

Medical Ethics

Physician–medical manufacturing industry relationships: Perceptions of medical students

AVNEET KAUR, SIMERJIT SINGH, HARMANPREET SINGH

ABSTRACT

Background. Physicians and the medical manufacturing industry (MMI) are closely associated and may have some form of financial or business arrangement. Research has highlighted that these interactions negatively impact physicians' prescribing behaviour. We tried to explore medical students' perspectives regarding these interactions.

Methods. We did a questionnaire-based survey to capture the demographic information and included five yes-or-no questions with two possible answers that probed the participants' awareness. Statements (26 Likert-style questions) describing various physician–industry interactions were formulated based on previous research. Excel was used to gather the data, and SPSS v 25.0® for Windows was used to analyse it. Frequencies and percentages (qualitative variables) and means and standard deviations were used to present descriptive statistics (quantitative variables). The associations between the independent variables and awareness were examined using chi-square test.

Results. About 40% of students knew doctors and MMI work together, but only 6% knew there were rules about accepting gifts from MMI. Eighty-four per cent of respondents felt free samples from MMI were an excellent way to learn about new products. The prevalence of awareness was higher in interns/housemen (51.6%) compared to medical students (35.9%). Most (43%) of the participants preferred an online database as a method of disclosure.

Conclusions. Our findings indicated students' knowledge gaps regarding ethical considerations and recommended guidelines regarding the relational dynamics of medical practitioners and MMI. Students should be taught appropriate conduct and best practices and must strive to develop skepticism towards MMI marketing claims. This may be achieved by implementing various educational interventions in the medical curriculum.

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UTAR, Sungai Long, Kajang 43000, Selangor, Malaysia
AVNEET KAUR Department of Preclinical Sciences

Taylors School of Medicine, Subang Jaya 47500, Selangor, Malaysia
SIMERJIT SINGH Department of Orthopaedics

Government Polytechnic College, Sant Nagar, Jalandhar 144001,
Punjab, India
HARMANPREET SINGH Department of Pharmacology

Correspondence to SIMERJIT SINGH; simer1980@yahoo.com

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INTRODUCTION

It is well known that physicians and the medical manufacturing industry (MMI) are closely associated and have some form of financial and business arrangement.¹ Some examples of these associations include MMI paying for physicians' consultation payments, reimbursing travel expenses and registration fees for educational conferences, owning company stock and handing out free drug samples. Many authors have highlighted that these interactions negatively impact physicians' prescribing habits. One of the most important and well-documented examples is the opioid crisis in the USA.² In 2019, the Malaysian Medical Council (MMA) issued the Code of Professional Conduct,³ which guides medical practitioners regarding professional conduct. It states that a doctor should 'avoid accepting any pecuniary or material inducement which might compromise, or be regarded by others as likely to compromise, the independent exercise of their professional judgment in prescribing matters.' Medical students and fresh graduates are more vulnerable to these influences unless they are adequately trained in skills for interacting with MMI.

Moreover, studies have shown students' extensive exposure to MMI during the courses.^{4–6} However, their knowledge about MMI and interaction skills does not increase during training. While we may limit the interactions of the medical students with MMI during their course, they will have to interact once they start their clinical practice.⁷ Furthermore, the students are posted in private clinics during clinical rotations, making such interactions inevitable. However, the main issue is not whether these interactions should be prevented but whether our students should be trained enough to deal with them and sensitized to the conflict of interest. As medical educators, we must ensure that students understand the ethical issues and are better prepared to work with the MMI. Various educational interventions have been tried but with limited success.⁶ Some examples of these educational interventions include workshops, seminars, curriculum modules and ethics courses.

Most of the previous research on this topic included residents or postgraduate students. There is a lack of data regarding Malaysian undergraduate medical students' perspectives on these interactions. Hence, we investigated the students' beliefs and opinions regarding interactions with MMI.

