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Original Research Article

Perception, knowledge and attitudinal assessment of drug promotional literature among second year, medical undergraduate students: a questionnaire-based study

Sweety Ramesh Deikar*, Lois James Samuel

Department of Pharmacology, Goa Medical College, Bambolim, Goa, India

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***Correspondence:**

Dr. Sweety Ramesh Deikar,
Email: sweetydeikar6995@gmail.com

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ABSTRACT

Background: WHO defines drug promotion literature (DPL) as “all informational and persuasive activities by manufacturers, the effect of which is to induce the prescription, supply, purchase and/or use of medicinal drugs”. Benefit driven marketing of new drugs by drug companies may lead to erroneous prescription due to insufficient understanding, knowledge of safety and therapeutic benefits of the drugs in the community. All these promotional activities influence the prescribing pattern of doctors. 2nd year of undergraduate medical course is the appropriate time to educate the medical undergraduate students about fundamentals of DPL and to train them accordingly for improving their prescribing behaviour eventually.

Methods: A prospective questionnaire-based study was conducted in Goa Medical College. The study participants consisted of 150 II-year undergraduate medical students. Approval from Institutional Ethics Committee was obtained. The feedback forms were collected from the students after they were completed and data was analysed and represented as counts and percentages.

Results: Among respondents 36% of students opined that the quality of details provided by medical representatives is biased and too commercial followed by others. 40.7% of students were of the view that the most important intervention needed to reduce the impact of drug promotion on prescribing was to formulate policies and guidelines for the health care authorities.

Conclusions: Promotional activities by manufacturers influence the attitude and prescribing pattern of doctors. So, it is of utmost importance to train medical graduates in order to enable them to develop the skill of critical analysis of DPL and consequently rational prescribing.

Keywords: Drug promotion literature, Questionnaire-based, 2nd year undergraduate students, Rational use, Prescribing pattern of doctors

INTRODUCTION

Advancement of technology and use of internet, media has led to accelerated and intensified promotion of drugs and related literature.¹

According to WHO drug promotional literature (DPL) is defined as ‘all informational and persuasive activities by manufacturers, the effect of which is to induce the prescription, supply, purchase and/or use of medicinal

drugs’.¹ The marketing of drugs across industry is mainly done through the employment of medical representatives.³

An enormous amount of money is invested by pharmaceutical manufacturers on printing promotional literature and distributing it through medical representatives to promote and endorse their products.^{1,5} It has been observed that companies in their promotional literature do not include all the requirements as per the standard criteria (WHO criteria).^{13,15,17} The literature may

either exaggerate the efficacy or understate the adverse effects of drugs for company's profit.¹ Marketing of new drugs by benefit driven drug companies may lead to irrational prescribing pattern due to inappropriate or inadequate data printed in DPL's.

Promotional activities benefiting the prescriber and thereby the manufacturers with inappropriate cost effectiveness increases the cost of therapy for the patient or to the provider when supplied free of cost to patients at some government run or charitable institutes.

II year of medical professional is the appropriate time to educate the medical undergraduate students about fundamentals of drug promotional literature and to train them accordingly for improving their prescribing behaviour eventually as they learn about drugs and drug prescription in II year of MBBS. The present study was conducted to assess the perception, knowledge and attitude of students about drug promotional literature.

METHODS

A prospective questionnaire- based study was conducted in the Department of Pharmacology, Goa Medical College for a period of 1 month (August 2022). The study participants included 150 II-year undergraduate medical students.

A questionnaire was created focussing on DPL concept, students' knowledge and awareness towards it. The final questionnaire consisted of 12 questions pertaining to the demographic profile of the students and their knowledge regarding drug promotional literature.

The signed informed consent was taken from the students and the questionnaire was distributed and responses collected after 1 hr. The questions had a response mechanism as single best answer, yes/no and true/false type. The individual item response was tabulated and analysed accordingly. Institutional ethics committee approval was obtained prior to the commencement of the study.

Statistical analysis

The forms filled by the students were collected and data was analysed using descriptive statistics. Results were presented as counts and percentage.¹

RESULTS

The questionnaire was filled by 150 II-year undergraduate medical students. Among the students 54 (36%) were males and 96 (64%) were females. The age range was from 19 to 22 years.

