PERFORMANCE OF SUPPLY CHAIN MANAGEMENT OF PHARMACEUTICAL PRODUCT IN TAMIL NADU

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ABSTRACT

Supply chain management is one of the innovations for the enhancement of capabilities. In this research, we aim to study the various activities of the supply chain process of the manufacturing industries. The purpose of metering the performance of the manufacturing sectors has been studied. We can also analyze by comparing various sectors with each other and finds out the lending and lagging sectors based upon the existing way of processes. In the end also discussed wide future scope for the future research. In this paper we discussed the various manufacturing sectors from that effort we can finds out the performance the various manufacturing sector.

Keywords: Supply Chain Management (SCM), Performance, Factors, Pharmaceutical Product,

INTRODUCTION

In order to retain in a volatile and scarce environment, companies have to adopt new ways of thinking. One of them is embracing Supply Chain Management (SCM) by considering it as a crucial asset companies can compete in the marketplace. In the context of SCM, it is important to understand the extent of efforts made in achieving an efficient Supply Chain (SC). There are many key performance indicators and management practices come along with SCM, and it is important that SC managers must identify the ones that brings the most competitive advantages.

There are many factors such as high cost and time in developing new products, information asymmetries between production and demand, consumer decision and so on that hinder competition in the pharmaceutical industry, Inelasticity of demand and prices are also, among other influencing factors. Discussing every variable in regards to a production chain goes through a comprehensive broad sense which goes beyond the purpose of

this research. The researcher here has tried to measure the influencing factors performance of supply chain of pharmaceutical products manufacturing industry in an around of Tamilnadu. The focus of the study was to analysis the performance and impact of supply chain management on the business performance of pharmaceutical product manufacturing industry.

STATEMENT OF THE PROBLEM

In the age of global competition, the customers are central to all marketing activities. Today, the end customer in the marketplace determined the success or failure of business. Due to market expansion from domestic market to global market customer demands are increased, for instance demand far lower prices, faster delivery, higher quality products or services and increase in the variety of items. Under today's economic competition, companies should give special importance to customer orientation and build strong relationship with the buyer of goods, interactions and sharing information between suppliers and customer in a coordinated way and lead to assure business success. With shorter product life cycles and changing market demands, companies are forced to embark on a lean journey. If deliveries are not accurate, additional time consuming processes such as identifying missing products, placing additional purchase orders, or even returning wrong deliveries may occur. If delivery errors are not detected, there will be discrepancies between data and physical inventory. Organizations have to use different ways to review and revise their strategies to found the satisfaction of customer.

A new paradigm Supply chain management (SCM) is currently perceived as an effective means in achieving successful international competitiveness. SCM plays a vital role to increase the standard of living of people by creating jobs. It is an essential element to increase the efficiency in all the functional activates of companies and also expresses the need to integrate the key business processes from end user through original suppliers. Generally SCM focuses on planning, forecasting, purchasing, storing, moving, product assembling and keeping track of a product. Effective SCM supports to maintain good relationship with vendors and suppliers, seamless flow of material and information, reducing the inventory, leads to low cost and increases the flexibility, improving price value offerings and so on.

Pharmaceutical industry is one of the world's "largest and fastest growing industries. The pharmaceutical industries" supply chain involves flow of many different nature and types of product which provide medicines in the right quantity, with the acceptable quality, to the right place and customers, at the right time and with optimum cost to be consistent with health system's objectives and also it should make benefits for its stockholders. Many companies give importance to the quality part and do not concentrate much on the dependability and flexibility of the supply chains.

