

MEDICAL SCHOOL DERMATOLOGY CURRICULUM - ARE OUR GRADUATES ADEQUATELY PREPARED AND ALIGNED TO COMMUNITY NEEDS?

Malik Muhammad Hanif,¹ Khizrah Akram,¹ Ghulam Mustafa,² Raheel Tahir,¹ Kashif Imran,¹ Sumera Yousaf,¹ Madiha Anwar,¹ Saman Zia,¹ Saira Sajid,¹ Asma Naz,¹ Fatima Amjad,¹ Nazia Hanif,¹ Samreen Khalid,¹ Zara Zaka,¹ Sadaf Saleem,¹ Aroosha Zainab,¹ Maryam Mumtaz¹

ABSTRACT

Background: There is paucity of research based information regarding the dermatology learning needs and their fulfilment in primary care physicians. **Objective:** To determine skin diseases burden in the community AND adequacy of preparedness of Primary Care Physicians to deal with skin diseases. **Methodology:** This was a cross sectional study conducted from 1st January 2015 to 31st December 2016 at Dermatology Outpatient Department of Sheikh Zayed Medical College/Hospital (SZMC/H), Rahim Yar Khan, for burden of skin diseases and feedback from Primary Care Physicians of both SZMC/H and Primary Health Care setups (BHUs and RHCs) of District Rahim Yar Khan regarding adequacy of their preparedness to deal with skin disease patients. Records from a tertiary care teaching hospital was sought from OPD to assess skin disease burden and Primary Care Physicians from tertiary care hospital and BHU & RHC of district were surveyed regarding content AND teaching adequacy of undergraduates through their dermatology curriculum. Data was entered and analyzed by using SPSS version 20. **Results:** A total of 356 doctors participated in this study. Of these 233 (65.4%) were males. It was found that 10% of patients attending OPD in Sheikh Zayed Hospital (A tertiary care teaching hospital) suffered from skin disease. Frequencies of “Common skin diseases” in the community were; eczema 12.9%, scabies 10.8%, fungal infection 9%, bacterial infection 8% and acne 7%. Of all participants, 274 (77%) reported that <10% of their patients suffered from skin disease and only 30 (8.4%) of them were fully confident while treating skin disease patients and only 36 (10.1%) reported that most of their patients were cured. It was noted that 145 (40.7%) participants could name only 1-3 of the common skin diseases in the community, 182 (51.1%) named 4-6 while only 12(3.4%) could name 7 or more and 17(4.8%) had no knowledge of even a single common skin disease in the community. Only 92(25.8%) participants rated that their undergraduate training was adequate while 264(74.2%) rated it to be inadequate. **Conclusion:** This study concluded that primary care physician were not adequately prepared for managing common skin diseases during their undergraduate training. Appropriate exposure and adequate teaching in dermatology throughout undergraduate medical curriculum is essential because skin presentations manifest throughout all aspects of medicine, and most often dermatological problems are dealt with exclusively by non-dermatologists.

Key words: Dermatology, Curriculum, Undergraduate, Community needs

INTRODUCTION

Skin disease although not a leading cause of mortality, it is not usually thought of as a major health issue in developing countries.¹ This has led medical students to neglect dermatology without genuinely considering the dimensions of its clinical variety, physical disabilities and psychological impact of its diseases and its numerous advantages.^{2,3} This neglect is to the extent that the graduates cannot properly manage even common dermatoses like fungal infections and scabies.^{4,5}

Skin diseases and case morbidity psychosocial effect in community, so that up to one quarter of the primary care consultations suffer from skin disease¹⁻⁷ and in some countries skin conditions are the commonest reason people present to their GP surgery with a new problem.⁸ In a National

survey in Pakistan, skin diseases had increased by 15% in one month⁹ and at the global level, skin conditions were the fourth leading cause of non-fatal disease burden.¹⁰ About one third of the population at any given time have skin problem and up to three quarters of them are initially seen by non-dermatologists.¹¹⁻¹⁴

Role of primary care physicians in this respect is, therefore, enhanced.¹⁵⁻¹⁶ But an “inverse training law” seems to operate in dermatology i.e. little time is allocated for its training in most medical schools all around the world,¹⁷⁻¹⁸ and primary care doctors are found inadequately trained to share this responsibility.¹⁹⁻²⁴

The knowledge and clinical skills expected of the modern medical student makes the undergraduate curriculum desperately short of time and students lack adequate exposure to dermatology.²⁵⁻²⁸ This leads

1. Department of Dermatology, Sheikh Zayed Medical College/Hospital, Rahim Yar Khan, University of Health Sciences Lahore, Pakistan.

