

Perceptions and Attitudes of Medical Sales Representatives (MSRs) and Prescribers Regarding Pharmaceutical Sales Promotion and Prescribing Practices in Pakistan

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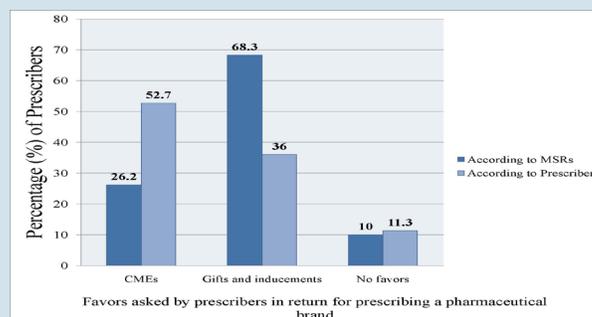
ABSTRACT

Introduction: Pakistan is the 6th most populous country in the world and has an enormous potential for an ever increasing drug market. The health care system is highly prone to unethical drug prescribing practices. In addition, there is a huge tendency of pharmaceutical firms to indulge in unethical drug promotional practices by means of inducements and other benefits through their medical sales representatives (MSRs). On the other hand, the prescribers are also reported to be demanding inducements from these companies in return to write higher number of prescription. This study investigated the ground realities of drug promotion and prescribing practices in Pakistan. **Materials and Methods:** A cross sectional study was conducted for a period of 8 months in which 472 physicians and 609 medical sales representatives of Pakistan selected through prospective sampling were interviewed on a validated, structured questionnaire. The responses of the target groups were then analyzed for association between variables by *Chi-square* test ($p < 0.05$) and cross tabulation through SPSS, version 20. **Results:** Majority of practitioners (83.2%) expected both, good communication skills and knowledge from MSRs and at the same time nearly half (53%) of prescribers demanded CME and almost a third proportion (36%) demanded gifts, incentives and inducements from MSRs. Replying to same question, MSRs disagreed with prescribers and believed that around (~70%) of prescribers ask for inducements with a high percentage i.e. (~64%) among them demanding unethical inducements like excessive free samples, gifts, leisure trips and cars. Majority of physicians (92%) have consensus that the multinational pharmaceutical firms have defined promotional practices while the national pharmaceutical companies (~73%) are mainly involved in unethical practices of drug marketing. **Conclusion:** Majority of national pharmaceuticals as well as prescribers were involved in unethical drug promotion and prescribing respectively. There is a need of curbing the unethical drug promotion and prescribing and formidable policies governing this issue

are required to be implemented by the concerned regulatory authorities to avoid unnecessary harm to the patient's life and pocket. **Strength and weakness of study:** The study explored the drug promotion and prescribing practices for the first time in a developing country however, due to sensitivity of the topic a number of respondents hesitated to participate.

Key words: Drug, Drug detailing, CME, Medical sales representative, Physicians, Pakistan.

PICTORIAL ABSTRACT



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INTRODUCTION

Pharmaceutical sales promotion and prescribing activities have had a symbiotic relationship for most part and did provide benefits to the patients. Ethical pharmaceutical sales promotion results in increased prescribers' drug knowledge and evidence base. This technique empowers the prescriber to prescribe a drug with a better understanding. However, the dark side of this relationship can result in patient harm as it has also been seen as a marketing prospect for the pharmaceuticals and promotes tendency to indulge in irrational prescribing by prescribers for the sake of inducements. It was reported in Turkey where the general practitioners GPs used information provided by the pharmaceuticals for prescribing which influenced their decision making.¹

The whereabouts of this relationship go far beyond the pharmaceutical sales representatives and prescribers union. García-Alonso and García-Mariño 2008 studied the strategic relationship between the pharma-

ceuticals and reimbursement agencies in which they observed tendency of agencies to reimbursement high priced drugs which hints at the hidden relationship.² Similarly Nguyen NY and Bero L 2013 revealed inadequate and non transparent policies regarding drug selection and exposed the vulnerability of drug reimbursement programs to pharmaceutical firm's influence.³

To address the issue, a number of guidelines and legislations were carried out in different parts of the globe. Gustafsson LL *et al* 2011 carried out a 10 year study to evaluate the effectiveness of a specially formulated essential drugs recommendation list which was of benefit to the prescribers as they found it trustworthy. The technique promoted rational prescribing and use of the medications.⁴

In Asia, particularly in South Korea reforms were made in the anti-rebate law specifically to address the issue of unethical pharmaceutical marketing

and sales promotion activities to level criminal charges against prescribers and pharmacists involved in such practices.⁵

