

Exposure and attitudes to pharmaceutical promotion among pharmacy and medical students in Kuwait[†]

DOUGLAS E. BALL & SARA A. AL-MANEA

Department of Pharmacy Practice, Faculty of Pharmacy, Kuwait University, Safat, Kuwait

Abstract

Purpose: To determine exposure and attitudes to, and acceptance of, drug promotion among pharmacy and medical students at Kuwait University.

Methods: A cross-sectional survey of all pharmacy students and a sample of preclinical medical students using a self-administered questionnaire.

Results: A total of 135 pharmacy and 103 medical students completed questionnaires. Medical students reported receiving more training on the ethics of drug promotion than pharmacy students (63 vs. 48%; $p = 0.026$). Non-educational gifts and glossy advertisements were the most common. A textbook was considered the most appropriate gift (72 and 70%) and hospitality the least appropriate (29 and 24%). Both groups agreed that most drug company talks are biased (74 vs. 60%, respectively; $p = 0.008$), but there was little other skepticism of pharmaceutical promotion.

Conclusions: Students are exposed to drug promotion from early studies. Formal training to prepare them is required and local institutional ethical guidelines should also be developed.

Keywords: *Attitudes, gifts, drug promotion, medical students, pharmacy students*

Introduction

In the past decade, interactions between pharmaceutical companies (Pharma) and physicians have come under increasing scrutiny. In the USA, pharmaceutical promotion and marketing expenditure in 2000 was around \$15.7 billion and averaged around 20–30% of sales turnover, two to three times that of research and development (NIHCM, 2001). The bulk of this expenditure is composed of the cost of medicine samples (50.3%) and detailing visits to physicians (25.5%) (NIHCM, 2001). These personal visits to prescribers combined with other promotional activities such as gifts, sponsored meetings and advertising influence both the attitudes towards the company and its products as well as changing behavior. Evidence suggests that doctors who receive gifts are more positive towards the company and more likely to

prescribe the company's products (Lexchin, Norris, Herxheimer, & Mansfield, 2005) and doctors who rely on drug company information, through drug detailers or promotional literature, prefer expensive brands, adopt newer medicines more quickly, show more inappropriate prescribing and write more prescriptions that their colleagues (Lexchin et al., 2005).

Concerns have been raised about the influence pharmaceutical companies may have over medical students (Barnes & Holcenberg, 1971; Vinson, McCandless, & Hosokawa, 1993; Sandberg, Carlos, Sanoberg, & Roizen, 1997) and the effect it could have on their future prescribing practice and character by getting them accustomed to receiving gifts and cultivating positive attitudes and a feeling of obligation towards pharmaceutical companies (Wazan, 2000; Rogers, Mansfield, Braunack Mayer, & Jureidini, 2004). A study of preclinical and clinical medical

Correspondence: Dr D. E. Ball, Faculty of Pharmacy, Health Sciences Center, Kuwait University, P. O. Box 24923, Safat 13110, Kuwait. Tel: 965 4986073. Fax: 965 5342807. E-mail: dball@hsc.edu.kw

[†]Conflicts of interest: The authors have no conflicts of interest to disclose. The study was not specifically funded.

students at University of Minnesota found that almost all had participated in a promotional activity (Bellin, McCarthy, Drevlow, & Pierach, 2004) suggesting that exposure to pharmaceutical marketing started early in their professional training. A survey of third-year medical students in eight medical schools across the USA found that while some were aware of the potential negative consequences of pharmaceutical marketing, almost all had received a promotional gift or participated in a promotional event and that the majority perceived that they were entitled to get gifts and unlikely to be influenced by them (Sierles et al., 2005). The authors concluded that medical students are at risk for being influenced by pharmaceutical promotion. Outside of the USA, a study of Finnish medical students found that they had positive attitudes towards drug promotion (Mäntyranta & Hemminki, 1994) and a subsequent investigation found that students frequently participated in industry-sponsored events, spending as much time at these as would be required by a minor academic course (Vainiomaki, Helve, & Vuorenkoski, 2004). In spite of this, they did not consider they would be influenced and a large proportion wanted more presentations by pharmaceutical representatives and educational events organized by industry.

Little attention has been paid to the influence which pharmaceutical marketing has on pharmacists' attitudes or professional behavior. Pharmacists are also at risk since the modern role involves them in pharmacy and therapeutic committees, formulary development, medicine ordering and medicines information to prescribers and patients in addition to them being sellers of over-the-counter medicines. Expanded roles and prescribing authority accorded in some instances increases their "value" to drug marketers. Similarly, pharmacy students have not received the same attention as medical students, apart from one early study which showed that 75% of pharmacy students considered that pharmaceutical promotion influenced prescribing (Barnes & Holcenberg, 1971).

A cross-sectional survey was conducted among pharmacy and preclinical medical students at Kuwait University with the aim to determine their level of exposure to drug promotional activities and their attitudes to and acceptance of industry marketing practices and whether these attitudes are present from an early stage or develop during their studies through influence of the promotional activities.

Methods

A survey was conducted among medical (Years 3–5) and pharmacy (Years 2–5) students at Kuwait University. Anonymous self-administered questionnaires were developed based on the questionnaire used for third-year US medical students by Sierles et al. (2005).

The questionnaires elicited

- (1) demographic information about the students including membership of the relevant professional student association;
- (2) exposure to training about drug company promotion and interactions, and encounters with pharmaceutical representatives;
- (3) exposure to 10 different drug company interactions and gifts and the number of times they participated in these interactions;
- (4) perceptions of appropriateness of various drug company gifts assessed on a 12 item, 5-point scale from 1 (very appropriate) to 5 (very inappropriate); and
- (5) attitudes about drug company marketing measured as agreement with 10 statements (five suggesting acceptance of drug promotion and five suggesting scepticism) on a 5-point scale from 1 (strongly agree) to 5 (strongly disagree).

