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Physicians' Exposure to Promotional Tools in Indian Pharmaceutical Industry

Abstract

An investigation is described of the perceptions of physicians concerning the association between physicians' demographics and the frequency of exposure of promotional tools by the pharmaceutical marketers to the physicians. Some practical implications and guidelines are offered by the results to pharmaceutical marketers, with reference to the association of frequency of exposure to promotional tools and physicians' demographics and the appropriate emphasis that should be placed on them. The relationship between the frequency of exposure to promotional tools and certain categorical variables is investigated. Some strategic implications for marketing of pharmaceutical products are identified, as are areas for further research.

Keywords: Promotional tools, Pharmaceutical industry, Demographics.

Introduction

An assessment of pharmaceutical marketing spending in US enlists the promotional tools used by pharmaceutical companies is samples, detail men, gifts, direct to consumer and journal advertising.[16] Drug companies spend over $6 billion (not including drug samples) annually in marketing drugs to doctors in US. This is approximately $8400 per doctor per year. Spending for one-on-one marketing to doctors is increased by 78% between 1999 and 2003, peaking in 2004 then declining 12% from 2005 to 2010, increasing in 2011. McLean reported that advertising expenses are on a high.[15] Almost 30% of drug advertising expenses for ethical drugs are the categories of oral antihistamines, antidepressants, drugs to lower cholesterol, and anti-ulcerants.

Literature Review

Pharmaceutical companies use both push and pull strategies.[18] Pharmaceutical companies promote to physicians under push strategy by using medical representatives who meet the physicians with promotional products. The role and importance of each promotional tool varies according to the medicine class.[11] Promotional tools can be samples, advertisements, gifts, sponsorship and detail men.

Promotional products or gifts are given to promote the products by the company. Promotional product is described as any item which is given as a gift and includes the company name, logo, or advertising message.[17] Pharmaceutical companies use promotional gifts such as pens, coffee mugs, caps, calendars, etc., awards, incentives, and business gifts to promote their brands. Promotional gift creates a positive perception, reinforces a buying decision, strengthens relationships, stimulates interest, and acts as a differentiator from the competitors.[6] Giving gifts such as pens, pencils, or desk organizers serves the purpose of expressing gratitude for past business and ensures business in the long run.[8] Promotional products offered to physicians are in exchange for the doctors' prescriptions.[1] Promotional products are not simply in the form of gifts but it also involves sponsoring the physicians for various educational events. It was found that around 70% of the respondents had attended educational events.[14] These events were either organized by professional organizations of medical community or sponsored/organized by pharmaceutical firms.

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Pharmaceutical industry was the largest sponsor source for physicians in the organization of doctor-led educational events in approximately 72% cases. Sponsorship included meals, accommodation, airfare, and taxi fare and registration fees.

Free drug samples help in aiding patient-mediated learning about pharmaceutical products.[2] Pharmaceutical firms spend substantial amount on giving away samples to physicians.[20] Drug sampling influences the prescription behavior more favorably. Free samples given to patients may lead to prescription of less optimum drug but enhances doctors' goodwill. Samples influence junior physicians with less experience to adopt newer and expensive drugs despite the availability of economical and equally effective older products.[5] Therapeutic categories such as anti-asthma, anti-allergic, anti-infective receives high degree of sampling.[3] Samples are regarded as "soul of selling in the prescription industry."[13] A pharmaceutical firm distributes approximately 10 million units of samples in a year.[7] Differences in perceptions of efficacy of drugs has been reported between physicians who employ samples and who do not.[22] Samples alter the calculus of a cost-minimizing physician.[12] Counter-detailing programs have been found to be ineffective.[9] Attention is shifting to automated sampling programs.[10]

