Impact of Pharmaceutical Advertisement on Doctor's Prescription Behavior With Reference to Educational Qualification of Doctor

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Abstract

This study was conducted to develop a simple framework for finding out the impact of the different kinds of promotional tools offered by pharmaceutical industry on the prescribing behavior of doctors. Moreover the study also focused on whether the perception of physicians towards various promotional tools is different with respect to qualification of doctors. Pharmaceutical advertisement is effected by various variables which have different extent of impact. Qualification of doctor is also one of the variable in which there is a difference in impact of advertisement when compared with different dimensions. ANOVA is applied on the data to check whether difference exists in impact of advertisement perceived by education of doctors among all the dimensions. Pharmaceutical marketing is unique as the decision making of buying the medicine lies in the hand of intermediate customer (doctor) rather than final consumer (patient). Thus, pharmaceutical companies try to influence the customer (doctor) rather than final consumer (patient). Thus doctors are the most important players in pharmaceutical marketing system. Doctors write the prescriptions that determine which drugs (brands) will be used by the consumer (patient). Thus, influencing the doctor is a key to the pharmaceutical sales. Pharmaceutical companies try to influence prescription pattern of doctors in favor of their brands by offering various kinds of promotional inputs like samples, gifts and sponsorships etc. This study focuses on impact of advertisement on the physicians prescribing behavior. This research based on descriptive research. Well-structured questionnaire was developed for doctors to identify important variables

influencing Pharmaceutical advertising effectiveness and prescription behavior towards medicine. Non probability systematic convenient sampling technique has been followed. Survey was conducted and data was analyzed. This study was conducted on 150 respondents who are doctors and analysis was carried out on the data collected from questionnaire in which the doctor were asked to tick a number that was most suitable to their choice. Findings of the study can help the marketing managers of pharmaceutical companies in designing their promotional strategies especially for doctors and consumers. Some of the pharmaceutical medium of advertisement was found to be persuasive with reference to qualification of doctor.

Key Words: Detailing, pharmaceutical advertisement, promotion mix, drug prescribing behavior

I. Introduction

Pharmaceutical marketing is unique as the decision making of buying the medicine lies in the hands of intermediate customer (doctor) rather than final consumer (patient). Thus pharmaceutical companies try to influence the customer (doctor) rather than final consumer (patient). Thus doctors are the most important players in pharmaceutical marketing system. Doctors write the prescriptions that determine which drugs (brands) will be used by the consumer (patient). Thus influencing the doctor is a key to the pharmaceutical sales. Pharmaceutical companies try to influence prescription pattern of doctors in favor of their brands by offering various kinds of promotional inputs like samples, gifts and sponsorships etc. Drug companies promote their products to physicians in a variety of ways. They send sales representatives to meet with physicians, nurse practitioners, and physician's assistants in a practice called detailing so the Detailing refers to the activity of pharmaceutical sales representatives when they make calls to physicians and provide them with "details" — approved scientific information, benefits,

side effects, or adverse events related to a drug. During those sales calls, the representatives discuss drugs manufactured by their company that are relevant to the physician's specialties, and they may provide product samples and reprints of academic literature that discuss their company's products. In addition to detailing, pharmaceutical manufacturers purchase advertisements for their drugs in medical journals. They also sponsor professional meetings and events, both in person and online, including some that offer physicians credit for continuing medical education. It is well recognized that in case of prescription of a drug where the doctor is decision maker for the ultimate user the patient, the industry has a powerful influence on prescribing habits (Lancet 1993).