However, the story of Pakistan is quite different. The population of Pakistan is about 184,350,000 making it the world's 6th most populous country.^{6,7} There is a huge pharmaceutical market in the country.⁸ The growth of pharmaceutical industry in the last decade was substantial and the value of sales of medicine was 10th highest in Asia with a value of US \$2.34 billion in 2012.^{9,10} The prescribers in the country have the tendency to indulge in irrational prescribing. Although, not all prescribers indulge in irrational prescribing but a number of studies carried out in different parts of the country have reported the issue of irrational prescribing by majority of the prescribers.^{11,12} The regulations regarding health practices contain loop holes as many of the prescription-only-medicines POM are freely available over the counter OTC.⁸

The standard of pharmacies is below parity and sometimes absence of qualified pharmacist increase the risk of patient harm. There is an absolute need to raise the standards of community pharmacies by employing qualified pharmacist and increase the knowledge of drug sellers.^{13,14} Although, the practice of pharmacy is developing swiftly in the country and after the starting of Doctor of Pharmacy program in 2003 by Government of Pakistan, the pharmacists have shown confidence in tackling these issues but it is still early for them to fully get involve in patient care and play their role.¹⁵ Moreover, the pharmacists also face difficulties from prescribers and other healthcare professionals in direct patient care as the prescribers and other healthcare professionals feel insecurity and interference in their job making them feel uncomfortable.¹⁶ The field is therefore left empty for the prescribers to exercise their authority and freely prescribe whatever medication they deem fit for the patient. This scenario puts prescribers in a commanding position in health care system and subsequently, they are viewed as marketing prospects for pharmaceuticals and as the ones having the potential to increase the pharmaceutical sales.

The medical sales representatives or medical representatives MSRs are first-line force of a pharmaceutical organization and play an important role in nurturing and establishing this relationship. This relationship between pharmaceuticals and prescribers is symbiotic and in developed countries the pharmaceutical organization promotes ethical marketing strategies and academic detailing to promote rational prescribing and sales of their medicines. The prescribers also benefit from this as their knowledge is increased empowering them to prescribe rationally.¹⁷ However, in a developing country like Pakistan where enforcement of health regulations and role of pharmacist are in embryonic stages, pharmaceuticals and prescribers are often free to act as they deem fit with the target of increasing sales prospects. Although a code of ethics of Pakistan Medical and Dental Council exists and clause 40, 51 to 54 of the said code specifically deal with the subject.^{18,19} Despite this, the unethical drug promotion and prescribing is carried out in the country.²⁰

The prescribers demand favors and pharmaceuticals companies usually provide them in return for increase number of prescription containing their products.⁸ Orłowski and Wateskain 1992 reported the use of paid holidays trips by pharmaceuticals to prescribers in return for increase number of prescription.²² Khan in 2004 reported the various types of inducements pharmaceuticals provided the prescribers which included continuous medical education CME which is beneficial, ethical and promotes rational prescribing such as conferences, symposiums and medical books. Also, unethical inducements such as drug samples, paid holiday trips, lunch, and expensive luxury gifts such as furniture for clinics, air conditions, laptops, etc.²¹ The latest trend observed in offering drug promotion incentives by the pharmaceuticals in Pakistan is to pro-

vide down payment to prescriber for a new car in return for prescribing a certain amount of prescriptions per month containing the pharmaceutical firm's brand.²¹⁻²⁴ Some of the physicians are only interested in the inducements and fail to recognize the inaccurate statements of the medical sales representatives.²⁵ The phenomenon was also investigated in Turkey by Dilaver *et al* and it was reported that the drug detailing and promotion is an ethical issue.²⁶

In the regional context similar studies in Saudi Arabia and India revealed concerns in the public opinion on the growing prescriber-pharmaceutical firm relationship.^{27,28} The purpose of this study was to investigate the situation prevailing in Pakistan regarding drug promotion and prescribing practices.

MATERIALS AND METHODS

A quantitative cross sectional study for the period of 8 months was conducted among the prescribers and medical sales representatives MSRs of Pakistan in which they were interviewed based on a survey questionnaire. The interview included general questions related to their demographics, expectation and working experiences with each other and was mainly chosen over person filling of questionnaire by respondent to facilitate their busy schedule.

Duration of the study

The research was performed for a period of 8 months from March 2014 to October 2014.

Study instrument

The study instrument initially consisted of a survey questionnaire which was slightly modified to interview questionnaire after piloting and validation by a team of experts prior to data collection.