Innovations are carried out in each and every organisation, but they are not able to implement and execute their decisions. Availability of skill based labour that can help in coordinated with the supply chain is yet another concern of the pharmaceutical industry. The global Pharmaceutical Sector is embarking on a step change transformation journey in which the supply chain will play a strategic change management role. Healthcare reform, patent expiries and increased service requirements will require pharmaceutical companies to adopt their business models in order to accommodate market changes. The coming years, reduced costs, greater agility and improved speed to market whilst ensuring the often complex regulatory legal framework in countries are being met will form a challenging and operating landscape for companies in the industry. Pharmaceutical companies have to turn more towards direct sales channels reducing margins in their current business. Like other industries this is a trend observed already for a much longer period of time. There will also be more focus on "selling" directly to pharmacies, hospitals, care institutions and patients. The concept of online order and fulfilment tools will allow pharmaceutical companies to take greater advantage of direct marketing and sales tools to manage the order management and commercial process with the various sales channels. As a result, there will be clear tendencies towards more direct product/market segment. The supply chain will need to play a more strategic role in the business model of many pharmaceutical companies. Measuring the supply chain performance in pharmaceutical industry is sparse. There has been no much research study that has gone deep

into measuring the supply chain performance of pharmaceutical products in Tamilnadu. Hence, the present study is carried out to emphasize the importance of supply chain performance and its relation to the overall performance of the organization.

OBJECTIVES OF THE STUDY

1. To ascertain the performance of supply chain factors and compare it across the selected background of the pharmaceutical companies.

HYPOTHESES

Ho1 "supply chain performance does not significantly differ based on selected characteristic of companies."
(type of ownership, area of the companies , age of the companies, scope of geographic area, annual sales, size of the companies, size of customers and size of suppliers.)

RESEARCH METHODOLOGY

It is an empirical as well as analytical study, based on survey method. The study is benefited from both primary as well as secondary data. The primary data have been collected through questionnaires. The researcher personally met the respondents or otherwise contacted them over the phone, to solicit their kind cooperation in filling up the questionnaire. The secondary data have been collected from various journals, books, magazines and reports, internet and records.

Research instrument

The survey design has been selected in order to give a wider room to researcher to have in-depth and detailed investigation as well as contextual analyses of the problem under the study. In the backdrop of the research, a comprehensive survey questionnaire was designed with the knowledge of previous survey reports and questionnaires as well as in consultation with practicing managers. A pilot survey was conducted with 10 respondents to assess the appropriateness of the questionnaire based on the response, the questionnaire was revised to avoid inapplicable questions, ambiguous wording, and strengthen its appropriateness and clear instructions were provided at the beginning of the sections. The questionnaire has four sections such as personal information, factors of SCM, benefits and problems of SCM and impact of SCM on performance.

Sampling Method

The manufacturing companies 10 per cent (90 companies) were selected as sample. The researcher has selected randomly 5 persons positioning as directors, managers and supervisors in charge of the supply chain. The questionnaire was administered to 450 (90 x 5) respondents identified. A thorough follow-up was done in person and over the telephone to expedite the process of filling up the questionnaire. With the concerted efforts of combined e-mails, phone calls and personal visits, a total of 432 responses were obtained 18 questionnaires were not returned and 22 were unusable and incomplete, finally 410 questionnaires were usable. Hence, the present study was yield response rate 91.1 per cent and rejection rate was 8.9 per cent. The purposive sampling procedure has been used in selecting respondents. The questionnaire contains open-ended, closed ended and multiple-option questions. The questionnaire is divided into seven parts. The first part covers the profile and SCM practices of the respondents companies, second part concerned the respondents opinion about pharmaceutical industries, the third part encompasses the questions related to factors in the supply chain management, the fourth part includes questions on benefits and problems faced of SCM, the fifth part is devoted for impact of SCM on the business performance.

Statistical Techniques Used in the Study

The collected data was analyzed after inspecting erroneous entries and making corrections where possible. The researcher's has not followed any existing theoretical and structural models. Reliability and validity of all the variables was examined by computing Cronbach's alpha coefficient of reliability through Confirmatory Factor Analysis. Multiple regression, canonical correlation, Chi-squire test, ANOVA and Henry

Garrett ranking were used to test the hypotheses. SPSS version 20 was used to perform factor and other analysis.

TABLE-1Comparison the Performance of Supply Chain Factors with Selected Background of the Companies

This section seals with the different background characteristics of the companies chosen for comparison with the performance of supply chain factors which are related to delivery, quality control, time management, cost reduction, customers relationship, suppliers relationship, production and technology. Performance examined and compared by appropriate statistical techniques and hypotheses formulated to support the objectives were tested. The analysis and results are discussed in the following part of the thesis.

