Abstract

Aims: This study aims to evaluate the knowledge and pattern of self-medication for acne among undergraduate medical students at a tertiary care teaching hospital.

Materials and Methods: This cross-sectional study was conducted in II MBBS (Group A), III MBBS Part I (Group B), and III MBBS Part II (Group C) students. Prevalidated questionnaire about knowledge, attitude, and practice of self-medication were administered to participants. Data were analyzed using one-way analysis of variance and Chi-square test.

Results: Out of 582 students who responded to questionnaire, 518 suffered from acne. Self-medication practice was observed in 59.2% students. Significantly higher number of female students practiced self-medication (P < 0.0001). Most common source of information was seniors/friends/family members (34.2%). The mildness of illness (42.3%) was the most common reason of self-medication. A total mean score of knowledge was significantly higher in Group C as compared to Group A (P < 0.001) and Group B (P < 0.05). Allopathic medication was preferred by 69.8% students. Seventy-five percentage students read leaflet/package insert/label instruction and expiry date of the medicines.

Conclusions: The participating students lack the knowledge about self-medication for acne. Adequate knowledge and awareness about the appropriate use of medication will reduce the practice of self-medication and improve rational prescribing.

Key Words: Acne, self-medication, undergraduate medical students

Introduction

Acne vulgaris is one of the most common skin diseases with chronic inflammation of the pilosebaceous gland, clinically characterized by comedones, papules, pustules, nodules and in some cases, scarring.[1] It affects 85% of the young population between 12 and 24 years of age because of hormonal changes in the majority of cases.[2] The World Health Organization (WHO, 2000) define self-medication as “use of medicinal products by the consumer to treat self-recognized disorders or symptoms or the intermittent or continued use of medication prescribed by a physician for chronic or recurring diseases or symptoms.”[3]

Self-medication is a common practice in medical students because of pharmacological knowledge and easy availability of drugs from different sources, for example, medical representative, hospital pharmacy, wards or from senior students.[3] The prevalence of self-medication practice among medical students is from 57.7% to 76%.[4] Acne is a disease which leads to low self-esteem, social embarrassment, social withdrawal, and depression.[1] The social, psychological, and emotional impacts of acne result into more consciousness, especially in young individuals.[2] According to the WHO (1995), rational self-medication helps in the prevention and treatment of minor pathological conditions at an affordable cost. However, it is associated with undesirable drawbacks, for example, serious adverse effects, drug interactions, polypharmacy, emergence of resistant pathogens, and also wastage of resources.[4]

During extensive literature search, we could not find any study regarding self-medication for acne in undergraduate medical students. This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms. For reprints contact: reprints@medknow.com

How to cite this article: Karamata VV, Gandhi A, Patel P, Desai M. Self-medication for acne among undergraduate medical students. Indian J Dermatol 2017;62:178-83.

Received: April, 2016. Accepted: February, 2017.
of self-medication for acne among medical students in Western part of India. Hence, this study was carried out to evaluate the KAP of self-medication for acne among medical students.

Materials and Methods
This cross-sectional study was undertaken at department of pharmacology, at tertiary care teaching of Ahmedabad, after approval from the Institutional Ethics Committee (IEC) (IEC/152/14). Written informed consent was taken from the participants. Medical students of the second year (Group A) and final year (Part I [Group B] and Part II [Group C]) were included in the study. The participants were briefed about the nature of the study, and a pretested questionnaire was administered to them. The questionnaire included questions about information regarding the pattern of self-medication, knowledge about dose, mechanism of action, adverse effect, complication, precaution, and contraindication. The questionnaire comprised six knowledge questions. These were evaluated on a predetermined scale of 0–6. Each question of knowledge was analyzed as yes (score 1) or no (score 0). The attitude was evaluated with questions such as preferred medicine, and advice to other while practice of self-medication was evaluated through questions about reading of package insert, label instruction including expiry date, and availability at home. Data regarding attitude and practice were analyzed as percentage response. Data were entered into Microsoft Excel 2007 and analyzed using one-way analysis of variance and Chi-square test with GraphPad demo version 3.1 GraphPad InStat version 3.06 (GraphPad Software, Inc., La Jolla, CA, USA). “P < 0.05” was considered as statistically significant.

Results
A total of 610 medical students were enrolled, out of which 582 students had responded to questionnaire. The questionnaire was not returned by 28 students. We observed that out of 582 students, total 518 students suffered from acne. Self-medication practice was observed in 307 (59.3%) students [Figure 1]. The mean age of the students was 19.7 ± 1.08 (mean ± standard deviation [SD]). A total 290 females suffered from acne while there were 228 males with acne. Self-medication among female students (n = 198, 68.2%) was significantly higher as compared to male (n = 109, 47.8%) students (P < 0.0001). Based on the year of study, students were divided into different groups. Group A: II MBBS, Group B: III MBBS Part I, and Group C: III MBBS Part II.