The questionnaires for medical and pharmacy students were essentially similar except for the name of the professional student association and pharmacy students were not asked about attending sponsored grand rounds or receiving a stethoscope as a gift and attitudes relating to effects on prescribing of medicines were changed to "selling or recommending a company's product". Major modifications compared to the US instrument included removal of items referring to debts of students, or drug company funding helping to lower tuition costs on the attitude scale since the state funds the education of the majority of students in Kuwait. In the interactions between students and pharmaceutical promotion, items referring to different forms of food (lunch, dinner and snacks) were collapsed into a single item (a meal) since preliminary investigations had suggested that food was seldom provided outside of workshops or other functions, which commonly include provision of some form of catering. Changes were made to the questions relating to acceptance or scepticism of drug marketing to make them applicable to the local setting and to allow comparison between pharmacy and medical students, e.g. in the effect of drug promotion on future behavior, reference was made to "prescribing" for medical students and "selling or recommending" for pharmacy students.

Pretesting with a group of three medical and five pharmacy students indicated that some words and phrases were not clear to local students whose first language is Arabic. As a result, Arabic translations were added in parentheses where required and one question about college policy on pharmaceutical representatives was deleted since it was known that there was no such policy. In addition, pretest respondents indicated that they infrequently interacted with drug representatives or received gifts and so

the frequency of interaction was measured as number of times per year rather than per month.

Overview of course structure

The pharmacy program is a bachelor's degree over five years, with Years 2–5 containing the professional training. Students undertake practice placements in government polyclinics in Year 4 and in hospital pharmacies and clinical wards in Year 5. The medical program is over seven years, with professional training from Year 2. Students start clinical ward exposure in Year 5, and Years 6 and 7 involve clerkships in various hospitals around the country.

Sample size and selection

Sample size calculations indicated that to detect a 20% difference in proportion between pharmacy and medical students on any one item, at 5% significance level and a power of 80%, 93 subjects were required in each group. The average size of a pharmacy class was 41 students and in Medicine was 100 students. The sampling frames consisted of all pharmacy students in Years 2–5 (163) and preclinical medical students from Years 3–5 (299). This would also allow comparison between different years of study and compare medical and pharmacy students of similar age and educational experience. Since 6th and 7th year medical students are not based at the university but rather in hospitals and are difficult to access, they were not included in this survey. The pharmacy students were approached during classes when attendance was mandatory, informed of the objectives of the study and invited to complete the questionnaire which was collected from them immediately afterwards. Access to medical students during teaching was problematic and the participants were selected by convenience sampling through personal approach outside of class. This was done by an investigator or a colleague trained in data collection, with a desired quota of about 30 students per year of study. In all cases, it was made clear that participation was voluntary and that the survey was anonymous. Ethical permission to conduct the survey was obtained from the Faculty Curriculum Committee.

Data analysis

Data was analyzed using SPSS v.13 statistical software (SPSS Inc., Chicago, USA). Uncorrected χ^2 -test and Fisher exact test were used for comparison of proportions, analysis of variance (ANOVA) and *t*-test for continuous data. To examine trends in data across year of study, the linear-by-linear association statistic was determined. A "significant trend" is only reported when there was also a significant result for the corresponding ANOVA or χ^2 -test, i.e. when there

was a significant difference between the groups as well as a significant linear trend.

For the exposure to various gifts or events, yearly frequency was measured for each gift/event (median times per year). In the case of appropriateness of drug company gifts/events, a mean appropriateness score was calculated for each item with a minimum (1; very appropriate) and maximum (5; very inappropriate) value corresponding to the Likert-scale responses. In addition, for display purposes and to enable comparison with a similar study (Sierles et al., 2005), the "Very appropriate" and "Appropriate" responses were combined as were the "Very inappropriate" and "Inappropriate" responses and depicted graphically. Similar methods were used for the level of agreement with statements about drug company interactions and promotion—a mean agreement score was calculated for statistical analysis while those who responded "Strongly agree" and "Agree" were combined and compared to those who had no opinion or disagreed.

In statistical analysis, comparing medical and pharmacy students for exposure to promotion, perceived appropriateness of gifts and agreement with statements about promotion, a significance level of $p < 0.01$ was used due to the relatively large number of comparisons in each case. In other analyses, the usual significance level of $p < 0.05$ was used.

Results

A total of 135 pharmacy students and 103 medical students completed questionnaires (Table I). More than 80% of students in both courses were Kuwaiti nationals, and almost all the pharmacy students were female (95%) compared to 67% of medical students. Significantly, more medical than pharmacy students reported having received training on the ethics of drug promotion (63 vs. 48%; $p = 0.026$) and how to interpret drug promotion or deal with drug representatives (41 vs. 27%; $p = 0.026$) (Table II). However, pharmacy students, mostly final year students, had

Table I. Descriptive data for the medical and pharmacy student respondents.

Parameter	Pharmacy	Medical
<i>n</i>	135	103
Mean (SD) age (years)	21.0 (1.6)	21.5 (1.2)
Kuwaiti <i>n</i> (%)	118 (88.7)	84 (82.4)
Female <i>n</i> (%)	125 (94.7)	69 (67.0)
Student professional association members <i>n</i> (%)	30 (22.6)	7 (6.8)
Year of study <i>n</i> (%)		
2	38 (28.4)	–
3	25 (18.7)	24 (23.8)
4	28 (20.9)	33 (32.7)
5	43 (32.1)	44 (43.6)

One or two responses missing for some variables due to incomplete questionnaires.

