Exposure to the drug company marketing in Greece: Interactions and attitudes in a non-regulated environment for medical students

Magdalini Filippiadou [a, b], Dimitrios Kouvelas [a], Georgios Garyfallos [b], Ioannis Tsakiridis [a], Dimitrios Tzachanis [a, c], Dimitrios Spachos [d], Georgios Papazisis [a, *]

[a] Department of Clinical Pharmacology, Faculty of Medicine, Aristotle University of Thessaloniki, Greece
[b] 2nd University Department of Psychiatry, Psychiatric Hospital of Thessaloniki, Greece
[c] Department of Medicine, University of California San Diego, La Jolla, CA, USA
[d] Department of Medical Physics, Faculty of Medicine, Aristotle University of Thessaloniki, Greece

HIGHLIGHTS

- The marketing strategies used by pharmaceutical companies with physicians are also applied to medical students.
- Mostly the clinical-level students accept meals and gifts of small value.
- Students disagree that accepting gifts would affect their own prescription behaviour.
- Student's conflicting answers demonstrate that they are inadequately prepared for this interaction.
- Institutional and/or national policies should be applied to regulate the interactions.

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ABSTRACT

Background: Medical students are targeted by the pharmaceutical industry and are exposed to their marketing strategies even in the preclinical years of study. The marketing strategies used by pharmaceutical companies with physicians are also applied to students, affecting their future prescribing behaviour, and include low-cost non-educational gifts, travel expenses and conferences registration fees. In Greece, there are no national or institutional regulations and guidelines concerning drug company–medical student interactions. This study is the first time this estimate has been made in Greece and assessed a) the interactions between pharmaceutical companies and medical students, and b) students' attitudes towards pharmaceutical marketing.

Methods: A sampling of undergraduate medical students completed an anonymous, self-administered, web-based survey. The first part of the survey investigated the interaction between the students and pharmaceutical companies; the possible answers were the binomial variables 'yes' or 'no'. The second part assessed the students' opinions of pharmaceutical company marketing and the answer options were 'agree', 'don't know/don't answer' and 'disagree'.

Results: The survey was completed by 412 undergraduate medical students (mean age 22 ± 2.2 years, 52.7% were women); the overall response rate was 58.9%. Although the majority did not consider accepting gifts and meals from drug companies as ethical, most of them (59%) had accepted meals and low-cost non-educational gifts, especially the clinical-level students. Further, 52,6% of the students did not believe that accepting gifts from pharmaceutical companies would affect their own prescription behaviour, whereas surprisingly they held the opposite opinion of their classmates. The vast majority (85.9%) agreed that sponsored lectures were biased in favour of a company's products; however, 47.6% agreed that promotional material is useful for learning about new medications and 34.5% believed that medical schools should allow drug company representatives to interact with students.

Conclusion: Our results suggest that medical students in Greece are notably exposed to pharmaceutical industry marketing and their conflicting answers demonstrate that they are inadequately prepared for

* Corresponding author.
E-mail address: papazisg@auth.gr (G. Papazisis).

this interaction. Interventions are needed so that students are prepared and able to manage these interactions critically.

1. Introduction

The interactions between health professionals and pharmaceutical companies constitute a component of everyday medical practice. Drug company marketing strategies include a multitude of gifts and benefits ranging from low-cost gifts to expensive trips and grants. Although this phenomenon leads to suboptimal prescribing practices and promotes more expensive medical treatments with no evidence of therapeutic benefit over lower-cost options [1–3], many medical doctors deny that such interactions would affect their prescription behaviours, while others tend to rationalise and regard the receipt of gifts as ethical [4,5]. As with medical doctors, medical students are exposed to pharmaceutical company marketing even in the preclinical years of study [1,6–8]. Many studies have reported that medical students accept gifts, mainly low-cost non-educational gifts, and the interactions with industry representatives are augmented throughout the years of medical school [1,9–20]. Interestingly, the pattern, which is also observed in medical doctors, is to deny that receiving gifts would affect their own future prescription behaviours but to believe that of their colleagues would be more affected, and promote the donor company's products [6,21,22].

