

## Pharmacy Students' Perceptions on Pharmaceutical Promotion

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The promotional activities of the pharmaceutical industry affect the behaviour of pharmacists. The aim of this study was to determine the opinions of pharmacy students on pharmaceutical promotions. A cross-sectional study was carried out at Ege University Faculty of Pharmacy. The population included 201 pharmacy students. A self-administered anonymous questionnaire included 15 Likert-type items. The students declared that 73.1% of them participated in company promotional activities. Most of the pharmacy students in the survey believed that company promotions could affect their own attitude to pharmaceuticals as well as influencing other health workers. Whereas 73.1% of the students claim that they attended promotion events, it is established that a significant majority of those think these promotions have an effect on both their and the other health personnel's attitude towards the drug. It is found that 23.9% of students show among their information sources about the drug as the company supported trainings and pharmaceutical representatives, whereas approximately 30% of those find such firm promotions non-ethical. The difference between the scale scores of these two groups of students are found to be statistically meaningful ( $p < 0.05$ ).

**Key words:** Pharmaceutical promotion, Pharmaceutical company, Students, Pharmacy education

### Eczacılık Fakültesi Öğrencilerinin İlaç Tanıtımları Hakkındaki Görüşleri

İlaç endüstrisinin ürünlerini tanıtım çalışmaları eczacıların davranışlarını etkileyebilmektedir. Bu araştırma, Eczacılık Fakültesi öğrencilerinin ilaç endüstrisinin tanıtımları hakkındaki görüşlerini belirlemek amacıyla gerçekleştirilmiştir. Kesitsel olan bu çalışma, Ege Üniversitesi Eczacılık Fakültesinde yürütülmüş ve toplam 201 öğrenci katılmıştır. Kendi kendine uygulanan, isimsiz anket, 15 Likert tipi maddeyi içermektedir. Öğrencilerin % 73.1'i firma promosyon aktivitelerine katıldığını belirtirken, önemli bir çoğunluğu firma promosyonlarının hem kendilerinin, hem de diğer sağlık personelinin ilaçla ilgili tutumlarını etkilediklerini düşündükleri saptanmıştır. Öğrencilerin %23,9'unun ilaç bilgi kaynakları arasında firma destekli eğitimleri ve tıbbi mümessilleri gösterdikleri ve yaklaşık %30'unun ise firma promosyonlarını etik bulmadıkları saptanmıştır. Bu iki grup öğrencilerin ölçek puanları arasındaki fark istatistiksel olarak anlamlı bulunmuştur ( $p < 0,05$ ).

**Anahtar kelimeler:** İlaç tanıtımı, İlaç şirketi, Öğrenciler, Eczacılık eğitimi

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### INTRODUCTION

The pharmaceutical sector is one of the greatest and most powerful sectors in the world and pharmaceutical industry market is

expanding every year (1). It is reported that promotion of pharmaceutical sector has become a critical problem on the basis of public health. Pharmaceutical companies usually allocate resources, administration expenditures to marketing more than they

spend for drug research and development (2). Although the average promotional expenditures for various market sectors is 2% of the total revenues, the ratio for the pharmaceutical companies is much higher (around 15–25% of their sales) (3).

According to Manasse, the socioeconomic effects of drug use and the necessity for the usage of drugs safely, create a demand that health professionals who manage medications should be empowered to ensure their rational use (4). On the other hand, it is noted that the promotional activities of the pharmaceutical companies could restrict the rational choice about drugs. It is reported that it is the responsibility of the healthcare provider to obtain unbiased information for determining whether a particular drug is a better choice and the pharmaceutical company's marketing of the product should not be the only source of information (5).

According to some studies, the pharmaceutical promotional activities and their commercial resources frequently provide biased and misleading information which can lead to improper prescribing (6-11). The pharmaceutical industry is vital for the drug discovery (12). Also, it is considered to be useful to inform the health workers of the companies about the new drugs and up-to-date information about the drugs (6). On the other hand, it is noted that the gift articles which have a very important part in the promotional activities are an important tool to initiate, to establish, to maintain and to make routine of the relationship between pharmaceutical companies and the health workers (13). Despite believing that other physicians are influenced by promotional activities, physicians usually claim that the same activities have no effect on their own prescribing behaviour (14). According to Semin, this could be due to the immunity and the desensitization that results from prolonged exposure to the promotional activities (13).

