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- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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IMPACT OF PSYCHOSOCIAL FACTORS ON DOCTORS PRESCRIBING BEHAVIOR

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ABSTRACT

Nothing is forever in today's marketing sector. The one who manages to create the marked difference succeeds in the marketing era. Prescription behavior is a kinetic and ingenious that involves the customers who follow the rule of the guiding principle for making a choice. In the past study, it is well stated that prescribing behavior of physicians can be influenced and various factors can change the prescribing habits of the physicians. The prime focus of this study is to find out the impact of psychosocial factors on different area of specialty of doctors in private and government sector of the Chandigarh. The results show that impact of psychosocial factors on physician prescribing behavior varies across demographic characteristics.

KEYWORDS

prescription behavior of physicians, psychosocial factors, physicians prescribing trend.

INTRODUCTION

Likewise other business arena, the main intent of pharmaceutical marketing is to increase the prudence of the organization while focusing the demand of the consumers. For uninsured people and for many of those with some kind of health insurance, outpatient prescriptions are very costly for the patient. Drug prices have been shown to affect conformity regimens, and patients regularly report not buying or delaying the buying of prescribed medications. A more prudent efficient use of drugs could be attained by a revised knowledge of daily therapeutic costs (Mcguire et al., 2009) Thus, for health and economic reasons, it is crucial to investigate the factors affecting doctor's prescribing behavior (Hartzema & Christensen, 1983).

As in case of prescription drug market in India, where the patients have little say and are dependent upon the intermediate customers (doctors). It is estimated that India's \$12 billion drug market is growing 14 percent annually and companies are expected to triple sales forces by 2020 to capture this growing market as per website of Govt. of India. Hence to sustain in this competitive business, a viable strategy is needed.

The Competition is escalating day by day in marketing area and one who response within time can survive in the rivalry, same in the field of pharmaceutical marketing, daily various firms bring different brands enhancing the size of market. In this rivalry physicians are the key customers for this industry. Physicians are the only decision makers who decide which brand should be prescribed to their patients. Therefore, all the marketing strategies are being focused towards them (Waheed, Jaleel, & Laeequddin, 2007).

The Physicians who were in training were highly influenced by the antibiotic prescribing behavior of their physicians who were their supervisors. Respondents questioned their colleagues' antibiotic prescribing decisions, but they frequently avoided providing direct feedback or critique. These physicians cited obstacles of hierarchy, infrequent face-to-face encounters, and the awkwardness of these conversations (Livorsi et al., 2015).

REVIEW OF LITERATURE

Taneja Girish (2008) investigated the influence of promotional tools used by pharmaceutical enterprises on various doctors concluded that physicians in private sector tagged more predominance to personal selling and educational promotional tools whereas DMs gave more predominance scientific promotional tools in comparison to MD and PG diploma doctors.

In the past studies it is been concluded that prescribing behavior of physicians can be affected as well as prescribing habits of physician's decisions can be influenced by the various factors. (Hartzema & Christensen, 1983) studied that non medical factors are essential determinants for physician prescribing behavior.

Wazana (2000) stated that physicians have positive attitude towards the interaction by the pharmaceutical firms which initiated in medical colleges and continued till the practice lasts. (Watkins et al 2003) and (Chimonas et al 2007), concluded that the persistent contact with PSR visits impacted the physician prescribing behavior. Another study conducted by Saito et al (2010) concluded that most of the physicians appreciate the information they receive from the PSR.

A study conducted by Wazana et al. (2000) have concluded that pharmaceutical promotional interactions with physicians can have a detrimental impact on prescribing behavior. A review also concluded that meetings with MRs were related with requests by doctors for promoted drugs to be included to the hospital formulary, requiring manipulation in prescribing behavior with increased prescribing costs and less rational prescribing. Interactions of physicians and pharmaceutical firms raise scientific and ethical questions.

Theodorou et al. (2009) studied the factors, which impact the prescribing behavior of doctors and their practice in Greece and Cyprus, and may be used for making policies and increase their choices. The study concluded is that drug clinical effectiveness is important element in prescribing medicine.

Gehlbach et al. (1984) conducted a research in Denmark, which derived that price is also an important factor in prescribing drug and on top of that Pharmaceutical industry, sales representative affects physician's behavior.

