



Transformation in pharmaceutical industry: An empirical study with special reference to Nagpur City

Mr. Sapan Joshi

Research Student, Datta Meghe Institute of Management Studies, Nagpur

Dr. Vaishali Rahate

Associate Professor, Datta Meghe Institute of Management Studies, Nagpur

ABSTRACT

Pharmaceutical industry in India is one of the important contributors to the economy of our country, the total industry size forecast to reach US \$160 billion by 2017, and US \$280 billion by 2020. The Indian pharmaceuticals market increased at a CAGR of 17.46 per cent during 2005-16 with the market increasing from US\$ 6 billion in 2005 to US\$ 36.7 billion in 2016 and is expected to expand at a CAGR of 15.92 per cent to US\$ 55 billion by 2020. One of the reasons for a high growth rate is attributed to more of customer orientation of the promotional strategy of the pharmaceutical companies. A study was conducted in this regard in which the researcher has tried to find out whether the change in customer orientation is occurring or not. The study was conducted in Nagpur city where 67 doctors were randomly chosen for the survey. A total of 44 questions were asked and results tabulated to confirm the findings.

Result: It was observed that the transformation in pharmaceutical industry is taking place which was proved by applying various statistical techniques like t-test, regression analysis and factor analysis.

KEYWORDS :

Introduction:

Pharmaceutical industry in India is undergoing lot of changes and it is one of the most vibrant industries in terms of changing government policies, introduction of new molecules, new R&D activities, new and newer promotional strategies of pharmaceutical companies. The study was conducted in Nagpur city to understand if the changes are actually taking place at the customer level. The samples chosen were random for the study.

Rational for selecting this topic:

Pharmaceutical sales happen in an indirect way in our country. The sales representative or the Medical Representative actually makes the sales. The sales communication, implementation of sales promotion strategy, distribution of sales promotional inputs in terms of free medicine samples or brand reminders, is in the hands of the sales representative. The management here has no better option but to trust the sales force on implementation of the strategy. The area of concern for the management is how much or how far the strategy of the corporate is being implemented in the field or in front of the doctor while making sales presentation of the product. With the increase in the number of companies in the already tough competitive scenario, it becomes important to understand how the industry is shifting from product centric marketing strategy to customer oriented market. The shift is happening very fast and the pressure on the companies to establish themselves in the market is increasing.

Research Methodology:

The main criteria were to select those doctors who get regular visit from the medical representatives of various companies. The data was collected by sending questionnaire by a link created by Google forms. Some doctors were visited personally and were asked to give their feedback on the Google forms directly and others were sent link directly by SMS or email. The study was conducted to find out if there is a transformation happening at the customer end, i.e. the doctor.

The Likert scale was used for all the questions. Choice was given from 1 to 5. Choice '1', indicates that choice being not acceptable and 5 as most acceptable. All the data was analyzed using SPSS 16.0. The data was tested for internal consistency, that is, how closely related are set of items as a group by Cronbach's alpha test. A single sample t-test was conducted to understand if the hypothesized value has any significance or not related to the findings from the survey. Regression analysis was also carried out to estimate the relationships among

variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables. Factor analysis was carried out to describe variability among observed, correlated variables in terms of a potentially lower number of unobserved variables called factors.

OBJECTIVES

- To study the factors depicting the changed attitude of the Pharma companies towards their customers.
- To study the initiatives taken by the corporate to make their role more responsible rather than only administrative in nature
- To study the various factors affecting the intention of a doctor to prescribe a drug.
- To understand the different successful strategies used by the Pharma companies to retain their customers (Doctors)
- To study the preference of Local Pharma companies over Multinational Pharma companies.

HYPOTHESIS

Ho1 - There is no transformation of business approach in pharmaceutical industry from conservative company centered to customer centered.

H1 - There is transformation of business approach in pharmaceutical industry from conservative company centered to customer centered.

Ho2: There is no relationship between the changed positive attitude of the companies towards their customers in Pharmaceutical sector and the attributes of the company.

H2: There exists a positive relationship between the changed positive attitude of the companies towards their customers in Pharmaceutical sector and the attributes of the company

The Analysis:

1. The Cronbach's alpha test was conducted on the data for internal consistency, that is, how closely related are set of items as a group.