Piloting and validation procedure

A pilot study was conducted on 38 prescribers and 22 medical sales representatives MSRs by simply handing the survey questionnaire and collecting it at time of their convenience. This mode of data collection reported the tendency of few prescribers to turn down few questions of the survey questionnaire. The cause was then investigated and identified as prescriber's time consumption during filling of responses and some of the open ended questions in the questionnaire.

The study instrument was then modified and the questionnaire response filling was facilitated by interviews which were conducted by volunteers who were coordinating the research. It was done to facilitate the data gathering keeping the respondents' busy schedule in view. The open ended questions were modified to close ended to minimize the chance of avoiding questions by respondents.

The interviews were solely based on the questions from the research instrument which were mostly close ended and the respondents' answers were marked on the interview questionnaire by the research coordinator. The role of the research coordinator was solely to facilitate the data gathering. It took 7-8 min to conduct the interview and fill in the response on the questionnaire.

The study instrument was again subjected to pilot study on 16 prescribers and 9 MSRs and thus validated. The results of the pilot study were not included in the main data.

Ethical Approval

The study was ethically approved by the Institutional Review Board of Clifton Hospital in Karachi, Pakistan (Ethical Approval # CH-0231-14).

Informed consent

An informed written consent was obtained from the participants before recording their responses.

Target population and sampling

The population for research included prescribers and sales representatives from Pakistan. 502 prescribers were selected working in different public and private hospitals and 672 medical sales representatives MSRs associated with general medicines and specialized medicines group across Pakistan respectively. The selection of the participants was based on probability sampling.

The questionnaire based interviews were conducted in person, out of the total 502 physicians selected, 82 refused to consent leaving behind only 420 physicians. 63 medical sales representatives out of the total 672 refused to undergo interview, as a result 609 sales representatives were available.

Inclusion/exclusion criteria

Only prescribers and medical sales representatives MSRs were included in the study. Those prescribers and MSRs who did not consent were also left out. Incomplete responses from the target population were also excluded.

Data analysis

The target group was then questioned and their response was analyzed using Statistical Package for Social Sciences (SPSS, version 20). The results of each response in the interview were reported as percentage (%) and in some cases as Standard Deviation (SD). Also, results were also reported as Sample (N) in tables. The Chi-square X2 test and cross tabulation was used to test the association between the demographic variables of respondents and their expectations. Statistical significance was accepted at P value of <0.05 i.e. (P value less than 0.05).

Conceptual framework

The study hypothesized that the drug promotion and prescribing practices are ethical. The hypothesis was tested statistically using *chi square* X2 test.

RESULTS

Out of the total 502 physicians selected, 82 refused to consent leaving behind only 420 physicians. 63 medical sales representatives out of the total 672 refused to undergo interview, as a result 609 sales representatives were available for their response to be documented. The results of the study are reported as:

- Demographic information
- Social information
- Personal experiences of MSRs
- Personal experiences of prescribers
- Association of demographic and social information

Demographic information

Physicians

The results reveal that the majority of the physicians (69.5%) were practicing in the private healthcare settings while the rest (30.5%) were associated with the public health care facilities (0.46 SD). The medical sales representatives for most part (59%) were seen to be associated with the national pharmaceutical companies while the rest (41%) were associated with multinational pharmaceutical firms. (0.39 SD).

Medical Sales Representatives MSRs

It was observed that almost half of the medical sales representatives (46.6%) had a work experience of 5 to 10 years while a third (33.6%) had more than 10 years. Few were new to this field (19.8%) having experience of less than 5 years (0.72 SD). The prescribers in this survey were observed to be mostly (56.1 %) new with an experience of less than 5 years, a significant proportion of prescribers (36.9%) were seen having experi-

ence between 5 to 10 years and few had been practicing for over 10 years. (7%) (0.5 SD). The summary of demographic information is tabulated in Table 1.

Social information

Physicians

When the prescribers were asked about their expectations from a medical sales representative they expected good communication skills of drug detailing (12%) and evidence base behind the drug being promoted (4.8%) while the majority believed (83.2%) that both the qualities should be exhibited by medical sales representatives. When they were asked about their demands from medical sales representatives, they were initially skeptical about the response and only (36%) demanded gifts, incentives as inducements while the majority (52.7%) demanded continued medical education CME as inducements making up a majority (88.7%) who demanded inducements. The rest (11.3%) did not demand anything and prescribed drug solely on knowledge. The majority of the prescribers (98.2%) responded that the MSRs demanded their brand to be prescribed in return however a minor segment (1%) wanted the competitor's brand not to be prescribed. Almost negligible percentage (0.8%) did not demand anything.