Methodology

This article is part of a larger study. Primary data for the study from physicians was collected through a survey using a structured questionnaire. From the list of 614 registered private and government hospitals available on the Delhi government website (www.delhi.gov.in), 60 hospitals were selected through systematic random sampling. These 60 hospitals comprised 30 government hospitals and 30 private hospitals. A list of physicians in these hospitals was compiled. One thousand physicians were identified through systematic random sampling and contacted through personal visits and telephonically and requested to participate in the study. In order to obtain respondent cooperation, referrals were obtained where possible. The questionnaire was administered face-to-face through personal visits in physicians' chambers in the hospitals. A total of 304 completed usable questionnaires were obtained yielding a response rate of approximately 30%. Regarding the sample size, Hair et al. (1998) recommended a sample size of 200 as a 'critical sample size' that can be used in any common estimation procedure for valid results. Primary data for the study was collected from physicians through a structured questionnaire. Personal visits were conducted to ensure that complete and accurate information was given by respondents. The administration of the questionnaire was done in the chamber of the physicians in the hospital. Participants were briefed about the purpose of the study and given enough time to fill out the questionnaire. They were assured about the confidentiality of the data, which was to be used for academic purposes only.

Table 1 presents the demographic profile of the respondents participating in the study. The data collection instrument for physicians included questions related to qualification, specialty and number of years of practice. The response category for the kinds of hospitals was "government teaching hospital," "government non-teaching hospital," "private teaching hospital" and "private non-teaching hospital." Further, the instrument included questions on "number of prescriptions per week" and "practice size." Toward the end of the questionnaire, respondents were asked for their "age" and "gender." Demographic details for the respondents are as under.

The specific objective of the research is to study the relationship between physician's demographics and perceived influence of promotional tools on prescription behavior. Based on review of literature, the following hypothesis was developed:

H_1 Extent of promotional tools offered to physicians varies according to physician demographics.

- H_{1a} There exists a significant association between frequency of promotional tools offered to physicians and practicing years.
- H_{1b} There exists a significant association between frequency of promotional tools offered to physicians and kind of hospital they are affiliated to.
- H_{1c} There exists a significant association between frequency of promotional tools offered to physicians and qualification of physicians.
- H_{1d} There exists a significant association between frequency of promotional tools offered to physicians and specialty of physicians.
- H_{1e} There exists a significant association between frequency of promotional tools offered to physicians and number of prescriptions written by physicians per week.
- H_{1f} There exists a significant association between frequency of promotional tools offered to physicians and gender of physicians.

Table 1.Demographic Profile of Physician Respondents

Specialty	(%)	Qualification	(%)	Kind of Hospital	(%)	Working time in hospital	(%)
Dentistry	12.2	MBBS	38.1	Non-Teaching Government Hospital	14.8	.00	2.0
Orthopaedics	1.3	MD	29.5	Non-Teaching Private Hospital	18.4	2.00	.3
Internal medicine	11.5	MS	9.6	Government Teaching Hospital	45.7	20.00	.7
Psychiatry	17.1	DM	3.6	Private Teaching Hospital	19.1	25.00	.3
Neuro-Psychiatry	.7	MDS	17.2	Others	2.0	30.00	.7
Paeditrician	10.2	BDS	.3	Total	100.0	33.00	.3
Gynaecologist	4.6	Others	1.7	**Age**	**(%)**	40.00	4.3
General Physician	23.4	Total	100.0	<35	61.8	50.00	8.9
Surgery	2.3	**No. of Prescription**	**(%)**	36-45	20.0	25.0	6.9
Cardiologist	1.6	1-20	18.1	46-55	10.9	65.00	.3
Plastic surgery	.7	21-50	28.3	>55	2.3	70.00	6.6
Dermatology	1.3	51-100	23.0	Total	100.0	80.00	4.3
critical care	1.6	>100	30.6	**Years of practice**	**(%)**	90.00	2.6
Neurologist	1.3	Total	100.0	0-5	44.4	95.00	0.7
Chest Physician	5.6	**Gender**	**(%)**	6-10	27.6	100.00	60.9
Nephrology	1.3	Male	65.5	11-15	14.5	Total	100
Pulmonologist	.3	Female	34.5	6-20	4.3	**Private Practice**	**(%)**
Clinical physiologist and geriatrics	.7	Total	100.0	>20	9.2	Yes	31.3
Opthalmologist	2.3			Total	100.0	No	68.8
Total	100.0					Total	100.0