Table II. Students' experience with regard to training about drug promotion or contact with pharmaceutical representatives.

	Number (%) of students saying "yes"		Fisher's exact test p
	Pharmacy	Medicine	
Have you received any teaching in your studies about the ethics or effects of drug company promotion?	65 (48.1)	65 (63.1)	0.026
Have you ever received any teaching in your studies about how to handle or interpret drug promotional material and/or drug representatives (pharmaceutical company agents)?	36 (26.7)	42 (40.8)	0.026
Do you have a personal friendship with a drug representative?	29 (21.6)	15 (14.6)	NS
Have you ever been approached by pharmaceutical company representatives when attending pharmacy placement/ward round?	59 (43.7)	23 (22.5)	0.001
Have you ever been approached by pharmaceutical company representatives within the Health Sciences Center?	21 (15.6)	14 (13.6)	NS

encountered drug representatives on their placements more than medical students, but about 15% of both groups reported encountering drug detailers in the Health Sciences Center academic building.

Exposure

Over three-quarters of all students (80% of pharmacy and 61% of medical students) indicated that they had participated in at least one of the listed promotional activities. A total of 25% of pharmacy and 10% of medical student reported participating in four or more events or gifts. Receiving non-educational gifts and glossy advertisements were the most common promotional activities to which pharmacy and medical students were exposed (59 and 54%, respectively, for pharmacy; 34 and 42%, respectively, for medicine) (Table III). However, although only 15% of pharmacy

students attended drug company sponsored workshops, they attended 2.7 times per year on average while they received gifts slightly less frequently. The most frequent exposures for medical students were receiving non-educational gifts (3.6 times per year) and conference registration fees (3.2 times per year).

Appropriateness of gifts

The promotional gift considered the most appropriate by both pharmacy and medical students was a text book (72 and 70%, respectively; mean appropriateness scores 2.0 and 2.1) with non-educational gifts such as pens and notepads also generally accepted (2.1 and 2.2) (Figure 1). Surprisingly, paid travel to an international conference (2.1 and 2.3) or a sponsored international vacation (2.3 and 2.7) were considered appropriate by over 50% of both groups, at a similar

Table III. Pharmacy and medical students participation in or exposure to various forms of pharmaceutical promotion.

Activity or gift	Proportion of students reporting participation and median ^a frequency of participation				p ^b
	Pharmacy		Medicine		
	N (%)	Frequency (times/year)	N (%)	Frequency (times/year)	
Participated in meal	24 (17.9)	1.7	4 (3.9)	1.3	0.001
Received non-educational gift	79 (58.5)	2.4	35 (34.0)	3.6	<0.001
Received reprint/glossy advert	73 (54.1)	2.4	43 (41.7)	2.4	NS
Received personal drug sample	59 (43.7)	2.0	26 (25.2)	2.6	0.004
Taken part in social outing	22 (16.3)	2.2	5 (4.9)	1.7	0.007
Received book	37 (27.4)	2.2	11 (10.7)	1.8	0.002
Participated in workshop	20 (14.8)	2.7	14 (13.6)	1.9	NS
Conference registration fee paid	11 (8.1)	1.3	9 (8.7)	3.2	NS
Participating in research project	12 (8.9)	1.4	4 (3.9)	1.5	NS
Received stethoscope	–	–	2 (1.9)	1.0	–

^a Median is only for those students who reported participating/exposure. ^b Fisher's exact test comparing proportions of pharmacy and medical students.