II. Review of Literature

A series of studies document that physician attitudes toward detailing and various pharmaceutical advertising may be somewhere positive or somewhere negative. Generally, OTC drugs are available without prescription and in most cases are advertised directly to the public. Consumers are becoming familiar with OTC drugs, due to extensive advertising by companies. Hopper, J.A et.al 1997 collected information on the effects of an educational intervention aimed at training physicians in interactions with sales representatives. They surveyed residents and faculty before and after the intervention. Before the intervention, physicians slightly agreed that contact with detailers was not beneficial, but strongly disagreed that it might influence their prescribing in negative ways. However, physicians were rather neutral about whether interactions were likely to influence the prescribing behavior of other physicians in negatives ways. (Caudill, T.S. et.al 1996) surveyed physicians about their attitudes toward the educational value and behavioral influence of pharmaceutical sales representatives. Physicians agreed that sales representatives provided useful and accurate information about newly and already established drugs, but only slightly agreed that they

performed an important teaching function. Physicians strongly agreed that sales representatives should be banned from making presentations where the physicians practice. The trend towards self-medication is likely to grow towards these products (Nies, 1982). Giving away gifts, free lunches, sponsoring education and holidays have all been criticized as inducements which compel a doctor to prescribe without scientific basis (Gonul FF et. al 2001). A study from Canada showed that the association with pharmaceuticals leads to less than appropriate prescribing behavior by the doctor (Lexchin J 1997). Many physicians, however, do not feel that their prescriptions are influenced by gifts and other incentives provided by pharmaceutical company (Liu SS 1995). It is well recognized that in case of prescription of a drug- where the doctor is decision maker for the ultimate user the patient, the industry has a powerful influence on prescribing habits (Lancet 1993). Sleath et.al., 2001 centered around the doctors as an important source of communication for consumers. Ganther et.al., 2001 found that older segments have greater faith in doctors and are less skeptical towards healthcare. Manchanda, P & Honka, E 2005 studied that physician attitudes toward detailing and detailers and concluded that there is also strong evidence that detailing affects physician (prescription) behavior in a positive and significant manner, while this relationship is tolerated by physicians and promoted aggressively by detailers. The results also demonstrate that while physicians claim to tolerate it as a necessary evil, it evidently has an impact on prescription behavior via both a subjective and an objective path.

III. Objectives of Study

The research objective is to measure the effect of various advertisement methods on the physicians prescribing behavior with respect to their educational qualification. The objective of the research can be framed in points given below:

1. To study the effective promotional tools to be used by pharmaceutical companies in obtaining prescriptions from the physicians.
2. To study the most effective promotional tools to be used by pharmaceutical companies in influencing the doctor prescription behavior.
3. To assess the consumer attention about different medium of pharmaceutical advertisement.
4. To study the impact of detailing (advertisement through medical representative) on the physicians prescribing behavior.
5. To study the impact of Scientific/Educational promotional tools on the physicians prescribing behavior.

IV. Research Hypothesis

Hypothesis is defined as a set of proposition set forth as an explanation for the occurrence of some specified group of phenomena either asserted merely as a provisional conjecture to guide some investigation or accepted as highly probable in the light of established facts. So, for the study of factors influencing doctors prescribing behavior hypothesis are formulated which are given below-

H_{01}: There is no significant association of qualification of doctors and various mediums providing information about medicine available in the market.

H_{02}: There is no significant association of qualification of doctors and reliability of information provided through different media about medicines.

H_{03}: There is no significant association of qualification of doctors and effectiveness of information provided through different media in doctor prescription.

H_{04}: There is no significant association of qualification of doctors and importance of promotional channels used by companies and their long lasting effect on the doctor mind.

V. Research Methodology

This research based on descriptive research. In this, descriptive research was used to compare demographical variables with attitude of the respondent. The instrument used for the study is a questionnaire. The questionnaires were constructed to obtain responses from the target sample group of doctors about the impact of pharmaceutical advertisement. Responses of doctor are necessary because it is the doctor who prescribes the medicine for their patient. A 5 point Likert scale is adopted. The scale was arranged so that strongly agree are coded 1 and strongly disagree are coded 5. The study population consists of doctors licensed in the hospitals and other places also.

