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Linkages Between Qualification, Experience, Relationship of Medical Representative and Prescription Behavior of General Practitioners: An Empirical Investigation

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Abstract: Prescribing makes a considerable impact on health and budgets and yet remains a contentious issue. In emerging markets, like India, no substantial insights have been drawn from the prescription behavioural pattern of the general practitioners. General practitioners (GPs) majorly get influenced by interactions with the Medical representatives (MRs), hospital consultants along with referring to the medical literature while prescribing medicine brands. Drawing from the past research, the current paper aims to analyze the impact of qualification, experience and relationship of MRs on the prescription behavior of the GPs in the context of Indian pharmaceutical industry. This study also attempts to explore the factors that contribute to the impact of relationship between the GPs and the MRs on the prescription behaviour. The results reveals that the combined effect of price consciousness, inquiry from company's promotional ads and materials, regular interaction along with the gifts and samples offered by MRs, and knowledge possessed by MRs significantly influences the prescription behaviour. The findings will benefit the Indian pharmaceutical firms in understanding stimuli that influences prescription behaviour of GPs. It would enable them in designing strategies for evoking positive response from them.

Keywords: Prescription Behaviour, Qualification, Experience, Relationship, Medical Representatives (MRs), General Practitioners (GPs), Indian Pharmaceutical Industry

1. Introduction

Previous studies suggests that for majority of the General Practitioners (GPs), the primary reference source for prescription is the commercial information provided by the medical representatives and it has major influence on their prescription behaviour [20]. In some recent studies it was revealed that MRs are the most important source of information and positively influences the prescription behavior [1, 5, 8, 13, 16]. Antecedents namely drug information availability, drug brand, promotion mix and MRs effectiveness positively influences prescription behaviour moderated by dimensions namely drug characteristics, drug benefit and cost ratio, physician persistence habit [14]. Prescribing decisions are majorly influenced by dimensions namely physicians' personal attributes, medicine price and promotion mix [5]. MRs often promote free samples along with the detailing that

majorly influencing prescription behaviour [4, 6, 15]. Gifts also influences the behaviour of prescribers [10, 12] along with the brand equity [17]. Promotional mix namely direct mail, personal selling, show displays, PR, and wellness promotions influences prescribers [6, 9]. But marginal effect of regular detailing along with the samples negates its impact on prescribers [19]. Prescription behaviour also get influenced by favourable impression towards MRs [8].

Price sensitivity, detailing and samples positively influences prescription behaviour [4, 8]. GPs however are concerned that MRs provide with selective information and hence GPs practices restrain on the MR visits [2].

In many healthcare studies, detailing is found to be a critical component of promotions where personal selling is often applied to influence prescription behaviour. Detailing is the most reliable information source for GPs as it provides them with adequate information regarding drug efficacy,

precautions and retail costs for the patients [2, 21].

Medical Representative is an important link in pharmaceutical industry. A study of drug sample allocation strategy proposed that, Medical Representatives should strive to consistently tie sampling to physicians' potential to initiate new prescriptions, such that the sampling rate is fairly constant across segments. They further proposed that, high potential physicians typically receive more samples, and details than low potential physicians [18]. MRs are the most common method for distributing samples to target doctors, but other approaches are slowly becoming popular as pharmaceutical companies are now started using a combination of direct mail, internet and vouchers. Some physicians prefer vouchers because they acquire less paper and space, while others strongly prefer drug samples over vouchers. Smaller companies are turning to these new channels to achieve wider geographical reach than their sales force can provide while larger companies are experimenting to get an access to "no-see" physicians.

This study emphasized on contributing to the overall knowledge of understanding regarding the factors that contribute to the impact of relationship between the general practitioners and the medical representative on the prescription behaviour in Indian context.

2. Research Methodology

Data collection was done among the Medical representatives, as they are the most important source of information for the prescribers. Demographic and behavioural data was collected.