2. Department of Community Medicine, Sheikh Zayed Medical College/Hospital, Rahim Yar Khan, University of Health Sciences Lahore, Pakistan.

Correspondence: Dr. Malik Muhammad Hanif, Associate Professor of Dermatology, Sheikh Zayed Medical College/Hospital, Rahim Yar Khan, Pakistan.

E-mail: muhammadhanifmalik68@gmail.com

Mobile: +92 3339304445

Received: 19-01-2017

Accepted: 25-02-2017

to decreased interest among students and also less weight given to dermatology in the university examinations further compounds the issue.²⁹⁻³¹ Hence there is a dire need to review and modify undergraduate medical curricula to align it to health care needs of the community. Curricular needs' assessment is the first stage in the development of a curriculum.³² It can help identify discrepancies between existing and desired content and stake-holders' priorities in those areas and help justify the need for dedicating curricular time to specific content areas.^{33,34} Such needs' assessment surveys are dynamic processes and conducted regularly throughout the world.³²⁻³⁵ To our knowledge, no such survey for dermatology part of the MBBS curriculum has been conducted in this country to date.

We designed a needs assessment survey of Primary Care community Physicians (PCPs) from Rahim Yar Khan District and also collected data from a tertiary care teaching hospital to determine the dermatology needs in practice and whether PCPs have been adequately prepared through their under-graduate dermatology curriculum. The objectives of this study were to determine the frequency and types of skin diseases in community and to examine adequacy of preparedness of undergraduates through their dermatology curriculum with "common dermatological problems" in the community.

METHODOLOGY

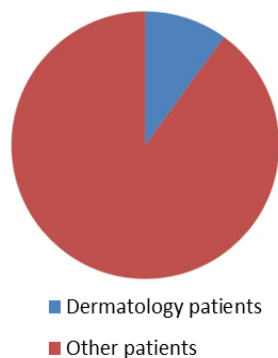
This was a cross sectional study conducted from 1st January 2015 to 31st December 2016, at Dermatology Outpatient Department of Sheikh Zayed Medical College/Hospital (SZMC/H), Rahim Yar Khan for burden of skin diseases and for assessing adequacy of preparedness to deal skin diseases among Primary Care Physicians of both SZMC/H and Primary Health Care Setups (BHUs & RHCs) of District Rahim Yar Khan. After approval from the Institutional Review Board for Human Research, data was collected on self-designed and pre-piloted survey instrument (questionnaire) which included the demographic information of the participants and specific data pertaining to their training and proficiency in managing "common skin diseases" in the community. Eligibility criteria for community PCPs included those who were working as medical officer in tertiary care hospital and/or in primary health care system (BHUs/RHCs).

Intended dermatological content areas in this regards were identified after a review of last two years' record of patients attending dermatology clinic in Sheikh Zayed Medical College / Hospital, Rahim Yar Khan to include 10 most "common skin diseases" in the community. (Table I) Doctors were recruited during their administrative meetings and didactic sessions (i.e. morning report, noon conferences). These paper-and-pencil surveys did not request any identifying information. Data was entered and analyzed by using SPSS version 20. Chi-square analyses were used to determine if there were significant differences between residents who had done rotation or worked in dermatology and those who had not. Participants were asked about their demographic information like age, gender, year of graduation, place of work i.e. primary/secondary care (BHU/RHC) or teaching hospital, whether they work in public; private or both sectors, indicate whether or not they have ever done rotation or worked in dermatology, percentage of the patients consulting them who suffer from skin disease; their confidence level on a Likert scale while managing such patients; the proportion of skin patients who come for follow up, whether and how frequently their management plan is supported by the dermatologist if any of their clients happened to visit him and then come for follow up, whether or not (YES/NO) they have been adequately prepared through dermatology component of their medical school curriculum for "common dermatological diseases" in the community and whether their academic interaction with representatives from dermatology pharmaceutical industry improved their management skills for skin diseases. It also included listing 10 "common dermatological diseases" that they thought are most common in the community.