25% of students believed textbooks and similarly 25% believed drug reference guide as the most common source of information for prescribing the drugs followed by Indian pharmacopoeia, journals and others as depicted in Figure 1. 36% of students perceived that the quality of details provided by medical representatives is biased and too commercial while 28% believed that they over emphasize medicines effectiveness.

47.3% of the respondents in this study have opined that most important factor influencing the prescribing is knowledge of the prescriber followed by others. 65% of the students opined that the promotion of drug using internet or other media leads to self-medication and patient do not go to healthcare professionals for their illness.

79% of the respondents in this study have opined that most important factor a prescriber should consider while prescribing is safety/efficacy followed by local availability of the drug and others. 41% were of the opinion of creating policies and guidelines to reduce the impact of drug promotion on prescribing. 35% of students had impression that drug promotion by medical representatives helps in rational prescribing.

80% of students believed that doctors who report relying more on promotion as a source of information tend to prescribe inappropriately and prescribe new drugs as soon as they are introduced in the market.

Table 1: Demographic details of the students.

Demographic details N (%)	Gender		Age groups (years)			
	M	F	19	20	21	22
	54 (36)	96 (64)	102 (68)	38 (25)	7 (14)	3 (2)

Table 2: Percentage distribution of opinions regarding drug promotion by medical representatives.

No.	Responses	Yes N (%)	No N (%)	Don't know N (%)
1	It helps in rational prescribing	53 (35.3)	47 (31.3)	50 (33.3)
2	It updates prescriber's knowledge about drugs	118 (78.7)	19 (12.7)	13 (8.7)
3	Manufacturers promote off label use of some medicines to make profit	100 (66.7)	15 (10)	35 (23.3)
4	Prescriber becomes obliged after receiving the benefits from the manufacturers	65 (43.3)	49 (32.7)	36 (24)

Table 3: Promotion of methods to influence prescriber whether ethical?

No.	Responses	Yes N (%)	No N (%)	Don't know N (%)
1	Distributing free medicine during every visit by medical representative or during a medical camp	80 (53.3)	46 (30.7)	24 (16)
2	Giving margin/ percentage of their profit to prescriber/ pharmacist	44 (29.3)	88 (58.7)	18 (12)
3	Conducting conferences/CMEs for promoting their products	105 (70)	19 (12.7)	26 (17.3)
4	Arranging tours/trips for prescribers/pharmacists	37 (24.7)	88 (58.7)	25 (16.7)
5	Arranging private dinner parties	24 (16)	112 (74.7)	14 (9.3)
6	Gifts	20 (13.3)	112 (74.7)	18 (12)

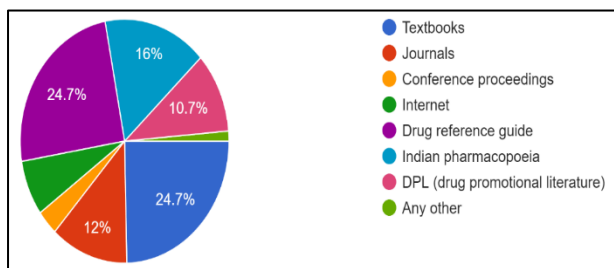


Figure 1: Distribution of sources of information for prescribing the drugs.

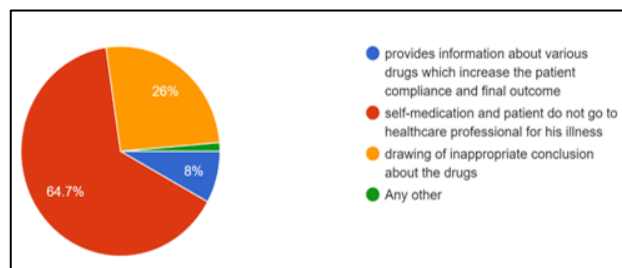


Figure 4: Promotion of drug using internet or other media leads to.

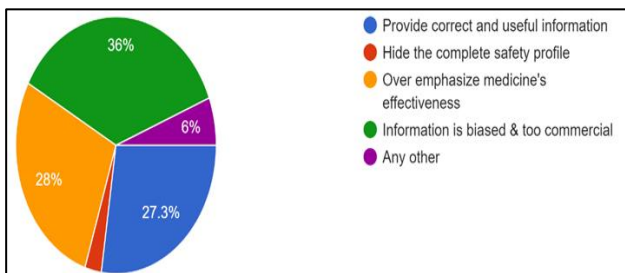


Figure 2: Quality of details provided by medical representatives.

