



ORIGINAL ARTICLE

## Influence of various inducement offered by pharmaceutical companies on the prescription behavior of general medical practitioners of South Punjab.

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**ABSTRACT... Objective:** General medical practitioners (GMPs) were surveyed to describe their opinion regarding the visits of medical representatives (MRs) and the offers of pharmaceutical companies. **Study Design:** Cross-sectional. **Setting:** Department of Behavioral Sciences, CMH Multan Institute of Medical Sciences, Multan. **Period:** July 2024 to December 2024. **Methods:** A study was conducted on the sample of 154 GMPs working in different private clinical settings of South Punjab. The questionnaire evaluated the impact of 16 different types of inducements offered by the MRs on the prescription behavior (PB) of GMPs. **Results:** Out of 154 physicians, 66.23% and 61.69% feel that they may change their prescription of the medicine by “dropping the literature” and “dropping the drug samples” by the MRs, respectively. Other inducements significantly affecting PB were sponsorship for local conferences and seminars (59.1%), organization of medical camps (57.1%), personal liaison with MRs (55.8%), subscription of journals (54.5%), and small gifts like pens and pads (53.2%). Generally, there was no significant relationship between the effect of inducements on the PB of GMPs and their personal characteristics. **Conclusion:** There was an overall tendency of enjoying the inducement by GMPs. The most effective activities to affect PB were providing the drug literature and physician’s samples.

**Key words:** Drug, Medical Practitioner, Medicine, Prescription.

### INTRODUCTION

The increased prevalence of various diseases and availability of a variety of drugs have resulted in an increase in prescription of a medicines. In addition to the intention to treat the patient, frequency of prescription may increase or decrease by other factors such as presentation of the medicine, physician’s own profile and experience.<sup>1</sup> At his end, the general medical practitioner (GMP) has the power to manipulate some of these factors during diagnosis and prescription.

The practitioners’ prescription behavior (PB) refers to the act of prescribing medicines to the patients in the context of relevant factors affecting the decision of selection of a drug of a specific manufacturer. There is sufficient material available regarding change in physician’s PB in response to the different causative factors. These include patient’s demography, physician’s experience,

product’s influence regarding efficacy, safety, cost and side effects, and other environmental factors.<sup>2</sup> Drug Regulatory Authority of Pakistan worked out the rules for PCs and medical practitioners regarding drug promotion and the inducement published in “The Gazette of Pakistan”. According to Ethical Marketing to Healthcare Professionals Rules, 2021, ethical interactions between companies and healthcare professionals shall be for the purposes to facilitate healthcare professionals and will ensure the activities that are in the best interest of the patient.<sup>3</sup>

These frontline health-care providers are further influenced by the activities of medical representatives (MRs) of pharmaceutical companies (PCs). An impressive and confident personality of MR can get quick attention of the client as the personality characteristics have been

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found associated with increase in work activity.<sup>4</sup> In addition to detailing and providing drug literature, many other strategies are used that may or may not be justifiable to medical ethics like family dinners, leisure trips or, sponsoring for national or international recreational events. All these promotional activities are used to change the prescription behavior (PB) of GMPs to maximize the prescriptions of their products increasing their profitability.

In addition to the quality and presentation of medicine, the pharmaceutical industry also pays attention to the standards of visits of its MRs to physicians. For this purpose, a sufficient budget is allocated by the pharmaceutical industry and physicians become under obligation by this investment. There is significant difference between the number of prescriptions by physicians who are visited by MRs frequently and by physicians who are visited by MRs less frequently.<sup>5,6</sup> The visit of MR has definite role in choosing the type of medicine due to incentives offered by them to the physicians.<sup>7</sup>

The personal liaison of MRs with GMPs is a significant relationship. MRs greet their clients at important personal and social events and view it as great opportunities to develop a liaison with them.<sup>8</sup> In the culture of developing countries, male doctors have more exposure to the incentives given by the PCs as compared to female doctors.<sup>9</sup> The indirect manipulation of prescription may compromise the quality of prescription for the specific disease, and thus the health of the patient.

In this study, we analyzed the frequencies of preferences of inducements that affect the prescription. several factors that could influence PB of GMPs have been found from different published articles were explored in South Punjab region of Pakistan.<sup>2,8,10</sup> The study was conducted with an aim to determine the influence of inducements offered by PCs on the PB of GMPs.

## METHODS

A cross-sectional study was conducted at the department of Behavioral Sciences, CMH institute of Medical Sciences, Multan. Ethical approval

was obtained from the institutional research board and ethical committee (Case ID: TW/51/CIMS-CMC) prior to data collection. Focus of the research were the GMPs who work in different private clinical settings in Multan. The sample size was calculated by the following formula in the software "Sample Size determination in health studies version 2.0.21 WHO":  $n = Z^2 \frac{P(1-P)}{d^2}$ . Where the  $Z^2$  for 95% confidence level was 1.96, P (anticipated change in physicians' PB) was 50.0% and d (margin of error) was kept at 8%. The gave us a sample size of 150 subjects. Purposive sampling technique was used to include them in the survey.