n=304

Findings

Frequency of Exposure to Promotional Tools

This section presents the data collected regarding the promotional offers made by pharmaceutical companies to the respondents during the previous one year or month. Medical representatives meet doctors in clinics, hospitals and conferences. Medical representatives met doctors approximately twenty-five times in the previous month. Pharmaceutical companies offered samples and sponsorship on at least one occasion in the month. Sponsorship offered by companies included one or more of the following: Travel or accommodation expenses for out of town educational programs for self/ spouse where the physician may or may not be the presenter; cash honoraria/ gifts, tickets and hospitality for attending educational programs. Pharmaceutical companies offered gifts on at least one occasion in the month. Gifts most frequently offered included pens, notepads, samples, meals, entertainment/ sport event tickets, medical texts, medical equipment, office equipment and items of personal use.

Medical Representative

Table 2 presents the frequency of exposure of physicians to medical representative. Medical representatives met doctors approximately 25 times in the previous month. Out of these, approximately 21 times the medical representatives met doctors in clinic and in hospital and four times the medical representatives met doctors in conferences and meetings.

Table 2.Frequency of Exposure of Medical Representatives to Physicians

Frequency of Exposure of Medical Representative in Previous Month	Mean	Std. Dev.
Total number of times	25.23	7.9
In Clinic/ hospital	21.29	4.8
In Conferences/ meetings	3.93	1.9

n=304

Samples

Table 3 presents the frequency of exposure of physicians to samples. The total number of times samples were offered in previous month was approximately 15. Almost 13 times the samples were received at office out of which eight times the samples were received at office without request.

Table 3.Descriptive Statistics of Frequency of Exposure of Samples to Physicians

Frequency of Exposure of Samples in Previous Month	Mean	Std. Dev.
Total number of times	14.8	3.44
At professional meetings	0.97	0.61
At professional meetings without request	0.67	0.24
At professional meetings with request	0.47	0.10
At office	13.22	9.83
At office without request	8.06	2.24
At office with request	5.10	4.78
At home	0.619	0.14
At home without request	0.303	0.078
At home with request	0.19	0.13

n=304

Sponsorships

Table 4 presents the frequency of exposure of physicians to sponsorships. It was found that approximately 45 times physicians were offered sponsorships in the last one year. Travel and accommodation expenses were availed approximately 20 times in last one year on an average by a physician out of 33 offers made.

Table 4.Descriptive Statistics of Frequency of Exposure of physicians to Sponsorships

Frequency of Exposure to Sponsorships in Last One Year	Mean	Std. Dev.
Total number of sponsorships offered	44.85	20.41
a) Travel and accommodation expenses offered for out of town programs	33.06	23.52
b) Travel and accommodation expenses availed to go for out of town programs	20.01	16.69
c) Travel and accommodation expenses offered for spouse to go for out of town programs	5.28	0.23
d) Travel and accommodation expenses availed for spouse to go for out of town programs	0.08	0.06
e) Cash honoraria offered for attending educational programs	0.14	0.11
f) Cash honoraria availed for attending educational programs	0.04	0.34
g) Travel and accommodation expenses offered to go for out of town programs as a presenter	6.13	0.11
h) Travel and accommodation expenses availed to go for out of town programs as a presenter	0.03	0.01

n=304

Advertisements

Table 5 shows the descriptive statistics for frequency of exposure to advertisements to physicians in one month. Almost 89 times, physicians were exposed to advertisements.

A majority of such advertisement exposure is found in *Drug Today* (20.73), in *Current Index* of Medical Specialties (CIMS, 17.14) and in Monthly Index of Medical Specialties (MIMS, 17.18).