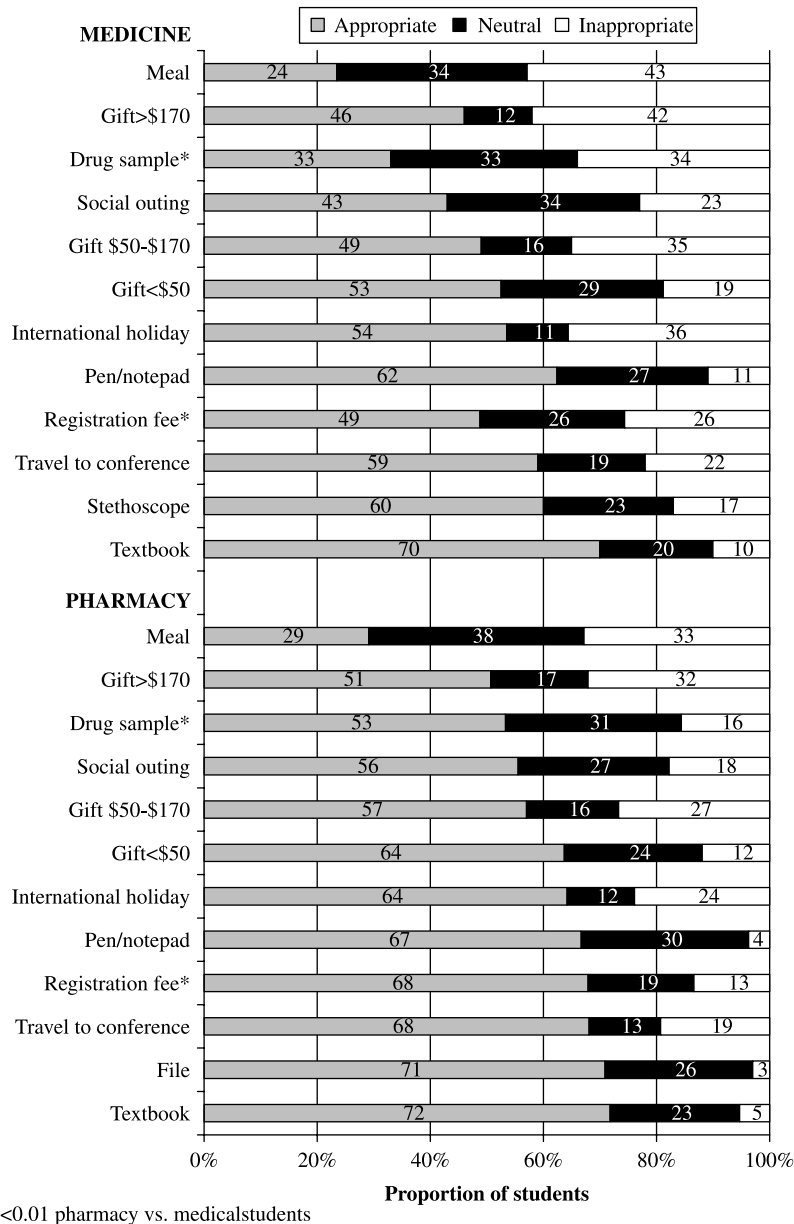


Figure 1. Perceived appropriateness of promotional gifts by pharmacy and medical students.

level as a non-educational gift worth less than \$50 (KD15; appropriateness score 2.3 and 2.5). Although there was decreasing appropriateness score as the monetary value of gifts decreased, more than 40% of pharmacy and medical students considered a gift worth more than \$170 (KD50) as appropriate (2.6 and 2.8). The gift considered least appropriate was a sponsored meal (29 and 24%, respectively; 3.1 and 3.3), the only gift with a mean appropriateness score of greater than 3. In all cases, pharmacy students had a higher perception of gifts as appropriate than medical students, with the difference reaching statistical significance for personal drug samples (53 vs. 33% of students, respectively; appropriateness scores 2.4 vs. 2.9; $p = 0.001$) and paid conference registration fees (68 vs. 49%; 2.2 vs. 2.6; $p = 0.005$).

Acceptance of, and skepticism towards, drug marketing

Although more than 60% of both medical and pharmacy students agreed that most drug company talks are biased (74 vs. 60%, respectively; mean agreement score 2 vs. 2.4; $p = 0.008$), there was little indication that they were otherwise skeptical of pharmaceutical promotion (Figures 2 and 3). Medical students did show greater skepticism than pharmacy students in feeling that drug representatives should be banned from the medical college (26 vs. 19%; 3.6 vs. 3.1; $p = 0.001$) and that drug companies acted unethically in promoting their products (29 vs. 21%; 2.8 vs. 3.2; $p = 0.001$). At the same time, there was not a great degree of acceptance of pharmaceutical promotion either with less than 50% of students

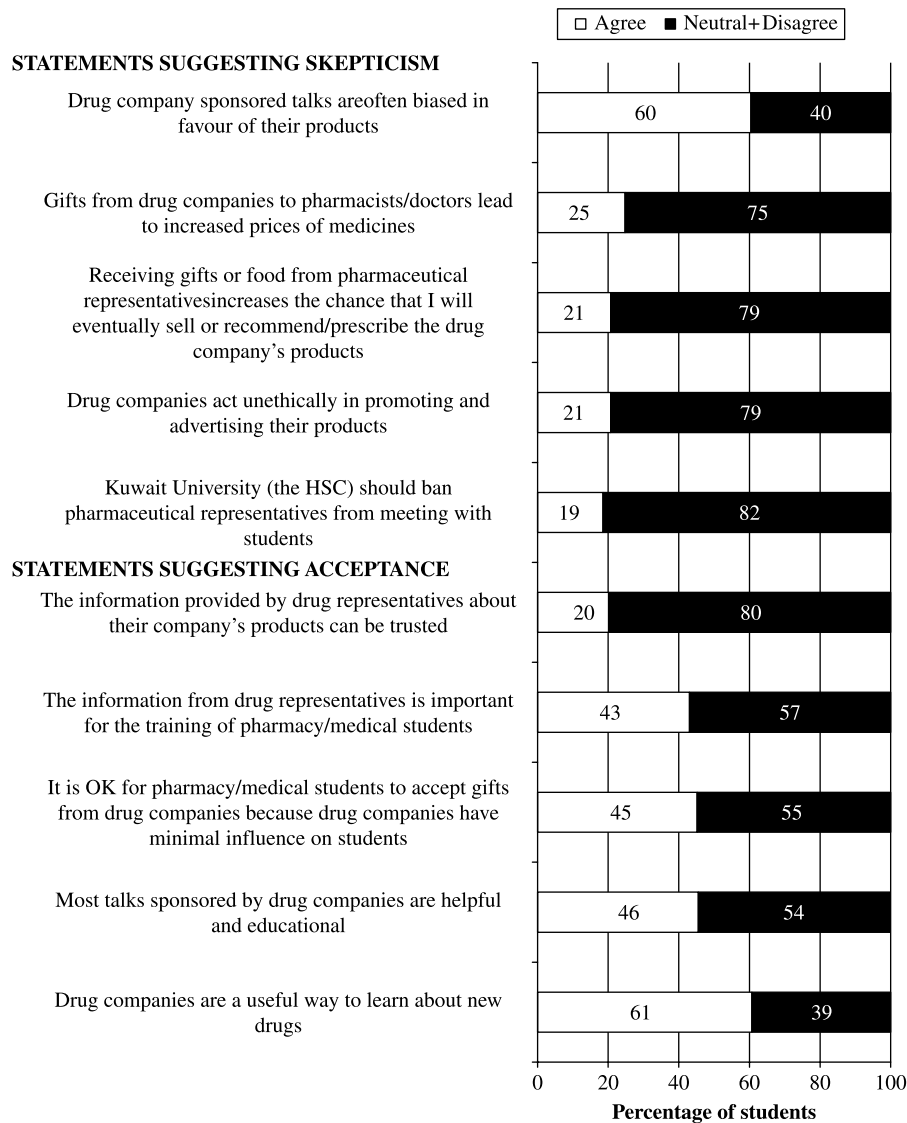


Figure 2. Pharmacy students' acceptance of and skepticism towards pharmaceutical marketing (n = 135).