The researches concerning pharmacist - industry interactions are less common than the researches concerning physician–industry interactions (12). Pharmacists play an important role in providing proper education on disease and rational therapies (15). Manasse reported that the role of the pharmacists in drug distribution is the safe

and effective management of the pharmaceutical supply (4). Pharmacists are involved in relationships with the pharmaceutical manufacturers. Banks reported that pharmacists are also well positioned to advocate for the patients by speaking out on public policy issues related to the delivery of drug therapy and health care (16).

Turkish Pharmaceutical market has been one of the fastest growing markets in the world. Also, it is pointed out that promotional expenses are approaching to enormous amounts in Turkey (17). The continuing health educations financed and organized by the pharmaceutical companies, gift articles, conferences, visiting physicians by the pharmaceutical sales representatives in the hospitals, tests free of charge, drug advertisement catalogues distributed to the pharmacies, activities for expanding market share under disguise of information campaigns, furnishing the hospital rooms are the methods of promotion in Turkey (13). The national and international regulations and rules which control promotional activities are guided by regulations that started to enlarge in the scope in the 1980s. In Turkey, The Pharmaceutical Manufacturer Association, The Ministry of Health and The Turkish Medical Association have put the codes and regulations on this issue in place in the 1990s (2). The last code entitled regulation on the promotional activities for medicinal products (Beşerî Tibbi Ürünlerin Tanıtım Faaliyetleri Hakkında Yönetmelik) was published in 2011.

In a study Turkish patients suppose that drug promotions are the reason of the increase in the drug prices. They think that these promotional activities are non-ethical (2). On the other hand, the physicians were interviewed for a study stating that the patients those are buying the drugs from the pharmacist arbitrarily will go to the doctors later to prescribe these drugs, and the pharmacists could involve in some irregular activities. The studies performed in Turkey notify that promotions of the pharmaceutical companies are effective on the decisions of the physicians by prescribing and other drug applications (18-21). In a Turkish study, more than a half of the pharmacists and nurses both emphasized that to their point of view, pharmaceutical representatives are

considerably effective for the prescription of drugs. Besides, the nurses stated that since in some situations they have to give or apply the drug to the patients themselves, even the physicians have no information about the application of the drug, and presentations are needed to be performed for the nurses also (17,18).

Interactions with pharmaceutical representatives often begin in school (1,7). Students' involvement in promotional activities is important subject for their future professional judgments. There were some studies were carried out using medical and nursing school students in Turkey (22, 23). Sarikaya and et al. noted that medical students are intentionally targeted by pharmaceutical companies marketing efforts, and student vulnerability has not been recognized in medical education (23).

Furthermore, there was no study that specifically focuses on the pharmaceutical students in Turkey. This study aimed to determine the opinions of pharmacy students on promotional activities of the pharmaceutical companies.

## MATERIALS AND METHODS

### *Participants*

This cross-sectional study was carried out at Ege University Pharmaceutical Faculty located in Izmir, Turkey. All of the third-year (N:108) and the fourth year (N:116) pharmaceutical students were expected to participate to the study. The responses were 79.6% (n:86) of the third-year class and 99,1% (n:115) of the fourth-year class. In order to conduct the study, permissions obtained from the faculty.

### *Instrument*

All the students were informed on the objective of the study and the data were collected via a self-administered anonymously structured questionnaire at the end of the term in 2009. The questionnaire was developed based on a literature review of the previous studies. The questionnaire contained questions regarding sociodemographics and Likert-type items about the opinions for the promotions (See items in Table 2). Demographic data, career plans, resources of information for the

drugs, participation information to the company activities were collected using fill-in-the-blank questions, multiple-response items. The scale on the students' opinions consisted of 15 items rated on a five-point scale (1= strongly disagree to 5 = strongly agree), the perception maximum score is 75. The cronbach alpha reliability coefficient was calculated as 0.77.

### *Analysis*

All data were entered and analyzed using the SPSS, version 15.0 (SPSS). Mean scores were calculated for each item. The difference between the mean attitude scores and demographic data was analyzed using "*t test*" and "*one-way analysis of variance*" (ANOVA).