In order to select the representatives among the category of respondent i.e. medical representatives, convenience sampling method was chosen followed by judgment sampling method. The local Medical Representative Association provided the list of their members, which was used as a frame for the sampling of medical representatives. They were also selected based on some personal references. Out of the total population of medical representatives around the selected cities in Gujarat and Maharastra, 250 were selected as the sample for the study. The data collection was planned in a sequential manner. The cities selected from the state of Gujarat and Maharastra were Ahmedabad, Baroda, Surat, Pune and Mumbai. These cities were selected based on their business potential in their respective states.

Multivariate analysis of Variance (MANOVA) was used to capture the variance among the group of respondents. Factor Analysis was used to identify the major factors that contribute to the relationship between the medical practitioner and medical representative.

2.1. Reliability of Data

Data reliability was carried out by conducting the internal consistency test using Cronbach's Alpha. Pretesting of the questionnaire among the few selected respondents was done. Based on the subsequent responses and matching it with research objectives, adequate changes were done in the data collection instrument. The content of the responses were scrutinized for apparent inconsistencies, which were found to be minimal.

2.2. Sample Characteristics

There were 49.8 percent medical representatives from medium scale companies. 25.1 percent were working in large scale companies, 16.9 percent were employed in small scale firms and 8.2 percent medical representatives were working in multinational companies (Table 1). Across all the selected cities, 18.9 percent medical representatives were having B. Pharma, 1.2 percent medical representatives had done M. Pharma, 67.3 percent had done B. Sc., 8.3 percent had done M.Sc. and 4.3 percent medical representatives were having D. Pharma. There were 37.9 percent medical representatives having an experience of 1 to 2 years, 39.5 percent were having an experience of 3 to 5 years, 14.5 percent had an experience of 6 to 10 years, and 8.2 percent medical representatives had an experience of more than 11 years. 72.4 percent medical representatives had an annual earnings of less than Rs. 60,000, 24.4 percent medical representatives were having an earning between Rs. 60,000 to 1.5 lakh rupees per annum. There were 9.1 percent MRs visit 6 to 8 doctors per day, 45.1 percent do average calls of 9 to 10 doctors per day and 45.8 percent MRs do average visits of more than 10 doctors per day (Table 2).

Table 1. Personal details of the Medical Representatives.

Qualification	Ahmedabad	Baroda	Surat	Pune	Mumbai	Total
B-Pharma	16.0	10.0	29.0	20.0	20.0	18.9
M-Pharma	0.0	6.0	0.0	0.0	0.0	1.2
BSC	75.0	69.0	59.0	65.0	70.0	67.3
MSC	0.0	16.0	6.0	10.0	10.0	8.3
D-Pharma	10.0	0.0	6.0	6.0	0.0	4.3
Years of experience in this market						
1-2 years	59.0	35.0	25.0	45.0	25.0	37.9
3-5 years	25.0	44.0	49.0	39.0	39.0	39.5
6-10 years	6.0	15.0	16.0	6.0	29.0	14.5
11+ years	10.0	6.0	10.0	10.0	6.0	8.2
Income						
< 60, 000 / annum	69.0	65.0	75.0	75.0	80.0	72.4
60,000-1,50,00/ annum	25.0	35.0	25.0	16.0	20.0	24.4
No response	6.0	0.0	0.0	10.0	0.0	3.1
Total N =	50	50	50	50	50	250

Table 2. *Percent distributions of average number of doctors meet per day by cities.*

Average doctor call everyday	Ahmedabad	Baroda	Surat	Pune	Mumbai	Total
6-8 Doctors	16.0	0.0	10.0	20.0	0.0	9.1
9-10 Doctors	35.0	50.0	55.0	40.0	45.0	45.1
More than 10 Doctors	49.0	50.0	35.0	40.0	55.0	45.8
Total N =	50	50	50	50	50	250

2.3. Reliability Statistics

The Cronbach's alpha or coefficient alpha value (0.715) shows fairly strong internal consistency reliability of the 16 scaled items used to construct the medical representative beliefs (Table 3).

