

**ASSESSMENT OF SUPPLY CHAIN ACTIVITIES OF
PHARMACEUTICAL PRODUCTS MARKETERS IN ADAMAWA STATE**

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ABSTRACT

Marketers of pharmaceutical products play an important role in the health and socio-economic wellbeing of every society. They serve as the intermediaries between manufacturers of pharmaceutical products and the consumers of the products. Without them, the supply, consumption and the ultimate health benefits of these products could hardly come to fruition. For them to function efficiently and satisfy their customers effectively, they must have an effective, efficient, and responsive supply chain. In this study, we assess the activities in the supply chain functions of pharmaceutical marketing companies in Yola, Adamawa State, Nigeria with a view to identifying areas of strengths and weaknesses in the supply chains. Using a sampled population of 154 pharmaceutical marketers in Yola metropolis, we collected data, through questionnaires, on the state of affairs of their supply chain activities. Descriptive statistics using tables, figures and percentages were used to analyse the data so collected. Our findings suggest that while most of the marketers do have their private warehouses where they stock their products, they do not have a robust inventory management system in place and use their private vehicles instead of their companies' vehicles to deliver products to their customers. We recommend that pharmaceutical companies establish their branches in northern part of the country and maintain efficient inventory management system, among other recommendations.

Keywords: Supply Chain, Pharmaceutical Marketing Companies, Pharmaceutical Products, Adamawa State

1. INTRODUCTION

Supply chain is a network created among different companies that produce, handle, and distribute a specific product (Susarla & Karimi, 2012). Supply chain management has gained considerable attention over the past decades (Tan, 2001). It has matured from a function that was seen by many as a mere operational, clerical, tactical or administrative function to a function that contributes to the strategic competitive advantage of organisations. Supply chain activities in the pharmaceutical industry covers some complex set of activities which covers drug research, development, manufacture; distribution and application through a range of healthcare services, together with all the ancillary businesses that help these different stages function effectively (Whewell, 2009). Being an industry that concerns the health and well-being of the people, the pharmaceutical industry is heavily regulated, with each stage in its supply chain having a unique set of regulations affecting it. Changes in one area impact upon the others and environmental factors such as pricing, regulatory change or actions by competitors, impact the whole supply chain in ways that are not easily understood or properly managed. Due to these complex situations, the pharmaceutical industry nowadays shifts from being what could be described as the alpha-and-omega system to a system that currently delegates product distribution to third-party logistics providers (3PLs) and wholesalers (Ricci, 2006).

However, even with this transformation, compared to other sectors, the pharmaceutical industry is less advanced in terms of channel management (Ricci, 2006). This weak spot in the pharmaceutical industry, Ricci (2006) observed, limits the amount of information about patient demand and product flow that is passed to the manufacturer. This encourages parallel importing from cheaper to more expensive regimes and prevents a company from being able to guarantee the integrity of products after they leave the warehouse. Parallel trading costs the pharmaceutical industry billions of dollars each year, but much of that money goes to the importers and pharmacy chains rather than healthcare payers and patients (Ricci, 2006). Leaving the distribution function unchecked, the pharmaceutical companies face the challenge of their products being subjected to some unethical practices including repackaging and relabeling, thereby increasing the risk of errors (such as tracing the original source of the product) and makes it more difficult for pharmacists to distinguish imitation from legitimate drugs (Ricci, 2006). With this in mind, it has thus become extremely important for the pharmaceutical companies to take control

of their own distribution to maximize the potential of the different channels and to protect patients from consuming unwarranted products.

One technique, in the opinion of Ricci (2006), is to deliver the most innovative products straight to retail pharmacies, hospitals, and specialist clinics without using wholesalers. In fact, with repeat prescriptions, drug companies could even supply directly to some patients. Wholesalers, he indicated, would still have a large role in distributing mass-market drugs with high volumes and could make a far larger contribution by assuming responsibility for packaging such products and managing their distribution on a regional, rather than a national basis. Alternatively, according to Ricci (2006), companies may choose to manage the funds used to support pharmaceutical distribution and channel management more effectively. By relying on wholesalers to distribute their products and using incentives and bonuses as motivation, pharmaceutical companies can manage the performance of their wholesalers and third-party logistics providers. To do so, the author indicated that, pharmaceutical companies must create stronger relationships with retail pharmacies and hospitals that distribute their products and focus on the needs of patients through channel-to-market innovations. If they create strong relationships, companies can expect to control the channels, see margins recover, enjoy better market intelligence, accelerate the point at which sales peak, reduce planning inaccuracies and limit counterfeiting. There are no short cuts and there is no single solution when it comes to building a capable supply chain.