Table 5.Descriptive Statistics of Frequency of Exposure of physicians to Advertisements

Frequency of Exposure to Advertisements in One Month	Mean	Std. Dev.
Total advertisement	89.03	71.80
In *Drug Today*	20.73	13.35
In *Monthly Index of Medical Specialties* (MIMS)	17.18	16.92
In *Current Index of Medical Specialties* (CIMS)	17.14	16.88
In medical journals	12.09	9.74
On television	9.34	6.84
In magazines	4.14	1.90
In *Medical Association Directory*	4.12	3.15
On company websites	2.26	0.89
In conferences/ meetings	2.03	0.91

n=304

Offers

Table 6 shows descriptive statistics of frequency of exposure of physicians to offers. Total number of times small gifts offered in last twelve months is approximately 17 times. Meals and drinks were offered 10 times in last 12 months. Entertainment and sport event tickets were offered on an average once in last twelve months to a physician. Medical texts were offered on an average three times in last 12 months. Physicians were offered medical equipment 0.26 times on an average. On the contrary, samples for personal use were offered 80 times with average cost of Rs. 75. Personal-use items were offered on an average once in twelve12 months to a physician with an approximate average cost of a little over Rs. 500.

Table 6.Descriptive Statistics of Frequency of Exposure of physicians to Offers

Frequency of Exposure to Offers in Last 12 Months	Mean	Std. Dev.
Total	114.94	10.28
Approximate value of offers (Rs)	26,113	243.12
a) Small gifts (pens, pads, keychain, pen stand, etc.)	16.90	34.69
Approximate value of small gifts (Rs)	244.59	28.23
a) Meals/ Drinks	10.24	6.50
Approximate value of meals/ drinks (Rs)	1237.91	23.69
b) Entertainment/ sport event tickets	1.20	1.65
Approximate value of entertainment/ sport tickets (Rs)	294.13	8.58
c) Medical texts	3.02	1.02
Approximate value of medical texts (Rs)	2133.82	27.40
d) Medical equipment offered	0.26	0.16
Approximate value of medical equipment (Rs)	9142.94	14.19
e) Office equipment	0.36	0.01
Approximate value of office equipment (Rs)	6636.40	30.13
f) Samples offered for personal use	80.50	72.20
Approximate value of pharmaceutical samples (Rs)	175.02	38.06
g) Items of personal use	1.34	0.54
Approximate value of items of personal use (Rs)	526.49	378.44
h) Gift of money offered	0.49	0.4
Approximate value of gift of money (Rs)	5722.21	22.51

n=304

Relationship between Physician Demographics and Exposure to Promotional Tools

This section presents the association between physician demographics (experience, type of hospital affiliation, qualification, specialty, prescription size and gender) and mean frequency of exposure to promotional tools.

Experience

Table 7 presents the relationship between physician experience and exposure to promotional tools. A significant association has been found between experience and frequency of exposure to medical representative, samples, advertisements and gifts.

Mean frequency of exposure to medical representative, samples and advertisements was highest for the experience category of 11-15 years. Exposure to gifts was found maximum with a mean exposure value of 49.66 times for the experience category of 0-5 years.

Table 7.Relationship between Physician Demographics (Experience) and Exposure to Promotional Tools

Promotional Tools	Experience (years)	Mean Frequency of Exposure	Std. Deviation	F	Sig.
Medical Representative	0-5 years	16.26	8.87	6.451	0.000
	6-10	22.62	3.19		
	11-15	56.77	8.12		
	16-20	25.15	9.68		
	>20	26.82	5.64		
Sample	0-5	9.95	1.91	6.220	0.000
	6-10	13.69	9.00		
	11-15	34.91	2.89		
	16-20	13.23	6.94		
	>20	10.67	1.85		
Sponsorships	0-5	.94	.71	0.204	0.936
	6-10	1.00	.21		
	11-15	3.18	.00		
	16-20	.92	.03		
	>20	4.03	1.91		
Advertisements	0-5	144.57	38.49	2.648	0.034
	6-10	51.97	13.09		
	11-15	42.36	5.48		
	16-20	15.15	9.37		
	>20	40.00	5.79		
Gifts	0-5	49.66	7.28	6.758	0.000
	6-10	30.89	8.88		
	11-15	44.39	6.24		
	16-20	37.23	14.21		
	>20	50.10	9.49		

Hospital Kind

Table 8 presents the relationship between the type of hospital affiliation and mean exposure to promotional tools. A significant association was found between exposure to medical representative, advertisements and the hospital, physicians are attached to.

The medical representative frequency has been found to be highest in non-teaching private hospital (34 times) and advertisement frequency was the maximum in teaching government hospitals (approximately 74 times).