agreeing with the statements except for “Drug companies are a useful way to learn about new drugs” (agreement score 2.4 both groups). There were no significant differences in the responses between the two groups of students for items suggesting acceptance of drug promotion.

Effect of experience and other demographic parameters

The data were analyzed to examine trends in the results for students in various years of study. Both pharmacy and medical students in later years of study were more likely to report having received teaching on the ethics of drug promotion and encountering drug representatives on practice placements (both $p < 0.001$). In the case of pharmacy students, they were also more likely to report having participated in promotional activities such as non-educational gifts and drug samples (both $p = 0.003$). The only other

significant trends were for more experienced pharmacy students to consider social outings and sponsored international holidays less appropriate than students in earlier years with no significant trends by year of study for the medical program for exposure to gifts, perceived appropriateness of gifts or attitudes to drug marketing.

There were very few significant differences when considering the other parameters of gender, nationality and membership of the student professional association. Male pharmacy students were more likely to consider that promotional material could be trusted than their female colleagues (2.3 vs. 3.4; $p = 0.004$) and female medical students had greater agreement that promotional information was important for training students than male medical students (2.8 vs. 3.4; $p = 0.006$), but no other significant findings were evident although the study had not been powered for these comparisons.

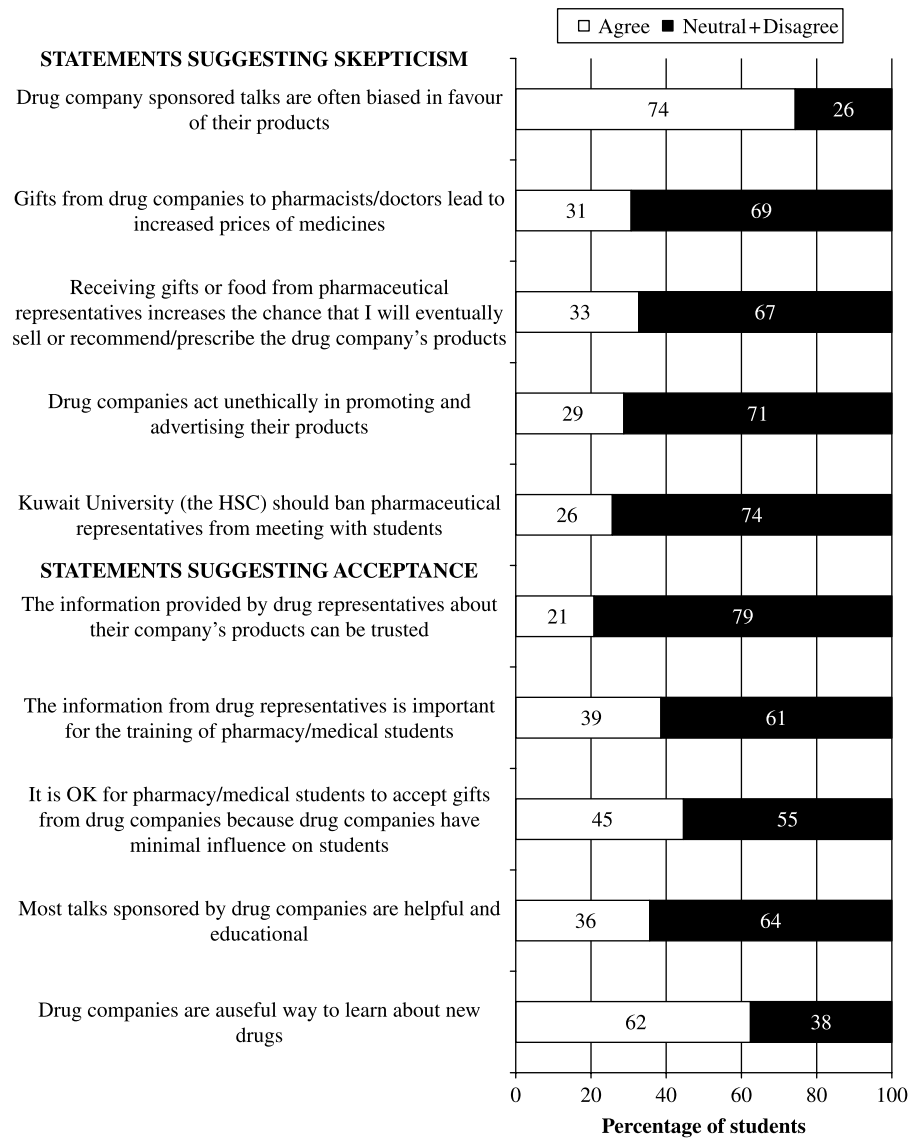


Figure 3. Medical students' acceptance of and skepticism towards pharmaceutical marketing (n = 103).

