

A Cross-Sectional Observational Study to Assess Prevalence and Patterns of Use of Dermoscope among Indian Dermatology Residents and Ability to Identify Common Pigmentary Dermatoses of Face

Dear Editor,

Early stage training in dermoscopy for dermatologists can enhance diagnostic abilities, thereby reducing the need for biopsies, particularly in diagnosing pigmentary skin disorders in darker skin types.^[1] Kaliyadan reported the use of dermoscopy for the evaluation of pigmentary and inflammatory skin disorders; in differentiating benign and malignant skin disorders, among Indian dermatologists.^[2]

With the aim to assess the patterns of dermoscopy use to identify common pigmentary dermatoses of the face, a 20-item multiple choice quiz was prepared consisting of clinical and dermoscopic photographic images of five hypopigmented and hyperpigmented dermatoses of the face on Fitzpatrick scale III to IV. The questionnaire was circulated in social media platforms [Supplementary File 1]. Ethics Committee approval (ECG007/2022) was obtained in December 2022 for this cross-sectional observational study. The participants included dermatology residents (DermRes) of India, who have completed MBBS and currently are junior residents (JRs) in MD DVL/DD DVL/DD DV/DNB or senior residents (SRs) who completed residency two years prior and were willing to participate in the study.

A total of 432 DermRes participated in the study (74.1% females and 25.9% males, mean age 28.02 ± 3.21 years).

Around 193 (44.7%) were third-year residents and the monthly stipend for 276 (63.95%) was between Rs 50,000 to Rs 99,000. With the increase in the monthly stipend, the prevalence of self-purchased dermoscope also increases and this difference is statistically significant (Pearson Chi-square test, P value <0.001). However, Forsea reported that the cost of dermoscope played a lesser role (17%) and reimbursement did not appear as an important factor in the use of a dermoscope.^[3]

Many DermRes, 344 (79.6%), reported that their residency program provided them with a dermoscope; however, only 180 (41.7%) used dermoscope daily. In contrast, Burbidge^[4] and Patel^[5] reported dermoscope use by 100% and 84% of survey respondents, respectively. Most DermRes were satisfied, 136 (31.5%), or had neutral, 140 (32.4%), opinion about dermoscopy training. Limited dermoscope access and inadequate training may be a reason for the difference noted in our study.^[4,5] Thus, Patel recommended formal dermoscopy training in residency overseen by a program director.^[5]

Figure 1 shows the frequency of DermRes who could correctly identify clinical and dermoscopic images of hypopigmented and hyperpigmented pigmentary dermatosis of the face.