Medical Sales Representatives MSRs

On the other hand majority of medical sales representatives MSRs (67.2%) had a favorable opinion regarding ethical practices by physicians while the rest (38.2%) had different view.

Contrastingly, according to the medical sales representatives, the mass (63.8%) demanded unethical inducements such as expensive gifts, samples, leisure trips and other luxury while the rest (26.2%) were in favor of ethical inducements such as books, CME and conferences. The rest (10%) did not demand anything.

Out of all of the unethical demands of prescribers from the MSRs (63.8%) considering it as a whole (63.8%=100%), it was reported by the MSRs that almost all prescribers demanded the samples of the medicines being promoted, apart from this the prescribers demanded a combination of inducements, majority (67%) demanded leisure trips and the rest (13%) demanded furniture for their clinics and expensive gifts such as cars (13%), few (7%) demanded air conditions and liquid crystal display (LCDs) television, renovation of their clinical settings along with samples of the drug being promoted.

The sales representatives responded in majority (99.1%) that they demand the prescribers to prescribe their brand while almost negligible percentage of MSR (0.5%) wanted prescriber not to prescribe competitor's brand and very few (0.4%) demanded nothing. The social information is presented in Table 2.

Personal experiences

MSRs with Prescribers

When the MSRs were questioned about their actual personal experience with prescribers, masses responded (70.2%) indicating the tendency of prescribers to increase drug prescribing and subsequently drug sales for inducements. However, a third (29.8%) abstained from answering. The study revealed qualitatively that the ground reality wears an awful look as the prescribers ignore patient health safety for the sake of increasing the drug sales and hence indulge in unethical practice reported by MSRs.

Prescribers with MSRs

When the prescribers were asked about their personal experience with the prescribing practice, the majority (92%) pointed out the loopholes with respect to pharmaceuticals firms and their policy regarding the issue, however a fraction (8%) did not respond to this question. Further-

Table 1: Summary of demographic information

Demographics	Percentage %	Sample N
Target population		
Prescribers	40.8%	420
Medical Sales Representatives MSRs	59.2%	609
Total	100%	1029
Work place of prescribers		
Public	30.5%	128
Private	69.5%	292
Total	100%	420
Work place of MSRs		
National Pharmaceutical Firms	59%	359
Multinational Pharmaceutical Firms	41%	250
Total	100%	609
Work experience of prescribers		
Less than 5 years	56.1%	236
Between 5 years to 10 years	36.9%	155
More than 10 years	7%	29
Total	100 %	420
Work experience of MSRs		
Less than 5 years	19.8%	120
Between 5 years to 10 years	46.6%	284
More than 10 years	33.6%	205
Total	100%	609

more, the qualitative aspect of the study reported that the multinational pharmaceutical firms have defined policies on the issue of drug promotion and use ethical inducements for most part to promote their brand and many national pharmaceutical firms are lacking such policies. They were observed to be associated with unethical inducements as reported by those prescribers who initially responded to the question. The personal experience of MSRs and prescribers is tabulated in Table 3.

Association of demographic and social information

The association of demographic and social information was analyzed by *chi square X2* test for association. The demographic variables were tested for any association with social variables and statistical significance was accepted at *P value <0.05*. The study reported that demographic variable of work experience of MSRs was associated with physician's expectation of good communication skills (*P value <0.05*). The statistical findings interprets that the prescribers expectation is high from a relatively young MSR and the expectation level usually drops as the experience increase. Furthermore, the work experience of prescribers were seen to be associated with their demand of unethical inducements (*P value <0.05*). Statically, the study reported a surge in unethical demands with increasing work experience.

In addition, the work place of prescriber was associated with their demand of CME (*P value <0.05*). This statistical finding interprets that the prescribers who were involved in private health care setting were more career oriented and well focused towards learning medical knowledge.

DISCUSSION

This research study was conducted for 8 months in different parts of Pakistan in order to obtain a more general view of the various aspects

of drug marketing and promotional practices prevailing in the country. For this almost 420 physicians and 609 medical sales representatives (MSRs) who are the sales force for any pharmaceutical company were interviewed on a structured and validated pattern.