The reasons for self-medication for acne were mildness of illness in 130 (42.3%), followed by knowledge about the treatment given from previous prescription (89 [28.9%] students) [Figure 2]. Most common source of information was seniors/friends/family members (105 [34.2%] students) [Figure 3].

Knowledge
Knowledge about dose, mechanism of action, adverse effects, complications, precautions, and
contraindications of the medication was analyzed using score yes/no (maximum 6, minimum 0). A total mean score for knowledge in Group A was 2.1 ± 1.1 while in Group B, and C was 2.32 ± 1.2 (mean ± SD) and 2.72 ± 1.2 (mean ± SD), respectively. No statistically significant difference was observed between groups when score was compared for the individual question of knowledge, but a total mean score of knowledge was significantly higher in Group C as compared to Group A (P < 0.001) and Group B (P < 0.05) [Table 1].

**Attitude**
As shown in Table 2, the majority of the students (214 [69.8%]) preferred allopathic medication in all groups and preferred topical application (236 [76.9%]) for self-medication. Majority students opined that self-medication is a part of self-care (166 [54.1%]). Only 82 (26.7%) students were in favor of giving advice to friends while 224 (73%) students were in favor of consulting dermatologist before starting treatment. A total of 197 (64.2%) students felt that they should go for follow-up whenever there is the reappearance of acne.

**Practice**
Majority students practiced allopathic system of medicine (214 [69.7%]) followed by ayurvedic (56 [18.2%]), cosmetic product (32 [10.4%]), and homeopathic preparation (5 [1.6%]) [Figure 4]. Out of 214 students using allopathic medication, antimicrobials were used by 194 (90.6%) students. Among them 113 (58.2%) students used clindamycin either alone or in combination with other drug(s). Single drug had been used for acne by the majority of students (167 [78.0%]) [Figure 5]. Fixed drug combinations were also used by medical students (21 [9.8%]). Commonly used fixed dose combinations were tretinoin + clindamycin gel (10 [4.7%]), followed by adapalene + benzoyl peroxide gel (6 [2.8%]), and clindamycin + nicotinamide gel (5 [2.3%]) [Table 3].

| Knowledge                           | Group A (n=102) | Group B (n=98) | Group C (n=107) |
|-------------------------------------|----------------|----------------|----------------|
| Dose of drug                        | 0.34±0.47      | 0.37±0.5       | 0.43±0.5       |
| Mechanism of action                 | 0.23±0.4       | 0.26±0.4       | 0.31±0.5       |
| Adverse effect                      | 0.47±0.5       | 0.53±0.5       | 0.64±0.4       |
| Precautions for use                 | 0.11±0.3       | 0.17±0.4       | 0.23±0.4       |
| Contraindication for use            | 0.20±0.4       | 0.25±0.4       | 0.28±0.4       |
| Aware about complication            | 0.74±0.4       | 0.73±0.4       | 0.82±0.3       |
| Total score                         | 2.10±1.1       | 2.32±1.2       | 2.72±1.2*      |

ANOVA test. *P<0.05 as compared to Group B in Group C, **P<0.001 as compared to Group A in Group C. ANOVA: Analysis of variance, SD: Standard deviation

| Medication preferred               | Group A (n=102), n (%) | Group B (n=98), n (%) | Group C (n=107), n (%) | Total (n=307), n (%) |
|------------------------------------|------------------------|-----------------------|------------------------|----------------------|
| Ayurvedic                          | 23 (22.6)              | 18 (18.4)             | 15 (14.0)              | 56 (18.2)            |
| Cosmetic                           | 12 (11.8)              | 11 (11.2)             | 9 (8.4)                | 32 (10.4)            |
| Homeopathic                        | 5 (4.9)                | 0                     | 0                      | 5 (1.6)              |
| Allopathic                         | 62 (60.7)              | 69 (70.4)             | 83 (77.6)              | 214 (69.8)           |