METHODS

We developed a survey questionnaire based on earlier research.^{8–16} Following a pilot study with a small subgroup of students ($n=30$), the questionnaire was improved and verified with the help of experts (physicians who were part-time faculty members at the university). These suggestions were used to develop the final questionnaire, which was then used in the

study (Appendix 1, available at www.nmji.in). The demographic information, including gender, race, undergraduate year, subjective health state, health insurance status and residence status, was collected in the survey's first section. Five yes-or-no questions with two possible answers probed the participants' awareness. The questionnaire's second section contained 26 Likert-style questions about the interactions between doctors and the MMI. The statements were placed in four major subgroups based on their main thrust after discussion and agreement among the researchers, including acceptability, perceived negative effects, attitude towards disclosure and perceived distrust. The students graded each statement using a 5-point Likert scale, with 1 being 'strongly disagree' and 5 being 'strongly agree'. Two questions about the accepted value of the gifts from MMI given to physicians and the recommended method of disclosing physician–MMI financial interactions were added in the questionnaire's final section.¹⁶ To assess the internal consistency of the data form, Cronbach alpha coefficient was calculated and found to be 0.723. After getting approval from the university ethics (UTAR Scientific and Ethical Review Committee U/SERC/48/2019) and review committee, the survey questionnaire was administered using Google Forms.

Data analysis

Microsoft Excel was used to gather the data, and SPSS v 25.0[®] for Windows was used to analyse it. Frequencies and percentages (qualitative variables) and means and standard deviations were used to present descriptive statistics (quantitative variables). Scores were generated from the responses on the Likert scale from 1 to 5. The associations between the independent variables (gender, race, undergraduate year, subjective health, health insurance status and residence status) and awareness were examined using chi-square test. A between-groups ANOVA was done to determine whether student characteristics such as gender, race, undergraduate year, subjective health, health insurance status, residence status, awareness and preferred type of disclosure will affect how they perceive relationships between doctors and MMIs (acceptability, perceived negative effects, positive attitude towards disclosure and perceived distrust). Levene F test also validated and met the homogeneity of variance assumptions. The significance level was set at 0.05.

RESULTS

The mean (SD) age of the 215 students who responded was 24.11 (3.1) years with a range of 19–36 years (Table I). Only 13 (6%) students had heard of any rules governing receiving gifts from MMI, even though over 40% (86) of the participants were aware of the relationships involving doctors and MMI. Only 15 (7%) of those surveyed said they felt prepared to communicate with MMI staff while training. However, 86 (40%) students had previously participated in MMI-related events such as free medicine samples, gifts, meals and presentations. Eighty-four per cent (181) of the students said that free samples helped them learn about new products. Only 45 (21%) of the students agreed that physicians should not receive gifts from the MMI. Regarding the type of interactions, 78% of respondents deemed the 'funding of educational programmes and fellowships' by MMI satisfactory (Appendix 2, available at www.nmji.in).

Only the 'year of training' was substantially related to the

prevalence of MMI-related awareness and exposure. Awareness was more prevalent among interns/housemen (51.6%) than medical students (35.9%). The difference in the prevalence of awareness across groupings was statistically significant ($p=0.03$). Prior exposure to MMI-related activities was more prevalent among interns/housemen (62.9%) than among medical students (30.1%). The difference in the prevalence of awareness across groups was statistically significant ($p<0.001$).

Around 43% of the under-training doctors chose less than US\$ 200 as the accepted value of the gifts to physicians from MMI. Most (43%) of the participants preferred an online database as a method of disclosure. Only the women showed significant acceptability of these associations ($p=0.01$). No other independent variables such as race, subjective health, health insurance, residence status, prior exposure of under-training doctors to MMI, prior training in interacting with MMI, year of training, and awareness showed any significant differences for acceptability, perceived negative effects, a positive attitude towards disclosure, and perceived distrust.

DISCUSSION

We noted a disparity between knowledge of interactions and the ethical issues related to these interactions. Despite being aware of these interactions, the majority of students failed to acknowledge the ethical considerations.

