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Research Paper

Understanding Quality Management and Customer Satisfaction: A Necessity

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ABSTRACT

Purpose: The study examined the relationship between the practices of quality management and customer satisfaction, with the aim of evaluating the combined impact of quality management and product quality on customer satisfaction.

Design/Methodology/Approach: It employed a survey design, and the sampling was done using a mixture of judgmental sampling and random sampling, while data was collated via questionnaire. Analysis of result was done using descriptive statistics (mean values) and inferential statistics (regression).

Findings: Findings reveal a positive significant relationship between practices of quality management and customer satisfaction, as well as a significant relationship between quality management practices and product quality on the satisfaction of customers. However, the study equally revealed that customers were hesitant in recommending the product to friends and family.

Originality/Value: Literatures on the relationship among the three variables under study is limited, especially on the Nigerian manufacturing sector. Thus, this study intended to fill that gap. Also, the respondents of this research were largely those directly involved with the production of the product; and not those behind the desk. This gave the researcher an in-depth understanding of the level of implementation of quality management practices implemented. And the approach to attaining the level of customer satisfaction was derived by the customers, not the organisation.

Keywords: Quality; Quality management; Product quality; Organization performance; Customers; Customer satisfaction.

1. Introduction

The singularity of the business environment in the wake of globalization has created a focus on quality control/management and its several implications to organisations intending to remain in business. Amongst several affected areas is customer satisfaction. Quality, as described by the Oxford dictionary, is viewed as a form of excellence ("Quality Management", 2018). Quality by Juran (1999) means the freedom from defectives, in other words, elimination of redo cost, elimination of recalls cost, and elimination of customer dissatisfaction. It can also be seen as a product having the capacity to equal or eclipse a customer's desire (Stevenson, 2015). These quality descriptions highlight the relevance of customers and their satisfaction to manufacturing

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and service organisations alike. Quality management (QM) can be described as the method employed in achieving desired quality standard (Knowles, 2011). It is the driving force of innovation in manufacturing organisations (Schniederjans & Schniederjans, 2015).

Quality management is the establishment of mechanisms and structures within and beyond the organisation (supply chain), with the goal of delivering a quality that will ensure the satisfaction of customers and possible repurchase. The importance of satisfying a customer cannot be over emphasized, in fact; several management experts agree that quality is for one reason only; customers (Evans & Lindsay 2011). There is no universal consensus on the definition of customer satisfaction (Jahanshahi, Ghasti, Mirdamadi, Nawaser, & Khakser, 2011); however, it can be described as the feeling (pleasant or unpleasant) that accompanies the consumption of a product or service in comparison to expectation (Saleem, Ghafar, Ibrahim Yousuf & Ahmed, 2015).

This research is focused on the pharmaceutical industry in Nigeria with special focus on a company whose drug, despite marketing strategies and promotional tactics, has remained on the back foot in the industry. This led the researcher to adopt a more internal approach that is examining the level of QM practice implementation in the organisation, and their customer satisfaction. For the purpose of this study, quality management will be measured by widely accepted quality management practices including leadership, customer focus, employee focus, knowledge and information management, process management and supplier quality management, and these will be discussed later. Customer satisfaction will be measured by overall satisfaction, willingness to recommend the product to a friend, and repurchase intention. This study intends to examine the relationship between quality management practices and customer satisfaction. Specific objectives of this study include:

1. examining the impact of quality management on the satisfaction of customer

2. ascertaining the effect product quality has on the satisfaction of customers

3. evaluating the combined influence of product quality and quality management and the satisfaction of customer.

For this study, the following hypotheses were generated in the null form to be tested.

Ho1: Quality management has no significant impact on the satisfaction of customer

Ho2: Product quality impact on the satisfaction of customers is not significant.

Ho3: Combined quality management and product quality have no significant impact on customer satisfaction

The relevance of this study to the organization is in the identification of focus areas where improvement will have tremendous impact on its performance. The study will also help industry practitioners to reflect on their quality management systems and implement recommendations that can enable them compete in the face global competition.

2. Literature Review

The literature review contains the theoretical framework of the study, the conceptual framework, the conceptual model, and the empirical review of prior literature.