The statistical significance of the differences in percentages of each item and demographic data were tested with the "*chi-squared test*". The level of significance was accepted as (p<0.05).

## RESULTS

Demographic characteristics of the students are shown in "Table 1". Most of the students are female and most of the participation in the study was fourth year students. The majority of them noted that they plan to practice as self-employed community pharmacists. Approximately 2/3 of the students declared that they participated in the presentations and activities of the pharmaceutical companies. Regarding the grades, 32% of the 3<sup>rd</sup> year students and 68% of 4<sup>th</sup> year students participated in the company activities. The drug information resources of the 23.9% of the students are company supported trainings and representatives. Approximately 30% of the students expressed that they are completely against the company promotions.

The answers of the students to the scale are shown in "Table 2". As seen in the answers, the students expressed that drug promotions affect drug information and behavior of the pharmacists and physicians. According to the responses to the Likert items, the mean score was 37.36±5.65 (Min:22-Max:52).

**Table 1.** The distribution of students' responses to some questions of the survey.

Characteristics	N (201)	%*
<b>Gender</b>		
Female	124	61.7
Male	77	38.3
<b>Year</b>		
4th year	115	57.2
3rd year	86	42.8
<b>Career plan <sup>∞</sup></b>		
Self-employed community pharmacist	123	61.2
Hospital pharmacist	30	14.9
Industry pharmacist	27	13.4
Social security institution pharmacist (Control and supervision)	20	9.9
Academic personnel	10	4.9
Military pharmacist	80	3.9
<b>Participation in any training programmes of drug companies</b>		
I have participated	147	73.1
I did not participate	54	26.9
<b>Drug information references resources <sup>∞</sup></b>		
School	200	99.5
Pharmaceutical databases	51	52.2
Professional journals	65	32.3
Internet	30	14.9
Company supported training	28	13.9
Company representatives	20	9.9
Pharmacists	12	5.9
<b>Views on current promotional activities</b>		
Should be increased	71	35.5
Current level is adequate	63	31
Should be decreased	40	20.5
It is acceptable in some conditions**	15	7.0
I have no idea	12	6.0

\*Column percentages,

<sup>∞</sup> more than one answer,

\*\* These reported conditions: Must be more scientific, pharmacist advisory behaviour should be considered, should have educational purposes, beneficial for the patient, aiming to increase professional qualifications, to contribute to education, to donate scholarships to students.

Comparisons between the total scale score and some demographic characteristics of the students analyzed with using t -test and ANOVA; there is no difference determined regarding sex, grade, and the participation to the company activities. On the other hand, a significant difference is found in terms of scale score between the students who think

about a decrease in the company promotional activities and the students who defend the increase of those activities (F: 6.25, p<0.05). It is indicated that the students who mark for the decrease in the company activities are not agreed much with the expressions in the items. Comparing each item of the scale with some characteristics of the students, some

**Table 2.** Distribution of the responses of the students to the scale

<b>Responses of the students</b>	<b>Strongly agree N %*</b>	<b>Agree N %*</b>	<b>No idea N %*</b>	<b>Disagree N %*</b>	<b>Strongly disagree N %*</b>
1. The educational activities supported by companies and the drug information circulated provide good support for education.	77 38.3	87 43.3	22 10.9	13 6.5	2 1.0
2. The promotional activities of pharmaceutical companies affect physicians' prescribing practices.	140 69.7	51 25.4	5 2.5	5 2.5	-
3. It is ethical for pharmaceutical companies to finance scientific research.	41 20.4	87 43.3	28 13.9	34 16.9	11 5.5
4. It is acceptable to participate in the social activities such as dinners arranged by companies	22 10.9	124 61.7	27 13.4	21 10.4	7 3.5
5. It is appropriate to accept the gifts for educational purposes distributed by companies	23 11.4	133 66.2	16 8.0	22 11.1	7 3.5
6. I think it is appropriate to accept drug samples given by the companies	25 12.4	126 62.7	14 7.0	31 15.4	5 2.5
7. It is appropriate to accept books, journals and other educational material distributed by companies	67 33.3	127 63.2	2 1.0	3 1.5	2 1.0
8. It is appropriate to accept participation in educational seminars organized by the companies	73 36.3	121 60.2	4 2.0	3 1.5	-
9. It is appropriate to accept the support of the companies to participate in congresses	67 33.3	120 59.7	9 4.5	3 1.5	2 1.0
10. It is appropriate to accept small gift items such as glasses, hats, umbrellas distributed by companies	18 9.0	94 46.8	29 14.4	42 20.9	18 9.0
11. Companies do not pass on promotional expenses to drug prices	13 6.5	29 14.4	61 30.3	64 31.8	34 15.9
12. Company promotions affect the advisory behaviour or drug information of pharmacists	46 22.9	103 51.2	12 6.0	31 15.4	9 4.5
13. The information circulated by the company about a new drug is sufficient	7 3.5	20 10.0	10 5.0	99 49.3	65 32.3
14. It is appropriate to accept donations such as computers, air conditioners distributed by companies	13 6.5	43 21.4	27 13.4	78 38.8	40 19.9
15. Company promotions do not cause unnecessary prescribing or sales of drugs	10 5.0	14 7.0	19 9.5	93 45.8	65 32.8