Table 3. *Reliability Analysis.*

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.715	.669	16

Table 4. *Sixteen construct variables used for MANOVA and Factor Analysis.*
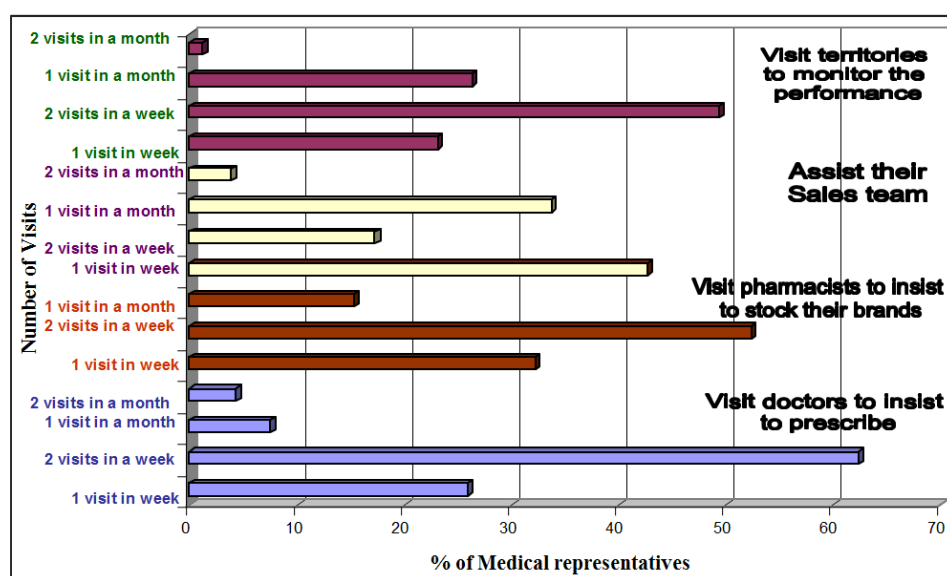
Codes	Description
V1	Interaction with the doctor
V2	Doctors consider medical representatives as important source of information
V3	Doctor trusts me, he/she is more inclined to prescribe my medicine brands
V4	When a doctor accepts gifts/obligation from me, he/she is obliged to prescribe my medicine brands
V5	When a doctor accepts samples from me, he/she is obliged to prescribe my medicine brands
V6	Doctors are more likely to prescribe my medicine brands, if I possess adequate knowledge
V7	Doctor generally prefer those MRs who provides genuine information about their medicine brands
V8	Doctors are likely to get motivated by authenticated technical information to prescribe specific medicine brand
V9	Doctors are likely to get motivated by recommendation of fellow doctors/ friends/ experts to prescribe specific medicine brand
V10	Doctors are likely to get motivated by gifts and other obligations to prescribe specific medicine brand
V11	Doctors are likely to get motivated by seminars/ workshops conducted by the company to prescribe specific medicine brand
V12	Doctors are likely to get motivated by corporate image/ medicine brand image to prescribe specific medicine brand
V13	Doctors are generally price conscious when they prescribe medicine brands to their patients
V14	Aggressive promotions from the company may influence the prescription behaviour of doctors
V15	Samples, gifts and other obligations from the Company does Influence the prescription behaviour of doctors
V16	Frequent visits to the doctor normally influence their prescription choice for the medicine brands

3. Study Results

Reasons of visit of Medical Representative to the market.

Medical representatives were asked that how often they visit doctors to insist them to prescribe their medicine brands.

Across all the selected cities, 25.9% responded that they visit once in every week and 62.4% said that they visit twice in every week to the doctors. 7.5% medical representatives said that they visit once in every month and 4.3% said that they visit twice in a month to the doctors (Figure 1).

Figure 1. *Reasons of visits of Medical representatives.*

Three composite variables and sixteen variables i.e. V1 to V16, were used for MANOVA and Factor analysis.