Waheed Abdul Kareem et al (2007) found that tangible rewards to physicians offered by pharmaceutical companies, visits by MRs lead to physician honesty to prescribe. Tan N C et al (2009) concluded the relation of interrelated factors that affect the family physicians (FP) choice of drug whereas the ineffective factors to influence FPs are CME programmes and detailing. Neyaz et al (2011) concluded national and international dissimilarities in prescription. Studies concluded the effect of marketing tools and prescription behavior has a positive interaction between both. (Girdharwal (2007), Jayakumar (2008), Stros et al (2009)).

MATERIAL AND METHODS**DATA, SAMPLE AND METHODOLOGY**

The targeted population is given below and on the support of target population sample size has been selected.

TARGETED POPULATION

The total population of the study is the following:

All the doctor's society either they are Medical officers in Government and Private hospitals or Consultants of all specialties either they are working in Government and Private Hospitals. Sample data from different hospitals of Chandigarh and Mohali like PGIMER, IVY Mohali, Govt. Hospital 32, Govt. Hospital 22, Fortis Mohali, CMC Chandigarh, Govt. Hospital Manimajra, Max Mohali, Govt hospital 16, Govt. Hospital 45 were taken for the study.

SAMPLE SIZE

A total of 470 responses were drawn from cities of Chandigarh and Mohali. For this study, questionnaire was formulated and pretested for reliability and validity.

STATISTICAL TOOL AND TECHNIQUE

The statistical tools used were frequency distribution, ANOVA and t – test to find out results of above objective of research.

T-TEST TECHNIQUE

In this research mean scores were calculated by designating values of 1, 2, and 3 and so on to the responses. A lower score indicate that specific factor has less influence than with higher scores.

MODEL EQUATION

$$PPB = \alpha + \beta_1 DS + \beta_2 LT + \beta_3 MEP + \beta_4 SO + \beta_5 MI + e$$

Whereas PPB is physician prescribing behavior, DS is drug sample, LT is Literature, MEP is Medical Education programmes, SO represents asking colleagues/specialist are the first thing that is done for their opinions are first thing that is done when a new medication is available, and MI represents collecting information from MRS is first thing that is done when a new medication is available and e denotes error term.

MODEL HYPOTHESIS

Ho₁: There is no statistically significant impact of the psychosocial factors on prescribing behavior among different specialties of doctors.

Ho₂: There is no statistically significant impact of the psychosocial factors on prescribing behavior among different genders of doctors.

RESULTS AND FINDINGS**DEMOGRAPHIC PROFILE**

As depicted in Table 1, out of 470 doctors 332 were females doctors which accounts for 70.6 % of the sample and 138 were males, which accounts for 29.4 % of the sample. The physicians in the study who belonged to the age group of 25 -35 years of age were 105(22.3%), while 36-45 years of age of doctors were 192(40.9%), 46-55 years of age groups of doctors were 168 (35.7%), while 56 -65 age groups of doctors were 5(1.1%). The number of physicians who were from internal medicines was 64(13.6%) while surgery was 58 (12.3%), orthopedics was 50(10.6%), Pediatrics 22(4.7%), Obstetricians/ Gynecologists 68(14.5%), Psychiatrists were 2(0.4%), Ophthalmologists 14(3%) while others were 192 (10.6%).

TABLE 1: DESCRIPTIVE STATISTICS OF THE SAMPLE

		Frequency	Percentage
Age	25 – 35	105	22.3%
	36 – 45	192	40.9%
	46 – 55	168	35.7%
	56 – 65	5	1.1%
Gender	Male	138	29.4%
	Female	332	70.6%
Specialty	Internal Medicine	64	13.6%
	Surgery	58	12.3%
	Orthopedics	50	10.6%
	Pediatrics	22	4.7%
	Obstetrics/gynecology	68	14.5%
	Psychiatry	2	0.4%
	Ophthalmology	14	3.0%
	Other	192	40.9%

Different statistical tests of significance for testing of hypothesis related to the difference in the significance attached by physicians relating to psychosocial factors were determined.

Independent samples t-test analyze the means of two independent groups. The inequality between the groups' mean are then tested for significance. The checking is done at 95% confidence level.

Impact of different psychosocial factors on physicians among different specialties was tested by one –way ANOVA test. As per table 2, the mean score of impact of literature /updates/special physicians who have ophthalmology specialty is 3.14 whereas the mean score of impact of literature /updates/special physicians who have psychiatry specialty is 2.50. As per table 3, the significance value of Literature/Updates/journals among different specialties is more than 0.05 which means the impact of literature/updates/journals is insignificant among specialties while the same value for others factors are significant. So, Ho₁ can be rejected. There is a statistically significant impact of the psychosocial factors on prescribing behavior among different specialties of doctors.