| Preparation preferred              | Group A (n=102), n (%) | Group B (n=98), n (%) | Group C (n=107), n (%) | Total (n=307), n (%) |
|------------------------------------|------------------------|-----------------------|------------------------|----------------------|
| Oral                               | 14 (13.7)              | 17 (17.4)             | 15 (14.1)              | 46 (15.0)            |
| Topical                            | 83 (81.4)              | 75 (76.5)             | 78 (72.8)              | 236 (76.9)           |
| Both                               | 5 (4.9)                | 6 (6.1)               | 14 (13.1)              | 25 (8.1)             |
| A part of self-care                | 46 (45.1)              | 58 (59.2)             | 62 (57.9)              | 166 (54.1)           |
| Yes                                | 56 (54.9)              | 40 (40.8)             | 45 (42.1)              | 141 (45.9)           |
| Advice to friends                  | 19 (18.6)              | 26 (26.5)             | 37 (34.6)              | 82 (26.7)            |
| Yes                                | 83 (81.4)              | 72 (73.5)             | 70 (65.4)              | 225 (73.3)           |

| Dermatologist consultation before starting treatment | Group A (n=102), n (%) | Group B (n=98), n (%) | Group C (n=107), n (%) | Total (n=307), n (%) |
|------------------------------------------------------|------------------------|-----------------------|------------------------|----------------------|
| Yes                                                  | 67 (65.7)              | 70 (71.4)             | 87 (81.3)              | 224 (73.0)           |
| No                                                   | 35 (34.3)              | 28 (28.6)             | 20 (18.7)              | 83 (27.0)            |
| Follow up for reappearance of acne                   | 54 (52.9)              | 68 (69.4)             | 75 (70.1)              | 197 (64.2)           |
| No                                                   | 48 (47.1)              | 30 (30.6)             | 32 (29.9)              | 110 (35.8)           |
The use of medications for acne was selected on the basis of as and when required without consulting dermatologist by 45.3% students. The practice of reading leaflet/package insert/label instruction before use of medication was present in 76.5% students. Most of the students (45.8%) stated lack of time as the reason for not reading leaflet. Majority (96.7%) students stated about the reading of expiry date of medication before use. The availability of medication at home was present in (57.7%) students.

**Discussion**

According to studies conducted in India, the prevalence of self-medication among the medical students was between 57.1% and 92%[4] while studies conducted in students other than medical background showed a prevalence of 80.1% in Tamil Nadu.[7] In a study carried out in New Jersey among high school adolescents prevalence of self-medication for acne was 57%.[8] During literature search, we observed that study regarding KAP of self-medication for acne among medical students are lacking in India. The present study was carried out in undergraduate medical students to evaluate the students’ KAP about self-medication for acne. In this study, we found that self-medication for acne was present in 59.2% students which are similar to study carried out at Karnataka, India among Medical and Paramedical Students for Self-medication for Acne vulgaris (52.5%).[9]

The most common age group in our study was 19.7 ± 1.08 (mean year ± SD) years as study population was II and III MBBS (Part I and II) students. In this study, larger number of female students were self-medicating than male (P < 0.0001) which is similar to study carried out at Serbia.[10] On the contrary, a study carried out at South India reported that self-medication was higher in male than female students.[11] However, the study population in medical students of Serbia and South India was an overall KAP analysis for self-medications (which included diarrhea, headache, common cold, fever, cough, and vomiting rather than acne alone) (2012).[10,11] In this study, higher number of students was female suffering from acne as compared to male students. This may also be due to hormonal imbalance or other reasons, for example, stress family history. Common reason for taking self-medication was mildness of illness (42.3%) in our study. The similar reason was reported in a study carried out at West Bengal in 47.19% students.[12] In our study,
common source of information for self-medication was seniors/friends/family members (34.2%). A similar result was observed in a study conducted at South India where 38% of students described seniors/friends as a source of information.\[11\] This may be because students are under the influence of postgraduate students/interns during their undergraduate studies.

In our study, self-medication was observed higher in III MBBS Part II students (68.6%) than II and III MBBS Part I students. This finding is similar to study carried out for self-medication in Coastal region of South India\[13\] while a study carried out by Patil et al. reported that self-medication was less common among the 3rd year medical students as compared to the 1st and 2nd year students.\[11\] The mean score of knowledge is significantly higher in III MBBS Part II students as compared to II MBBS (\(P < 0.001\)) and III MBBS Part I (\(P < 0.05\)) students. The score was not more than 50% in all groups which indicate that knowledge about the drug used is only partial.

More than 50% of students opined that self-medication is a part of self-care. Some students (26.7%) were in favor of advising about self-medication for acne to their friends. In a study carried out at Karachi, it was found that 31.8% students were in favor of giving advice about medication to their friends.\[14\] On the basis of knowledge and self-experience, the students might be in a favor to give advice to others. The majority (69.7%) of students practiced an allopathic system of medicine which includes antimicrobial (90.6%), and out of them, 58.2% student had applied clindamycin. Cosmetic product (10.4%) was also used by the students in our study. A study done by Kumar et al. also found that 72.7% students practiced allopathic system.\[11\] The use of antibiotic for the treatment of acne was also higher in our study with a high preference for topical route which could be due to easy availability of the drugs as over the counter drug and convenience to use.