According to Ricci (2006), the scale of change depends on the depth and length of the research and development productivity gap, the pace of technological progress and the length of time needed for management to act. If properly managed, the pharmaceutical supply chain, as the author observed, can enable future growth. The supply chain can be used to accelerate time to market, maximize revenue from new products, block generic competition and protect patients from counterfeit drugs. By engaging in supply chain transformation and adopting an integrated approach to supply chain management, businesses will be able to position themselves to compete in the rapidly changing marketplace. If managed properly, the supply chain can be a significant source of added value to any pharmaceutical company's bottom line.

Statement of the problem

The supply of pharmaceutical products is very vital as these products are essential in healthcare delivery. Access to Pharmaceutical product therefore implies access to good health. Access to essential medicines is critical to achieving universal health coverage and is also recognized as a key building block of a strong health system. Medicines and health products are important for addressing health problems and improving quality of lives. They form an indispensable component of health systems in the prevention, diagnosis and treatment of disease and in alleviating disability and functional deficiency. Critical stakeholders, not limited only to supply chain, have over the years recognized the need to improve the pharmaceutical and health product management practices in the country, noting that a number of challenges still hinder proper access to improved healthcare system. However, access to efficient healthcare system is hindered by a number of challenges. Some of these challenges include stock-outs of essential supplies that continue to be experienced in a number of health facilities even while expiries are noted in others, warehouses and distribution systems not meeting minimum standards, decreased visibility in reporting across disease areas, and lack of basic logistics management control/information systems. Additionally, multiple supply chains that are often not very well coordinated have tried to address the immediate needs for access to health care products, which while well-meaning have also created some challenges on the other hand. Inefficiencies due to poor coordination, integration and harmonization are evident, as is duplication of some supply chain activities.

In the supply chain management literature, Simon & Nikoi (2014) have studied the perceptions of patients about the supply of pharmaceutical products in Ghana. Samson, *et al.*, (2017) highlighted the challenges in the supply chain management of HIV/AIDS programmes in Cross Rivers State, Nigeria. On the other hand, Adane (2017) proposed a metric for the measurement of the supply chain performance of pharmaceutical industry in Ethiopia. These, and many other studies, look at some particular aspects in the supply chain of pharmaceutical products. Little attempts, such as the study by Whewell (2009) have been made to have a complete overview of the supply chain of pharmaceutical marketers. This study therefore intends to look at the supply chain management activities of pharmaceutical companies in Yola metropolis with a view to suggesting ways to overcoming the myriads challenges facing the industry thereby making it more efficient, responsive, and customer friendly.

The main aim of this study therefore is to assess the supply chain activities of pharmaceutical products marketers in Yola. To achieve this aim, the following objectives have been drawn:

- (i) To assess the sourcing of pharmaceutical products by the marketers in Yola
- (ii) To assess the warehousing system of pharmaceutical products by the marketers in Yola
- (iii) To assess the inventory management system of pharmaceutical products by the marketers in Yola
- (iv) To assess the distribution system of pharmaceutical products by the marketers in Yola

2. LITERATURE REVIEW

Supply chain management

Supply chain management has gain considerable attention in the last three decades. In the 1990s, A significant trend was for companies and government bodies to concentrate on their core competencies – what they are really good at (or set up to achieve) – and turn other functions over to specialist contractors. A company that earns its profit from, say, manufacturing bicycles, does not need to have expertise in, say, mass catering or office cleaning. This idea has progressed and transformed to what is today regarded as supply chain and the management of the complex systems - system here seen as partners, information, materials, services - in the chain calls for what is referred to as the supply chain management.