The fieldwork was carried out in divisional head quarter namely Lucknow, Allahabad and Kanpur. The entire Lucknow, Allahabad and Kanpur divisions stratified on the basis of area sampling. In this regards the territory divided into different location such as hospitals, clinics and medical colleges selected to collect the data.

VI. About Study

Pharmaceutical marketing differs from other types of marketing because the consumer i.e. the patients are not the target audience, whereas the physicians prescribing the medicines are the target audience of the pharmaceutical companies. It is the doctor who makes the decision on behalf of the patient. Physicians are privileged with the right of recognizing the need of their patients and recommend medications for the well-being of their patients. Hence, the relation between physician and pharmaceutical companies may create a conflict between the ethical and professional interest of a doctor and his financial self-interest. Giving away gifts, free lunches, sponsoring education and holidays have all been criticized as inducements which compel a doctor to prescribe without scientific

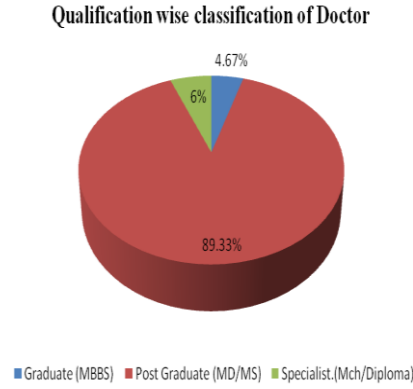
basis. It is established fact that doctor's prescription behavior and impact of advertisement on doctor's prescription behavior varies with qualification.

The increased expenditure for drug promotion will affect the price of prescription of drugs and this in turn will have an adverse impact on expenses on healthcare. In India same molecules are sold by different pharmaceutical firms under different brand names. To cite an example: there are over hundred and forty brands of omeprazole, a proton pump inhibitor, available in India. How does a doctor select a brand? What are the factors that influence the prescription behavior of the doctor? What is the influence of pharmaceutical advertising on prescription behavior?

Keeping this into consideration, an attempt was made to classify doctors (respondents) on the basis of their qualification. For this purpose, respondents included in the sample were classified into three categories which included, Graduation (M.B.B.S), Post Graduate (MD/MS) and Specialist (Mch/Diploma). Information about qualification-wise classification of respondents is presented below in table 1.

Table 1: Qualification-wise Classification of Doctor

S. No.	Qualification	No. of Respondents	Percentage
1	Graduate (MBBS)	7	4.67
2	Post Graduate (MD/MS)	134	89.33
3	Specialist.(Mch/Diploma)	9	6.00
Total		150	100.0



Analysis of data indicates that 89.33% of respondent are in the qualification of post graduate (MD/MS). Similarly 6% of respondent are in the qualification of specialist (Mch/Diploma) and 6% of respondent are in the qualification of graduation (MBBS). The analysis clearly reflects that sample is dominated by those respondents who are in qualification of post graduation (MD/MS). Pharmaceutical advertisement is effected by various variables which have different extent of impact. Qualification of doctor is also one of the variable in which there is a difference in impact of advertisement when compared to different dimensions. ANOVA is applied on the data to check whether difference exists in impact of advertisement perceived by education of doctors among all the dimensions. This analysis was carried out on data collected from questionnaire, in which the doctors were asked to select a choice that was most suitable and relates to their attitude/prescription behavior towards pharmaceutical advertisement. A five point Likert-scale was used which was anchored from strongly agree to strongly disagree.