In Greece, interactions between drug companies and medical students are not regulated by any law or code of ethics. Besides the absence of national regulation, there are no specific institutional regulations or guidelines on interactions between pharmaceutical companies and students in medical schools across the country. Thus, medical students are not adequately prepared for the interaction with companies' representatives and are more vulnerable to their marketing strategies.

With the exception of a very descriptive 'case report' [23], there is no published study either on medical doctors or on medical students assessing their exposure to pharmaceutical industry marketing. This study is the first time this estimate has been made in a Greek university and assessed a) the interactions between pharmaceutical companies and medical students, and b) the students' beliefs and opinions of pharmaceutical marketing.

2. Materials & methods

2.1. Study design

This cross-sectional study was conducted in 2015 at the Faculty of Medicine of the Aristotle University of Thessaloniki. A simple random sample of 700 students was drawn from the total undergraduate student population (over 3500 students). The students received a pre-notification e-mail, which was sent twice, that described the study and invited them to complete a web-based questionnaire using a given URL. The survey completion rate was 100% (participants had to answer all questions in the survey in order to submit it). No incentives were provided for completing the survey.

2.2. Compliance with ethical standards

The study received the approval of the Bioethics Committee of the Faculty of Medicine of the Aristotle University of Thessaloniki.

All participants were informed of the aims and objectives of the study. A comprehensive information leaflet was also uploaded to the webpage for the participants.

2.3. Measurements

The data were collected using an anonymised self-administered, web-based questionnaire with the objective of gathering information. The questionnaire was created in accordance with the standards of questionnaires used previously in international studies [24]. The questionnaire consisted of two parts that were not visible to the participants.

The first part of the questionnaire investigated the interaction between the students and pharmaceutical companies. The possible answers were the binomial variables 'yes' or 'no' (Table 1).

The questions in the second part assessed the students' opinions of pharmaceutical company marketing. The possible answers were 'agree', 'don't know/don't answer' and 'disagree' (Table 1).

2.4. Statistical analyses

Descriptive statistics are reported as the mean $\pm$ SD (standard deviation) for continuous variables and as the count (percentage) for categorical variables. The primary outcome variable of interest was each response to the questionnaire. Each answer was used as a categorical variable; univariate analyses (Pearson chi-square test) were carried out between categorical variables. The level of statistical significance was set at 0.05. All statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) v. 22.0.

3. Results

The final sample consisted of 412 undergraduate medical students (52.7% were women, 47.3% were men); the overall response rate was 58.9% (412/700). The mean age was 22 years (SD = 2.2, range = 18–28 years). Most respondents (52.2%) were clinical-level students. In Greece, the clinical level starts at the fourth year of studies. Of the respondents, 13.3% (n = 55), 13.1% (n = 54), 21.4% (n = 88), 15.8% (n = 65), 11.7% (n = 48) and 24.8% (n = 102) were in the first, second, third, fourth, fifth and sixth year of studies, respectively.

Most respondents (59.0%) had received a small, low-cost non-educational gift (e.g. pen, coffee mug) from a pharmaceutical company; clinical-level students had received a small gift twice as often as the preclinical students (p < 0.001). Almost one-quarter of respondents (24.5%) had received a lunch (15.2% preclinical vs. 33% clinical); clinical-level students tended to receive lunch almost three times more often than the preclinical students (p < 0.001). Of the preclinical students, 10.7% reported receiving a book as a gift from a pharmaceutical company, while the same was true for 20% of clinical-level students, meaning that clinical-level students received a book as a gift almost twice as often as preclinical students (p = 0.009) (Table 1). Further, clinical-level students had attended a seminar or educational event held by a pharmaceutical company three times more often than preclinical students (p < 0.001) (Table 1).