However, several other definitions have been proposed for the supply chain and the supply chain management. According to Douglas, Stock and Ellram, (1998), supply chain is the alignment that exists between firms that work together to bring products and services to the market. This alignment in the firms that make up the chain it not only an association between the manufacturer and suppliers, but also includes transporters, warehouse providers, retailers, and customers themselves (Chopra & Meindl, 2001). On their part, Ganeshan and Harrison (1995) view the supply chain as a function consisting of a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials

into intermediate and finished products, and the distribution of these finished products to customers. It is also seen to mean all activities associated with the flow and transformation of goods from the raw materials stage, through to the end user, as well as the associated information and material flows (Handfield & Nichols, 2002). Thus, supply chain consists of all the stages involved, directly or indirectly, in fulfilling a customer request.

Supply chain management is a set of approaches used to efficiently integrate supplier, manufacturer, warehouses, and stores so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time in order to minimize system-wide costs while satisfying service-level requirements. Effective supply chain management requires simultaneous improvements in both customers service levels and the internal operating efficiencies of the companies in the supply chain. Customer service at its most basic level means consistently high order fill rates, high on-time delivery rates, and a very low rate of products returned by customers for whatever reason. Internal efficiency for organizations in a supply chain means that these organizations get an attractive rate of return on their investments in inventory and other assets and that they find ways to lower their operating and sales expenses.

Strategies and Activities in Supply Chain Management

A company's supply chain is an integral part of its approach to the markets it serves. The supply chain needs to respond to market requirements and do so in a way that supports the company's business strategy. The business strategy a company employs starts with the needs of customers that the company serves or will serve. Depending on the needs of its customers, a company's supply chain must deliver the appropriate mix of responsiveness and efficiency. A company whose supply chain allows it to more efficiently meet the needs of its customers will gain market share at the expense of other companies in that market and also will be more profitable. There are three steps to use in aligning your supply chain with your business strategy. The first step is to understand the markets that your company serves. The second step is to define the strengths or core competencies of your company and the role the company can or could play in serving its markets. The last step is to develop the needed supply chain capabilities to support the roles your company has chosen. Fulfilling the first step, we can use Chopra and Meindl (2001) description. They have defined the following attributes that help to clarify requirements for the customers you serve. These attributes are: the quantity of the product needed in each lot, the response time

that customers are willing to tolerate, the variety of products needed, the service level required, the price of the product, the desired rate of innovation in the product. The next step is to define the role that your company plays or wants to play in these supply chain either as a producer, a distributor, a retailer, or a service provider? What does your company do to enable the supply chains that it is part of? What are the core competencies of your company? How does your company make money? The answers to these questions tell you what roles in a supply chain will be the best fit for your company. Developing needed supply chain capabilities is the third step. Once you know what kind of markets your company serves and the role your company does or will play in the supply chains of these markets, then you can take this last step, which is to develop the supply chain capabilities needed to support the roles your company plays. This development is guided by the decisions made about the five supply chain drivers. Each of these drivers can be developed and managed to emphasize responsiveness or efficiency depending on the business requirements.

Empirical Literature Review

Samson, *et. al* (2017) carried out a study on logistic challenges associated with supply chain management of HIV/AIDS Programs in Cross River State, Nigeria. The objective of their study was to examine health commodity supply chain management in relation to project implementation of HIV/AIDS and make recommendation for proper management and improvement. Results of their study indicated that antiretroviral (ART) and receptor tyrosine kinases (RTKs) formed the basis of most expired commodities encountered. ARVs had 13 (23%) different products of different expiry dates while laboratory reagents had 39 (77%) products with different expiry dates. Two Sample T-Test and confidence interval for the parameters were carried out and T- calculated for both parameters were found to be less than T – table. The T- Cal for ARVs were -2.82 while T- Table is 1.71, also the T-Cal for lab reagents were -3.62 while T-Table was 1.69. This shows that there is no significant difference between the total cost of expired ARVs and expired laboratory reagents since the T-Cal for both products were less than T-Table. Conclusion: Total cost of 51,369.02USD of fund that was lost to expiry was a colossal loss to the project implementation. More funds, time and energy will still be spent on the retrieval, transportation and destruction of these expiries. Activities of different implementing partners (IPs) should be streamlined and rationalized among the IPs to prevent parallel and multiple supply of health commodities to the facilities. More so, facility

staff should be properly mentored and adequate technical assistance should be rendered to ensure good inventory management and proper storage of all health commodities especially all the cold chain products

