physiotherapy.

Table 2. Awareness of physiotherapy, perceived benefits, and interest in information (N = 58)

Item	Yes n (%)	No n (%)	Maybe n (%)	Yes: 95% CI*
Have you heard about physiotherapy?	25 (43.1)	32 (55.2)	1 (1.7)	31.2–55.9
Physiotherapy/exercise may improve overall health in people with skin or chronic conditions	14 (24.1)	21 (36.2)	23 (39.7)	15.0–36.5
Physiotherapy may help people with skin diseases manage pain, stiffness, or daily-activity difficulty	22 (37.9)	18 (31.0)	18 (31.0)	26.6–50.8
Would like information on exercise/physiotherapy	40 (69.0)	13 (22.4)	5 (8.6)	56.2–79.4

*Wilson score 95% confidence interval for the proportion answering "Yes".

Pain and activity limitation

Pain or discomfort related to the condition was reported by 16 participants (27.6%; 95% CI 17.8–40.2), and 14 (24.1%; 95% CI 15.0–36.5) reported that their condition affected daily activities (Table 3). On the NRS, the median score was 2 (IQR 1.5–4), and most scores were in the mild range. One participant reported severe pain (NRS 10).

Table 3. Pain and activity limitation (N = 58)

Variable	n (%)
Pain or discomfort related to condition	
Yes	16 (27.6) [95% CI 17.8–40.2]
No	40 (69.0)
Maybe	2 (3.4)
Condition affects daily activities	
Yes	14 (24.1) [95% CI 15.0–36.5]
No	41 (70.7)
Maybe	3 (5.2)
Pain intensity, NRS 0–10	
0 (none)	39 (67.2)
1–3 (mild)	13 (22.4)
4–6 (moderate)	5 (8.6)
7–10 (severe)	1 (1.7)
Median (IQR), all participants	0 (0–1)
Median (IQR), participants with NRS > 0 (n = 19)	2 (1.5–4)
Mean ± SD, participants with NRS > 0 (n = 19)	2.95 ± 2.17

CI: confidence interval; IQR: interquartile range; NRS: numerical rating scale; SD: standard deviation.

Table 4 presents these outcomes by self-reported condition category. Activity limitation was reported by four of five participants with psoriasis and two of four with eczema/dermatitis/rash, compared with 2 of 20 (10.0%) with acne; these subgroups were very small and the proportions should not be generalised. Pain scores did not differ significantly among the three largest categories, acne, alopecia, and psoriasis (Kruskal–Wallis H = 3.50; unadjusted p = 0.174; Holm-adjusted p = 1.000).

Table 4. Pain and activity limitation by self-reported condition category (N = 58)

Condition category	n	Pain: yes n (%)	Daily activities affected: yes n (%)	NRS > 0 n (%)	NRS median (IQR)
Acne (including comedones)	20	6 (30.0)	2 (10.0)	10 (50.0)	0.5 (0–2.25)
Alopecia	19	4 (21.1)	4 (21.1)	4 (21.1)	0 (0–0)
Psoriasis	5	2 (40.0)	4 (80.0)	2 (40.0)	0 (0–2)
Eczema/dermatitis/rash	4	2 (50.0)	2 (50.0)	3 (75.0)	1.5 (0.75–2.75)
Vitiligo/leucoderma	2	0 (0.0)	0 (0.0)	0 (0.0)	0 (0–0)
Non-dermatological complaint	1	1 (100.0)	1 (100.0)	0 (0.0)	0
None named	7	1 (14.3)	1 (14.3)	0 (0.0)	0 (0–0)
Total	**58**	**16 (27.6)**	**14 (24.1)**	**19 (32.8)**	**0 (0–1)**

Conditions were self-reported and not clinically confirmed. Several categories contain five or fewer participants; percentages for these categories are imprecise and are shown for descriptive purposes only. IQR: interquartile range; NRS: numerical rating scale (0–10).

Exploratory associations

The proportion who had heard of physiotherapy appeared lower in older age groups: 56.0% (14/25) among those aged 30 years or younger, 41.7% (10/24) among those aged 31–50 years, and 11.1% (1/9) among those older than 50 years (Cochran–Armitage trend test, $z = -2.27$; unadjusted $p = 0.023$; Holm-adjusted $p = 0.253$). Awareness did not differ significantly by sex or by whether a dermatological condition was named (Table 5).