In our study, it was also found that the students preferred use of medication as and when required basis. More than 75% of students in our study read leaflet/package insert/label instruction and more than 95% students read expiry date which reflects that during pharmacology and clinical training the students are trained to read the label before use of medication. However, the matter of concern is that inappropriate use may increase risk of adverse effects or antimicrobial resistance even if they are used topically.\[15\]

### Conclusions

This study highlights that acne is being considered as a mild illness and use of self-medication for acne is common in medical students; based on pharmacological knowledge and under the influence of senior students. The use of drugs was as and when required including the use of antimicrobials. This inappropriate use of drugs can increases risk of adverse effects of a drug or antimicrobial resistance. Awareness about the use of drugs, risk of adverse effects and antimicrobial resistance among medical students during their undergraduate medical training will help to reduce self-medication and subsequently it will also improve rational prescribing in their future career.
**Financial support and sponsorship**
Nil.

**Conflicts of interest**
There are no conflicts of interest.

**What is new?**
We have studied the drugs used for self-medication by undergraduate medical students in detail. More than 90% of medical students used antimicrobials. The majority of the students preferred topical application (236 [76.9%]) as and when required (45.3% students). Antimicrobial even if used topically may increase resistance. Hence, awareness about self-medication is important in undergraduate medical students which will prevent adverse drug reactions and antimicrobial resistance. Awareness about self-medication and its effect will improve rational prescribing in future.

**References**

1. Adityan B, Kumari R, Thappa DM. Scoring systems in acne vulgaris. Indian J Dermatol Venereol Leprol 2009;75:323-6.
2. Andrea L, Diane M. Acne vulgaris. In: Bolonja JL, Jorizzo JL, Schaffer JV, editors. Dermatology. 3rd ed. China: Elsevier; 2012. p. 545-60.
3. World Health Organization. Guidelines for the Regulatory Assessment of Medicinal Products for Use in Self-Medication. WHO/EDM/QSM/00.1. Geneva: World Health Organization; 2000.
4. Badiger S, Kundapur R, Jain A, Kumar A, Pattanshetty S, Thakolkaran N, et al. Self-medication patterns among medical students in South India. Australas Med J 2012;5:217-20.
5. Tanzeela K, Tariq I. Trends of self medication in patients with acne vulgaris. J Univ Med Dent Coll 2010;1:10-3.
6. WHO. Report of the WHO Expert Committee on National Drug Policies. 1st ed. Geneva: World Health Organization; 1995. p. 78.
7. Kayalvizhi S, Senapathi R. Evaluation of the perception, attitude and practice of self-medication among business students in 3 select cities, South India. Int J Enterp Innov Manage Stud 2010;1:40-4.
8. Corey KC, Cheng CE, Irwin B, Kimball AB. Self-reported help-seeking behaviors and treatment choices of adolescents regarding acne. Pediatr Dermatol 2013;30:36-41.
9. Jyothi R, Deepa R, Pandurakaksha HP, Girish K. A study on the pattern of self-medication for acne vulgaris in medical/paramedical students. Res J Pharm Biol Chem Sci 2013;4:1552-7.
10. Lukovic JA, Miletic V, Pekmezovic T, Trajkovic G, Ratkovic N, Aleksic D, et al. Self-medication practices and risk factors for self-medication among medical students in Belgrade, Serbia. PLoS One 2014;9:e114644.
11. Patil SB, Vardhamane S, Patil B, Santoshkumar J, Binjawadgi AS, Kanaki AR. Self-medication practice and perceptions among undergraduate medical students: A cross-sectional study. J Clin Diagn Res 2014;8:HC20-3.
12. Banerjee I, Bhadury T. Self-medication practice among undergraduate medical students in a tertiary care medical college, West Bengal. J Postgrad Med 2012;58:127-31.
13. Kumar N, Kanchan T, Unnikrishnan B, Rekha T, Mithra P, Kulkarni V, et al. Perceptions and practices of self-medication among medical students in coastal South India. PLoS One 2013;8:e72247.
14. Zafar SN, Syed R, Waqar S, Zubairi AJ, Vaqar T, Shaikh M, et al. Self-medication amongst university students of Karachi: Prevalence, knowledge and attitudes. J Pak Med Assoc 2008;58:214-7.
15. Amirthalingam S, Yi KS, Ching LT, Mun NY. Topical antibacterial and global challenges on resistance development. Trop J Pharm Res 2015;14:919-24.