TABLE 2: DESCRIPTIVE STATISTICS OF DIFFERENT PSYCHOSOCIAL FACTORS ON PHYSICIANS

Oneway ANOVA									
Descriptives									
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Literature/updates/Journals	INT MEDICINE	64	2.75	1.491	.186	2.38	3.12	1	5
	SURGERY	58	3.34	1.446	.190	2.96	3.72	1	5
	ORTHO	50	3.12	1.409	.199	2.72	3.52	1	5
	PEDERATICS	22	3.36	1.560	.333	2.67	4.06	1	5
	OBST&GYNE	68	3.24	1.477	.179	2.88	3.59	1	5
	PSYCHIATRY	2	2.50	2.121	1.500	-16.56	21.56	1	4
	OPHTHOMOLOGY	14	3.14	1.562	.417	2.24	4.04	1	5
	OTHERS	192	3.28	1.459	.105	3.07	3.48	1	5
	Total	470	3.19	1.470	.068	3.05	3.32	1	5
Medical Education programmes	INT MEDICINE	64	1.95	1.201	.150	1.65	2.25	1	5
	SURGERY	58	2.84	1.412	.185	2.47	3.22	1	5
	ORTHO	50	2.22	1.314	.186	1.85	2.59	1	5
	PEDERATICS	22	1.68	.894	.191	1.29	2.08	1	4
	OBST&GYNE	68	1.88	1.058	.128	1.63	2.14	1	5
	PSYCHIATRY	2	2.50	2.121	1.500	-16.56	21.56	1	4
	OPHTHOMOLOGY	14	2.86	1.460	.390	2.01	3.70	1	5
	OTHERS	192	2.11	1.341	.097	1.92	2.31	1	5
	Total	470	2.16	1.310	.060	2.05	2.28	1	5
Drug Samples	INT MEDICINE	64	2.16	1.312	.164	1.83	2.48	1	5
	SURGERY	58	3.03	1.510	.198	2.64	3.43	1	5
	ORTHO	50	2.14	1.246	.176	1.79	2.49	1	5
	PEDERATICS	22	1.91	.971	.207	1.48	2.34	1	5
	OBST&GYNE	68	2.06	1.020	.124	1.81	2.31	1	5
	PSYCHIATRY	2	3.00	2.828	2.000	-22.41	28.41	1	5
	OPHTHOMOLOGY	14	2.50	1.092	.292	1.87	3.13	1	5
	OTHERS	192	2.31	1.252	.090	2.13	2.49	1	5
	Total	470	2.31	1.281	.059	2.20	2.43	1	5
Asks colleagues /specialists for their opinions are first thing that is done when a new medication is available	INT MEDICINE	64	4.11	1.544	.193	3.72	4.50	1	5
	SURGERY	58	4.57	1.061	.139	4.29	4.85	1	5
	ORTHO	50	4.00	1.552	.219	3.56	4.44	1	5
	PEDERATICS	22	3.36	1.814	.387	2.56	4.17	1	5
	OBST&GYNE	68	3.75	1.596	.194	3.36	4.14	1	5
	PSYCHIATRY	2	5.00	0.000	0.000	5.00	5.00	5	5
	OPHTHOMOLOGY	14	4.43	1.089	.291	3.80	5.06	2	5
	OTHERS	192	4.39	1.301	.094	4.20	4.57	1	5
	Total	470	4.19	1.430	.066	4.06	4.32	1	5
Collect information from MRs is the first thing when a new medication is available	INT MEDICINE	64	2.80	1.471	.184	2.43	3.16	1	5
	SURGERY	58	3.48	1.314	.173	3.14	3.83	1	5
	ORTHO	50	3.04	1.355	.192	2.66	3.42	1	5
	PEDERATICS	22	3.05	1.618	.345	2.33	3.76	1	5
	OBST&GYNE	68	2.59	1.509	.183	2.22	2.95	1	5
	PSYCHIATRY	2	4.00	0.000	0.000	4.00	4.00	4	4
	OPHTHOMOLOGY	14	3.43	1.342	.359	2.65	4.20	1	5
	OTHERS	192	3.32	1.346	.097	3.13	3.51	1	5
	Total	470	3.13	1.420	.066	3.00	3.26	1	5