The three composite variables used were:

1. Opinion about doctor and medical representative relationship. [7]
2. Perception on prescription behaviour. [11, 18, 2]
3. Reasons of visit of medical representatives to the market. [7, 2]

Multivariate Analysis of Variance (MANOVA) conducted for qualification and education categories on sixteen constructs variables suggest that the effect of medical representative's experience (Wilk's Lambda (48, 825) = 2.12, p < 0.5) and qualification (Wilk's Lambda (64, 1087) = 4.50, p < 0.5), was significant. Thus, the null hypothesis that the vectors of means on medical representative's opinion are equal across experience and qualification categories is rejected (Table 5).

Table 5. *Multivariate Analysis of Variance (MANOVA) General Linear Model Multivariate Tests (d).*

Effect		Value	F(a)	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.970	554.701(b)	16.000	277.000	.000
	Wilks' Lambda	.030	554.701(b)	16.000	277.000	.000
	Hotelling's Trace	32.040	554.701(b)	16.000	277.000	.000
	Roy's Largest Root	32.040	554.701(b)	16.000	277.000	.000
experience	Pillai's Trace	.325	2.116	48.000	837.000	.000
	Wilks' Lambda	.707	2.120	48.000	824.661	.000
	Hotelling's Trace	.370	2.123	48.000	827.000	.000
	Roy's Largest Root	.177	3.081(c)	16.000	279.000	.000
qualification	Pillai's Trace	.787	4.289	64.000	1120.000	.000
	Wilks' Lambda	.398	4.500	64.000	1086.682	.000
	Hotelling's Trace	1.092	4.700	64.000	1102.000	.000
	Roy's Largest Root	.564	9.876(c)	16.000	280.000	.000

a Computed using alpha = .05
b Exact statistic
c The statistic is an upper bound on F that yields a lower bound on the significance level.
d Design: Intercept+ experience+ qualification.

Table 6. *Tests of Between-Subjects Effects.*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F(a)	Sig.
Corrected Model	V1	7.992(b)	7	1.142	5.031	.000
	V2	83.789(c)	7	11.970	7.572	.000
	V3	99.873(d)	7	14.268	9.179	.000
	V4	36.185(b)	7	5.169	5.032	.000
	V5	26.718(e)	7	3.817	3.221	.003
	V6	53.563(f)	7	7.652	3.609	.001
	V7	68.671(g)	7	9.810	4.239	.000
	V8	20.567(h)	7	2.938	1.997	.055
	V9	43.312(i)	7	6.187	4.535	.000
	V10	29.553(j)	7	4.222	1.877	.073
	V11	34.188(k)	7	4.884	2.733	.009
	V12	37.638(l)	7	5.377	2.355	.024
	V13	50.445(g)	7	7.206	4.227	.000
	V14	50.725(m)	7	7.246	3.808	.001
	V15	38.015(n)	7	5.431	3.367	.002
	V16	72.062(o)	7	10.295	6.501	.000
Intercept	V1	292.811	1	292.811	1290.416	.000
	V2	474.694	1	474.694	300.296	.000
	V3	504.376	1	504.376	324.474	.000
	V4	199.552	1	199.552	194.272	.000
	V5	219.533	1	219.533	185.269	.000
	V6	505.804	1	505.804	238.541	.000
	V7	517.913	1	517.913	223.777	.000
	V8	264.041	1	264.041	179.489	.000
	V9	616.124	1	616.124	451.567	.000
	V10	618.357	1	618.357	274.939	.000
	V11	410.875	1	410.875	229.952	.000
	V12	410.451	1	410.451	179.792	.000
	V13	436.937	1	436.937	256.296	.000
	V14	542.925	1	542.925	285.336	.000
	V15	507.849	1	507.849	314.908	.000
	V16	572.054	1	572.054	361.231	.000