Table 2: ANOVA by Doctor's Educational Qualification

		Sum of Squares	df	Mean Square	F	Sig.
Importance of medium providing information about medicine available for patient in the market.						
Medical Representative	Between Groups	.366	2	.183	.226	.798
	Within Groups	118.967	147	.809		
	Total	119.333	149			
Medical Journals	Between Groups	3.060	2	1.530	1.399	.250
	Within Groups	160.780	147	1.094		
	Total	163.840	149			
Clinical papers	Between Groups	.902	2	.451	.717	.490
	Within Groups	92.431	147	.629		
	Total	93.333	149			
Television/ Electronic	Between Groups	.438	2	.219	.297	.744

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Media	Within Groups	108.336	147	.737		
	Total	108.773	149			
Internet	Between Groups	.062	2	.031	.027	.973
	Within Groups	168.771	147	1.148		
	Total	168.833	149			
Hoardings	Between Groups	1.640	2	.820	.576	.564
	Within Groups	209.433	147	1.425		
	Total	211.073	149			
Specific Seminars held by Companies	Between Groups	.033	2	.016	.025	.975
	Within Groups	94.801	147	.645		
	Total	94.833	149			
Reliability of information provided through different media about medicines						
Medical Representative	Between Groups	1.670	2	.835	1.647	.196
	Within Groups	74.524	147	.507		
	Total	76.193	149			

ANOVA in Doctor's Educational Qualification

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Medical Journals	Between Groups	1.166	2	.583	.658	.520
	Within Groups	130.327	147	.887		
	Total	131.493	149			
Clinical papers	Between Groups	.821	2	.411	.381	.684
	Within Groups	158.572	147	1.079		
	Total	159.393	149			
Television/ Electronic Media	Between Groups	2.991	2	1.496	2.035	.134
	Within Groups	108.049	147	.735		
	Total	111.040	149			
Internet	Between Groups	8.270	2	4.135	.590	.556

	Within Groups	1030.590	147	7.011		
	Total	1038.860	149			
Hoardings	Between Groups	6.121	2	3.061	4.380	.014
	Within Groups	102.712	147	.699		
	Total	108.833	149			
Specific Seminars held by companies	Between Groups	4.136	2	2.068	3.369	.037
	Within Groups	90.238	147	.614		
	Total	94.373	149			
Medical Representative as key element in providing information	Between Groups	1.620	2	.810	2.148	.120
	Within Groups	55.453	147	.377		
	Total	57.073	149			
Importance of promotional items /other facilities distributed /provided by companies						
Free samples	Between Groups	6.067	2	3.033	4.515	0.013
	Within Groups	98.767	147	0.672		
	Total	104.833	149			
Trips to seminars	Between Groups	1.586	2	0.793	1.069	0.346
	Within Groups	109.087	147	0.742		
	Total	110.673	149			
Pens/notepads/calendars/etc	Between Groups	2.285	2	1.143	0.713	0.492
	Within Groups	235.475	147	1.602		
	Total	237.760	149			

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ANOVA In Doctor's Educational Qualification						
		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Lunch for physician and staff	Between Groups	2.690	2	1.345	1.010	.367
	Within Groups	195.870	147	1.332		
	Total	198.560	149			
Tickets to special entertainment events	Between Groups	4.911	2	2.456	1.717	.183
	Within Groups	210.182	147	1.430		
	Total	215.093	149			
Dinner for the physician and their family	Between Groups	5.047	2	2.523	1.927	.149
	Within Groups	192.526	147	1.310		
	Total	197.573	149			
Effectiveness of information provided through different media in your prescription						
Medical Representative	Between Groups	1.133	2	.566	.978	.379
	Within Groups	85.161	147	.579		
	Total	86.293	149			
Medical Journals	Between Groups	.274	2	.137	.238	.788
	Within Groups	84.559	147	.575		
	Total	84.833	149			
Clinical papers	Between Groups	.526	2	.263	.444	.642
	Within Groups	87.047	147	.592		
	Total	87.573	149			
Television/ Electronic Media	Between Groups	.325	2	.162	.224	.799
	Within Groups	106.449	147	.724		
	Total	106.773	149			
Internet	Between Groups	.297	2	.148	.292	.747
	Within Groups	74.796	147	.509		
	Total	75.093	149			
Hoarding.	Between Groups	.381	2	.190	.214	.807
	Within Groups	130.559	147	.888		
	Total	130.940	149			
Specific Seminars held by companies	Between Groups	.411	2	.205	.454	.636
	Within Groups	66.423	147	.452		
	Total	66.833	149			
Pharmaceutical advertisement in prescription of branded medicines	Between Groups	.197	2	.098	.223	.800
	Within Groups	64.876	147	.441		
	Total	65.073	149			