\*Row percentages

items are related with the characteristics of the students. Those students, which are participated in the company activities, have more positive opinions than the other group about the proposition: "The educational activities supported by the companies and the drug information circulated provide a good

support for the education." ( $\chi^2$ : 10,215,  $p < 0.05$ ).

The students who disapprove promotions have dramatically more negative attitude than the other group towards some of the propositions in the scale. These items were determined as follows: "It is ethical for the pharmaceutical companies to finance the

scientific researches" ( $\chi^2$ : 21.852,  $p < 0.05$ ), "It is acceptable to participate in the social activities like dinners arranged by the companies" ( $\chi^2$ : 34.605,  $p < 0.05$ ), "It is suitable to accept the presents for the educational purposes given by the companies" ( $\chi^2$ : 25.255,  $p < 0.05$ ), "It is suitable to accept the drug samples given by the companies" ( $\chi^2$ : 28.592,  $p < 0.05$ ), "It is suitable to accept the small gift articles like glasses, hats, umbrellas given by the companies" ( $\chi^2$ : 61.193,  $p < 0.05$ ), "It is suitable to accept the donations like computers, air conditioners given by the companies" ( $\chi^2$ : 36.831,  $p < 0.05$ ).

The differences between the items are determined according to the grades of the students. 4<sup>th</sup> year students are more agreeable than 3<sup>rd</sup> year students with the following items: "The promotions of the pharmaceutical companies affect the physicians practice of prescribing" ( $\chi^2$ : 15,148,  $p < 0.05$ ), "It is suitable to accept the drug samples given by the companies" ( $\chi^2$ : 10,048,  $p < 0.05$ ), "It is suitable to accept the small gift articles like glasses, hats, umbrellas given by the companies" ( $\chi^2$ : 15,148,  $p < 0.05$ ). On the other hand, 3<sup>rd</sup> year students have agreeable than 4<sup>th</sup> grade students some items. These items are "The companies are not passing on the promotional expenses to the drug prices" ( $\chi^2$ : 11,038,  $p < 0.05$ ), "The information circulated by the company about a new drug is sufficient" ( $\chi^2$ : 16,318,  $p < 0.05$ ), "It is suitable to accept the donations like computers, air conditioners given by the companies" ( $\chi^2$ : 9,514,  $p < 0.05$ ), "Company promotions do not cause to unnecessary prescribing and sales of drugs" ( $\chi^2$ : 9,246,  $p < 0.05$ ), "The promotional activities are unnecessary" ( $\chi^2$ : 19.412,  $p < 0.05$ ).

## DISCUSSION

In this study conducted with the participation of the pharmaceutical students, the participants express that the company promotions could affect their approach to the drugs as the other health workers and could cause unnecessary drug prescribing and sales. Nursing and medical students in Turkey also suppose that company promotions would affect the physician's prescribing behavior (22, 23).

The pharmaceutical students declared that 73.1% of them participated in company promotional activities. The participation in the senior class is 2 times higher than the one in the junior class. In the studies performed in Turkey it is determined that 91.2% of the medical students (23) and 29.0% of the nursing students were exposed to any type of marketing and this exposure increases in the senior class (22). It is indicated that pharmaceutical students usually contact less with the pharmaceutical representatives (24). In the study of Ashker et al. conducted with the pharmacy residents, it is determined that 43% of the residents have participated in the company training meetings (12).