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F(a)	Sig.
Experience	V1	1.065	3	.355	1.565	.198
	V2	21.736	3	7.245	4.584	.004
	V3	5.479	3	1.826	1.175	.320
	V4	3.336	3	1.112	1.083	.357
	V5	1.744	3	.581	.490	.689
	V6	4.135	3	1.378	.650	.584
	V7	4.115	3	1.372	.593	.620
	V8	8.379	3	2.793	1.899	.130
	V9	9.416	3	3.139	2.300	.077
	V10	19.053	3	6.351	2.824	.039
	V11	3.445	3	1.148	.643	.588
	V12	4.746	3	1.582	.693	.557
	V13	9.259	3	3.086	1.810	.145
	V14	5.554	3	1.851	.973	.406
	V15	12.666	3	4.222	2.618	.051
	V16	8.315	3	2.772	1.750	.157
Qualification	V1	6.657	4	1.664	7.334	.000
	V2	21.556	4	5.389	3.409	.010
	V3	68.035	4	17.009	10.942	.000
	V4	21.509	4	5.377	5.235	.000
	V5	15.998	4	4.000	3.375	.010
	V6	37.258	4	9.315	4.393	.002
	V7	46.417	4	11.604	5.014	.001
	V8	7.199	4	1.800	1.223	.301
	V9	36.235	4	9.059	6.639	.000
	V10	7.190	4	1.798	.799	.526
	V11	32.100	4	8.025	4.491	.002
	V12	36.962	4	9.241	4.048	.003
	V13	19.524	4	4.881	2.863	.024
	V14	34.111	4	8.528	4.482	.002
	V15	15.528	4	3.882	2.407	.050
	V16	49.365	4	12.341	7.793	.000
Error	V1	66.258	292	.227		
	V2	461.581	292	1.581		
	V3	453.897	292	1.554		
	V4	299.935	292	1.027		
	V5	346.002	292	1.185		
	V6	619.157	292	2.120		
	V7	675.809	292	2.314		
	V8	429.553	292	1.471		
	V9	398.408	292	1.364		
	V10	656.727	292	2.249		
	V11	521.742	292	1.787		
	V12	666.612	292	2.283		
	V13	497.805	292	1.705		
	V14	555.605	292	1.903		
	V15	470.905	292	1.613		
	V16	462.418	292	1.584		
Total	V1	1593.000	300			
	V2	4455.000	300			
	V3	3801.000	300			
	V4	1710.000	300			
	V5	1878.000	300			
	V6	3822.000	300			
	V7	3972.000	300			
	V8	1824.000	300			
	V9	3630.000	300			
	V10	3720.000	300			
	V11	3495.000	300			
	V12	3681.000	300			
	V13	3717.000	300			
	V14	3621.000	300			
	V15	3318.000	300			
	V16	3762.000	300			
Corrected Total	V1	74.250	299			
	V2	545.370	299			
	V3	553.770	299			

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F(a)	Sig.
	V4	336.120	299			
	V5	372.720	299			
	V6	672.720	299			
	V7	744.480	299			
	V8	450.120	299			
	V9	441.720	299			
	V10	686.280	299			
	V11	555.930	299			
	V12	704.250	299			
	V13	548.250	299			
	V14	606.330	299			
	V15	508.920	299			
	V16	534.480	299			

a Computed using alpha = .05
b R Squared =.108 (Adjusted R Squared =.086) g R Squared =.092 (Adjusted R Squared =.070)
c R Squared =.154 (Adjusted R Squared =.133) h R Squared =.046 (Adjusted R Squared =.023)
d R Squared =.180 (Adjusted R Squared =.161) i R Squared =.098 (Adjusted R Squared =.076)
e R Squared =.072 (Adjusted R Squared =.049) j R Squared =.043 (Adjusted R Squared =.020)
f R Squared =.080 (Adjusted R Squared =.058) k R Squared =.061 (Adjusted R Squared =.039)
l R Squared =.053 (Adjusted R Squared =.031) m R Squared =.084 (Adjusted R Squared =.062)
n R Squared =.075 (Adjusted R Squared =.053) o R Squared =.135 (Adjusted R Squared =.114)

MANOVA for qualification categories and sixteen constructs variables suggest that the doctor inclination relatively more towards the medical representative with better education and experience. Medical representative with higher education develop an ability and knowledge which get acknowledged with doctors response in terms of prescribing their medicine brands. MANOVA for categories of years of experience and eighteen constructs variables suggests that with experience and possessing adequate knowledge regarding the medicines, medical representative being considered as an important source of information for the doctors and are more likely to get prescription for their medicine brands. Medical representative usually visit doctors to offer the promotional schemes of their company and regularly meet pharmacists to insist them to keep the stock of their medicine brands.