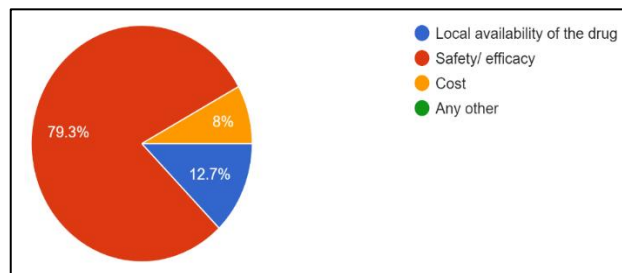


Figure 5: The most important factor a prescriber should consider while prescribing.

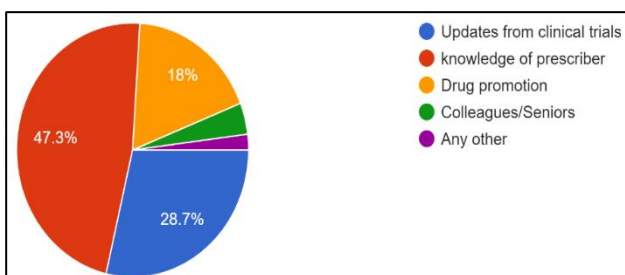


Figure 3: Factors affecting prescribing.

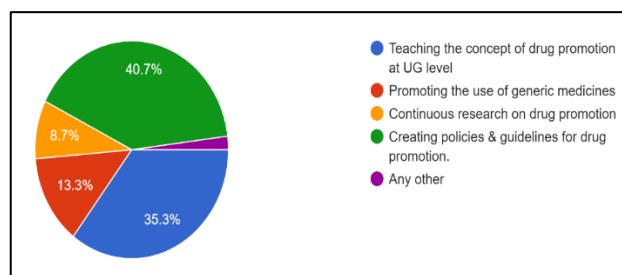


Figure 6: Measures to be taken to reduce the impact of drug promotion on prescribing.

Table 4: Perception, knowledge and attitude of medical students for the following questions.

No.	Responses	True N (%)	False N (%)
1	Most of the DPLs include complete safety profile and provide limited information on efficacy	69 (46)	81 (54)
2	Free samples of a pharmaceutical products which are supplied to healthcare professionals can be resold	34 (22.7)	116 (77.3)

Continued.

No.	Responses	True N (%)	False N (%)
3	Doctors who report relying more on promotion as a source of information tend to prescribe inappropriately and prescribe new drugs as soon as they are introduced in the market	120 (80)	30 (20)
4	CMEs conducted by the pharmaceutical companies should conduct activities and programs including material which is fair, balanced and objective.	135 (90)	15 (10)

DISCUSSION

The study was conducted on second year undergraduate medical students to assess their perception, knowledge and attitude regarding DPL. 25% of the respondents in this study believed textbooks and drug reference guide as the most trusted source for getting knowledge about drugs for prescribing purposes which is similar (25%) to the study conducted by Dixit et al followed by Indian pharmacopoeia and journals though about 11% of students also referred drug promotional literature as trusted source.⁹ 36% of the students in the study opined that the quality of details provided by medical representatives is biased and too commercial whereas 27.3% of the students opined that DPL provide useful and correct information for this reason they should be taught about the essential information which should be included in DPL according to WHO criteria and also about critical appraisal of the DPL as many of them overemphasise the information on efficacy without including the complete safety profile and thus can be misleading.^{1,12}

Prescribing pattern is determined by many factors like knowledge of the prescriber, seniors/colleagues prescribing behaviour, various updates from journals, clinical trials, CMEs and conferences.^{2,4} 47.3% of the respondents in this study have opined that most important factor influencing prescribing is knowledge of the prescriber followed by updates from clinical trials (29%), though 18% of students said that drug promotion affects the prescribing most. As per study conducted by Dixit et al knowledge of the prescriber was the most important factor for influencing the prescribing pattern while influence of drug promotion to a lesser extent.⁹ It is of utmost importance to train the students regarding correct use of DPL as 80% of students believed that doctors who make use of promotion as a source of information tend to prescribe new drugs as soon as they are launched in the market thus prescribe drugs inappropriately (Table 4).