A higher proportion of participants who had heard of physiotherapy believed that it could improve overall health (40.0% vs 12.1%; OR 4.69; 95% CI 1.12–24.10; unadjusted $p = 0.028$; Holm-adjusted $p = 0.279$). A similar pattern was observed for belief in its benefit for pain, stiffness, and daily-activity difficulty (52.0% vs 27.3%; unadjusted $p = 0.063$; Holm-adjusted $p = 0.570$). Interest in receiving information did not differ by prior awareness (unadjusted $p = 0.571$) or by pain status (unadjusted $p = 0.219$).

Table 5. Exploratory associations (Fisher's exact test; N = 58)

Exposure → outcome	Exposed n/N (%)	Unexposed n/N (%)	OR (95% CI)§	Unadjusted p	Holm-adjusted p†
Age ≤ 30 vs > 30 years → heard of physiotherapy	14/25 (56.0)	11/33 (33.3)	2.50 (0.77–8.51)	0.111	0.889
Male vs female → heard of physiotherapy	16/35 (45.7)	9/23 (39.1)	1.30 (0.40–4.41)	0.787	1.000
Named dermatological condition vs none → heard of physiotherapy	22/50 (44.0)	3/8 (37.5)	1.30 (0.22–9.32)	1.000	1.000
Heard of physiotherapy → believes it improves overall health	10/25 (40.0)	4/33 (12.1)	4.69 (1.12–24.10)	0.028	0.279
Heard of physiotherapy → believes it helps pain/stiffness/ADL	13/25 (52.0)	9/33 (27.3)	2.83 (0.85–10.00)	0.063	0.570
Heard of physiotherapy → wants information	16/25 (64.0)	24/33 (72.7)	0.67 (0.19–2.38)	0.571	1.000

Exposure → outcome	Exposed n/N (%)	Unexposed n/N (%)	OR (95% CI)§	Unadjusted p	Holm-adjusted p†
Pain → daily activities affected	8/16 (50.0)	6/42 (14.3)	5.77 (1.34–27.04)	0.013	0.155
Pain → wants information	9/16 (56.3)	31/42 (73.8)	0.46 (0.12–1.84)	0.219	1.000
Daily activities affected → believes physiotherapy helps pain/stiffness/ADL	8/14 (57.1)	14/44 (31.8)	2.80 (0.70–11.92)	0.118	0.889

Half of the participants reporting pain also reported activity limitation, compared with 14.3% of those without pain (OR 5.77; 95% CI 1.34–27.04; unadjusted p = 0.013; Holm-adjusted p = 0.155). NRS scores did not differ significantly between participants with and without activity limitation (Mann–Whitney U = 323; unadjusted p = 0.402; Holm-adjusted p = 1.000). None of the 12 inferential comparisons remained statistically significant after Holm adjustment.

All comparisons were exploratory. Each variable was dichotomised as "Yes" versus "No/Maybe". §Conditional maximum-likelihood odds ratio with exact 95% confidence interval; confidence intervals are nominal and not multiplicity-adjusted. †Holm-adjusted p-values were calculated across the 12 inferential tests reported in the study (the nine tests above, the Cochran–Armitage trend test, the Kruskal–Wallis test, and the Mann–Whitney U test). None of the associations remained statistically significant after multiplicity correction. ADL: activities of daily living; CI: confidence interval; OR: odds ratio.

Response consistency

Inconsistencies were observed between related questionnaire items. Eight participants who answered "No" to having a dermatological condition nevertheless named a skin-related condition, five of whom named alopecia. Thirteen participants gave definite discordant responses between the categorical pain item and the NRS score: six answered "Yes" to pain but recorded an NRS score of 0, and seven answered "No" but recorded an NRS score above 0. In addition, both participants who answered "Maybe" recorded an NRS score above 0. The original responses were retained for primary analysis, and these inconsistencies were considered when interpreting the findings (Supplementary Table S1).

Discussion

This exploratory survey found that fewer than half of dermatology outpatients had heard of physiotherapy and only about one-quarter believed it could improve overall health, whereas more than two-thirds wished to receive information about it. Approximately one-quarter reported pain and a similar proportion reported activity limitation. To the author's knowledge, this is among the few reports from India to describe physiotherapy awareness and perceptions specifically among dermatology outpatients.