Factor Analysis results reject the null hypothesis, that the population correlation matrix is an identity matrix. The Bartlett's test of sphericity, chi-square statistic is 2549.84 with 120 degrees of freedom which is significant at the 0.05 level. The value of KMO statistic (0.730) is significantly higher (>0.5). Thus, factor analysis is an appropriate technique for the analyzing the correlation matrix (Table 6).

Factor Analysis suggests that out of the original sixteen constructs variables, five factors were extracted which were named as influencers to the prescription behavior, medicine brand loyalty, relationship with the doctor, motivational factor and professional networking of doctors (Tables 7 & 8).

Table 7. *KMO and Bartlett's test of Sphericity.*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.730
Bartlett's Test of Sphericity	Approx. Chi-Square	2549.840
	df	120
	Sig.	.000

Table 8. *Factor Analysis - Total Variance Explained (Extraction Method: Principal Component Analysis).*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.302	39.389	39.389	6.302	39.389	39.389	5.992	37.452	37.452
2	1.955	12.222	51.610	1.955	12.222	51.610	1.888	11.800	49.252
3	1.513	9.457	61.068	1.513	9.457	61.068	1.534	9.589	58.842
4	1.193	7.456	68.524	1.193	7.456	68.524	1.399	8.746	67.587
5	1.029	6.428	74.952	1.029	6.428	74.952	1.178	7.365	74.952
6	.849	5.307	80.259						
7	.665	4.156	84.416						
8	.602	3.761	88.177						
9	.453	2.834	91.011						
10	.389	2.429	93.440						
11	.257	1.605	95.045						
12	.219	1.371	96.416						
13	.199	1.244	97.660						
14	.162	1.012	98.673						
15	.121	.757	99.429						
16	.091	.571	100.000						

Extraction Method: Principal Component Analysis.

Table 9. Factor Analysis - Rotated Component Matrix(a).

Variables	Component				
	1	2	3	4	5
V1	.031	-.104	-.081	-.038	.924
V2	.816	.172	.078	-.009	.141
V3	.819	.100	-.064	.082	.250
V4	-.142	.875	-.121	-.068	.047
V5	-.053	.804	-.116	.172	-.170
V6	.865	-.266	.070	-.004	.161
V7	.874	-.197	.183	.040	.020
V8	-.589	.367	-.088	-.345	.156
V9	-.090	-.113	.253	-.767	-.007
V10	.414	-.193	.590	.118	-.034
V11	-.030	-.023	.323	.782	-.050
V12	.096	.118	-.905	.037	.054
V13	.813	.113	.254	-.076	-.112
V14	.807	-.115	-.168	.104	-.250
V15	.749	-.151	-.116	.070	-.271
V16	.843	-.260	.006	-.012	.072

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 5 iterations.

This study suggests that those medical representatives, who provide genuine information about their medicine brands and possess adequate knowledge, are more likely to receive doctor prescriptions for their set of medicine brands for a specific disease. Doctors, apart from the efficacy of the drug also look at their cost, while prescribing the medicine brands for a specific disease. Promotions, gifts, samples and other obligations offered by the drug company does influence the doctors in their prescription behaviour. Frequency of visits of medical representative help in gaining trust of the doctor which, in turn, sets the final choice of medicine brands for prescription for a specific disease. Medical representatives visit doctors to insist them for prescribing their medicine brands for a specific disease and meet pharmacists regularly to push their stock of medicine brands in their store. Medical representatives visit their sales territories regularly to assist the sales team and monitor their performance.