TABLE 3: ANOVA TEST RESULTS OF DIFFERENT PSYCHOSOCIAL FACTORS

		Sum of Squares	df	Mean Square	F	Sig.
Literature/updates/Journals	Between Groups	17.230	7	2.461	1.141	.336
	Within Groups	996.294	462	2.156		
	Total	1013.523	469			
Medical Education programmes	Between Groups	47.817	7	6.831	4.171	.000
	Within Groups	756.568	462	1.638		
	Total	804.385	469			
Drug Samples	Between Groups	42.674	7	6.096	3.876	.000
	Within Groups	726.721	462	1.573		
	Total	769.396	469			
Asks colleagues /specialists for their opinions are first thing that is done when a new medication is available	Between Groups	48.174	7	6.882	3.489	.001
	Within Groups	911.207	462	1.972		
	Total	959.381	469			
Collect information from MRs is the first thing when a new medication is available	Between Groups	44.745	7	6.392	3.276	.002
	Within Groups	901.595	462	1.952		
	Total	946.340	469			

Table 4 shows that that mean of impact of literature/updates/journals on physician prescribing behavior for males is 3.27 while same value for female is 2.99. As per table 5, the significance value of psychosocial factors like impact of medical education programmes, asking colleagues/specialists for their opinions are first

thing that is done when a new medical education is available and collecting information from MRs is the first thing when a new medication is available, is less than 0.05, so there is statistically significant difference between these psychosocial factors among genders. So, H_0 can be rejected.

TABLE 4: GROUP STATISTICS OF T –TEST

Gender		N	Mean	Std. Deviation	Std. Error Mean
Literature/updates/Journals	FEMALES	138	2.99	1.516	.129
	MALES	332	3.27	1.445	.079
Medical Education programmes	FEMALES	138	2.11	1.206	.103
	MALES	332	2.19	1.351	.074
Drug Samples	FEMALES	138	2.25	1.183	.101
	MALES	332	2.34	1.320	.072
Asks colleagues /specialists for their opinions are first thing that is done when a new medication is available	FEMALES	138	3.96	1.528	.130
	MALES	332	4.29	1.378	.076
Collect information from MRs is the first thing when a new medication is available	FEMALES				
	MALES				

TABLE 5: INDEPENDENT SAMPLE T –TEST

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Literature/ Updates/ Journals	Equal variances assumed	2.774	.096	-1.854	468	.064	-.275	.149	-.567	.017
	Equal variances not assumed			-1.817	245.475	.070	-.275	.151	-.574	.023
Medical Education Programmes	Equal variances assumed	4.270	.039	-.588	468	.557	-.078	.133	-.339	.183
	Equal variances not assumed			-.616	285.081	.538	-.078	.127	-.327	.171
Drug Samples	Equal variances assumed	3.815	.051	-.747	468	.455	-.097	.130	-.352	.158
	Equal variances not assumed			-.782	284.112	.435	-.097	.124	-.341	.147
Asks colleagues for their opinion is first thing when a new medication is available	Equal variances assumed	7.079	.008	-2.328	468	.020	-.336	.144	-.619	-.052
	Equal variances not assumed			-2.231	234.265	.027	-.336	.150	-.632	-.039
Collecting information from MRs is first thing when a new medication is available.	Equal variances assumed	6.718	.010	-2.700	468	.007	-.386	.143	-.667	-.105
	Equal variances not assumed			-2.627	241.619	.009	-.386	.147	-.675	-.097

IMPLICATIONS AND CONCLUSIONS

The study concludes that impact of psychographic factors changes across different demographic characteristics of the physicians. The study would provide theoretical framework for the pharmaceutical managers so that they can segment and target doctors as per demographic characteristics of the doctors as the psychographic factors changes across the demographic characteristics.

LIMITATIONS OF THE STUDY

The limitations of the study is that beside impact of psychosocial factors on the prescribing behavior among different specialties of doctors and different genders of doctors, the impact of psychographic factors on prescribing behavior among different age groups was not investigated. Therefore, in depth study of impact of psychographic factors among different age groups could provide a broader outlook. The study is limited to two cities i.e. Chandigarh and Mohali. The topic of further research is that this study could be to find out impact of psychographic factors on prescribing behavior among different age groups.

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