In this study a substantial proportion of medical sales representatives (MSRs) were found to have more than 10 years of experience in sales (33.6%), while the majority (46.6%) of the MSRs interviewed, consisted of those who were in the field for more than 5 years but less than 10 years. This left only ~20% of MSR who were classified as relatively young having less than 5 years of experience. This scenario could be attributed to the fact that after certain years of experience in sales, usually 5-8 years, the MSRs are promoted to higher managerial positions depending upon their performance, skills, company policies and vacancies. On the other hand the physicians/prescribers inducted in this study mainly comprised of relatively young practitioners (56.1%). However, there was a sizeable proportion (36.9%) of physicians who had experience of 5-10 years in the field. Only a small fraction constituted of senior prescribers (7%) who had experience of more than 10 years in their respective specialty. This scenario also reflects the dilemma of brain drain of several professionals including medical doctors from Pakistan in the recent decades who go to Middle Eastern countries, US, and UK etc. to settle permanently with families.^{29,31} The remaining consulting specialists prefer to work on either higher positions including administrative positions in public health care settings or are associated with private health care setups which in certain ways guarantee enough remuneration to maintain their life style.

Regarding the drug detailing and information, physicians' largely expected that the MSRs should have good knowledge about their drug products as well as they must also exhibit good communication skills. These expectations are specially held for newer MSRs who have little

Table 2: Summary of social information

S.No	Social Information	Percentage %	Sample N
1	Expectation of prescribers		
1.1	Good communication skills of drug detailing	12%	50
1.2	Evidence base behind drug being promoted	4.8%	20
1.3	Both	83.2%	350
	Total	100%	420
2	Expectation of MSRs		
2.1	Prescribers follow ethical practice	67.2 %	409
2.2	Prescribers do not follow ethical practice	32.8 %	200
	Total	100 %	609
3	Demands of prescribers from MSRs according to prescribers		
3.1	Gifts, samples, incentives and inducements	36 %	152
3.2	Continued medical education CME	52.7 %	221
3.3	No demands	11.3 %	47
	Total	100 %	420
4	Demands of prescribers from MSRs according to MSRs		
4.1	Gifts, samples, incentives and inducements	63.8 %	389
4.2	Continued medical education CME	26.2 %	160
4.3	No demands	10 %	60
	Total	100 %	609
5	Breakdown of the unethical demands of prescribers	Assuming 63.8% as 100%	
5.1	Drug samples+leisure trips	67 %	281
5.2	Drug samples+furniture for clinical setting	13 %	55
5.3	Drug samples+personal car	13 %	55
5.4	Drug samples+AC/ LCDs /renovation of the clinical setting	7 %	29
	Total	100 %	420
6	Demands of MSRs from prescribers according to MSRs		
6.1	Prescribe their brand	99.1%	604
6.2	Do not prescribe competitor's brand	0.5%	3
6.3	No demands	0.4%	2
	Total	100%	420
7	Demands of MSRs from prescribers according to prescribers		
7.1	Prescribe their brand	98.2 %	412
7.2	Do not prescribe competitor's brand	1 %	5
7.3	No demands	0.8 %	3
	Total	1 00%	420

Table 3: Summary of personal experience

S.No	Social Information	Percentage %	Sample N
1	Personal Experience of MSR with prescriber		
1.1	Prescriber increase drug prescribing for inducements	70.2%	428
1.2	No comments	29.8 %	181
	Total	100 %	609
2	Personal experience of prescriber with MSR		
2.1	Lack of policies and structure in pharmaceuticals firms regarding the issue	92 %	386
2.2	No comments	8 %	34
	Total	100 %	420

experience in the field and thus do not have a very sound relationship with medical practitioners initially. The medical practitioners, when further asked about their demands from the MSRs, they were observed to be skeptical initially, however majority (52.7%) of them particularly those associated with the private health care setups responded by saying that they ask the MSRs for CME in the form of seminars, workshops, books, and other materials for information. Moreover, ~36 % of prescribers admitted that they demands gifts from their respective MSRs. On the other side, nearly all the MSRs (99.1%) agreed that they want the doctors to prescribe their brand in return. This must be kept in consideration that even in the industrialized countries; pharmaceutical manufacturers are involved in various kinds of biased practices including apparently healthy activities of CMEs where almost ~70% of pharmaceutical companies funding is going in and which also includes tours to resorts and leisure trips to expensive places under the name of CME lectures and seminars.³⁰ These practices are now being watched closely by regulatory bodies in developed countries and even developing countries are taking initiatives to curb them as they are more likely to promote particular brands of drugs without enough clinical evidence of it being superior to others and even sometime hiding the potential side effects.³¹⁻³⁴