Simon and Nikoi (2014) carried out a study on Supply Chain Management of the Pharmaceutical Industry for Quality Health Care Delivery: Consumer Perception of Ernest Chemists Limited as a Pharmaceutical Service Provider in Ghana. In this study, the researchers examined the supply chain of Ernest Chemists Limited and assess consumer perception of the degree of availability and affordability of efficacious pharmaceutical products in promoting quality health care delivery. They also analysed the challenges and constraints that affect the distribution process and evaluate supply chain management best practices for effective and efficient distribution. A descriptive qualitative and quantitative research was used as the design for the study. It involved the collection of data using questionnaire to solicit the views of management of Ernest Chemist Limited and consumers of their products. The study concluded that Ernest Chemists Limited has an effective supply chain management system that provides efficacious medicines that are available to all levels of income earners in Ghana. The study recommended that, Government of Ghana should encourage the development of local pharmaceutical manufacturing capacity by reducing or waiving off some of the taxes on pharmaceutical active ingredients (APIs)

Adane (2017) conducted a research on measuring supply chain performance in Ethiopian pharmaceutical industry using BSC model: the case of Addis pharmaceutical factory. The objective of his research was to measure the supply chain performance of pharmaceuticals manufacturing companies of Ethiopia by studying the supply chain performance of Addis pharmaceutical factory as a unit of analysis. Descriptive and quantitative methods of research were used and data were collected by interview questions, document review and questionnaires. Document review was conducted to study especially the financial performance as factual data was needed. The performance of the supply chain was measured using balanced score card model. Based on questionnaires data were collected from employees of Addis pharmaceutical factory and distributors to measure the supply performance of APF. The findings of the study suggested that financial, learning and growth and customer perspectives have statistically significant result. Generally, the study findings have suggested that the levels of supply chain performance are approximately moderate in the case of Addis pharmaceutical factory in terms of the four dimensions.

It has also discovered that, among the four performance measurement dimensions' financial perspective is comparatively in a better position in the company. From the survey conducted and filled by customers, it was found also that the company did not respond to customer orders, have no good communication system and the company does not conduct customer survey to evaluate customer satisfaction level. The study advocated that a lot of emphasis need to be directed to customer perspective and learning and growth perspective in order to achieve customer satisfaction and employee learning and growth through efficiency or productivity, consequently improving the organizational performance as a whole.

On the operations of supply chain, studies have such as Tan (2001); So and Sun (2010) have found that the establishment of integrated and cooperative supplier-buyer relationship is critical to the survival of the supply chain as a whole. The establishment of integrated and cooperative supplier-buyer relationship is particularly noticeable with the realisation of its importance by manufacturers in just-in-time manufacturing environment which operates with little or zero level of inventory (Tan, 2001; So & Sun, 2010). However, even with this, "supply chain management requires cross-functional integration within the firm and across the network of firms that comprise the supply chain" (Lambert, 2008 p. 1).

The success of business organisations is not only a function of their internal operations but also a function of the commitments, cooperation and collaboration of other stakeholders in their supply chains (Lambert, 2008). Suppliers of raw materials and services play important roles in the operations and profitability of business organisations (Van Weele, 2010). This calls for greater emphasis for the creation of mutual and long-lasting relationships between buyers and suppliers. As competition shifts beyond the boundary of business circles, success depends on management's ability to integrate its network of relationships (Lambert & Cooper, 2000; Miocevic & Crnjak-Karanovic, 2012). Thus, effective and sustainable supplier relationship has been seen to increase the efficiency in cost management and supply chains of organisations (Lambert & Cooper, 2000; Kulmala, 2004).

3. METHODOLOGY

To accomplish the study objectives, a descriptive cross-sectional survey was employed. The population of this study consisted of the entire pharmaceutical products companies that have their offices in Yola. Careful survey by the authors

revealed that there are 14 pharmaceutical companies, and each company has different set of marketers. Table 1 contains the names of these companies. However, To select our sample, we decided that 11 marketers from each of the 14 companies were to be used as sample of this study. With this, we were able to arrive at a sample figure of 154 (11*14). A self-administered questionnaire was developed for the purpose of the study. The questionnaire provides a platform through which large number of participants can be contacted at a relatively lower cost than an interview (Cameron & Price, 2009). Additionally, the questionnaire technique is “perceived as authoritative by people in general and is both comparatively easy to explain and to understand” (Saunders, Lewis & Thornhill 2012 p. 177). This is a further motivation for the choice of the questionnaire technique considering the level of knowledge and experience of the respondents.