The inclusion criteria for GMPs included having at least basic medical qualification of medicine and surgery i.e. MBBS, registration with Pakistan Medical and Dental Council, having more than one year of experience of clinical practice and working in private clinical settings in Southern Punjab i.e. the districts of Multan, Bahawalpur, Dera Ghazi Khan, and Jhang and Bhakkar. GMPs with less than one per week visits of MRs and those who owned or were partners with a business of pharmaceutical products were excluded from the study.

For the primary data collection, a questionnaire was prepared with the help of previous research papers and by the opinion of a focus group. The focus group was formed by leading medical practitioners, officials from four renowned PCs, and an experienced researcher and biostatistician from the Bahauddin Zakariya University, Multan. Following factors, from different research done in Pakistan and abroad had been placed before the focus group, and they were asked to scrutinize and finalize the most probable factors that may affect the PB of GMPs in the area.

The focus group members analyzed the factors and formed the questionnaire. They selected all those factors which they had observed and experienced while working in marketing and in their professional life and confirmed that it includes all the aspects intended to explore the influence of inducement offered by PCs on the PB of GMPs. It confirmed the face and content

validity of the questionnaire. The data collection instrument had two parts. The first part pertained to the demographic data of the responding GMPs including medical qualification, age, sex, years of practice, area of practice (urban or rural) and number of MRs visiting the clinic per week. The second part had 16 items which presented different types and levels of inducements offered by the PCs. All items were positively phrased, and the participants were asked to mark their opinion on the given 5-point Likert scale.

Total data of 154 responses was entered on excel sheet. Later, the data was transferred to SPSS 26.0 for analysis. Each item of the questionnaire was analyzed to find the frequency of responses for that item. Thus, two distinct data outcomes became available to include in our discussion as follows: to analyze the frequencies of each item in the collected data and to compare the demographic characteristics with the personal opinion of each GMP on Likert scale. Frequencies of demographic characteristics of GMPs as well as of the collected data of items in the questionnaire have been found through descriptive statistics in SPSS. To compare the demographic characteristics of GMPs with their opinion, data was checked for normality by using Shapiro-Wilk test, and homogeneity was checked by using Levene's test. Since our data had non-normal distribution, non-parametric tests were used. First demographic characteristic, Sex, has two independent groups i.e. male and female. For this, Mann-Whitney test has been used. For other demographic characteristics i.e. age, experience as GMP, qualification, frequency of visits of MRs and area of practice, Kruskal-Wallis Test has been applied because each of these has more than two independent groups.

## RESULTS

The sample comprised of 114 male GMPs and 40 female GMPs. The demographic details of the study sample are shown in Table-I.

The provision of drug literature and drug samples were most likely to alter PB, reported by 61.7% and 66.3% of the GMPs, respectively.

In our obtained data, 53.2% and 55.8% of GMPs agree that they increase prescription by receiving small gifts like, pen and pads, and by personal relationship respectively. There are about 57.1% doctors who are in the favor of organization of medical camps by PCs, 59.1% GMPs have confessed that they prefer pharmaceutical sponsorship for their participation in the seminars and conferences at local level. However, only 34.4% physicians consider that lunches and dinners arranged by the PCs for the family will affect their PB and 32.2% reported that arranging leisure trips will affect their PB. The details of other inducements and their acceptance by GMPs are reported in Table-II.

The effect of various demographic characteristics of the GMPs on the response towards the inducements offered by PCs was also evaluated. For most of the items there was no significant relationship with the demographic characteristics of the GMPs (Table-III). However, the experienced GMPs showed significantly more interest in the personality of MPs, the description of drugs by MPs, the product literature and sponsorship of international seminars and conferences. Similarly, increasing age was associated with increased interest in description of drug by MRs and sponsorships for national and international seminars and conferences.

## DISCUSSION

The study demonstrates the approach of GMPs of South Punjab towards the inducements offered by various PCs. Being an elite class, doctors are considered ethically supercilious. But in the context of pharmaceutical marketing strategies, irrational prescriptions by the GMPs which may not be required in the disease management or have placebo effect, can occur.<sup>11</sup> So, the relationship between PCs and GMPs has many loopholes in its structure and function. The most important factor in this regard is compromised autonomy of GMPs, that may be the result of inducement given to the GMPs who avail incentives like; big gifts and foreign trips.<sup>8</sup> There is definite conflict of interest among GMPs' knowledge, clinical practice and attitude, and PCs' incentives.