Qualification

Table 9 presents the relationship between physician demographics (qualification) and exposure to promotional tools. A significant relationship has been found between qualification of physicians and mean frequency of exposure to medical representatives and advertisements. Qualification MS has been reported to be having highest mean frequency of exposure of medical representative. Advertisement frequency has been found to be the highest amongst MDS qualification.

Specialty

Table 10 presents the relationship between specialty of physicians and frequency of exposure to promotional tools. A significant association was found between specialty of physician and frequency of exposure to medical representatives, advertisements, samples and gifts (given at the end of the article).

Table 8.Relationship between Physician Demographics (Type of Hospital Affiliation) and Exposure to Promotional Tools

Promotional Tools	Kind of Hospital	Mean Frequency of Exposure	Std. Dev.	F	Sig.
Medical Representative	Non-Teaching Government Hospital	18.93	8.97	7.954	0.000
	Non-Teaching Private Hospital	34.00	7.17		
	Government Teaching Hospital	25.28	7.19		
	Private Teaching Hospital	12.01	2.91		
Sample	Non-Teaching Government Hospital	5.60	2.21	1.632	0.166
	Non-Teaching Private Hospital	15.96	0.66		
	Government Teaching Hospital	17.80	6.40		
	Private Teaching Hospital	12.62	9.66		
Sponsorships	Non-Teaching Government Hospital	2.75	1.15	1.741	0.141
	Non-Teaching Private Hospital	2.35	0.01		
	Government Teaching Hospital	1.06	0.85		
	Private Teaching Hospital	0.94	0.81		
Advertisements	Non-Teaching Government Hospital	38.82	6.69	4.843	0.001
	Non-Teaching Private Hospital	33.87	7.96		
	Government Teaching Hospital	73.94	9.29		
	Private Teaching Hospital	22.43	8.30		
Gifts	Non-Teaching Government Hospital	39.75	7.55	1.323	0.262
	Non-Teaching Private Hospital	46.89	8.91		
	Government Teaching Hospital	20.20	8.07		
	Private Teaching Hospital	35.72	8.02		

Table 9.Relationship between Physician Demographics (Qualification) and Exposure to Promotional Tools

Promotional Tools	Qualification	Mean Frequency of Exposure	Std. Dev.	F	Sig.
Medical Representative	MBBS	29.73	15.95	3.020	0.007
	MD	22.64	7.91		
	MS	50.68	8.14		
	DM	29.54	7.91		
	MDS	7.13	7.35		
Sample	MBBS	19.67	4.31	1.847	0.090
	MD	12.88	2.70		
	MS	14.37	9.71		
	DM	11.63	9.87		
	MDS	6.61	0.38		
Sponsorships	MBBS	1.00	0.33	1.302	0.256
	MD	3.03	1.66		
	MS	2.17	0.25		
	DM	1.09	0.04		
	MDS	.25	0.05		
Advertisements	MBBS	32.43	4.11	3.279	0.004
	MD	102.24	24.91		
	MS	78.62	186.41		
	DM	14.27	11.03		
	MDS	222.19	53.54		
Gifts	MBBS	226.06	9.95	1.066	0.383
	MD	59.47	14.56		
	MS	80.14	14.67		
	DM	40.36	3.38		
	MDS	13.00	9.96		

Prescription Size

Table 11 presents the relationship between number of prescriptions written by physicians in a week and exposure to promotional tools. A positive association was found between the number of prescriptions written per week by a physician and the frequency of his/ her exposure to medical representatives, sample, sponsorships, and gifts. Thus medical representatives visit more frequently the physicians who see a greater number of patients in a week. The physicians who write more prescriptions per week are also offered more sponsorships (mean score 3.07 in the previous one year), more gifts (approximately 285 times in last 12 months) and samples (25.82 times in the previous one month).