Table 1: Pharmaceutical companies in Yola

| S/N | Company |
|-----|--------------------------------|
| 1 | Swiss Pharma Nigeria Limited |
| 2 | Fidson Healthcare |
| 3 | Emzor Pharmaceutical |
| 4 | GlaxoSmithKline Nigeria |
| 5 | May & Baker Nigeria Plc |
| 6 | Mopson Pharmaceutical Limited |
| 7 | Chemiron International Limited |
| 8 | Zolon Healthcare |
| 9 | Olex Pharmaceuticals |
| 10 | New Height Pharmaceuticals |
| 11 | Neros Pharmaceuticals |
| 12 | Dana Pharmaceutical Limited |
| 13 | Archy pharmaceutical Limited |
| 14 | Strides Vital Nigeria Limited |

In this study, the questions asked in the questionnaires were all closed ended. Closed ended questions do not give the respondents the flexibility of airing their views indefinitely instead, they have to choose their responses from a list of options (Saunders, Lewis & Thornhill, 2012). The questionnaire had four sections that

assessed the supply chain activities of pharmaceutical products marketers in Yola. Each section assessed the process, procedure, and challenges of sourcing, warehousing, inventory management, and distribution of pharmaceutical products by the marketers. Administration of the questionnaire was face-to-face method. Here, questionnaires were filled by the respondents directly in the presence of the researcher. The major advantage is that it was taken seriously by the respondents since the researcher was right there. It is faulted because of its proneness to bias. The presence of the researcher could influence the responses given by the respondents. In the first instance, the respondents (Pharmaceutical product marketers) were communicated to get their consent. Once their consents were granted, the prepared questionnaires were distributed to each respondent.

4. RESULTS AND DISCUSSION

Respondents' Characteristics and Classification

This section covers the socio-demographic data of the respondents such as gender, age, marital status, length of service, as well as the educational qualifications of the respondents. Table 2 contains statistics about these variables.

Table 2: Demographic variables

| Gender | Frequency | Percent |
|---------------|------------------|----------------|
| Male | 121 | 79 |
| Female | 33 | 21 |
| Total | 154 | 100 |

| Age (in years) | Frequency | Percent |
|-----------------------|------------------|----------------|
| 31-40 | 101 | 66 |
| 41-50 | 37 | 24 |
| 51 and above | 16 | 10 |
| Total | 154 | 100 |

| Marital status | Frequency | Percent |
|-----------------------|------------------|----------------|
| Single | 10 | 7 |
| Married | 142 | 92 |
| Divorced | 2 | 1 |
| Total | 154 | 100 |

| Length of service (in years) | Frequency | Percent |
|-------------------------------------|------------------|----------------|
| 1-5 | 3 | 2 |
| 6-10 | 37 | 24 |
| 11-15 | 51 | 33 |
| 16 and above | 63 | 41 |
| Total | 154 | 100 |

| Educational Qualifications | Frequency | Percent |
|-----------------------------------|------------------|----------------|
| HND/First Degrees | 43 | 28 |
| PGD | 39 | 25 |
| M.Sc/MBA | 64 | 42 |
| Ph.D | 8 | 5 |
| Total | 154 | 100 |

Response to Research Questions

Data obtained from the questionnaire were analyzed using descriptive statistics (frequency, percentage, charts, and tables).

Table 3: How and where do marketers in Yola source their pharmaceutical products?

| Frequency | Percentage (%) | Source |
|-----------|----------------|---------|
| 23 | 15 | Kano |
| 94 | 61 | Lagos |
| 37 | 24 | Onitsha |
| 154 | 100 | |

Source: Field Survey, 2018

Table 3 above shows sources of pharmaceutical products of marketers in Yola. 23 marketers representing 15 per cent source their products from Kano, 94 marketers representing 61 per cent source their products from Lagos, while 37 marketers representing 24 per cent source their products from Onitsha. This implies that majority of the marketers source their products from Lagos.