Types of Ownership and Performance of Supply Chain

The researcher intends to find the effect of ownership types on the supply chain performance. In order to find the significant variation in the respondents‟ level of acceptance towards various factors responsible for performance of supply chain of the companies, the following null hypothesis was formulated and tested.

Ho "Supply chain performance does not significantly differ across companies based on types of ownership".

In order to test the hypotheses, the researcher decided to use of One Way ANOVA because the formula for F − static was based on the sum of squares between and within groups. That is, it takes covariance into account as well as group means among the dependent measures. Hence, the analysis of variance test was applied to found significant difference among respondents belongs to different ownership types in the each factor separately. The results of the analysis are given in Table 1.

Table 1: Performance of Supply Chain According to Types of Ownership

SCP	Descriptive Analysis				ANOVA					
	Ownership Types	N	Mean	SD	Groups	SS	df	MS	F	Sig.
Delivery	Sole Proprietor	221	2.389	0.429	Between	.115	2	.058	.326	.722
	Partners	163	2.374	0.406	Within	72.036	407	.177		
	Share holders	26	2.345	0.440	Total	72.152	409			
Quality Control	Sole Proprietor	221	2.246	0.400	Between	.034	2	.017	.106	.899
	Partners	163	2.265	0.397	Within	65.411	407	.161		
	Share holders	26	2.253	0.430	Total	65.445	409			
Time Management	Sole Proprietor	221	2.295	0.611	Between	.074	2	.037	.094	.011*
	Partners	163	2.180	0.660	Within	160.599	407	.395		
	Share holders	26	2.042	0.760	Total	160.673	409			
Cost Reduction	Sole Proprietor	221	2.035	0.258	Between	.124	2	.062	.785	.007*
	Partners	163	2.269	0.219	Within	32.092	407	.079		
	Share holders	26	2.174	0.346	Total	32.216	409			
Customers Relationship	Sole Proprietor	221	2.224	0.421	Between	1.239	2	.619	2.565	.008*
	Partners	163	2.110	0.559	Within	98.284	407	.241		
	Share holders	26	2.015	0.619	Total	99.522	409			

Suppliers Relationship	Sole Proprietor	221	2.273	0.450	Between	.261	2	.130	.342	.010*
	Partners	163	2.121	0.535	Within	154.829	407	.380		
	Share holders	26	2.070	0.597	Total	155.090	409			
Production	Sole Proprietor	221	2.304	0.447	Between	.769	2	.385	1.857	.157
	Partners	163	2.299	0.474	Within	84.287	407	.207		
	Share holders	26	2.314	0.394	Total	85.057	409			
Technology	Sole Proprietor	221	2.268	0.405	Between	.746	2	.373	2.208	.011*
	Partners	163	2.160	0.438	Within	68.759	407	.169		
	Share holders	26	2.340	0.295	Total	69.505	409			

Source: Computed from Primary data

Table 1 shows the result of descriptive analysis. It has been found that Sole Proprietors has a favourable response time (mean = 2.295, SD = 0.611) followed by partners (mean = 2.180, SD = .660) and shareholders (mean = 2.042, SD = .760). On cost reduction, Partners have reported favourable delivery (mean = 2.269, SD = .219) followed by Sole Proprietor (mean = 2.035, SD = .258) and shareholders have least cost reduction (mean = 2.174, SD = .346).

On customers relationship, Sole Proprietor have a high customers relationship (mean = 2.224, SD = 0.421) followed by partners (mean = 2.110, SD = 0.559) and shareholders have least customers relationship (mean = 2.015, SD = 0.619). Regarding suppliers relationship, Sole Proprietor have a high customers relationship (mean = 2.273, SD = 0.450) followed by partners (mean = 2.121, SD = 0.535) and shareholders have least suppliers relationship (mean = 2.070, SD = 0.597). On dependability, companies having more technology (mean = 2.340, SD = 0.295) followed by sole proprietor (mean = 2.268, SD = 0.405) and partners have least technology (mean = 2.160, SD = 0.438).