RESULTS

A total of 356 doctors participated in this study. Of these 233 (65.4%) were males and 175(49.2 %) has 1-5 years of experience after the graduation whereas 66 (18.5%) has 6-10 years and 115 (32.3%) has ≥ 11 years of experience. 270 (75.8%) of participants were working in tertiary care hospital whereas 86 (24.2%) were working in Primary care setups (BHUs/RHCs). Only 52 (14.6%) of them had ever worked in dermatology department. It was found that 10% of patients attending OPD in Sheikh Zayed Hospital (A tertiary care teaching hospital) suffered from skin disease. (Figure I)

Figure I: Proportion of dermatology patients in OPD of a Tertiary Care Hospital



“Common skin diseases” in the community and their frequency identified from record of a teaching hospital is shown in Table I.

Table I: Most common Skin diseases in the community identified from records of a tertiary care teaching hospitals.

Most common skin Diseases identified in present study	Percent
Eczema	12.9 %
Scabies	10.84 %
Fungal Infections	8.89 %
Bacterial Infections	8.47 %
Acne	7.04 %
Urticaria	3.62 %
Miliaria	3.19 %
Viral Infections	2.14 %
Malasma	1.42 %
Psoriasis	1.19 %

Of all participants, 274 (77%) reported that <10% of their patients suffered from skin disease and only 30 (8.4%) reported to be fully confident while treating such patients and only 36 (10.1%) revealed that most of their patients were cured. (Figure II)

It was noted that 145 (40.7%) participants could name only 1-3 of the common skin diseases in the community, 182 (51.1%) named 4-6 while only 12 (3.4%) named 7 or more and 17 (4.8%) had no knowledge of even a single common skin disease in the community. (Table III) Only 92 (25.8%) participants rated that their undergraduate training as adequate while 264 (74.2%) rated it to be inadequate. (Table III) Of the total, 254 (71%) suggested that duration of undergraduate exposure to dermatology be increased for

adequate training and improved patient care.

Figure II: Doctors' perception on proportion of dermatology patients in OPD, their confidence level while treating such patients and cure rate.

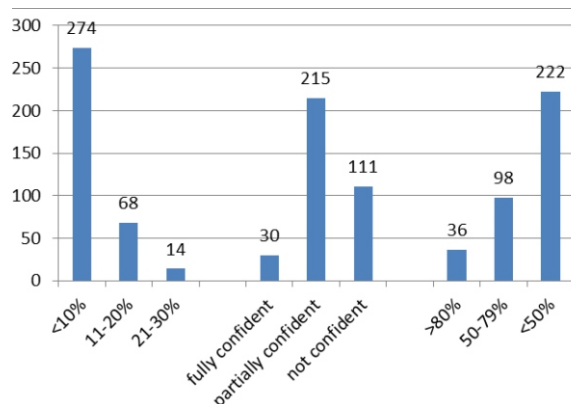


Table II: Knowledge of doctors about names of most common skin diseases in community

No. of Disease	Number	Percent
1-3	145	40.7
4-6	182	51.1
7 & above	12	3.4
None	17	4.8
Total	356	100.0

Table III: Perception of doctors regarding undergraduate training

Under graduate training	Number	Percent
Optimal	92	25.8
Not optimal	264	74.2
Total	356	100.0

Table IV: Effect of interaction with representative from pharmaceutical industry on improvement in management of dermatology patients.

Effect of academic interaction with medical representative	Number	Percent
Yes	61	17.1
Some extent	197	55.3
No	98	27.5
Total	356	100.0

A total of 258 (72.4%) of study subjects reported that their academic interaction with medical representative from dermatology pharmaceutical industry improved their management skills to atleast some extent in managing skin disease patients. (Table IV)

DISCUSSION

Data from primary care, outpatients' and general practice setups indicate that from 6.5% to 25% of the consultations suffer from skin disease,¹⁻¹⁰ 25% to 33% of the population at any given time have skin problem and 60% to 75% of these patients are seen by non-dermatologists.¹¹⁻¹⁴ These studies are comparable to our study in that burden of skin disease in general practice and in primary care setting is around 10% and that these cases are initially managed by non-dermatologists.