Characteristics	Groups	Numbers	Percentage
Gender of GMP	Male	114	74.0
	Female	40	26.0
Age of GMP	30 year and below	12	7.8
	31 to 45 years	40	26.0
	More than 45 years	102	62.2
Experience as GMP	5 year or below	11	7.1
	6 to 10 years	34	22.1
	More than 10 years	109	70.8
Qualification of GMP	Basics only (MBBS)	78	50.6
	Basics & dip/MCPS/MPhil	46	29.9
	Basics & FCPS/PhD	30	19.5
Number of MR visits per week	3 or less	57	37.0
	4 to 13	44	44.8
	14 or more	28	18.2
Area of Practice	Urban	91	59.1
	Mixed	61	39.6
	Rural	2	1.3

**Table-I. Frequencies of demographic data of the participants  
N = 154**

GMP – General Medical Practitioner, MP – Medical Representative

SN	Type of Inducement	Strongly Disagree & Disagree		Neutral		Agree & Strongly Agree	
		Freq	%	Freq	%	Freq	%
1	Personality of Medical representative	35	22.7	57	37.0	62	40.3
2	Description about drug by Medical representatives	21	13.6	68	44.2	65	42.2
3	Product literature	16	10.4	36	23.4	102	66.2
4	Drug Samples	26	16.9	33	21.4	95	61.7
5	Small gifts like pen, pads,	26	16.9	46	29.9	82	53.2
6	Personal Liaison with Medical Representative	33	21.4	35	22.7	86	55.8
7	Greetings on Birthdays, Eid or any anniversary	40	26.0	40	26.0	74	48.1
8	Textbook as gift	39	25.3	55	35.7	60	39.0
9	Subscription to Journals	37	24.0	33	21.4	84	54.5
10	Medical Equipment as gift	39	25.3	44	28.6	71	46.1
11	Organization of Medical Camps	34	22.1	32	20.8	88	57.1
12	Sponsor for local seminars and conferences	28	18.2	35	22.7	91	59.1
13	Lunch and dinner for family	53	34.4	48	31.2	53	34.4
14	Opportunities of Leisure trips	56	36.4	48	31.2	50	32.5
15	Sponsor for national seminars and conferences	40	26.0	43	27.9	71	46.1

**Table-II. Types of inducement that are likely to affect the prescription behavior (PB) of the general medical practitioners (GMPs) N = 154**

PCs may use all tactics that would enhance the sales of its medicines, but we found that the majority of the GMPs responded that it was the drug literature or the samples of drugs that can change their prescription behavior. It has been found that the level of indulging in dishonesty decreases gradually as the individuals age through 30 to 65 years.<sup>12</sup> Experience of GMPs

is an important characteristic and this factor may help the practitioners to judge and decide whether a drug should be prescribed or not.<sup>2</sup> This relationship of age and experience with the PB was found for only three types of inducements in our sample. So, we cannot absolve all the GMPs from being biased by the efforts of PCs in the form of inducement.

No.	Type of the Inducement	Demographic Characteristics of GMPs					
		Sex <sup>†</sup>	Age <sup>‡</sup>	Experience as GMP <sup>‡</sup>	Qualification <sup>‡</sup>	Frequency of Visits of MRs Per Week <sup>‡</sup>	Area of Practice <sup>‡</sup>
1.	Personality of Medical representative	0.067	0.117	0.016*	0.261	0.06	0.132
2.	Description about drug by medical representatives	0.234	0.008*	0.017*	0.268	0.861	0.161
3.	Product literature	0.483	0.296	0.026*	0.217	0.514	0.034*
4.	Drug Samples	0.154	0.946	0.576	0.286	0.184	0.15
5.	Small gifts like pen, pads,	0.632	0.996	0.381	0.803	0.024*	0.989
6.	Personal Liaison with Medical Representative	0.28	0.418	0.935	0.968	0.064	0.288
7.	Greetings on Birthdays, Eid or any anniversary	0.928	0.418	0.538	0.241	0.317	0.108
8.	Textbook as gift	0.675	0.816	0.485	0.136	0.124	0.096
9.	Subscription to Journals	0.177	0.547	0.697	0.63	0.261	0.378
10.	Medical Equipment as gift	0.142	0.22	0.236	0.427	0.69	0.864
11.	Organization of Medical Camps	0.994	0.103	0.761	0.924	0.101	0.12
12.	Sponsor for local seminars and conferences	0.751	0.133	0.831	0.813	0.907	0.898
13.	Lunch and dinner for family	0.978	0.064	0.084	0.836	0.234	0.831
14.	Opportunities of Leisure trips	0.126	0.884	0.852	0.791	0.949	0.806
15.	Sponsor for national seminars and conferences	0.942	0.038*	0.331	0.829	0.305	0.569
16.	Sponsor for International seminars and conferences	0.649	<0.001*	0.002*	0.164	0.369	0.089