Table 1 also shows the univariate results of whether the independent variable is significant for each of the supply chain performance variables. According to the results of ANOVA there is a significant difference in time management (F = 0.094 p = 0. 011), customers relationship (F = 2.565; p = 0.008), cost reduction (F =.785; p = 0.007), suppliers relationship (F = .342; p = 0.010) and technology (F = 2.208; p = 0.011). It could be inferred that five out of eight factors of supply chain performance differ. Hence, the hypothesis is not supported (rejected) and it is concluded that supply chain performance differs across the ownership types of the companies.

Area of the companies and Performance of Supply Chain

The researcher also interested to find the effect of area of the companies on the supply chain performance. In order to find the significant variation in the respondents‟ level of acceptance towards various factors responsible for performance of supply chain of the companies, the following null hypothesis was formulated and tested.

Ho1: "Supply chain performance does not significantly differ across companies based on different area".

In order to test the hypotheses, the researcher decided to use independent sample „t‟ test of One Way ANOVA because the formula for „F – static‟ was based on the sum of squares between and within groups. The analysis of variance test was applied to found significant difference among respondents belongs to different area in the each factor separately. The results of the analysis are given in Table 2.

Table 2: Area of Respondent and Performance of Supply Chain

SCP	Descriptive Analysis				t test	
	Area	N	Mean	SD	t	Sig.
Delivery	Rural	178	2.360	0.424	1.292	.021*
	Urban	232	2.407	0.416		
Quality Control	Rural	178	2.237	0.416	1.077	.089
	Urban	232	2.236	0.387		
Time Management	Rural	178	2.186	0.599	.000	.996
	Urban	232	2.186	0.648		
Cost Reduction	Rural	178	2.236	0.266	.873	.531
	Urban	232	2.235	0.291		
Customers Relationship	Rural	178	2.129	0.468	.278	.010*
	Urban	232	2.178	0.413		
Suppliers Relationship	Rural	178	2.189	0.637	6.333	.612
	Urban	232	2.186	0.592		
Production	Rural	178	2.372	0.443	2.075	.550
	Urban	232	2.367	0.465		
Technology	Rural	178	2.186	0.416	.150	.018*
	Urban	232	2.143	0.410		

Source: Computed from Primary data

Table 2 shows the result of descriptive analysis. It has been found that Sole Proprietors has a favourable response time (mean = 2.295, SD = 0.611) followed by partners (mean = 2.180, SD = .660) and shareholders (mean = 2.042, SD = .760). On cost reduction, Partners have reported favourable delivery (mean = 2.269, SD = .219) followed by Sole Proprietor (mean = 2.035, SD = .258) and shareholders have least cost reduction (mean = 2.174, SD = .346).

On customers relationship, Sole Proprietor have a high customers relationship (mean = 2.224, SD = 0.421) followed by partners (mean = 2.110, SD = 0.559) and shareholders have least customers relationship (mean = 2.015, SD = 0.619). Regarding suppliers relationship, Sole Proprietor have a high customers relationship (mean = 2.273, SD = 0.450) followed by partners (mean = 2.121, SD = 0.535) and shareholders have least suppliers relationship (mean = 2.070, SD = 0.597). On dependability, companies having more technology (mean = 2.340, SD = 0.295) followed by sole proprietor (mean = 2.268, SD = 0.405) and partners have least technology (mean = 2.160, SD = 0.438).

Table 1also shows the univariate results of whether the independent variable is significant for each of the supply chain performance variables. According to the results of ANOVA there is a significant difference in time management (F = 0.094 p =0. 011), customers relationship (F = 2.565; p = 0.008), cost reduction (F =.785; p = 0.007), suppliers relationship (F = .342; p = 0.010) and technology (F = 2.208; p = 0.011). It could be inferred that five out of eight factors of supply chain performance differ. Hence, the hypothesis is not supported (rejected) and it is concluded that supply chain performance differs across the ownership types of the companies.

Area of the companies and Performance of Supply Chain

The researcher also interested to find the effect of area of the companies on the supply chain performance. In order to find the significant variation in the respondents" level of acceptance towards various factors responsible for performance of supply chain of the companies, the following null hypothesis was formulated and tested.

Ho2: "Supply chain performance does not significantly differ across companies based on different area".