Students who reported receiving training on ethics of drug promotion were no different to their compatriots in the perceived appropriateness of gifts (except possibly an international holiday [pharmacy $p = 0.020$; medicine $p = 0.026$]) or attitudes to pharmaceutical marketing apart from pharmacy students who reporting receiving training being less likely to agree that information from drug representatives can be trusted ($p = 0.004$) and possibly fewer of their medical compatriots believing that information from drug representatives is important for training students ($p = 0.020$).

Due to the wide acceptance of drug promotional activities, it was difficult to examine relationships between those who considered a particular activity appropriate and whether they had participated in it previously. There were obvious tendencies that those who considered certain gifts "Very inappropriate" to

be less likely to have participated in them. However, this was not as clear cut for those who recorded their opinion as simply "Inappropriate".

Discussion

Formal training in ethics, regulation and interpretation of drug promotion

Both pharmacy and preclinical medical students in Kuwait report receiving less training of the ethical issues involved in drug promotion and how to interpret promotional material or presentations than might be wanted or expected. Appropriate education of future health professionals is essential to prepare them for their role in making or influencing decisions with regard to medicines in the face of drug promotion and to prepare them for ethical relationships with drug companies. Such education is not provided at all

medical and pharmacy colleges with two of eight universities including optional small-group sessions on physician-drug company relationships in a previous study (Sierles et al., 2005). An international survey of 137 medical and 91 pharmacy schools found that even where teaching about drug promotion does take place it was part of the formal curriculum in 72% of cases but rarely comprised more than one to two hours of contact time varying from a short lecture through to small-group assignments and specialized presentations (Mintzes, 2005). Innovative teaching strategies involving drug representatives (Wilkes & Hoffman, 2001) or promotional material (Suryawati & Santoso, 1997) have been found to deliver positive changes in attitudes and skills in interpreting promotional information.

It is perhaps not surprising that medical students reported greater training on drug promotion ethics and interpretation than pharmacy candidates since physicians are the prime targets of marketing spending (NIHCM, 2001; Mintzes, 2005) and need to be aware of the issues at stake. However, this is in contradiction to reports that pharmacy schools tend to devote more time to teaching on drug promotion than medical schools (Mintzes, 2005). It is possible that local pharmacy students do receive training but are not aware that it is associated with countering drug marketing, for example, training in critical appraisal skills or laws relating to advertising of medicines. Even if this is the case, it would point to a weakness in the training that they do not associate the topics with pharmaceutical promotion. Formal recognition of the topic in the curriculum would help to direct learning, especially in the absence of formal ethical codes governing pharmaceutical promotion in Kuwait and the relationships between health professionals and pharmaceutical industry. This obviously limits the local material for inclusion in the training. At the same time, the lack of formal practice guidance makes the need for training all the more acute and international guidelines could be used (WHO, 1998; IFPMA, 2000).

Exposure to promotional activities

Three-quarters of undergraduate pharmacy and preclinical medical students at Kuwait University reported exposure to at least one pharmaceutical promotional activity compared to more than 95% of US and Finnish students (Vainiomaki et al., 2004; Sierles et al., 2005). Given their attitudes and acceptance of pharmaceutical marketing, this lower exposure is obviously not a result of skepticism towards these activities. It is therefore more likely to indicate a lack of opportunity and/or difference in the development and implementation of drug promotion in Kuwait compared to Western countries, e.g. greater attention given to practitioners than students given the

relatively lax regulatory and ethical framework present in the country. At the same time, one should not consider that the students' exposure is negligible with a substantial proportion exposed to promotional activities, with many participating in more than one and with exposure starting early in their professional program as has been seen in other countries (Bellin et al., 2004; Sierles et al., 2005). This is already establishing a culture of receiving gifts, feeling obligated towards the industry and becoming accustomed to drug promotional information. This raises concerns about the effects on the students' moral character (Rogers et al., 2004) and the undermining of the balancing force society expects them to play as future health professionals acting in the best interests of patients.

Pharmacy students notably reported greater exposure than their medical colleagues. This could be a result of the non-random selection of medical students, with those who are less skeptical towards and have greater exposure to pharmaceutical promotion electing not to take part in the survey and therefore biasing the results towards lower exposure. Although this may be true, the attitudes of medical students towards appropriateness of gifts and acceptance of pharmaceutical marketing suggest that the respondents still had few barriers to participation in drug promotion. Pharmacy students may naturally have more contact with the pharmaceutical industry due to the nature of their studies, e.g. site visits, and through a desire to find out more about drugs, their future profession and career options. Some opportunities also arise from attending professional meetings which have been arranged with pharmaceutical company funding. However, this does not fully explain the provision and acceptance of gifts and participation in sponsored events and there may be an under-recognized agenda of the pharmaceutical industry to influence pharmacy students in Kuwait. Educators need to be aware of effects of sponsorship and promotion on future professionals and need to prepare them for this eventuality.

Appropriateness of gifts

Most gifts were considered appropriate by at least half of students, with a further substantial proportion uncertain. While it is both surprising to find that an international holiday was considered acceptable by over 50% of medical and 60% of pharmacy students, it was disconcerting to find that it was considered more appropriate than a social outing and as appropriate as a gift of less than \$50. While this may need to be seen in the context of the small size and desert nature of Kuwait, it reflects a naivety on the part of the students and a serious lack in their training on the ethics of drug promotion. Comparing the responses of the students in Kuwait with third-year medical students in the USA

(Sierles et al., 2005), although textbooks and gifts worth less than \$50 showed similar levels of “appropriateness”, Kuwaiti students tended to consider promotional gifts more appropriate especially a vacation (59 vs. 14%), a gift worth more than \$50 (53 vs. 16%) and travel to a conference (63 vs. 35%). Some of these differences undoubtedly relate to the absence of either self-regulation guidelines or professional ethical codes in Kuwait governing acceptance of gifts and relationships with pharmaceutical industry, whereas students in the USA were likely to be more aware that more expensive and non-educational gifts create ethical problems. Although about half of the students reported that they had received some sort of training on the ethics of pharmaceutical promotion, this obviously needs to be strengthened. The lack of any consistent trend between years of study and appropriateness of gifts suggests that to a large degree students leave their studies (or progress to clinical studies in the case of the medical students) with similar attitudes to those they had early in the program, although probably more inured to gift giving. This contrasts with Finnish medical students who showed a greater awareness that their future prescribing behavior could be influenced by pharmaceutical promotion as they progressed through their studies (Vainiomaki et al., 2004).