**TableIII. Relationship between type of inducement and the demographic characteristics of the GMPs.**  
 N= 154, \* p < 0.05

<sup>†</sup>Mann Whitney U test; <sup>‡</sup> Kruskal Wallis Test

Higher qualification can help a GMP to decide whether one should switch to one or the other drug for the treatment of patient. Most of the specialists are fond of prescribing new drugs, while the general practitioners keep stuck with the old ones and they follow the prescription of specialists.<sup>13</sup> However, in our sample there were no significant differences in the responses of practitioners with a postgraduate qualification and those without it.

A face-to-face discussion about the composition, pharmacological aspects, side effects etc, of drugs by MRs with physicians has not been found more significant as compared to the dropping of the drug literature in the doctors' chamber. These findings may partly conclude that GMPs do not feel comfort with the physical visits of MRs. Doctor patient ratio in Pakistan elucidate

the reason to this finding because doctors have very little time left to listen MRs because every doctor has a burden of more than a thousand individuals of the population.<sup>14</sup> Among majority of studies done, it has been found that lesser number of visits by the MRs have advantages over the frequent visits regarding increase of PB of GMPs.<sup>15</sup> These findings clearly describe that superfluous physical visits by the representatives of PCs do not significantly change in the PB of GMPs. Thus, PCs must focus their attention on the high-quality training standards and the MR visits that are brief but exquisite. There is a common point at this issue in a study in which visits by well-trained MRs were found to be fruitful.<sup>16</sup>

Textbooks as a gift has not been found to be an attractive inducement because only 39% of the GMPs in our sample agreed that they would

enhance prescription on receiving any informative textbook. On the other hand, the subscription to journals has been found more attractive to physicians as 54.5% of GMPs agree or strongly agree that they have interest in this item. Opinion about the availability of medical equipment to medical practitioners has also caused much initiative to enhance prescription because 46.1% of physicians were found keen to receive such equipment (responded with agree or strongly agree).

Greetings by MRs on any personal events of GMPs and the personality MRs can collectively affect enormously on the change in the behavior of prescribing certain drug by the physicians.<sup>8</sup> Separately, there is lesser influence of greetings on the anniversaries of physicians and by the personality of MRs on the change of PB by MRs. It can be concluded that both of these factors synergize each other but they are not effective independently. Cakes and gift presentations by some good-looking, skillful and expressive representative would win a game at any valuable occasion. The influence of personal liaison, personality of MRs or greetings to the doctors and their families on some occasion effect based on personal relations and physicians may prescribe the required drug without proper securitization and thus compromise the quality of prescription. Although, the participants of the study acknowledge that there is not much effect of apparent look of the MRs and detailing by them but to make the better quality of services, the PCs spend a hefty amount on training and grooming of their employees. Importance of the personality of MRs cannot be plainly denied in the change of PB of physicians because "liaison of MRs with GMPs" has been found as a notable item (55.8%) to change PB of GMPs and on the other hand, personality traits affect on the quality and quantity of relationship. Since personal liaison causes an increase in the quantity of prescription<sup>17</sup>, the personality of MRs has indirect effect on the change of PB of GMPs. Both of these factors are liabilities of MRs. It depends upon their inherent personalities and educational and environmental inputs to their personalities. PCs may also help their sales force to improve their apparent look

and by training sessions. Refining the field force in addition to quality of product is necessary part of marketing and change of PB of GMPs. It matters what type of employees the company hires and how many opportunities it provides them to flourish. Multinational companies allocate sufficient budget for overall expenses of their marketing activities.<sup>18</sup>

The findings of this study are relevant not only for the GMPs but also for PCs that are constantly trying to increase their profits by inducing a change in the PB of practitioners. However, this study represents the opinion of a small number of GMPs and the sampling technique employed here may not give the complete picture. Therefore, large scale studies are deemed necessary to get better insights of the current situation.

## CONCLUSION

The current study reports that the marketing strategies offered by PCs were effective and fruitful. All the inducements given by PCs had some effect in one or the other way on the PB of the GMPs. The GMPs that provision of the drug literature and physician's samples were most likely to result in a change in their prescription behavior. However, they reported that sponsorship of international seminars and conferences would be least likely to result in a change in their PB.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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#### AUTHORSHIP AND CONTRIBUTION DECLARATION

1	<b>Saif ur Rehman:</b> Study concept, Study design, Literature review, experimental / laboratory / treatment procedures, statistical analysis, Manuscript preparation, editing and review.
2	<b>Waqar Jeelani:</b> Study design, Literature review, Statistical analysis, Manuscript preparation, editing and review.