In order to test the hypotheses, the researcher decided to use independent sample „t" test of One Way ANOVA because the formula for „F – static" was based on the sum of squares between and within groups. The analysis of variance test was applied to found significant difference among respondents belongs to different area in the each factor separately. The results of the analysis are given in Table 2.

Table 3: Age of the Companies and Performance of Supply Chain

SCP	Descriptive Analysis				ANOVA					
	Age of the Company	N	Mean	SD	Groups	Sum of Squares	df	Mean Square	F	Sig.
Delivery	Less than 5 years	78	2.429	0.424	Between	.280	2	.140	.792	.454
	5-10 years	275	2.368	0.413	Within	71.872	407	.177		
	More than 10 years	57	2.416	0.447	Total	72.152	409			
Quality Control	Less than 5 years	78	2.258	0.382	Between	.412	2	.206	1.291	.002*
	5-10 years	275	2.269	0.417	Within	65.033	407	.160		
	More than 10 years	57	2.175	0.331	Total	65.445	409			
Time Management	Less than 5 years	78	2.193	0.614	Between	.033	2	.017	.042	.959
	5-10 years	275	2.188	0.636	Within	160.640	407	.395		
	More than 10 years	57	2.164	0.608	Total	160.673	409			
Cost Reduction	Less than 5 years	78	2.253	0.285	Between	.195	2	.098	1.242	.001*
	5-10 years	275	2.240	0.275	Within	32.020	407	.079		
	More than 10 years	57	2.304	0.270	Total	32.216	409			
Customers Relationship	Less than 5 years	78	2.149	0.465	Between	.084	2	.042	.172	.842
	5-10 years	275	2.184	0.503	Within	99.438	407	.244		
	More than 10 years	57	2.190	0.491	Total	99.522	409			

Suppliers Relationship	Less than 5 years	78	2.278	0.620	Between	1.818	2	.909	2.414	.521
	5-10 years	275	2.281	0.623	Within	153.272	407	.377		
	More than 10 years	57	2.280	0.580	Total	155.090	409			
Production	Less than 5 years	78	2.370	0.465	Between	2.324	2	1.162	5.716	.004*
	5-10 years	275	2.260	0.447	Within	82.733	407	.203		
	More than 10 years	57	2.464	0.448	Total	85.057	409			
Technology	Less than 5 years	78	2.184	0.399	Between	.115	2	.057	.336	.615
	5-10 years	275	2.183	0.414	Within	69.390	407	.170		
	More than 10 years	57	2.135	0.424	Total	69.505	409			

Source: Computed from Primary data

The researcher also interested to find the effect of age of the companies on the supply chain performance. In order to find the significant variation in the respondents" level of acceptance towards various factors responsible for performance of supply chain of the companies, the following null hypothesis was formulated and tested.

Ho3: *"Supply chain performance does not significantly differ across companies based on year of age".*

In order to test the hypotheses, the researcher decided to use independent sample „t" test of One Way ANOVA. The analysis of variance test was applied to found significant difference among respondents belongs to different age of the companies in the each factor separately. The results of the analysis are given in Table 3.

MAJOR FINDINGS OF THE STUDY

- It was revealed from the study that out of 410 respondents, close to 29 per cent respondents were Directors about 57 per cent of the respondents were managers, about 15 per cent of the respondents were supervisors in SC.
- According to ownership 53.9 per cent of respondents were sole proprietorship, 39.8 per cent of the respondents were partnership and only 6.3 per cent were company. It is concluded that a good majority of the respondents (53.9 per cent) were sole proprietor.
- It was noted from the study that 43.4 per cent of the respondents have indicated that their companies are located in rural areas and 56.6 percent stated that their companies are in urban areas. 67.1 per cent of them possess 5-10 years old and 19 per cent were less than 5 years, followed closely by those with more than 10 years.
- It was revealed that 34.4 per cent of had up to 50 employees, 15.6 per cent of companies have employees between 10 and 49. About 8.8 per cent had from 50 to 249 employees and 41.2 per cent of the companies employed more than 250 employees.
- It was clear from the study 57.1 per cent of selected manufactures had annual turnover less than 50 lakhs, 38 per cent had from 50 lakhs to 1 core and 4.9 per cent had more than 1core.
- The study exhibited that 32.7 per cent respondents have been stated that their companies are operating at regional level, 65.4 per cent respondents stated that their companies are operating at national level and only 2 per cent respondents stated that their companies are operating at operating at worldwide level.