At present advertisement, media, and internet have become very potent source of obtaining any information and are also available easily.² Consumers may have difficulty recognising which sites sell the authentic products as some dispense drugs only after obtaining a copy of prescription by a registered doctor while majority of the online drug store sell the drugs without the need of prescription by a doctor.⁹

The internet also creates a new mart for illegal activities such as the sale of unapproved new drugs or products marketed with fraudulent health claims.^{2,5} So, caution

should be exercised and patients need to be educated and made aware of these malpractices. Also, there should be a check on these activities by appropriate regulatory bodies.⁹ Pharmaceutical manufacturers also invest vast sums of money on promotion, including remuneration of sales representatives, expenses on samples, advertisements in broadcast and print media and sponsorship of educational events and conferences.¹

Hence, appropriate measures or standard guidelines should be drawn by regulatory authorities to check the availability of such kinds of DPL in public domain, because referring to biased DPL, masses may derive inappropriate conclusions about the drug thus leading to various health problems.^{2,4}

Regarding quality of details provided by medical representatives, 36% of students perceived that the quality of details provided by medical representatives is biased and too commercial while 27% respondents thought that the information provided was correct and useful. However, the students should be given appropriate training on retrieving the correct information using various trusted sources available as this will enhance their skill to distinguish between true information and fake information.²

To reduce the impact of misleading drug promotion activities, 41% of the respondents were of the opinion of creating policies and guidelines. Organisation of Pharmaceutical Producers of India (OPPI) was established in 1965, a premier association of research and innovation driven pharmaceutical companies in India and is also a scientific and professional body.⁷ From 1st January, 2019, the “OPPI Code of Pharmaceutical Practices 2019” replaced the “OPPI Code of Pharmaceutical Marketing Practices 2012”.⁷ OPPI Member Companies are committed to the ethical standards set out in this OPPI Code, but the final responsibility of implementation of the OPPI Code is a matter of self-regulation and self-discipline.⁷

Regarding drug promotion done by medical representatives, most of the respondents had the impression that drug promotion by medical representatives helps in rational prescribing (Table 2) but manufacturers promote off label use of some drugs for their profit (Table 3). Hence the manufacturers should comply with the protocols formed by OPPI and the medical representatives should be trained appropriately. If promotion leads to better prescribing and more rational use of medications then there would be no concern, but massive promotion of

new drugs leads to widespread prescribing and use even before the safety profile of these products is fully understood.^{8,10,16} More expensive newer medicines dismiss less costly, older ones without any corroboration of an improvement in therapeutic outcomes.⁶

Regarding the ethical aspects of distributing free samples of the drug and conducting CMEs for the promotion of their products, most respondents thought it was ethical. The opinion of respondents corroborates with the respondents in the study conducted by Dixit et al.⁹ However, according to OPPI's guidelines, "free samples of a pharmaceutical product may be supplied to health-care professionals directly or to persons duly authorized by them to or to receive such samples on their behalf to enhance patient care. Samples should not be resold or otherwise misused".⁷ and regarding conducting CMEs "When companies provide content to CME activities and programs, such material must be fair, balanced and objective, and designed to allow the expression of diverse theories and recognized opinions. Content must consist of medical, scientific or other information that can contribute to enhancing patient care".^{7,14}

The pharmaceutical companies use several modes of drug promotion to directly influence the doctors. These medical representatives use inducements to lure health care professionals towards their products.¹¹ Such activities are entrenched in our health care sector though it is unethical according to the medical code of conduct.⁹

The limitations of the study were the small sample size and also the study was done among medical undergraduate students wherein they have the conceptual knowledge on drug promotional literature however not hands-on experience.

CONCLUSION

Drug Promotional activities by manufacturers influence the prescribing pattern of doctors. If promoted rationally and critically analysed by healthcare professionals it may lead to more rational use of drugs but if promoted irrationally it will ultimately lead to poor healthcare delivery. So, it is of utmost importance to appropriately train the future medical graduates about reference use of DPL and enable them to develop the skill to prescribe drugs rationally, at the opportune and appropriate time in their medical course.

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