The awareness level observed here (43.1%) cannot be compared directly with earlier Indian studies, which surveyed health workers, medical residents, or patients already receiving physiotherapy and used different definitions of awareness;[14–16] nevertheless, the findings are consistent with limited familiarity with the profession outside physiotherapy settings. Participants reporting prior awareness of physiotherapy showed a higher proportion of positive beliefs regarding its general health benefits. Although this association was statistically significant before correction, it did not remain significant after Holm adjustment; therefore, this finding should be considered exploratory and requires verification in larger studies. Even if confirmed, the cross-sectional design would not allow the direction of this relationship to be determined. Awareness appeared lower in older age groups; however, the age-related trend did not remain statistically significant after adjustment for multiple testing. Furthermore, the oldest age group included only nine participants, limiting the precision of this observation, which should be regarded as a hypothesis for future study.

The most practically relevant finding is that 40 of 58 participants (69.0%) wished to receive information about exercise or physiotherapy, including 23 of the 32 who had not heard of physiotherapy. This is consistent with reports that patients value education alongside treatment.[17] This receptiveness supports the design and feasibility testing of brief patient-education materials in the dermatology OPD, such as printed leaflets or digital resources. However, expressed interest in information does not by itself demonstrate a clinical rehabilitation need or a need for referral; such needs should be assessed using validated measures of pain, function, and quality of life.

The prominence of acne and alopecia in this sample reflects the young-to-middle-aged OPD population. Hair-loss disorders are associated with substantial psychosocial burden,[6,7] and the finding that five participants with alopecia did not regard themselves as having a "skin condition" may reflect differing lay perceptions of hair

disorders; this may be relevant to how patient-education material is framed. Although the role of physiotherapy in acne and alopecia is limited, general physical activity and well-being interventions may still be relevant for this group.

The higher proportion of activity limitation among participants with psoriasis (four of five) and eczema/dermatitis/rash (two of four) is consistent with published evidence on the functional and quality-of-life burden of inflammatory skin disease,[4,5] although these subgroups were very small and no condition-specific inference can be drawn. In psoriatic disease, exercise and physical therapy are recommended as part of comprehensive management, despite limited high-quality evidence.[8–11] A higher proportion of participants reporting pain also reported limitations in daily activities. However, the association did not remain statistically significant after adjustment for multiple testing. Additionally, the absence of a corresponding difference in NRS scores, together with the disagreement between categorical pain responses and numerical pain ratings in 13 participants (with both "Maybe" responses also accompanied by NRS scores above 0), raises concerns about measurement consistency and indicates that the single-item measures may not have captured pain reliably; validated pain and function instruments should be used in future work.

Strengths and limitations

The strengths of this study include interviewer administration, which allowed participation by patients with limited literacy; transparent reporting of response inconsistencies; and the reporting of CIs, effect sizes, and multiplicity-adjusted p-values alongside unadjusted p-values. Several limitations should be considered. First, the sample was small and recruited by convenience at one centre, and the number of patients approached was not recorded, which limits precision and generalisability; the wide CIs reflect this. Second, all data were self-reported, and diagnoses were neither clinician-verified nor obtained from medical records. Third, the questionnaire was investigator-developed and not validated, used single trichotomous items rather than validated instruments, and showed internal inconsistencies, suggesting possible misunderstanding of items or recording error by student interviewers; inter-interviewer variability could not be assessed. Fourth, "awareness" was measured as having heard of physiotherapy and does not reflect knowledge of its specific role in dermatological care. Fifth, education, socioeconomic status, disease duration, and severity were not recorded, precluding adjusted analyses. Sixth, the study involved multiple exploratory statistical comparisons, increasing the potential for false-positive findings. Following Holm adjustment, none of the inferential analyses remained statistically significant. The limited sample size, wide confidence intervals, and small numbers within individual dermatological categories further restrict the precision and generalisability of the findings. Finally, the cross-sectional design precludes causal inference.

Conclusion

This exploratory cross-sectional survey found that fewer than half of dermatology outpatients had heard of physiotherapy, whereas more than two-thirds expressed interest in receiving information about physiotherapy or exercise. Approximately one-quarter of respondents reported pain or difficulty in daily activities. Although exploratory analyses suggested possible relationships between awareness, perceived benefits, pain, and activity limitation, none remained statistically significant after adjustment for multiple testing. These preliminary findings support further investigation of physiotherapy awareness and rehabilitation-related concerns among dermatology outpatients. Larger multicentre studies using validated questionnaires, clinician-confirmed diagnoses, and standardised functional assessment measures are recommended.

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