On the contrary, when the question was put before the MSRs regarding the inducements asked by prescribers and what was their personal experience regarding ethical practices, an overwhelming majority (70.2%) believed that the prescribers are influenced by inducements and in return the sales of their brands increase. It was further observed that out of this majority, a massive percentage (63.8%) of prescribers demand unethical inducements like unnecessary drug samples (98.6%), gifts (54%), leisure trips (67%), clinics' renovations (33%) and even expensive gifts like cars (13%). It was also observed that the phenomenon of unethical demands from prescribers was directly proportional to their work experience and mostly senior ones were found to be boldly asking for gifts and other inducements. These views were mainly held by those MSRs who had either 5-10 years or more experience as compared to the ones who are in the field for less than 5 years which could be attributed to the fact that with the passage of time the sales persons and prescribers become accustomed to each other and can communicate easily as compared to fresh or young individuals on both sides. These results are in accordance with the study carried out by R. R. Ahmed and T. Jalees in 2008, where they concluded that these unethical practices were initiated by pharmaceutical companies and are now running passively due to continuous demands by the medical practitioners.³⁴ It is important to consider here that out of all the MSRs interviewed in this study, almost 25.41% (36.2% out of the initial 70.2% who believed prescribers were asking for inducements) considered that medical prescribers did not ask for any unethical inducements in their perspective, and only demanded for seemingly ethical CMEs in the form of seminars, workshops and literature etc. Considering the absence of any formal policy from the central regulatory body in the country for drug promotion and enormity of the prescribers directly asking for gifts and other unethical inducements, it is still a welcoming figure that at least a significant number of practitioners morally do not ask for such clearly unethical favors. It is also worth mentioning that majority of prescribers (92%) feel that multinational companies are not involved in unethical drug promotion practices and it is the national pharmaceutical companies (73.2% believed), owing to their largely unregulated drug promotion policies, are indulged in unethical means of promotion of their products. This result is also in agreement with the previously reported study in Pakistan where 60% of the pharmaceutical companies admitted that unethical practices prevail in the country and they invest 20-40% of their income in drug marketing mainly comprising of CMEs for the prescribers.³⁵ It was also identified by

the prescribers in the study that it is the national pharmaceutical companies who pursue to achieve their goals without considering any form of formal ethics.^{36,37} This phenomenon is previously reported in Pakistan and also similar to India where the national pharmaceutical companies are more prone to breach the ethics for promoting their pharmaceuticals.^{38,39}

CONCLUSION

This study clarifies the current pharmaceutical drug promotion and prescribing practices in Pakistan. The majority of prescribers and national pharmaceutical firms and to some extent the multinational pharmaceuticals are involved in unethical practices in drug promotion and prescribing. Alarming policies governing the drug promotion and prescribing are required to be implemented by the concerned regulatory authorities to avoid unnecessary harm to the patient's life and pocket through the unethical drug promotion. The prescribers should not accept any incentives, gifts of financial value from any pharmaceutical companies in return for an increase in prescribing selected brand. On the other hand, pharmaceutical companies must compete in the market on the basis of the drug quality and do not offer any valuable gift and incentives to the prescribers. The interaction between doctors and pharmaceutical firms should be restricted within acceptable boundaries and the authorities must be prepared to play an active role. Strengthening the regulatory machinery and formulating policies in this regard in necessary. It is essential that a health care professional such as a pharmacist can play an important role in this process since he/she is an expert in the pharmaceutical field as well as more aware of the outcomes of unethical drug prescribing practices such as polypharmacy and adverse drug reactions.

STRENGTHS OF THE STUDY

The study is the first ever research reported in the context of prescribing and promotion practices regarding pharmaceuticals from a developing country like Pakistan. The study was conducted all over Pakistan which included all 4 provinces and 3 of 4 administrative territories, and encompassed a large sample size to ensure data reliability. The study was ethically approved.

LIMITATIONS OF THE STUDY

The response rate of the prescribers was low due to sensitivity of issue. The prescribers did not have time to fill in their response in the questionnaire therefore, to facilitate the data gathering the survey was conducted by interview questionnaire. Most of the questions were close ended; it was done due to the fact since, the prescribers had a busy schedule, they tend to skip some questions. Nevertheless, the study reported significant novel findings which outweigh its limitations.

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AUTHOR CONTRIBUTIONS

All authors contributed equally in all aspects.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

ABBREVIATIONS USED

MSRs: Medical Sales Representatives; **POM:** Prescription only Medicines; **OTC:** Over the counter.