Table 11.Relationship between Physician Demographics (Prescription Size) and Exposure to Promotional Tools

Promotional Tools	Number of Prescriptions in a Week	Mean Frequency of Exposure of Promotional Tools	Std. Dev.	F	Sig.
Medical Representative	1-20	5.87	0.34	10.624	0.000
	21-50	14.59	2.16		
	51-100	27.31	4.40		
	>100	44.95	6.45		
Sample	1-20	7.27	0.74	7.719	0.000
	21-50	6.72	1.98		
	51-100	16.03	2.73		
	>100	25.82	4.48		
Sponsorships	1-20	0.36	0.80	0.748	0.024
	21-50	1.14	0.26		
	51-100	1.03	0.14		
	>100	3.07	1.38		
Advertisements	1-20	24.25	4.07	2.145	0.095
	21-50	72.73	15.99		
	51-100	142.57	45.81		
	>100	102.09	24.95		
Gifts	1-20	13.47	3.69	3.654	0.013
	21-50	38.91	10.31		
	51-100	60.38	14.52		
	>100	285.66	10.29		

Gender

Table 12 presents the relationship between gender of physician and frequency of exposure to promotional tools. The relationship has been found to be significantly associated with advertisements and gifts. Female physicians are found to be more exposed to advertisements (mean score 162 females and males mean score 50 in last one month) and gifts (males mean score 50 and females mean score 234 in last 12 months) as compared to male physicians.

Table 12.Relationship between Physician Demographics (Gender) and Exposure to Promotional Tools

Promotional Tools	Gender	Mean Frequency of Exposure to Promotional Tools	Std. Dev.	F	Sig.
Medical Representative	Male	22.44	4.78	1.95	0.16
	Female	30.51	5.76		
Sample	Male	12.79	2.35	2.52	0.11
	Female	18.61	4.54		
Sponsorships	Male	1.89	0.41	0.90	0.34
	Female	0.94	0.34		
Advertisements	Male	50.36	11.25	12.02	0.00
	Female	162.29	42.17		
Gifts	Male	50.18	12.68	6.43	0.01
	Female	234.84	101.07		

Conclusion

(H_{1b}) A significant association was found between the type of hospital the physicians are attached to and their exposure to medical representative and advertisements. The frequency of exposure to medical representative was found to be highest in non-teaching private hospitals (34 times in the previous one month) and advertisement frequency was the maximum in teaching government hospitals (approximately 74 times in the previous one month). (H_{1c}) There is a significant relationship between the qualifications of the physicians and the mean frequency of their exposure to select promotional tools such as medical representatives and advertisements. Physicians with the qualification of Master of Surgery have the highest mean frequency of exposure to medical representatives. (H_{1d}) A significant association was found between specialty of physician and frequency of exposure to medical representative, advertisements, sample and gifts.

(H_{1e}) A positive association was found between the number of prescriptions written per week by a physician and the frequency of his/ her exposure to medical representatives, sample, sponsorships, and gifts. Thus medical representatives visit more frequently the physicians who see a greater number of patients in a week. The physicians who write more prescriptions per week are also offered more sponsorships (mean score 3.07 in the previous one year), more gifts (approximately 285 times in last 12 months) and samples (25.82 times in the previous one month). The relationship has been found to be significantly associated with advertisements and gifts.

(H_{1f}) Female physicians are found to be more exposed to advertisements (mean score 162 females and males mean score 50 in last one month) and gifts (males mean score 50 and females mean score 234 in last 12 months) as compared to male physicians. (H_{1a}) There is a significant association between years of experience of physicians and the frequency of their exposure to medical representatives, samples, advertisements and gifts. The mean frequency of exposure to medical representative, samples and advertisements was highest for the experience category of 11-15 years. Exposure to gifts was found the maximum with a mean exposure value of almost 50 times in the last one year for the experience category of 0-5 years.

Marketers can pick up the exposure frequency from the research and compare with the practices they have been adopting so far. The promotional tools choices made by the industry may be related to appropriateness of the tool to the demographic profile of the physician. Female physicians and physicians who write high number of prescriptions have been found to be highly exposed to gifts and advertisements. Future research may focus on finding the reasons behind these associations.