Diseases that most of the participants identified as important in the community settings were all amongst those already identified from record of a teaching hospital.³³ Only few of them identified some rare diseases. These in addition to those already identified need to be given space in the curriculum if the conditions permit.

Dermatologic content areas that studies from USA³¹ and England⁸ identified for inclusion in medical school curricula overlap with important topics identified by our study. Notable exceptions are skin cancers which these studies identified as important in medical school training, whereas our study did not. (Table V)

Studies indicate that undergraduate training in dermatology is inadequate in many countries^{17, 18} and it is felt that undergraduate students lack optimal exposure to dermatology. Existing allotted time for dermatology education is inadequate given the amount of cutaneous disease likely to be encountered in the

ambulatory care setting.^{19, 20} Students do not show much of enthusiasm for self-learning in dermatology which could be due to the less weight given to dermatology component in the university examinations.²⁹ Ramsay and Mayer in their report on undergraduate medical education suggested increasing the time devoted to teaching dermatology in the undergraduate medical education setting.³⁴ These conclusions are comparable to our study in which more than 74% of the participants reported that they did not have enough exposure to dermatology and hence their training in dermatology part of the curriculum has not adequately prepared them to serve in the community. Majority of them i.e. 71% suggested increasing the time dedicated to teach dermatology for improved patient care in the community. This is apparent from the fact that those participants who worked in dermatology or did rotation felt significantly more prepared to diagnose and treat common skin disease compared to those who had not done so.

Of all participants, more than 72% reported positive impact of academic interaction with representatives from dermatology pharmaceutical industry in their practice. In fact such a liaison between various stake holders in the development of a curriculum is not only beneficial but essential as well. A study reports that there is disconnection between academia, primary healthcare providers, policymakers and the regulators. The primary healthcare providers have inadequate representation in the curriculum design

Table V: Comparison of common skin diseases identified in the community by present study and studies from UK⁸ & USA³¹

Present Study	A Study from USA ³¹	A Study from UK ⁸
Eczema	Melanoma/moles, Non-melanoma skin cancer/sun damage	Viral and Fungal infections
Scabies	Atopic dermatitis/contact dermatitis	Malignant melanoma, other malignant /Benign neoplasm of skin
Fungal Infections	Bacterial and fungal skin infections,	Skin and subcutaneous tissue infections
Bacterial infections	Leg ulcers/wound care	Eczema
Acne	Urticaria/hives	Acne
Urticaria	Cutaneous drug eruptions	Psoriasis and related disorders
Miliaria	Psoriasis/seborrhea, Acne/rosacea	Hair/hair follicle
Viral Infections	Infestations (i.e. scabies, lice)	Nail diseases
Malasma	Vasculitis/purpura, Connective tissue disease (i.e. lupus)	Urticaria
Psoriasis	Alopecia	Chronic skin ulcer

and there is a need to re-direct financial resources, medical education and medical practitioners with a focus on addressing the needs of the community.³⁵

This needs assessment of dermatology curricula in one of the country's medical schools yields several important clues. According to primary care physicians dermatology is not as adequately taught as other curricular areas. Less than 26 % of participants rated their medical school curriculum as having adequately prepared them to diagnose and treat "common skin diseases". This may reflect the amount of curricular time required to be devoted to dermatology.

This study has some limitations. First, we only conducted a needs assessment of clinical dermatology topics and did not address the teaching of the basic structure and function of the skin, description of skin lesions, and performing a complete skin examination.

We believe these topics are basic areas of knowledge that should always be included in the medical school curriculum. Second, we surveyed PCPs from only one of the districts and from only one of the medical schools across the country. Another limitation was the arbitrary cut-off figure of 10 most common diseases for categorizing topics to be taught. It can be increased depending upon surveys from other geographic regions and medical schools provided the curricular time permits, the diseases are important in the community and the study population deems necessary. Further need assessments may be warranted to help determine these regional needs.

CONCLUSION

Our study showed that primary care physician were not adequately prepared for managing skin diseases through their undergraduate curriculum. Irrespective of their future specialty of choice, appropriate exposure of all students and their adequate teaching in dermatology throughout undergraduate medical curriculum is essential. It makes them learn skills pertaining to skin diseases which are essential because skin presentations manifest throughout all aspects of medicine, and most often dermatological patients are seen initially by non-dermatologists.