4. Conclusions

Major conclusions drawn on the hypothesis were:
H1: Ethical drug promotions relative to generic drugs significantly effects the prescription behaviour.

The result of the study reveals that there is no significant difference in relative impact of promotion of ethical drugs and generic drugs on the prescription behaviour of GPs. Thus the null hypothesis is rejected.

Past studies proposed that detailing helps GPs in making a conscious trade-off between costs and benefits for each patient [2]. Promotions like samples need to provided within a threshold level of beyond which the effect becomes negative [6, 19]. Prescribers relatively prefer modern treatment pattern where they focus more on drug efficacy than cost compared to the traditional prescribing habit where

emphasis is more on cheaper treatment [3]. Tendency of changing a GP on the basis of an unsatisfactory treatment experience related to medicine cost is unlikely, but still the potential loss of patients' loyalty could be a reasonable concern to the prescribers [6]. This study supports the previous findings and suggests that the combination of ethical drug promotions from the MRs, regular interaction with the GPs, knowledge possessed by MRs, authentic information, price consciousness and inquiry from company's promotional ads and materials majorly influences the prescription behaviour. This is based on the factor analysis done on the doctors' belief constructs resulted in the factor 'influencers to the prescription behaviour'.

H2: Doctors are relatively more obliged to prescribe specific medicine brand based on gifts and samples provided by the medical representatives.

The result reveals that there is no significant difference in relative impact of gift-giving and samples provided by the MRs on the prescription behaviour. Thus the null hypothesis is rejected.

This study supports the previous findings and proposes that the GPs while prescribing medicine brand for a specific disease, influence by the combined effect of gifts and samples offered by the MRs, reliable technical information regarding the medicine brand collected by the GPs through workshops and peer feedback and corporate image of the company [6, 21]. This is based on the factor analysis conducted on the doctors' belief constructs resulted in the factor 'medicine brand loyalty'.

5. Major Results

This study suggests that doctors relatively prefer the medicine brands which are supported by authentic technical information provided by the medical representatives. The doctor inclined more towards the medical representative with better education and experience. Medical representative with higher education develop an ability and knowledge which get acknowledged with doctors response in terms of prescribing their medicine brands as suggested by the study. Thus, the medical representatives need to maintain a healthy professional relationship with doctors and pharmacists.

6. Implications of the Study

The results of this study will provide substantial insights for the Indian pharmaceutical companies, consumer forums and the GPs. Additionally, these findings have significant implications for those interested in further understanding the factors that might influence the relationship between the GPs and MRs and its impact on the prescription behaviour.

7. Directions for the Future Research

This study attempted to analyze the impact of relationship between the GPs and the MRs that influences

the prescription behaviour. During the course of this study, some areas had been identified, which offer scope for the meaningful research in the future. A direction for future research might be designing more comprehensive investigation on first segmenting the MRs by their years of experience and then measuring their comparative responses on various belief constructs to assess the differences in professional approach and finally integrating this into a extensive model framework to explain their relative influence on the prescription behaviour.

References

[1] Ahmed, Toufiq, Ruma, Nilima Haque, and Shirahada, Kunio (2018). Knowledge transfers as the basis of decision support for drug prescription, VINE Journal of Information and Knowledge Management Systems, Vol. 48, No. 2, pg. 294-312.

[2] Berndt, Ernst R., Linda T., Bui, Reiley, David H., and Urban, Glen L. (1994). The roles of marketing, product quality, and price competition in the growth and composition of the U.S. Anti-Ulcer drug industry, Working paper No. 19-94, Program on the Pharmaceutical Industry, Massachusetts Institute of Technology.

[3] Carthy, P., Harvey, I., Brawn, R., and Watkins, C. (2000). A study of factors associated with cost and variation in prescribing among GPs, Family Practice, 17, 36–41.

[4] Campbell, Eric G., Gruen, Russell L., Mountford, James, Miller, Lawrence G., Cleary, Paul D., and Blumenthal, David (2007). A National Survey of Physician–Industry Relationships, National English Journal of Medicine, pg. 1742-1750.