ANOVA In Doctor's Educational Qualification						
		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Pharmaceutical advertisement to change prescription decision from Generic medicine to Branded medicines	Between Groups	.080	2	.040	.114	.892
	Within Groups	51.254	147	.349		
	Total	51.333	149			
Patient suggestion (demand) influence prescription decision	Between Groups	3.333	2	1.666	1.833	.164
	Within Groups	133.661	147	.909		
	Total	136.993	149			
"Direct-to- Consumer Advertisement" are important in promotion of medicines	Between Groups	.304	2	.152	.183	.833
	Within Groups	121.890	147	.829		
	Total	122.193	149			
Ethical issues in Promotional activity adopted by companies.	Between Groups	.489	2	.244	.601	.550
	Within Groups	59.785	147	.407		
	Total	60.273	149			
Importance of promotional channels used by companies and their long lasting effect on the mind						
Medical Representative	Between Groups	6.971	2	3.486	2.383	.096
	Within Groups	215.029	147	1.463		
	Total	222.000	149			
Clinical Paper	Between Groups	2.832	2	1.416	.904	.407
	Within Groups	230.261	147	1.566		
	Total	233.093	149			
Medical Journals	Between Groups	13.479	2	6.740	4.034	.020
	Within Groups	245.594	147	1.671		
	Total	259.073	149			
Television Advertisement	Between Groups	4.935	2	2.467	1.373	.257
	Within Groups	264.138	147	1.797		
	Total	269.073	149			
Internet	Between Groups	.331	2	.165	.296	.744
	Within Groups	82.229	147	.559		
	Total	82.560	149			
Hoarding	Between Groups	.890	2	.445	.389	.678

	Within Groups	167.943	147	1.142		
	Total	168.833	149			
Specific Seminars held by companies	Between Groups	.962	2	.481	.560	.572
	Within Groups	126.298	147	.859		
	Total	127.260	149			

A. **Importance of medium that provides information about medicines available for patients in the market and qualification of doctor** — In the above table having variables as medical representative, medical journals, clinical papers, television/ electronic media, internet, hoardings and specific seminars held by companies, the values of significance were 0.798, 0.250, 0.490, 0.744, 0.97, 0.564 and 0.975 respectively which are insignificant ($p>0.05$) and tells us that null hypothesis is accepted. It means that doctor's qualification has no impact on these variables.

B. **Reliability of information provided through different media about medicines and qualification of doctor** — In the above table having variables medical representative, medical journals, clinical papers, television/ electronic media, and internet, the values of significance were 0.196, 0.520, 0.684, 0.134, and 0.556 respectively which were insignificant ($p>0.05$) and tells us that null hypothesis is accepted. It means that doctor's qualification has no impact on these variables whereas hoardings and specific seminars held by companies, significance value is 0.014 and 0.037 respectively which is significant ($p<0.05$) and so alternative hypothesis is accepted and null hypothesis rejected. It means that doctor's qualification has impact on these variables.

C. **Medical representative as a key element in providing information and qualification of doctor** — In the above table, the value of significance is 0.120 which is insignificant ($p>0.05$) and tells us that null hypothesis is accepted. It means that doctor's qualification has no effect on this variable.