Recommendation

We recommend tailoring the dermatology curriculum at the undergraduate level to the community needs of the country. Most important

stakeholders in determining an undergraduate dermatology medical school curriculum are PCPs, who are the first in the line of diagnosis and treatment of skin diseases. They should have appropriate representation in the development of the curriculum. There is need to reduce the overcrowding of undergraduate curricula and medical courses should develop the practical skills needed for professional competence and the personal attributes that would enable a medical graduate to build successful relationships with patients and work effectively with colleagues. A core undergraduate clinical dermatology curriculum is recommended. This proposed curriculum would ensure that medical students receive exposure to the "very important" areas of clinical dermatology. The proposed dermatology curriculum might require slight modifications based on the needs of the communities in which primary care physicians intend to practice.

REFERENCES

1. Britt H, Miller GC, Charles J, Henderson J, Bayram C, Pan Y, Valenti L, Harrison C, Fahridin S, O'Halloran J: General practice activity in Australia, 2008-09. General practice series no. 25. Cat. no. GEP 25 Canberra: AIHW; 2009.
2. Lowell BA, Froelich CW, Federman DG, Kirsner RS: Dermatology in primary care: Prevalence and patient disposition. *J Am Acad Dermatol* 2001, 45:250-5.
3. Awadalla F, Rosenbaum DA, Camacho F, Fleischer AB Jr, Feldman SR: Dermatologic disease in family medicine. *Fam Med* 2008, 40:507-11.
4. Alderson TS, Oswald NT. Clinical experience of medical students in primary care: use of an electronic log in monitoring experience and in guiding education in the Cambridge community based clinical course. *Med Educ* 1999;33:429-33, doi:10.1046/j.1365-2923.1999.00336.
5. Branch WT Jr, Collins M, Wintroub BU. Dermatologic practice: implications for a primary care residency curriculum. *J Med Educ* 1983; 58:136-42.
6. Karen McKoy. The Importance of Dermatology in Global Health. Harvard Medical Department of Dermatology. retrieved from: <http://files.ctctcdn.com/ded15bfa001/e46f16b0-8960-4f2c-8222-5d1b327e3e46.pdf>
7. Zamanian A, Mahjub H. Prevalence of skin diseases in hamedan, Iran in 2002. *Indian J Dermatol* 2005;50:208-11
8. J. K. Schofield, D. Fleming, D. Grindlay and H. Williams : Skin conditions are the commonest new reason people present to general practitioners in England and Wales. *BJD* 2011; 165:1044-1050.
9. Skin diseases up by 15% in July: FAFEN in Pakistan Today. Wednesday, 15 Jan 2014.