REFERENCES

- Vancelik S, Beyhun NE, Acemoglu H, Calikoglu O. Impact of pharmaceutical promotion on prescribing decisions of general practitioners in Eastern Turkey. *BMC Public Health*. 2007;7(1):122.
- Garcia-Alonso MD, Garcia-Mariño B. The strategic interaction between firms and formulary committees: effects on the prices of new drugs. *J Health Econ*. 2008; 27(2):377-404.
- Nguyen NY, Bero L. Medicaid drug selection committees and inadequate management of conflicts of interest. *JAMA Intern Med*. 2013;173(5):338-43.
- Gustafsson LL, Wettermark B, Godman B, Andersén-Karlsson E, Bergman U, *et al.* Regional Drug Expert Consortium. The 'wiselist' - a comprehensive concept to select, communicate and achieve adherence to recommendations of essential drugs in ambulatory care in Stockholm. *Basic Clin Pharmacol Toxicol*. 2011;108(4):224-3.
- Yu SY, Yang BM, Kim JH. New anti-rebate legislation in South Korea. *Appl Health Econ Health Policy*. 2013;11(4):311-8.
- World Health Organization. [homepage on internet]. WHO Pakistan. 2012. [internet]. [update 2012; cited 2012 Dec 17]. [about 1 screen]. Available from: <http://www.who.int/countries/pak/en/>
- Ministry of Information and broadcasting. [homepage on internet]. The information gateway to Pakistan, country profile. [internet]. [updated 2012 Nov 23; cited 2012 Dec 17]. [about 1 screen]. Available from: <http://www.infopak.gov.pk/profile.aspx>
- Khan M. Murky waters: the pharmaceutical industry and psychiatrists in developing countries. *The Psychiat*. 2006;30(3):85-8.
- Pakistan Pharmaceutical Manufacturer's Association. [homepage on internet]. Pakistan Pharmaceutical Industry. 2012. [internet]. [cited 2013]. [about 1 screen]. Available from: <http://ppma.org.pk/PPMAIndustry.aspx>
- Aamir Z. Review of Pakistan's Pharmaceutical Industry. SWOT Analysis. *Int Jour of Business and Inf Tech*. 2011;1(1):114-7.
- Das N. Prescribing practices of consultant at Karachi, Pakistan. *J Pak Med Assoc*. 2001;51(74):1-6.
- Hafeez A, Kiani AG, ud Din S, Muhammad W, Butt K, Shah Z, *et al.* Prescription and Dispensing Practices in Public Sector Health Facilities in Pakistan: Survey Report. *J Pak Med Assoc*. 2004;54(4):187-91.
- Aslam N, Bushra R, Khan MU. Community pharmacy practice in Pakistan. *Arc Pharm Pract*. 2012;3(4):297-302.
- Zahid AB, Anwar HG, Debra N, Abdul LS, Frank W. Quality of Pharmacies in Pakistan: a cross-sectional survey. *Int J Qual Health Care*. 2005;17(4): 307-13.
- Azhar S, Mohamed AH, Mohamed I, Mohamed I, Maqsood A, Imran M, *et al.* The role of pharmacists in developing countries: the current scenario in Pakistan. *Human Resources for Health*. 2009;7(1):54.
- Azhar S, Mohamed AH, Mohamed I, Mohamed I. Doctors' perception and expectations of the role of the pharmacist in Punjab, Pakistan. *Trop J Pharm Res*. 2010;9(3):205-22. ISSN: 1596-5996
- Shankar PR, Jha N, Piryani RM, Bajracharya O, Shrestha R, Thapa HS. Academic detailing. *Kathmandu University Medical Journal*. 2010;8(1):29;126-134.
- Pakistan Medical and Dental Council. [homepage on internet]. Code of Ethics. [online]. [policy document # F.16-5/2010 MER]. Available from: <http://www.pmdc.org.pk/LinkClick.aspx?fileticket=v5WmQYMvhz4%3d&tabid=102&mid=554>
- Schedule G. Drugs Act 1976. Ethical criteria for medicinal drug promotion. [online]. [policy document # F.8-1/90—AU (Vol 11)]. (SRO 1362(I)/96) 1997. Available from: <http://www.pmdc.org.pk/LinkClick.aspx?fileticket=2tywGfuonwM%3d&tabid=102&mid=588>
- Rizwan RA, Tariq J. Pharmaceutical marketing practices in Pakistan. *European Journal of Scientific Research*. 2010;46(3):402-11.
- Khan MM. Pharmaceutical firms and doctors. [news letter]. *The Dawn*, 16 December 2004. [available from]. <http://www.dawn.com/2004/12/16/letted.htm#6>