Conflict of Interest: Nil

References

1. Al-Hamdi, Yahya A, Hassali et al. Impact of pharmaceutical promotion on healthcare professional's practices and behavior: Views from general practitioners, medicine dispensers and medical representatives in Yemen. *Journal of Medical Marketing* Nov 2012; 12(4): 240-46.
2. Ram B, Bhardwaj P, Chen Y. Offering pharmaceutical samples: The role of physician learning and patient payment ability. *Marketing Science* May/Jun 2013; 32(3): 522-27.
3. Backer EL, Lebsackh JA, Van Tonder RJ et al. The value of pharmaceutical representative visits and medication samples in community-based family practices. *Journal of Family Practice* 2000; 49: 811-16.
4. Boltri JM, Gordon ER, Vogel RL. Effect of antihypertensive samples on physician prescribing patterns. *Family Medicine* 2009; 34(10): 729-31.
5. Chew LD, O'Young TS, Hazlet TK et al. A physician survey of the effect of drug sample availability on physicians' behavior. *Journal of General Internal Medicine* 2000; 15: 478-83.
6. Daly E. Advertising impact: Using the power of promotional gifts. *American Salesman* 1993; 38(10): 16-21.
7. Friedman M. The case for new sampling channels. *Medical Marketing and Media* 1995; 30: 64-68.
8. Gibb F. To give or not to give? *Sales & Marketing Management* Sep 1994; 146(9): 136-39.
9. Gold R. States battling high drug costs appeal to doctors. *Wall Street Journal,* Aug 22, 2001; B1.
10. Hensley S. Generic drugs sampled freely in aetna test. *Wall Street Journal,* Oct 12, 2005; B1.
11. Jain S, Saxena K. Lifestyle and general medicines: A study of promotional-mix strategies in India. *Journal of Medical Marketing* May 2011; 11(2): 119-26.
12. Joseph K, Mantrala M. A model of the role of free drug samples in physicians' prescription decisions. *Marketing Letters* Jan 2009; 20(1): 15-29.
13. Liebman M. Rethinking sampling strategies. *Medical Marketing & Media* Jun 1997; 32: 36-43.
14. Masood I, Ibrahim MIM, Hassali MAA et al. Evaluation of pharmaceutical industry - Sponsored educational events attended by physicians in

Pakistan. *Journal of Medical Marketing* Jan 2012; 12(1): 22-29.
15. Candis M. The real drug pushers. *Newsmagazine* (Alberta Edn.), 2001; 28(6): 38-42.
16. Miller RK, Washington K. Promotional spending. Healthcare Business Market Research Handbook. *Richard K. Miller & Associates*, 2013: 395, 396-98.
17. Alf N. Promotional products are more than just party favors. *Long Island Business News* 1998; 45(52): 12-25.
18. Parker RS, Pettijohn CE. Ethical considerations in the use of direct-to-consumer advertising and pharmaceutical promotions: The impact on pharmaceutical sales and physicians. *Journal of Business Ethics* 2003; 48: 279-90.
19. Parker RS, Pettijohn CE. Pharmaceutical drug marketing strategies and tactics: A comparative analysis of attitudes held by pharmaceutical representatives and physicians. *Health Marketing Quarterly* 2005; 22(4): 27-43.
20. Rabin RC. Free drug samples? Bad idea, some say. *New York Times*, May 1, 2009.
21. Scott AB, Culley EJ, O'Donnell J. Effects of a physician office generic drug sampling system on generic dispensing ratios and drug costs in a large managed care organization. *Journal of Managed Care Pharmacy* 2008; 13: 412-19.
22. Ubel PA, Jepson C, Asch D. Misperceptions about β-blockers and diuretics: A national survey of primary care physicians. *Journal of General Internal Medicine* 2003; 18: 977-83.