Case Processing Summary

		N	%
Cases	Valid	57	85.07
	Excluded	10	14.93
	Total	67	100.00

Reliability Statistics

Cronbach's Alpha	N of Items
.97	44

The above values indicate that the value of Cronbach's Alpha is 0.97 which is very near to 1 and hence we can conclude that there is complete consistency between various variables of a multiple item scale.

2. The first question asked to doctors was

Do you agree that there is a transformation in Pharma industry with respect to the changed positive attitude of the companies towards their customers?

1 2 3 4 5

Not much Neutral Very much

The null hypothesis (H0) for the above question is that there is no transformation in pharmaceutical industry. The alternative hypothesis (H1) is that there is a change in Pharma industry with respect to the changed positive attitude of the companies towards their customers.

A single sample t-test was conducted on the responses for this question and the hypothesized average value for the question is taken as '1'.

Following is the output for single sample t-test:

	N	Std. Mean	Deviation	Std. Error Mean
R1	67	3.72	1.126	.138

One-Sample Test

Test Value = 1					
t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of Difference	
19.755	66	.000	2.716	Lower 2.44	Upper 2.99

Here we can observe that the standard mean is 3.72 and the test value is taken as 1. The difference is very much significant at 2.72. The significance value at 95% is less than 0.05 hence we can say that there is a significant difference between the hypothesized value and the observed value.

This proves that the null hypothesis is invalid and the alternate hypothesis is true. Hence we can say that there is a change in Pharma industry with respect to the changed positive attitude of the companies towards their customers.

3. Regression Analysis:

The first question is R1 which now we have concluded that there is a change in Pharma industry with respect to the changed positive attitude of the companies towards their customers. Now we can correlate with question number R2 to R12.

1. Do you agree that there is a transformation in Pharma industry with respect to the changed positive attitude of the companies towards their customers?

	1	2	3	4	5
Not much			Neutral		Very much
2. Are your suggestions and recommendations taken up by companies	1	2	3	4	5
Never			Neutral		Always
3. Do you discuss a new molecule with MR during launch?	1	2	3	4	5
Less likely			No change		Most Likely
4. Are you willing to write a new molecule discussed with MR	1	2	3	4	5
Less likely			No change		Most Likely
5. How important are the following attributes of companies which influence your prescription:					
Company's image	1	2	3	4	5
Not much			Neutral		Very much
6. Multi National companies	1	2	3	4	5
Not much			Neutral		Very much
7. National Companies	1	2	3	4	5
Not much			Neutral		Very much
8. Local Companies	1	2	3	4	5
Not much			Neutral		Very much
9. Innovative drug delivery system	1	2	3	4	5
Not much			Neutral		Very much
10. Packaging and quantity	1	2	3	4	5
Not much			Neutral		Very much
11. Size of tablet and taste of products	1	2	3	4	5
Not much			Neutral		Very much
12. Do you think communication of field staff with retailer / chemist play an important role in successful promotion of brands?	1	2	3	4	5
Not much			Neutral		Very much

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.882 ^a	.779	.734	.585

a. Predictors: (Constant), R12, R6, R2, R4, R6, R11, R9, R7, R3, R5, R10

b. Dependent Variable: R1

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	65.049	11	5.914	17.279	.000 ^a
	Residual	18.461	54	.342		
	Total	83.530	65			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.882 ^a	.779	.734	585

a. Predictors: (Constant), R12, R8, R2, R4, R6, R11, R9, R7, R3, R5, R10

a. Predictors: (Constant), R12, R8, R2, R4, R6, R11, R9, R7, R3, R5, R10
 b. Dependent Variable: R1

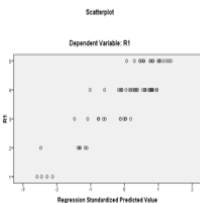
The value of R2 is 0.779, indicating that 77.9 percent of the variations in the changes in pharmaceutical industry are explained by all the variables.