2.1. Theoretical Framework of the Study

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2.1.1. Taguchi offline quality theory

Genichi Taguchi believed the quest for quality begins way before the production phase of any product. Offline quality management could be explained as the process concerned with deriving the best possible product through intense process design and process control with the aim of eliminating or minimizing to barest minimum; the variation within the product and its standard (Kumar & Suresh, 2008). Taguchi believed greatly in reduction of product variation, he opined it inevitably leads to improved product quality. To him, the best way to achieve minimal variation was to focus on the process design and process control (Devor, Chang & Sutherland, 1992). Taguchi created a three-stage design process model to correct the design flaws in the manufacturing industries.

The system design stage is the 1st of the trilogy; it focuses on developing and selecting the basic design to adequately satisfy the customers' needs and wants. This is done using available science and experience. The parameter stage (2nd phase) focuses on identifying the nominal values which maximizes the transmission of variation to the output performance. The use of design of experiments (DOE) methods are strongly recommended at this phase of process design. Thirdly, the tolerance design stage of the design process. It focuses on tolerance reduction to yield quality loss. The loss function concept in quality is one of Taguchi's trademarks. He viewed quality from the angle of the loss recorded by the society owing to product use of harmful effects of defective products (Devor et al, 1992). In other words, when a defective product is shipped out, the side effects or injuries sustained by the customer is what Taguchi referred to as loss imparted to the society.

This method was created by Taguchi in a quest to improve product quality control from the design phase, even before production commences. To Taguchi, having the right organisational structure that trains the right persons to handle designing of the production process was critical, and getting the design right meant the process will be right, and then by extension, the product. The theory was chosen because it encompasses the major quality management practices (leadership, strategic quality planning, training, knowledge, customer focus, and process management) and their influence on product quality. The theory opines that if these practices are properly implemented, product quality improves and inevitably, customer satisfaction.

2.2. Conceptual Framework of the Study

2.2.1. Quality Management

In the last two decades, there has been a focus on quality management; as the solution to increasing global competition. It has been identified as a root cause to the success stories of several multi-national corporations and blue-chip organisations (Sidin & Wafa, 2014). Quality management could be explained as a set of coordinated activities intended to steer and maintain the course of an organization with regard to its goods/service quality goals (Ramos, Asan & Majetic, 2007). The use of the terminology in management practice is widely spread across various facets of management and the founding fathers of quality management as we know it today strongly believed it was the most appropriate tool for improved organisational competitiveness (Yong & Wilkinson, 2002; Jaafreh & Al-abedallat, 2013). Quality management is a prerequisite for improved organisational performance (Hussain & Younis, 2015), and the literature on its (quality management) relationship with various facet of an organisation is enourmous (Sharma, Garg &

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Agarwal, 2012). Several works have been published on quality management having several parameters of measuring the construct; however, the most important aspect of its successful implementation is the top management, because they create the enabling environment for its implementation (Ahire, Golhar, & Waller, 1996; Stevenson, 2015). Quality management is usually presented as a block of stages including quality inspection, quality control, quality assurance and quality improvement. Basically, its primary focus is the internal process and its improvement (Chibba, 2017).

The ISO defined quality management as a set of principles, beliefs, norms, and operational methods that form the bedrock for superior quality and improved organisational performance (ISO, 2015). They also mentioned seven elements/principles that make up quality management; they are leadership by top management, a focus on customer, engagement/involvement of people, process approach, continuous improvement, evidence-based decision making, and relationship management. A few other works on quality management and its parameters are Alsughayir (2013), who measured quality management using eight parameters; they are commitment of senior management, training, zero defects, benchmarking, supplier relations, employee focus, process improvement and customer focus. Jaafreh and Al-abedallat (2013) researched on quality management using leadership/top management, strategic planning, focus on customers, process management, quality of the suppliers, and employee relation to measure it, Flyn, Schroeder, and Sakakibara (1995) propose seven dimensions of quality management elements, namely; top management/leadership support, quality of information disseminated, process management, designing of product, workforce management, supplier involvement, and the involvement of customers. And Lakhal, Pasin and Limam (2006) made use of ten parameters in their measurement of quality management, they are top management, organisation for quality, employee training, employee participation, supplier quality management, customer focus, continuous support, quality systems improvement, information and analysis and statistical quality techniques use. Lu, Cai, Wei, Song, & Wu (2019) used top management support, participant involvement, customer focus, quality training, process management, and strategic quality planning to assess quality management. Al-Ali and Abu-Rumman (2019) measured it using customer focus, supplier relationship, process management, human resource support (employee focus), senior management support, and continuous improvement. These articles are of interest because of their alignment with this study, which is the focus on the manufacturing sector.