The gift considered the least appropriate by the local students was that of a sponsored meal, in contrast to the USA where it was considered appropriate by over 77% of students (Sierles et al., 2005). Students in Kuwait are usually not indebted as might be the case in medical colleges in the USA and, culturally, mealtimes in Kuwait are generally considered family gatherings outside of catering at functions. These reasons are likely to be behind the low acceptability of this form of promotion. That this was interpreted more as a separate meal in a restaurant or similar setting rather than catering at a meeting is supported by the fact that more than half of those who had attended workshops claimed not to have participated in a sponsored meal (mostly pharmacy students; four medical students who reported partaking of a meal also attended workshops [data not shown]). It is also possible that such catering is not seen to be associated with the drug company sponsors of the meeting. A more detailed investigation would be required to further elucidate the implications of this finding.

Acceptance and skepticism of promotion

Although both pharmacy and medical students mostly felt that drug company sponsored talks were biased in favor of the company’s product(s), they did not appear to support limitations on contact with drug representatives in the Health Sciences Center nor to feel that they would be unduly influenced in their professional practice. This is largely in line with the findings of

preclinical medical students in the USA (Sierles et al., 2005). The local students were somewhat less accepting towards a role of pharmaceutical promotional information in their training than the American students, although not all the questions were replicated in the survey instrument and a substantial proportion of students in Kuwait were undecided or neutral in their opinion. Their attitudes towards the information derived from sponsored talks and promotional material also appeared less positive than that expressed by Finnish medical students who valued interactions with and seminars involving drug representatives (Vainiomaki et al., 2004). The lack of skepticism, apart from recognizing that there is a bias in drug company information, suggests that the local students may not realize the influence that exposure to drug company interactions can have on their attitudes and professional behavior.

Some medical schools in the USA and other countries have taken steps to limit the contact that students have with drug detailers, at least until they have received some rudimentary introduction to the ethical issues. For example, in 1991, Harvard medical school banned contact between pharmaceutical representatives and first and second year students (Mick, 1991), with others preventing detailers from accessing residents at their teaching hospitals (McCormick, Tomlinson, Brill-Edwards, & Detsky, 2001). As a result of the ethical dilemmas and conflicts of interest inherent in accepting sponsorship or gifts from drug companies which can undermine the duty of care towards students, it has been suggested that academic medical centers should implement policies to clearly define what is acceptable within their premises and for their faculty (Brennan et al., 2006). Since many students in this study reported meeting drug representatives within the medical college, the Health Sciences Center administration may consider similar moves although the banning of drug representatives from the college was not supported by the respondents. Pharmacy students also reported meeting pharmaceutical representatives on their practice placements in government health institutions. Kuwaiti regulations prohibit drug representatives from these facilities and measures to strengthen regulations and their enforcement need to be examined.

Educators at Kuwait University are patently not doing an adequate job in preparing students to deal with exposure to pharmaceutical promotion. Other authors have suggested that the behavior of educators and role models may have as important effect on student attitudes and behavior as educational interventions (Sierles et al., 2005) and this is likely to play a role in Kuwait too. For example, professional continuing educational meetings accompanied by the placement of promotional advertising and the presence of drug representatives with gifts and promotional material are held in the Health Sciences

Center in areas where students pass. Seeing their teachers partake in these activities and gifts undoubtedly reinforces a message that this is acceptable. Educators need to be aware of these risks and limit influence of industry within colleges. More research is required to investigate the relationships which educators have with the drug companies, e.g. research grants, consultancies and their own personal attitudes towards drug promotion which may lead to influence of students within the classroom.

This study has highlighted how pharmacy students are just as entrenched in drug promotional activities as medical students. While physicians may be targeted by drug companies due to their gatekeeping role to prescription medicines, this may be an indicator of the role which pharmacists play in influencing prescribers and the public in medicine use decisions. Part of this could be particular to Kuwait, where only controlled psychotropic and narcotic medicines, corticosteroids, antibiotics and a limited number of specialist medicines are restricted to prescription controls (Matowe, Al-Kandery, & Bihzad, 2003). Part may also relate to the role pharmacists play in the sale of over-the-counter medicines to the public. However, they may represent a backdoor means of circumventing systems in place to control medicines use when attention is focused on physicians. For example, Canadian pharmacists were discovered accepting “rebates” of up to 60% from generic drug manufacturers to stock their products so that the companies could benefit from state reimbursement (Silversides, 2006). This underlines the need for appropriate training of pharmacists in ethics and calls for further research into the relationships between pharmaceutical companies and pharmacists.