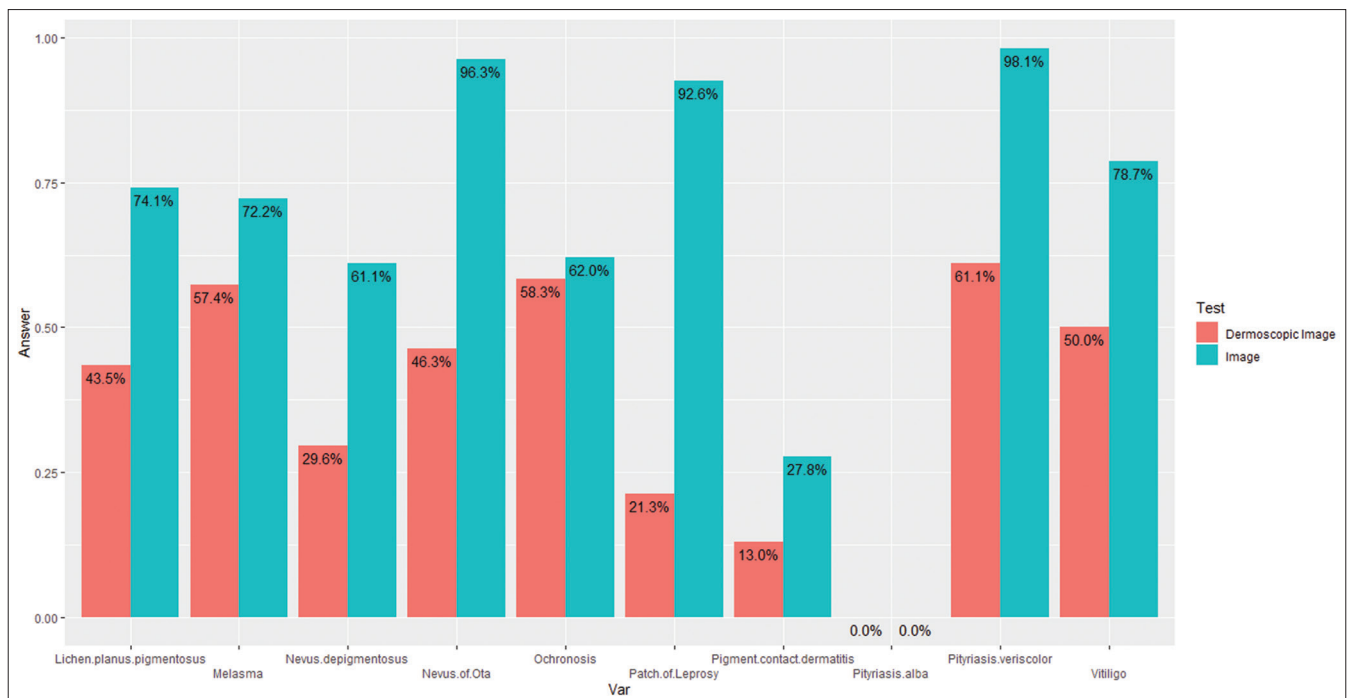


Figure 1: Number of DermRes who correctly identified dermoscopy and clinical images of hypopigmented and hyperpigmented facial dermatosis

Out of the 20 questions, the mean correct answers for identifying hyperpigmented facial dermatoses were 5.50 ± 2.09 , while hypopigmented facial dermatoses were 5.41 ± 1.49 . There was no statistically significant difference between the two groups (paired *t* test, *P* value 0.345).

Of the hyperpigmented facial dermatoses, the clinical image of nevus of Ota 416 (96.3%) and dermoscopic image of ochronosis 252 (58.3%) were the most correctly identified images, whereas the clinical 120 (27.8%) and dermoscopic 56 (13%) images of pigmented contact dermatitis were least correctly answered images [Figure 1]. Many DermRes, 308 (71.2%), had higher mean correct answers for identifying clinical images compared to dermoscopic images and this difference was statistically significant.

Among hypopigmented facial dermatoses, the clinical image of pityriasis versicolor, 424 (98.1%), and dermoscopic image of pityriasis versicolor, 264 (61.1%), were the most correctly

identified images, whereas the clinical image of pityriasis alba, 36 (8.3%), and dermoscopic image of a patch of leprosy, 92 (21.3%), were least correctly identified images [Figure 1]. Many DermRes, 320 (74%), had higher mean correct answers for identifying clinical images compared to dermoscopic images and this difference was statistically significant.

Tables 1 and 2 show average correct responses based on certain demographic characteristics and patterns of dermoscope use and dermoscope training, respectively.

There was no statistically significant gender-based difference (*t* test; *P* value 0.296) in the mean correct answer by female DermRes (11.02 ± 2.85) and male DermRes (10.64 ± 3.47). The DermRes at a higher level of education (i.e., more years into dermatology residency training) and more monthly stipend had statistically significant mean correct answers (*P* value <0.001 and 0.009, respectively) than their counterparts [Table 1].

Table 1: Comparison of mean correct answers by dermatology residents based on demographic characteristics

Variable	Grouping	No.	Average [Normal – Mean±SD] [*Not-Normal – Median (IQ1, IQ2)]	Statistical test performed	<i>P</i>
Level of education	JR1	48 (11.1%)	8.16±2.66	ANOVA	<0.001
	JR2	48 (11.1%)	8.91±2.98		
	JR3	193 (44.7%)	11.54±2.51		
Monthly stipend	Senior resident	143 (33.1%)	11.69±2.98	<i>t</i> -test	0.009
	<Rs 49,000	112 (25.92%)	10.25±3.22		
Course	>Rs 50,000	320 (74.07%)	11.16±2.92	Mann–Whitney test	0.821
	DDV	12 (2.77%)	*9 (9, 18)		
	MD DVL	420 (97.2%)	*11 (8, 13)		

ANOVA: Analysis of variance, DDV: Diploma in Dermatology and Venereology, MD DVL: Doctor of Medicine Dermatology Venereology and Leprosy, Rs: Rupees Indian, SR: Senior resident, JR: Junior resident. *P*<0.05 is Significant

Table 2: Comparison of mean correct answers by dermatology residents based on patterns of dermoscope use and training