According to Steinman *et al.*,¹⁷ most residents rated the suitability of gifts based on their price rather than their educational value. Keim *et al.*¹⁸ found that most respondents felt it was permissible to receive presents from MMI. The authors emphasized the necessity for additional bioethics education for the under-training physicians. Based on a systematic review by Austad *et al.*,¹⁹ undergraduate or in-training physicians' substantial exposure to pharmaceutical marketing typically correlates with a favourable attitude towards

TABLE I. Demographic characteristics of the student participants

Item	n (%)
<i>Gender</i>	
Men	95 (44.2)
Women	120 (55.8)
<i>Race</i>	
Malay	97 (45.1)
Chinese	82 (38.1)
Indian	33 (15.3)
Others	3 (1.4)
<i>Subjective health</i>	
Very good	24 (11.2)
Good	102 (47.4)
Fair	48 (22.3)
Bad	26 (12.1)
Very bad	15 (7.0)
<i>Year of training</i>	
Undergraduate	153 (71.2)
Intern/houseman/medical officer	62 (28.8)
<i>Health insurance</i>	
Private	150 (69.8)
Other	11 (5.1)
None	54 (25.1)
<i>Residence status</i>	
Local	201 (93.5)
Foreigner	14 (6.5)

the pharmaceutical sector and skepticism concerning these relationships' negative consequences or repercussions.

Despite only 40% of students having prior exposure to MMI promotions, 84% of participants in our study were willing to accept MMI promotions. Acceptability can depend on various factors, including their values and beliefs, their level of skepticism regarding industry influence, and their understanding of the potential risks and benefits of industry relationships.

Physicians are reluctant to recognize that encounters with industry (gifts) may impact their prescription practice, but they believe that such encounters could influence the prescribing patterns of their professional peers.^{17,20,21}

A thorough look at previous studies on the subject also showed that medical students' views on marketing techniques are varied, confusing and sometimes even contradictory. And it relies on the interaction or financial relationship between physicians and the MMI.¹⁹ Several studies have reported that women have higher ethical awareness, concern for patient welfare and less favourable attitudes towards gift-giving and interactions with the pharmaceutical industry. For instance, Wazana²² found that women physicians were less likely to accept gifts from pharmaceutical companies and had a more negative view of the pharmaceutical industry than their men counterparts. Another study by Pham-Kanter²³ reported that women residents were less likely to have received gifts from pharmaceutical companies and were likelier to believe such gifts influenced prescribing practices. These findings suggest that gender differences may influence attitudes towards interactions with the pharmaceutical industry. Interestingly, in this study, the women were more accepting of these interactions.

Regarding disclosure of these relationships, most of the study respondents (43%) preferred an online database as the preferred method of disclosure. A systematic review²⁴ found that public disclosure of financial relationships was associated with lower rates of prescribing of brand-name drugs and increased awareness of potential conflicts of interest among medical professionals. Efforts to assist patients in navigating and comprehending the Open Payments database, and in integrating this information into their healthcare choices, might prove to be beneficial.²⁵

Regarding free drug samples, MMA explicitly prohibits drug samples for personal use. Interestingly, approximately 30% of students in this study considered free drug samples for personal use acceptable. About 80% of the students feel funding for educational programmes is fine, although according to the MMA, any 'fellowship, research grant or education grant' is likely to influence a physician. The findings of this study indicated students' knowledge gaps regarding ethical considerations and recommended guidelines regarding the relational dynamics of medical practitioners and MMI. As medical educators, we must teach the students appropriate conduct and best practices and strive to develop skepticism towards marketing claims of the MMI. This may be achieved by implementing various educational interventions in the medical curriculum. Farah and Bilszta²⁶ devised a lecture-based intervention to effectively improve medical students' ability to resist pharmaceutical marketing techniques. Other modalities to teach medical students about dealing with industry promotion include workshops and case-based discussions. We suggest the following measures: (i) course materials to instruct students on how to deal with MMI properly (use role-play of scenarios depicting these interactions); (ii) include MMI relationship

elements in student evaluations; (iii) MMI to engage with students while faculty are present (arrange as a teaching session); (iv) create institutional guidelines and policies for dealing with MMI; and (v) the institution should investigate the MMI to learn more about its goals, principles, and areas of expertise.

Limitations

Since respondents completed the questionnaires online using Google Forms, their interpretation of different questions was subject to far less control.

Conclusion

The medical education curricula should be redesigned so that under-trained doctors, who are prospective physicians, receive more exposure and information regarding the ethical aspects of the relationships between the healthcare industry and the MMI so that they can interact with them effectively and efficiently.

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