Table 4: How do marketers in Yola warehouse their pharmaceutical products?

| Frequency | Percentage (%) | Warehouse |
|-----------|----------------|---------------|
| 9 | 6 | MDS Logistics |

| | | |
|-----|-----|----------------------|
| 133 | 86 | Companies' warehouse |
| 12 | 8 | Personal house |
| 154 | 100 | |

Source: Field Survey, 2018

Table 4 above shows how marketers in Yola warehouse their pharmaceutical products. 9 marketers representing 6 per cent use MDS Logistics' warehouse, 133 marketers representing 86 per cent use their companies' warehouse, while 12 marketers representing 8 per cent use their houses as warehouse. This implies that majority of the marketers use their companies' warehouse.

Table 5: How do marketers in Yola manage inventory of their pharmaceutical products?

| Frequency | Percentage (%) | Inventory management |
|-----------|----------------|-------------------------|
| 4 | 3 | EOQ |
| 150 | 97 | No inventory management |
| 154 | 100 | |

Source: Field Survey, 2018

Table 5 above shows how marketers in Yola manage inventory of their pharmaceutical products. 4 marketers representing 3 per cent use EOQ, while 150 marketers representing 97 per cent had no inventory management system. This implies that majority of the marketers do not have an inventory management system.

Table 6: How do the marketers in Yola distribute their pharmaceutical products to the various pharmacies, shops, clinics, and hospitals?

| Frequency | Percentage (%) | Distribution using: |
|-----------|----------------|---------------------|
| 137 | 89 | Personal cars |
| 12 | 8 | Company's car |
| 5 | 3 | Tricycles |
| 154 | 100 | |

Source: Field Survey, 2018

Table 6 above shows how marketers in Yola distribute their pharmaceutical products to the various pharmacies, shops, clinics, and hospitals. 137 marketers representing 89 per cent use their personal cars, 12 marketers representing 8 per cent use their

company's car, while 5 marketers representing 3 per cent use tricycles. This implies that majority of the marketers use their personal cars to distribute pharmaceutical products to the various pharmacies, shops, clinics, and hospitals.

Discussion of findings

The findings from the analysis of this study clearly reveal that majority of pharmaceutical marketers in Yola source their products from a far distant area of Lagos, in the southern part of the country. This is a big challenge to the pharmaceutical marketing industry looking at the sensitive nature of its products. Many of the industry's products require special handling, packaging, transportation, distribution and even consumption. Some of these products are highly regulated, requiring certification and/or authorisation by the government. Sourcing of material for production, finished products for resale, and services for the continued operations of business organisations is a critical component to the growth and development of such organisations. For this to happen, it is necessary to have an integrated supply chain system in place. This underpins the importance of effective and efficient supply network to enable the movement materials, services, and information from the source of supply to the source of production.

However, for the supply network to work in an effective and efficient manner, supplier relationship must be strengthened. The establishment of integrated and cooperative supplier-buyer relationship is particularly noticeable with the realisation of its importance by manufacturers in just-in-time manufacturing environment which operates with little or zero level of inventory (Tan, 2001; So & Sun, 2010). However, "supply chain management requires cross-functional integration within the firm and across the network of firms that comprise the supply chain" (Lambert, 2008 p. 1). This however underpins the importance of establishing long-term strategic relationship with suppliers, especially in the pharmaceutical industry supply chain where majority of its products have specific handling and transportation requirements.

This study also reveals that majority of the marketers of pharmaceutical product companies use their company's warehouses to stock their products and, as indicated by the outcome of the study, they do not maintain an effective inventory management system. This therefore calls for the improvement in the design, management and maintenance of the industry's warehousing system to enable it function more

effectively and efficiently. This idea is corroborated by Sahuri and Utomo's (2016) assertion that effective warehouse management is so essential for the proper identification and disbursement of materials, products, and information.

The fact that majority of the marketers do not have effective inventory management system in place may not come as a surprise because most of these pharmaceutical marketers still maintain the traditional inventory management system where records of orders and dispatches are maintained manually. With this system in place, information sharing among supply chain members becomes extremely difficult. Cachon and Fisher (2000) have studied on the value relevance of effective information sharing to the sustenance of the supply chain. Inventory management system is such that involves the basic procurement, storage, identification, retrieval, and transportation of materials and products for the continued operations of business organisations.