- It was revealed from the study that 31.7 per cent selected manufactures having the size of customers is less than 500, 52 per cent having customers 500 to 1,000 and 16.3 per cent have more than 1,000 customers. It is found that a majority of the companies selected for the study have customers between 500 and 1,000.

- Out of 410 respondents, 34.4 per cent having the size of suppliers less than 25, 51.7 per cent having the number of suppliers 25 to 50. 13.9 per cent have reported the companies having more than 50 suppliers.

- The study shows that out of 410 respondents, 38.8 per cent of them have been reported that the companies having up to 25 carriers, 52.4 per cent have been reported that from 25 to 50 carriers, 8.8 per cent reported that more than 50 carriers. It is concluded that a majority of the respondents (52.4 per cent) reported that companies selected for the study have carriers between 25 and 50.

- The study exhibited that 44.9 per cent of respondents have adopted SCM practice voluntarily, while 29.3 per cent of have adopted SCM practice by comply with regulations, 7.8 per cent of respondents have adopted SCM practice under pressure from customers and 18 per cent adopt SCM practice under pressure from competition.

- It was observed from the study that 85.9 per cent of respondents used SCM practice in full scale level, while 14.1 per cent have been using SCM practice at partially. 74.1 per cent of respondents procure material directly from supplier and 25.9 per cent of respondents procure materials through brokers.

- It is found that 65.4 per cent of the organization follows a direct channel of distribution and 34.6 per cent follows an indirect channel of distribution to reach their end consumers.

- It was observed that 28.8 per cent of the selected companies maintain inventory of 1-25 SKUs, 41 per cent of companies maintain inventory of 26-50 SKUs, 15.6 per cent carried 51-100 SKUs, and 14.6 per cent of company maintain more than 100 SKUs. 60 per cent of selected respondents have manufacturing at a single location and 40 per cent having multiple manufacturing locations.

- The results of the study revealed that 26.3 per cent of the companies were producing solid drugs, 35.1 per cent of them produced semisolid drugs, 10.2 per cent were producing liquid drugs, 9.8 per cent produced injectable drugs and 18.5 per cent were producing other types of products such as aerosols, lotions and antibiotics.

- It was found from the results that 41 per cent of the companies were working with pushing system, 48.8 per cent were using the pulled system and 10.2 had both production systems. 63.4 per cent of the companies produced on the bases of availability of inventory and 36.6 produced based on order received.

- 96.09 of the companies had considered some kind of structured and systematized information on demand; 88.29 per cent considered information on previous sales; 48.29 per cent considered the seasonality of the product; 81.95 worked with current orders, and 65.85 per cent used some other type of information (sales forecasting, marketing expansion, etc). It is found that structured and systematized demand is a major information source for production process plan.

- It was noted that 100 per cent of the companies studied forecasting the demand for their products and no one informed no forecasting performed. It was also noted that 23.4 per cent of the companies forecast the demand with fortnightly frequencies, 53.2 per cent monthly and 23.4 per cent quarterly. It is found that a majority of the companies selected for the study forecast the demand performed with monthly bases.

- It was observed that 74.1 per cent of companies' suppliers always deliver lots completely, and 25.9 per cent deliver incompletely. It is concluded that a majority of the suppliers of the companies selected have always deliver lots completely.

- It was revealed from the study that 83.9 per cent reported that they always order completely deliver and 16.1 per cent partially delivered. 11.7 per cent used their own vehicles, 41.5 per cent partially outsource and 46.8 per cent completely outsource their transportation. It is found that majority of the companies selected for the study have completely outsource their transportation.