Table 10.Relationship between Physician Demographics (Specialty) and Exposure to Promotional Tools

Promotional Tools	Specialty	Mean Frequency of Exposure	Std Dev.	F	Sig.	Promotional Tools	Specialty	Mean Frequency of Exposure	Std. Deviation	F	Sig.
Medical Representative	Dentistry	5.94	7.32	8.230	0.000	Advertisements	Dentistry	28.40	6.83	2.207	0.004
							Orthopedics	4.00	8.00		
	Orthopedics	79.50	14.00				Internal medicine	60.02	9.32		
	Internal medicine	17.02	3.14				Psychiatry	116.44	30.98		
	Psychiatry	19.96	1.83				Neuro-psychiatry	55.50	7.48		
	Neuro-psychiatry	18.00	2.82				Pediatrician	21.93	2.93		
	Pediatrician	10.45	1.39				Gynecologist	37.85	4.61		
	Gynecologist	35.07	9.78				General physician	47.69	7.08		
	General Physician	20.66	6.92				Surgery	21.14	1.63		
	Surgery	22.28	4.93				Cardiologist	11.00	1.53		
	Cardiologist	86.80	10.20				Plastic surgery	154.50	6.17		
	Plastic surgery	61.00	19.40				Dermatology	36.00	4.56		
	Dermatology	23.25	3.78				critical care	50.80	4.51		
	critical care	5.80	8.012				Neurologist	40.00	2.21		
	Neurologist	11.50	3.00				chest physician	32.52	3.59		
	Chest Physician	115.06	6.99				Nephrology	2.00	2.44		
	Nephrology	11.25	5.31				Pulmonologist	9.00	.		
	Pulmonologist	5.00	.				Clinical physiology and geriatrics	113.50	10.18		
	Clinical physiology and geriatrics	17.50	1.09				Ophthalmology	23.85	2.85		
	Ophthalmology	8.57	6.57			Gifts	Dentistry	7.72	1.08	5.152	0.000
Sample	Dentistry	7.59	7.79	11.638	.000		Orthopedics	169.25	2.50		
	Orthopedics	76.00	6.00				Internal medicine	35.14	5.83		
	Internal medicine	19.00	8.17				Psychiatry	64.03	12.09		
	Psychiatry	9.21	0.97				Neuro-psychiatry	28.50	3.64		
	Neuro-psychiatry	0.00	0.00				Pediatrician	22.00	5.89		
	Pediatrician	8.13	0.00				Gynecologist	44.00	9.34		
	Gynecologist	11.43	2.77				General physician	38.50	12.90		
	General physician	7.18	5.60				Surgery	54.00	9.42		

	Surgery	6.71	5.05				Cardiologist	139.00	18.85		
	Cardiologist	21.40	5.10				Plastic surgery	0.00	0.00		
	Plastic surgery	6.50	0.70				Dermatology	19.75	3.88		
	Dermatology	19.50	7.00				Critical care	1.60	3.57		
	Critical care	6.00	3.41				Neurologist	5.75	5.37		
	Neurologist	2.00	0.00				Chest physician	1336.64	2.17		
	Chest physician	87.64	7.87				Nephrology	1.25	2.50		
	Nephrology	0.00	0.00				Pulmonologist	0.00	0.00		
	Pulmonologist	5.00	0.0				Clinical physiology and geriatrics	471.50	6.93		
	Clinical physiology and geriatrics	16.50	1.09				Ophthalmology	24.14	2.32		
	Ophthalmology	5.57	0.12								
Sponsorships	Dentistry	0.70	0.11	0.638	0.869	Sponsorships	Cardiologist	0.89	0.40	0.638	0.869
	Orthopedics	10.00	0.00				Plastic surgery	0.00	0.00		
	Internal medicine	4.39	0.74				Dermatology	47.17	2.58		
	Psychiatry	3.90	0.54				Critical care	0.00	0.00		
	Neuro-psychiatry	0.71	0.50				Neurologist	0.00	0.00		
	Pediatrician	1.61	0.28				Chest physician	3.50	0.85		
	Gynecologist	2.13	0.57				Nephrology	0.00	0.00		
	General physician	1.92	0.22								
	Surgery	1.86	0.70								
	Nephrology	0.00	0.00				Ophthalmology	3.10	0.17		
	Pulmonologist	0.00	0.00				Dermatology	47.17	2.58		
	Clinical physiology and geriatrics	1.41	0.00				Critical care	0.00	0.00		
							Neurologist	0.00	0.00		
	Chest physician	3.50	0.85				Neurologist	0.00	0.00		