The value of R2 is significant as indicated by p value (.000) as indicated by F statistics as given in ANOVA table.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.196	.332		.590	.458
	R2	.366	.089	.393	4.126	.000
	R3	.239	.103	.254	2.321	.024
	R4	.014	.099	.013	.145	.885
	R5	.092	.111	.097	.831	.410
	R6	.052	.104	.053	.304	.763
	R7	-.079	.124	-.070	-.632	.530
	R8	-.041	.105	-.036	-.392	.697
	R9	.165	.107	.149	1.543	.129
	R10	.103	.122	.103	.846	.401
	R11	.169	.132	.162	1.286	.204
	R12	.016	.101	.016	.162	.872

a. Dependent Variable: R1

The above estimated regression equation indicates that the changes in Pharma industry is positively related to all other variables except variable R7 and R8. These two variables are negatively related and also not significant to the changes taking place in pharmaceutical industry. The results indicate that the change in Pharma industry is significantly influenced by all the factors from R2 to R12.



The scatter plot also indicates a positive correlation among all variables.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.873
Bartlett's Test of Sphericity	Approx. Chi-Square
	528.400
	df
	66
	Sig.
	.000

In order to establish the strength of the factor analysis solution it is essential to establish the reliability and validity of the obtained reduction. This is done with the KMO and Bartlett's test of sphericity. It may be noted that the value of KMO statistics is greater than 0.5, indicating that factor analysis could be used for the given set of data. Further Bartlett's test of sphericity, testing for significance of the correlation matrix of the variables indicates that the correlation coefficient matrix is significant as indicated by the p value corresponding to the chi square statistics. It may be noted that the sample size is 67 is more than 5 time the number of variables (five). All these justify the use of factor analysis for this hypothesis.

Communalities

	Initial	Extraction
R5	1.000	.635
R6	1.000	.807
R7	1.000	.679
R8	1.000	.544
R9	1.000	.609
R10	1.000	.677
R11	1.000	.662
R1	1.000	.814
R2	1.000	.577
R3	1.000	.790
R4	1.000	.498
R12	1.000	.606

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	6.627	55.227	55.227	6.627	55.227	55.227	4.158	34.652	34.652
2	1.271	10.592	65.819	1.271	10.592	65.819	3.740	31.167	65.819
3	.950	7.913	73.732						
4	.821	6.845	80.577						
5	.528	4.400	84.977						
6	.415	3.455	88.432						
7	.373	3.110	91.542						
8	.272	2.265	93.806						
9	.254	2.115	95.921						
10	.203	1.688	97.609						
11	.154	1.285	98.894						
12	.123	1.026	100.000						

Extraction Method: Principal Component Analysis.

In order to interpret the above table we have to identify those factors whose Eigen values are more than 1. In the above table we can observe two components with Eigen values more than 1. This indicates that there are two components or hidden factors in the responses recorded which can be interpreted by observing the "Component Matrix" given below.

Rotated component matrix shows factor loading score of all the variables. The score more than 0.5 can be considered for new component but taking 0.7 as base we get R1, R2 and R3 and in component 2 we get R5, R6, R7 and R8.

Component Transformation Matrix

Component	1	2
1	.734	.679
2	-.679	.734

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

Component Score Coefficient Matrix

	Component	
	1	2
R5	-.069	.240
R6	-.234	.406
R7	-.082	.258
R8	-.138	.288
R9	.006	.164
R10	.121	.051
R11	.148	.019
R1	.261	-.095
R2	.243	-.108
R3	.374	-.251
R4	.206	-.075
R12	-.112	.051

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

Component Score Covariance Matrix

Co...	1	2
1	1.000	.000
2	.000	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

In the component covariance matrix we see that there is a significant difference between the two new components.

We can interpret from component 1 that “The doctors are giving suggestions to companies, where in they are taking up the suggestions and that doctors like to discuss the new molecules being introduced by the companies.”

We can interpret from component 2 that “Doctors are interested in company's image that is brand value of the company and if the company is MNC, National or Local Company.”

Hence we can conclude that Transformation is happening in the way pharmaceutical companies market their products happening at customer end.

The doctors are considering the brand value of the company before prescribing the brand of the molecule Doctors are actively discussing their requirement with the company representatives vis a vis drugs and the companies are responding to the need of the doctor.

References:

1. <http://www.india-briefing.com/news/india-market-watch-healthcare-pharmaceutical-industries-growing-gdp-exceed-73-percent-growth-11409.html/>
2. <http://www.ibef.org/industry/indian-pharmaceuticals-industry-analysis-presentation>
3. Research Methodology – Concept and Cases by Deepak Chawala and Neena Sodhi pg. 164