Variable	Grouping	<i>n</i>	Average [Normal – Mean±SD] [*Not-Normal – Median (IQ1, IQ2)]	Statistical test performed	<i>P</i>
Frequency of dermoscope use	I don't use dermoscope	40 (9.3%)	9.40±2.94	ANOVA	<0.001
	Once a month	24 (5.6%)	10.33±3.10		
	Once a week	68 (15.7%)	9.82±2.27		
	2–3 times a week	120 (27.8%)	10.80±2.99		
	Daily	180 (41.7%)	11.84±3.02		
Mode of training	Lectures only	64 (14.8%)	9.56±3.00	ANOVA	<0.001
	Clinicals only	184 (42.6%)	10.78±2.57		
	Both lectures and clinicals	184 (42.6%)	11.54±3.28		
Level of satisfaction	Very unsatisfied	40 (9.3%)	10.90±3.05	ANOVA	<0.001
	Unsatisfied	72 (16.7%)	10.44±3.18		
	Neutral	140 (32.4%)	10.17±2.36		
	Satisfactory	136 (31.5%)	11.14±3.15		
	Very satisfactory	44 (10.2%)	13.45±2.87		
Self-owned dermoscope	No	276 (63.9%)	10.57±2.97	<i>t</i> Test	0.002
	Yes	156 (36.1%)	11.53±3.03		
Value of self-owned dermoscope	Rs 10,000 to Rs 50,000	12 (7.7%)	8.33±1.30	ANOVA	<0.001
	Rs 50,000 to Rs 1,00,000/-	76 (48.7%)	10.78±2.83		
	>Rs 1,00,000/-	68 (43.6)	12.94±2.73		

ANOVA: Analysis of variance

DermRes who used dermoscope daily ($P < 0.001$), trained in both didactic lectures and clinics (<0.001), were highly satisfied with their dermoscope training ($P < 0.001$) and had statistically significant mean correct answers compared to their counterparts [Table 2].

Our study has limitations, with a selection bias of the survey being answered by dermoscopy enthusiasts. We focused on DermRes or recent graduates, excluding those who graduated over two years ago, limiting insights into their dermoscope use patterns. The dermatosis not correctly identified, in our study, included lichen planus pigmentosus and pigmented contact dermatitis; as they pose diagnostic challenges due to overlapping dermoscopic features.

Acknowledgements

Dr. Shreya Deoghare was selected as a mentee under Dr. Rashmi Sarkar as a part of the Skin of Color Society mentorship program 2022–23. Dr. Aakanksha Arora, Dr. Alpana Mohta, and Dr. Vignesh Narayan R were selected as a mentee under the IADVL GuruDerma mentorship program 2022.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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Access this article online	
Website: https://journals.lww.com/idoj	Quick Response Code 
DOI: 10.4103/idoj.idoj_277_23	

How to cite this article: Deoghare S, Sarkar R, Arora A, Mohta A, Narayan RV. A cross-sectional observational study to assess prevalence and patterns of use of dermoscope among indian dermatology residents and ability to identify common pigmentary dermatoses of face. Indian Dermatol Online J 2024;15:649-51.

Received: 13-Apr-2023. **Revised:** 11-Jan-2024.

Accepted: 21-Jan-2024. **Published:** 26-Jun-2024.

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Supplementary File 1

Questionnaire:

Demographic information

1. Name
2. Age
3. Gender: Male / Female / Other
4. Select the best: JR1 / JR2 / JR3 / Senior resident
5. Select the best: MD DVL / Diploma DV / DNB
6. Select the best: Government / Private
7. Your monthly stipend

About dermoscope use

1. Does your department have dermoscope? Yes / No
2. How often do you use dermoscope? Daily / 2-3 times a week / Once a week / Once a month / I don't use dermoscope
3. How is dermoscopy taught? Lectures only / Clinics only / Both lecture and clinic
4. How will you rate satisfaction with your dermoscopy training program?
 - a- Very satisfied
 - b- Satisfied
 - c- Neutral
 - d- Unsatisfied
 - e- Very unsatisfied
5. Do you own a dermoscope (self-purchased)? Yes / No
6. If yes, what is the cost of dermoscope that your purchased? Rs <10,000 / Rs 10,000-50,000 / Rs 50,000 – Rs 1,00,000 / More than Rs 1,00,000 / I don't use a dermoscope

Identifying the challenges in use of dermoscope

What do you think are the main difficulties/ challenges in the use of dermoscope? Select Yes or No

1. I don't feel dermoscope is necessary for clinical practice
2. Dermoscope is costly to buy
3. I don't know how to use dermoscope
4. I did not have access to training in dermoscope
5. I am willing to learn about dermoscopy

Identify the clinical images of hyper-pigmentary disorders:

5 clinical and dermoscopic images, each of Melasma, Pigment Contact Dermatitis, Lichen planus pigmentosus, Ochronosis, Nevus of Ota, were shown for identification.

Identify the clinical images of hypo-pigmentary disorders:

5 clinical and dermoscopic images, each of Nevus depigmentosus, Patch of leprosy, Pityriasis alba, Pityriasis versicolor and Vitiligo, were shown for identification.