Limitations

The different methodologies for selection of pharmacy and medical students impacts on the comparability of the two groups, while not detracting from the findings. The non-random selection of medical students to ensure an adequate response leaves the study open to the possibility of a selection bias—students with more positive attitudes to promotion or unethical behavior could refuse to participate. If this were the case, it means that there is higher exposure and probably more accommodating attitudes to drug promotion than measured in this study. There is also the possibility that clinical medical students have different experiences and attitudes to the preclinical students studied here. Exposure rates may be affected by recall bias and the results rely on self-reporting rather than observation or measurement of actual behavior. However, these limitations do not affect the general impression from the results that students are exposed to drug marketing strategies early in their studies and this may be harmful to their character and cause them to become inured to

receiving gifts and build a feeling of obligation to pharmaceutical companies in the future.

Conclusions and recommendations

This study has described the exposure and attitudes which pharmacy and preclinical medical students in Kuwait have towards pharmaceutical promotion and gifts. The results showed that they are exposed from early in their studies and tend to have very positive attitudes towards receiving gifts from industry with little appreciation of the ethical implications these bring. This puts them at great risk of being unwittingly influenced by or subject to conflicts of interest with pharmaceutical industry in their professional practice when society looks to them to be unbiased voices of reason. Educators should implement training on the ethics relating to relationships between health professionals and pharmaceutical companies in the formal curriculum of both pharmacy and medicine. The Health Sciences Center should develop and enforce a local policy on the presence of pharmaceutical representatives at the college and professional bodies in Kuwait should develop local codes of practice and conduct to guide relationships with the drug industry. These moves should be supplemented by further research into the exposure clinical residents and graduated pharmacists and physicians have to drug promotion and gifts in practice to guide future interventions. The results, although local to Kuwait, are probably reflective of many other centres worldwide which may need to institute similar measures, especially in the light of the expanded roles being afforded to pharmacists.

References

- Barnes, C. J., & Holcenberg, J. S. (1971). Student reactions to pharmaceutical promotion practices. *Northwest Medicine*, 70, 262–266.
- Bellin, M., McCarthy, S., Drevlow, L., & Pierach, C. (2004). Medical students' exposure to pharmaceutical industry marketing: A survey at one US medical school. *Academic Medicine*, 79(11), 1041–1045.
- Brennan, T. A., Rothman, D. J., Blank, L., Blumenthal, D., Chimonas, S. C., & Cohen, J. J. (2006). Health industry practices that create conflicts of interest. A policy proposal for academic medical centers. *The Journal of American Medical Association*, 295, 429–433.
- IFPMA. (2000). IFPMA code of pharmaceutical marketing practices, IFPMA: Geneva. http://www.ifpma.org/site_docs/News/Code_English_2000.pdf [Accessed 12 Sept 2006].
- Lexchin, J., Norris, P., Herxheimer, A., & Mansfield, P. (2005). Drug promotion: What we know, what we have yet to learn, WHO/HAI: Geneva.
- Mäntyranta, T., & Hemminki, E. (1994). Medical students and drug promotion. *Academic Medicine*, 69, 736.
- Matowe, L., Al-Kandery, A. A., & Bihzad, S. M. (2003). Pharmacy in Kuwait. *American Journal of Health-System Pharmacy*, 60, 1591–1592.

- McCormick, B. B., Tomlinson, G., Brill-Edwards, P., & Detsky, A. S. (2001). Effect of restricting contract between pharmaceutical company representatives and internal medicine residents on posttraining attitudes and behavior. *The Journal of American Medical Association*, 286, 1994–1999.
- Mick, T. (1991). Pharmaceutical funding and medical students. *The Journal of American Medical Association*, 265, 659–664.
- Mintzes, B. (2005). Educational initiatives for medical and pharmacy students about drug promotion: An international cross-sectional survey, World Health Organization/Health Action International: Geneva. [WHO/PSM/PAR/2005.2].
- National Institute for Health Care Management. (2001). *Prescription drugs and mass media advertising, 2000*. Washington: NIHCM Foundation.
- Rogers, W. A., Mansfield, P. R., Braunack Mayer, A. J., & Jureidini, J. N. (2004). The ethics of pharmaceutical industry relationships with medical students. *The Medical Journal of Australia*, 180(8), 411–414.
- Sandberg, W. S., Carlos, R., Sanoberg, E. H., & Roizen, M. F. (1997). The effect of educational gifts from pharmaceutical firms on medical students' recall of company names or products. *Academic Medicine*, 72, 916–918.
- Sierles, F. S., Brodkey, A. C., Clearly, L. M., McCurdy, F. A., Mintz, M., & Frank, J. (2005). Medical students exposure to and attitudes about drug company interactions. *The Journal of American Medical Association*, 294, 1034–1042.
- Silversides, A. (2006). Pharmacies receiving massive rebates from generic drug-makers. *Canadian Medical Association Journal*, 175(4), 342–343.
- Suryawati, S., & Santoso, B. (1997). Drug advertisements: A critical lesson for Indonesian students. *Essential Drugs Monitor*, (23), 23.
- Vainiomaki, M., Helve, O., & Vuorenkoski, L. (2004). A national survey on the effect of pharmaceutical promotion on medical students. *Medical Teacher*, 26(7), 630–634.
- Vinson, D. C., McCandless, B., & Hosokawa, M. C. (1993). Medical students' attitudes toward pharmaceutical marketing: possibilities for change. *Family Medicine*, 25, 31–33.
- Wazan, A. (2000). Physicians and the pharmaceutical industry: Is a gift ever just a gift? *The Journal of American Medical Association*, 283, 373–380.
- WHO. (1998). *Ethical criteria for medicinal drug promotion*, WHO: Geneva. [ISBN 92 4 154239 X].
- Wilkes, M. S., & Hoffman, J. R. (2001). An innovative approach to educating medical students about pharmaceutical promotion. *Academic Medicine*, 76, 1271–1277.