10. The Global Burden of Skin Disease in 2010: Roderick J Hay et al in *J Invest Dermatol*. 2013 Oct 28. doi: 10.1038/jid.2013.446.
11. Stern RS, Nelson CC. The diminishing role of the dermatologist in the office-based care of cutaneous diseases. *J Am Acad Dermatol* 1993; 29:773–7, doi:10.1016/0190-9622(93)70243.
12. Farrimond H, Dorman TL, Cockcroft A, Rhodes LE. Development and evaluation of an e-learning package for teaching skin examination. *Br J Dermatol* 2006;155:592–9, doi:10.1111/j.1365 2133.2006.07360.
13. Shappert SM. National ambulatory medical care survey. *Vital Health Stat* 13 1994; 116:1–110.
14. Hay R, Bendeck SE, Chen S. Skin Diseases. In: Jamison DT, Breman JG, Measham AR. *Disease Control Priorities in Developing Countries*. 2nd edition. Washington (DC): World Bank; 2006. Chapter 37. Available from <http://www.ncbi.nlm.nih.gov/books/NBK11733/>
15. Department of Health: Guidance and Competencies for the Provision of Services using GPs with Special Interests (GPwSIs) - Dermatology and Skin Surgery. London: DoH; 2007 [http://www.pcc.nhs.uk/uploads/pwsis/gpwsis_dermatology.pdf], accessed 26 May 2010.
16. Kerr OA, Tidman MJ, Walker JJ, Aldridge RD, Benton EC: The profile of dermatological problems in primary care. *Clin Exp Dermatol* 2009, 35:380-383. Lam et al. *BMC Medical Education* 2011, 11:20 <http://www.biomedcentral.com/1472-6920/11/20:6-7>
17. Davies E, Burge S. Audit of dermatological content of UK undergraduate curricula. *British J Dermatol* 2009;160:999–1005.
18. McCleskey PE, Gilson RT, DeVillez RL. Medical student core curriculum in dermatology survey. *J Am Acad Dermatol* 2009;61:30–5 e4.
19. Feldman SR, Fleischer AB Jr, Chen JG: The gatekeeper model is inefficient for the delivery of dermatologic services. *J Am Acad Dermatol* 1999, 40:426-32.
20. Chen SC, Pennie ML, Kolm P, Warshaw EM, Weisberg EL, Brown KM, Ming ME, Weintraub WS: Diagnosing and managing cutaneous pigmented lesions: primary care physicians versus dermatologists. *J Gen Intern Med* 2006,21: 678-82.
21. Department of Health. High Quality Care for All: NHS Next Stage Review Final Report. Available from: <https://www.gov.uk/government/publications/high-quality-care-for-all-nhs-next-stage-review-final-report>.
22. McCleskey PE, Gilson RT, DeVillez RL. Medical student core curriculum in dermatology survey. *J Am Acad Dermatol* 2009;61:30-5.
23. Maddison DC. What's wrong with medical education? *Med Educ* 1978;12:97–102.
24. General Medical Council. Tomorrow's doctors. Recommendations on undergraduate medical education. London: GMC,1993. Retrieved from: http://www.gmc-uk.org/Tomorrow_s_Doctors_1214.pdf_48905759.pdf
25. General Medical Council. Tomorrow's doctors. Recommendations on undergraduate medical education. London: GMC, 2002. Retrieved from: http://www.gmc-uk.org/Tomorrow_s_Doctors_1214.pdf_48905759.pdf
26. Susan M Burge DM FRCP Undergraduate medical curricula: are students being trained to meet future service needs? *Oxford Clin Med* 2003;3:243–7
27. Integrated modular teaching in dermatology for undergraduate students: A novel approach. Kaliaperumal Karthikeyan, Annapurna Kumar, *Indian Dermatology online Journal - July-September 2014 - Volume 5 - Issue 3*
28. Kern D, Thomas P, Howard D, Bass E. *Curriculum Development for Medical Education: A Six Step Approach*. Baltimore: Johns Hopkins University Press; 1998.
29. Laidlaw T, MacLeod H, Kaufman D, Langille D, Sargeant J. Implementing a communication skills programme in medical school: needs assessment and programme change. *Med Educ* 2002;36:115-24
30. Witkin B. *Assessing needs in educational and social programs: Using information to make decisions, set priorities, and allocate resources*. San Francisco: Jossey-Bass; 1984.
31. Nina K . Hansra, Patricia O' Sullivan, Cynthia L. Chen, and Timothy G. Berger. Medical school dermatology curriculum: Are we adequately preparing primary care physicians? *J Am Acad Dermatol* 2008;61:23-9
32. Clayton R, Perera R, Burge S. Defining the dermatological content of the undergraduate medical curriculum: a modified Delphi study. *Br J Dermatol* 2006;155:137-44.
33. Tahir Saeed Haroon. Pattern of Skin Disease in Karachi. *JPMA* 1985; 35:73-78
34. Alfred Knable, Antoinette F. Hooda and Thomas G. Pearson J. Report from the AAD Interdisciplinary Education Committee, Subcommittee on Undergraduate Medical Education. *Am Acad Dermatol* 1997;36:467-70
35. Alam AY, Abbas SM and Malik MR. Public health and undergraduate medical curriculum: are we preparing physicians for the 21st century? *J Pak Med Assoc*. 2013 Oct; 63(10):1241-7.

Article Citation: Hanif MM, Akram K, Mustafa G, Tahir R, Imran K, Yousaf S et al. Medical school dermatology curriculum - are our graduates adequately prepared and aligned to community needs?. *JSZMC* 2017;8(2): 1147-1152.