[5] Davari, Majid, Khorasani, Elahe, Tigabu, Bereket Molla (2018). Factors Influencing Prescribing Decisions of Physicians: A Review. Ethiopia Journal of Science, Vol. 28, No. 6.

[6] Gönül, Füsun F., Carter, Franklin, Petrova, Elina, and Srinivasan, Kannan (2001). Promotion of prescription drugs and its impact on physicians' choice behaviour, Journal of Marketing, Vol. 65, pg. 79-90.

[7] Hansen, Flemming, Gronhaug, Kjelland Warneryd, Karl-Erik (1990). Excellent marketing: The concept, its measurement and implications, Marketing and Research Today, 18, 98-105.

[8] Ion, Luminita Mihaela, Voda, Ana lolanda, Butnaru, Rodica Cristina, Butnaru, Gina lonela, and Chirita, Gabriel Mircea (2021). Effect of pharmaceutical companies' corporate reputation on drug prescribing intents in Romania, Economic Research-Ekonomska Istraživanja, Vol. 34, No. 1, pg. 521-544.

[9] Kabir, Sardar Md Humayun, Maulan, Suharni, Manaf, Noor Hazilah Abd, and Nasir, Zaireena Wan (2022). The influence of direct-to-physician promotion towards physicians' prescription behaviour in Malaysia, International Journal of Pharmaceutical and Healthcare Marketing, Vol. 16, No. 1, pg. 101-122.

[10] Katz, Dana, Caplan, Arthur L., and Merz, Jon F (2010). All gifts large and small: Towards an understanding of the ethics of Pharmaceutical industry gift-giving, The American Journal of Bioethics, Vo. 10, No. 10, pg. 11-17.

[11] Marks, Lawrence J. and Michael A. Kamins (1988). The use of product sampling and advertising: effects of sequence of exposure and degree of advertising claim exaggeration on consumers' belief strength, belief confidence and attitudes, Journal of Marketing Research, pg. 266-281.

[12] Minwalla, Shabnam (2003). Drug promotion in India, Healthy Skepticism International News, Vol. 21, No. 9.

[13] Murshid, Mohsen Ali, and Mohaidin, Zurina (2017). A systematic review of the influence of medical representatives and promotional tools on prescribing: A comparison between developed and developing countries, International Journal of Pharmaceutical and Healthcare Marketing, Vol. 11, No. 4, pg. 361-394.

[14] Murshid, Mohsen Ali, Mohaidin, Zurina, and Nee, Goh Yen (2016). Moderating effects of contextual factors on relationship between pharmaceutical marketing strategies and physician prescription behaviour: A review, Tropical Journal of Pharmaceutical Research, Vol. 15, No. 7, pg. 1559-1568.

[15] Nelson, Paul (1974). Advertising as information, Journal of Political Economy, pg. 729-745.

[16] Prosser H, Almond S and Walley T. (2003). Influences on GPs' decision to prescribe new drugs—the importance of who says what, Family Practice, 20: 61–68.

[17] Srivastava, R. K., and Bodkhe, Jitendra (2018). Does brand equity play a role on doctors prescribing behavior in emerging markets, International Journal of Healthcare Management, Vol. 13.

[18] Stinebaugh, Craig, and Sabin, Glenn (2003). Better sampling boosts the bottom line, Pharmaceutical Executive, pg. 120-124.

[19] Van Zandt, William (1993). How much sampling is enough, Pharmaceutical Executive, pg. 92-96.

[20] Vancelik, Serhat, Beyhun, Nazim E., Acemoglu, Hamit, and Calikoglu, Oksan (2007). Impact of pharmaceutical promotion on prescription decisions of general practitioners in Eastern Turkey, BMC Public Health, 7: 122.

[21] Watkins, C., Harvey, I., Carthy, P., Moore, L., Robinson, E., and Brawn, R. (2003). Attitudes and behaviour of general practitioners and their prescribing costs: a national cross sectional survey, Qual. Saf. Health Care, 12, pg. 29-34.