D. **Importance of promotional items/other facilities distributed/provided by companies and qualification of doctor** — In the above table having variables free samples, trips to seminars, pens/notepads/calendars/etc, lunch for physician and staff, tickets to special entertainment events and dinner for the physician and their family, the values of significance were 0.346, 0.492, 0.367, 0.183 and 0.149 respectively which are significant ($p>0.05$) and tells us that null hypothesis is accepted. It means that doctor's qualification has no effect on these variables where as free samples the significance value is 0.013 ($p<0.05$) which is significant and so alternative hypothesis is accepted and null hypothesis rejected. It means that doctor's qualification has effect on these variables.

E. **Effectiveness of information provided through different media in prescription and qualification of doctor** — In the above table having variables medical representative, medical journals, clinical papers, television/ electronic media, internet, hoardings and specific seminars held by companies the value of significance is 0.379, 0.788, 0.642, 0.799, 0.747, 0.807 and 0.636 respectively which is insignificant ($p>0.05$) and tells us that null hypothesis is accepted. It means that doctor's qualification has no effect on these variables.

F. **Pharmaceutical advertisement in prescription of branded medicines and qualification of doctor —** In the above table the value of significance is 0.800 which is insignificant ($p>0.05$) and tells us that null hypothesis is accepted. It means that doctor's qualification has no effect on these variables

G. **Pharmaceutical advertisement to change prescription decision from generic medicine to branded medicines and qualification of doctor —** In the above table the value of significant is 0.892 which is insignificant ($p>0.05$) and tells us that null hypothesis is accepted. It means that Doctor Qualification has no effect on this variable.

H. **Patient suggestion (demand) influence prescription decision and qualification of doctor —** In the above table the value of significant is 0.164 which is insignificant ($p>0.05$) and tells us that null hypothesis is accepted. It means that doctor's qualification has no effect on this variable.

I. **"Direct-to- Consumer Advertisement" are important in promotion of medicines and qualification of doctor —** In the above table the value of significant is 0.833 which is insignificant ($p>0.05$) and tells us that null hypothesis is accepted. It means that doctor's qualification has no effect on this variable.

J. **Ethical issues in promotional activity adopted by companies and qualification of doctor —** In above table the values of significance is 0.550 which is insignificant ($p>0.05$) and tells us that null hypothesis is accepted. It means that doctor's qualification has no effect on this variable.

K. **Importance of promotional channels used by companies and their long lasting effect on the mind and qualification of doctor —** In the above table having variables medical representative, clinical papers, television/ electronic media, internet, hoardings and specific seminars held by companies, the values of significance are 0.096, 0.407, 0.257, 0.744, 0.678, and 0.572 respectively which is insignificant ($p>0.05$) and tells us that null hypothesis is accepted. It means that doctor qualification has no effect on these variables whereas medical journals, the significant value is 0.020 which are significant ($p<0.05$) and alternative hypothesis accepted and null hypothesis rejected. It means that doctor's qualification has effect on these variables

VII. Discussion and Conclusion

Impact and extent of impact of pharmaceutical advertisement depends on various variables, and due to different variables impact also differs. Qualification of doctors has

impact on the variable like hoardings and specific seminars held by companies where the significance values were 0.014 and 0.037 respectively which were significant ($p<0.05$). Qualification of doctors also has impact on the free samples where the significance value is 0.013 ($p<0.05$) which is significant and alternative hypothesis accepted and null hypothesis rejected. It means that doctor's qualification has effect on these variables. As concern to medical journals, the significant value is 0.020 which is significant ($p<0.05$) and alternative hypothesis accepted and null hypothesis rejected. It means that doctor's qualification has effect on these variables.

VIII. Future Research

Final objective of the researcher is that all findings that have been achieved may become part of future researches. Further direction for future research is, future research can be extended to pharmacists that how these pharmacists make their impact on consumer to sell the medicine because pharmacist is also an important medium of advertisement for pharmaceutical products. Additional research could explore how consumers make use of the pharmaceutical staff when they are in a pharmacy, and how the pharmaceutical staff is aware of their own influence on the customers and how they use their knowledge to guide the decision making process.

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