The study by Nirmalkumar and Krishnamoorthy (2014) found that effective inventory management system is a vital ingredient in the growth, development, as well as sustenance of effective supply chains in the construction industry. Mwangi and Nyambura (2015) have found that effective management of inventory has the potential to improve the performance of food processing companies in Kenya. Summarily, the outcome of this study is an essential indicator that the pharmaceutical marketers need to maintain an effective inventory system.

Another important outcome of the study is the fact that many of the marketers use their personal vehicles to distribute their products to their customers. This is indicative of the marketers' inability to differentiate between business and private transactions. It is unclear from the study whether the usage of private vehicles for business purposes is properly accounted for and financial implication of such adequately reflected in the business's financial report, or whether the marketers enjoy some hidden benefits from the business as a result of this perceived gesture. In the modern day business environment, success is achieved when you sublet many of the services and operations in which you have no competence on. The use of 3PL have been shown to improve company's operational capability.

In the pharmaceutical industry supply chain with its complex operations, Ricci (2016) found that companies nowadays have begun to shift from being what could be described as the alpha-and-omega system to a system that currently delegates

product distribution to 3PLs and wholesalers. This is very important because with the products' distribution sub-contracted to other companies, the pharmaceutical marketers could concentrate on other activities and could use their warehouses for other productive operations. With the marketers using their own vehicles to distribute their products, the benefits associated with the application of third party service providers would not accrue to them. According to Shi, Arthanari and Wood (2017), 3PL service providers contribute to various added value activities to their clients. Back in 2002, Park and Kim (2002) investigated the factors that influence the choice of 3PL by e-commerce companies and their study found that 3PL was more likely to lead to improved performance of the cyberlogistics systems.

5. CONCLUSION AND RECOMMENDATIONS

Conclusion

This study focuses on supply chain activities of pharmaceutical products marketers in Yola. The objectives of the study were to determine the supply chain activities of sourcing, warehousing, inventory management, and distribution of pharmaceutical products marketers in Yola. To achieve these objectives, the study employed a survey research and a self-administered questionnaire was deployed to 154 sampled pharmaceutical products marketers in the study area, the completed questionnaires were analyzed using tables, charts, and descriptive statistics. Based on the findings of this study, we realised that majority of the marketers source their products from Lagos and most of them stock these products in their warehouses. The study also revealed that most of the marketers do not have effective inventory management system in place for proper management and handling of their inventories. Additionally, third party logistic service providers (3PLs), despite their propound contribution to the success of a good supply chain, were not properly engaged in the development and operations of supply chains of pharmaceutical marketing companies in Yola. This is reflected in our findings which indicate that most of the marketers use their personal cars for distribution of their products. Based on these findings, we recommended that pharmaceutical companies should establish their branch offices in northern states so as to ease the sourcing of the products, marketers of pharmaceutical products should be educated on inventory management techniques so as to ensure availability of products at all times, and pharmaceutical companies should procure distribution vans for their marketers to ensure that products are distributed in good and standard conditions.

Recommendations

Based on the results of the analysis, the following recommendations are hereby proposed.

- (i) Marketers of pharmaceutical products in Yola should try aligning their supply chains with their suppliers so that they (suppliers) could have some of their warehouses and offices kept closer to Yola.
- (ii) Marketers of pharmaceutical products in Yola should engage the services of 3PLs so that they could have their products distributed to their customers efficiently and effectively.
- (iii) A good and modernised inventory management system should be put in place in the supply chain of the pharmaceutical product marketers in Yola so that incoming and outgoing products and materials could be effectively monitored and decisions swiftly taken.
- (iv) A good accounting system should be put in place so that business transactions could be effectively recorded. This will ultimately resolves the entire business transactions from interference by private transactions of the owners of the pharmaceutical businesses.
- (v) As supply chain is a network of different individuals and companies in the chain, it is imperative that a good buyer-supplier relationship be established and efficiently maintained by integrating all members of the chain into one single conglomerate so that the entire supply chain system is strengthened.

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