- Orlowski JP, Wateska L. The effects of pharmaceutical firm enticements on physician prescribing patterns. There's no such thing as a free lunch. *Chest*. 1992;102(1):270-3.
- Dawn. [homepage on internet]. Karachi: Many psychiatrist get away with unethical practice. [online]. [updated 2013 Oct 2; cited 2014 Nov 14]. Available from: <http://www.dawn.com/news/118044/karachi-many-psychiatrists-get-away-with-unethical-practices>.
- Someshwar Singh. TWN. Third World Network. [homepage on internet]. Baby food manufacture accused of violating the WHO code. [online]. Issue number 4670. [cited 2014 Nov 14]. Available from: <http://www.twinside.org.sg/title/baby.htm>
- Ziegler MG, Lew P, Singer BC. The accuracy of drug information from pharmaceutical sales representatives. *JAMA*. 1995;273(16):1296-8.
- Tengilimoglu D, Kisa A, Ekiyor A. The pharmaceutical sales representative/ physician relationship in Turkey. Ethical issues in an international context. *Health Marketing Quart*. 2005;22(1):21-39.
- Bansal RK, Sanjoy D. Unethical relationship between doctors and drug companies. *Journal of Indian academy of forensic medicine JIAFM*. 2005;27(1):40-2.
- Al-Haddad MS, Fayez H, Al-Shakhshir SM. General public knowledge, perceptions and practice towards pharmaceutical drug advertisements in the Western region of KSA. *Saudi Pharm J*. 2014; 22(2):119-26.
- Daily Times. [Newsletter]. Pakistan the worst-hit country by brain drain. Sunday, July 05, 2009. Page 5-8 P. Available from: http://www.dailytimes.com.pk/default.asp?page=2009%5C07%5C05%5Cstory_5-7-2009_pg5_8
- Ali Usman. Brain drain: Doctors to be allowed 10-day ex-Pakistan leave. *The Express Tribune*. [newsletter]. August 17, 2013. Available from: <http://tribune.com.pk/story/591227/brain-drain-doctors-to-be-allowed-10-day-ex-pakistan-leave/>
- Michael A. Steinman and Robert B. Baron. Is continuing medical education a drug-promotion tool? YES. *Can Fam Physician*. 2007;53(10):1650-3.
- Mudur G. India moves to curb unethical drug promotional practices. [Newsletter]. *BMJ*. 2010;340:c206.
- Cousins C. Pharmaceutical Marketing: The Unethical Reform of Industry. *Gatton College of Business and Economics, University of Kentucky. Gatton Student Research Publication*. 2009;1(2):1-8.
- Macalister T. Pharma overtakes arms industry to top the league of misbehavior. [newsletter]. *The Observer*. Sunday 8 July 2012. Available from: <http://www.theguardian.com/business/2012/jul/08/pharma-misbehaviour-gsk-fine>
- New law promotes transparency in doctor/drug company relationship. [newsletter]. *RxRights.org*. [internet]. Fri 6 Sep 2013. Available from: <http://www.rxrights.org/your-thoughts/2013/09/06/new-law-promotes-transparency-in-doctor-drug-company-relationship>
- Raheem RA, Jalees T. Pharmaceutical Industry in Pakistan: Unethical Pharmaceutical Marketing Practices. *Market Forces*. 2008. 30-39 P. Available from: <http://www.pafkiet.edu.pk/LinkClick.aspx?fileticket=hhdM7Qxmglc%3D&tabid=393&mid=1559>
- Ali SI, Abbas A, Tanwir S, Sabah A, Rizvi SA, Adnan S, *et al.* Evaluation of Knowledge of Pharmacist and Non Pharmacist Medical Sales Representatives (MSRs) in Pharmaceutical Drug Promotion: A Comparative Study. *British Biomedical Bulletin*. 2014;2(1):40-8.
- Dawn.com. [homepage on internet]. Unethical practices in medicine marketing. [online]. [update 2011 Dec 19; cited 2014 Nov 15]. Available from: <http://www.dawn.com/news/681611/unethical-practices-in-medicine-marketing>
- Anup Soans. Unethical practices of Indian Pharma and doctors make it to ET editorial. [online]. [updated 2014 July 17; cited 2014 Nov 14]. Available from: <https://www.linkedin.com/today/post/article/20140717044754-3531167-unethical-practices-of-indian-pharma-doctors-make-it-to-et-editorial>