In the studies, it is determined that most of the pharmaceutical students found the gift articles given by the companies acceptable and think that financing the scientific researches by the pharmaceutical companies is ethical. Similar results were obtained with the nursing students (16). On the other hand, the part of the company supported trainings and representatives were less than  $\frac{1}{4}$  of pharmaceutical information resources of the students. In the study of Monaghan et al. it is determined that pharmaceutical students suppose that the information provided by the companies are useful for themselves in a smaller extent than the medical and nursing students suppose for themselves (24). Whilst the majority of students think that company promotions would affect the advisory behaviour of pharmacists (item 12#), it is noteworthy that they remain unaware of the effects on the pricing of drugs (item 11#). Sarikaya reported that medical students should also be made aware of the financial burden that samples impose on society (23).

Whereas 31% of students find company activities to be adequate, 35% believe they should be increased, while 20% believe they should be decreased. In this study a significant difference is determined in terms of scale score between the students who think about a decrease in the company promotional activities and the ones who defend to increase those activities. As expected, it is determined that the former found the company promotional activities non-ethical, they think that accepting the presents given by the companies and supporting scientific and

educational activities by the companies are not suitable. Moreover, in the study of Ashker et al. some of the pharmacy residents also declared that they did not agree with the company activities (12).

The students in a percentage of 7 indicated that the promotional activities could be acceptable with one condition only if they are beneficial for the patients and education. According to their responses to the Likert items a large majority of students believe that company activities should be scientific and training oriented (items 7 and 8). In particular, as students have financial difficulties with regard to participation in scientific congresses, they look favourably on the support of pharmaceutical companies in this area (item 9). Students who look favourably other types of gifts being distributed are in a minority (item 14). However, Semin stated that the concepts like "gifts beneficial for the patients" used to overcome the possible resistances against promotions are controversial and since pharmaceutical companies do not have a responsibility for financing the health services these should be considered by defending the gifts (13). According to a study carried out by Ashker and Burkiewicz it is reported that the majority of the pharmacy residents agreed that industry-sponsored events are more promotional than educational (12). In a study of Sierles et al. most medical students think that sponsored educational events are likely to be biased, but are helpful (25).

The most of the students expressed that they require to practice in the community pharmacies for making a career where the most intensive communication with the companies will take place. In a study conducted in Turkey, more than 60 % of the students were planning to have a private pharmacy practice (26).

Semin reported that the requirement for the pre- and post-graduate education of the health workers is still continuing. Although the public resources supplied for medical education are limited and decreasing gradually, the pharmaceutical companies are supplying resources to continuing education in an increasing extent. It is emphasized that the related corporations should be aware of the importance of the continuing medical education by means of the public health so

this should not be on the initiative of the private sector (13). There are some suggestions of undertaking like training the health care personnel about the health care personnel and industry interactions, publishing professional ethics guidebooks informing about how to behave in the relations with the pharmaceutical companies, for the companies putting on practice the regulations about business ethics (12,22). In addition it is reported that the relationship between the pharmaceutical industry and health professionals is complex, schools would need to devote more attention for helping their students to develop appropriate ethical standards for interacting with pharmaceutical companies (9, 27). Kumar et al. reported that it is important to assess current awareness about disease mongering among the medical and pharmaceutical students, as the pharmaceutical promotional campaigns are aimed at both professions and assessing current awareness could provide a basis for further research (28).

Our study has several limitations. Our results are not generalizable to all pharmacy students in Turkey. The respondents might have reported opinions that are socially desirable, especially on sensitive such as the acceptance of gift items. This cross-sectional study cannot determine causality.

## **CONCLUSION**

The most of the students in this study were involved in promotional activities, and vast majority of the students agreed with the opinion that the company activities could affect the attitude of the health workers to the treatment. A minority of a group of students thinks that the company activities are inappropriate and non-ethical. This study emphasized educational requirement of the students. The students need to be educated about the pharmaceutical marketing strategies the potential dangers of drug companies' marketing and industry-health workers relationships in undergraduate.

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