- It was observed that 86.34 per cent of selected industries do not send products for recycling because some have a water reuse system and only incinerate waste that is not suitable for recycling.
- It was inferred from study 28.80 per cent of companies had very high dependency, 41 per cent had high dependency and 8.30 per cent had moderate dependence of suppliers.
- About transparency of negotiations with suppliers it was discovered that 25.90 per cent of the companies used to deal with them in a very high level, 33.70 per cent had a level of transparency considered high level and 10% had moderated of transparency.
- In quality of the material delivered by supplier 29.8 per cent was very high, 30.20 per cent high and 16.10 per cent was moderate.
- In flexibility in the production process 29.80 per cent of the companies have very high, it was high in 32.20 per cent of the companies and it was moderate at 12.70 per cent of companies. 41 per cent of companies reported that scraps during production was very high 29.80 per cent was high and it was moderate in 9.80 per cent of companies.
- The results of the survey provide that 28.30 per cent of reliability of goods received channel was very high 39 per cent was high and 9.80 per cent was moderate. 38, 34.60 and 5.90 per cent of companies reported that goods damage in cargo at very high, high and moderate respectively.
- It was found that 40.50 per cent had a level of flexibility in the delivery system able to meet demands considered high level and 23.40 had moderated of flexibility in the delivery system.
- Foreign direct investment (FDI) should be allowed in the pharmaceutical sectors, 58 per cent opinion is Warehouse infrastructure is not adequate, 74.40 per cent agreed Non-conventional marketing methods are effective methods of pharmaceutical marketing.
- About 65.40 per cent of the respondents believe that technology utilization and innovative distribution channels will help in marketing of pharmaceutical products, 60.20 per cent said that Branding of pharmaceutical products is important for marketing strategy and 63.40 per cent pointed out as the pharmaceutical companies in India are shifting their focus from conventional method of marketing to non-conventional method of marketing.
- Rotated factor loadings for the 47 statements (variables) relating to supply chain management of pharmaceutical products has loading more than 0.5 is extracted into eight factors namely F1 to F8. All the eight identified factors account for about 84.355 per cent of variance in the data which is significantly greater than the benchmark variance value 60 per cent.
- It was found that supply chain performance does not differs across the area of the company location, age of the company, scope of operations of the company and size of customers of the companies, hence hypothesis is supported (accepted).
- It was found that supply chain performance differs across the ownership types, and annual sales of the companies. Hence, the hypothesis is not supported (rejected).

SUGGESTIONS

- ❖ It was identified through the present study that, most of the benefits of SCM practices fall under company focus benefits. In competitive environments customers are the main drivers of business activities hence, it is suggested that companies' supply chain practices should have to be more customers oriented.
- ❖ It could be found that most of the studied firms have not been implemented JIT philosophy because of geographical distance between customers and firms and also between customers and firms.
- ❖ It is suggested that establishing the storage of raw material near to the manufacture place by suppliers and storage of finished goods near to the customer deliver point by manufacturers can help the firms to implement JIT philosophy in their SCM and produce the products based on pull production system.

❖ Most of the studied firms not sharing information with its suppliers hence, in order to implementation of pull production system successfully; it suggested that companies should share the production plans and the inventory level with its key suppliers.

❖ It is found that through the present study most of the companies use outsourcing transports. Hence it is suggested that company can maintain its own transportation it will gain more advantages in reducing the value of distribution expenses to considerable extent.

CONCLUSION

The findings of the present study indicate that a long journey to go by the pharmaceutical product manufacturing units in Tamilnadu in terms of the supply chain evolution, as the current status of the supply chain are not that of best value. Market competition is no longer focusing on businesses, but on supply chains. The status of the chain also needs improvement across the dimensions of materials sourcing, information management, customers and supplier relationship management. Hence management of supply chain is potential in pharmaceutical product manufacturing units. The research have identified that some factors of supply chain and like delivery, quality control, time management, cost reduction, customers relationship, suppliers relationship and production. The research also measured the performance of supply chain according to some selected dimensions like, types of ownership, area of the companies, age of the companies, area operations, annual sales, size of the companies and customers and size of suppliers. The present research also identified the benefits and challenges in the supply chain management. If this study provokes the concerned companies to take some positive measures in order to improve its supply chain and overcome problems of SC, the researcher will feel amply rewarded.

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