2.2.2. Product Quality

A product could be described as a good or service rendered for an offering or price. The driving force behind the emphasis on the quality of a product is the increasing market share struggle; even from international competitors (Callahan & Lasry, 2004). The quality of a product; according to Stevenson (2015) can be described as the degree to which the product satisfies the expectations of its user (customers). However, the higher the product quality does not necessarily mean the higher the customer satisfaction, which is why it is said that product quality is truly not from the viewpoint of the company, but rather from the viewpoint of the customer (Razak, Nirwanto & Triamanto, 2016). It is opined that product quality; irrespective of the parameters used to assess it; is not done independently by the customer, instead it is done in comparison to the options available to them, in other words it is assessed in comparison to competing products (Suchanek, Richter & Kralova, 2017). That is why product quality is measured from several perspectives like

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performance, reliability, features, compliance, durability, serviceability, aesthetics, and perceived quality (Kotler & Keller, 2012).

Customers often measure product quality based on their disposition at the time. For instance, Nigeria having low income earners and relatively poor citizenry; being the 128th country out of 149 on the global prosperity index (Legatum prosperity index, 2017) would probably have a higher preference for durability than aesthetics. Also, the issue of pricing is largely considered; irrespective of how good the product quality. Stevenson (2015) measured product quality through nine parameters/dimensions, namely; performance, durability, special features, conformance, reliability, perceived quality, aesthetics, serviceability and consistency. Several other researchers of product quality measured it by its performance, reliability, durability, serviceability, aesthetics, conformance (to specification), perceived quality, special features (Garvin, 1984; Waller & Ahire, 1996; Shaharudin, Mansor, Hassan, Omar & Harun, 2011). Atiyah (2016) researching on products quality and its impact on customer satisfaction measured product quality through its performance, service level, characteristics (aesthetics), matching, durability, product appeal, received quality, and reliability. Owing to the nature of the product under study, some parameters were inappropriate, therefore the product was measured by performance, reliability and perceived quality.

2.2.3. Customer Satisfaction

The relevance of customers to any business have been stressed by many researchers and academicians alike (Mohsan, Nawaz, Khan, Shaukat & Aslam, 2011), thus, satisfaction of these customers is of paramount importance (Angelova & Zekiri, 2011). Satisfaction is seen as an emotional response to a product or service by a customer or end user. It is usually derived from a comparison between perceived performance and actual performance, the difference gives birth to either satisfaction or dissatisfaction on the part of the customer (Rimawan, Mustofa, & Mulyanto, 2017). Customer satisfaction can be described as an invaluable desire for every company, especially production companies. It is defined by Bastos and Gallego (2008) as the evaluation of a product or service after its use.

Customer satisfaction can be described as a post transaction emotion that occurs when a product quality is assessed to be equal or above the expectation of the customer (Emrah, 2010). Customer satisfaction can be seen as a customer's perspective of the trade-off analysis between the value received and the money spent (Jahanshahi, Ghasti, Mirdamadi, Nawaser, & Khakser, 2011), and its impact cannot be over emphasized. As there are various perspectives to viewing a product's quality (Stevenson, 2015), so is the assessment of customer satisfaction highly personal (Emrah, 2010). Customer satisfaction is based on the peculiar expectations, preferences and experiences of the customer (Emrah, 2010); it could be swayed by a range of consumer personal attributes salary range, taste for uniqueness, lifestyle, and even age bracket (Homburg & Giering, 2001). The level of literacy has also been identified as a determinant in the appreciation of certain products/ services and consequent satisfaction (Tsiotsou & Vasioti, 2006).

Customer satisfaction according to Gustafsson, Johnson and Roos (2005); could be seen as an aggregate assessment of the performance of an offering (product or service) by a customer. Kotler and Keller (2012) measured customer satisfaction by loyalty, expectations, repurchase interest, small desire of compliant, recommendation willingness and company's reputation. Atiyah (2016) measured the satisfaction of the customers by the company's share in the market, ability to maintain customer, ability to attract new

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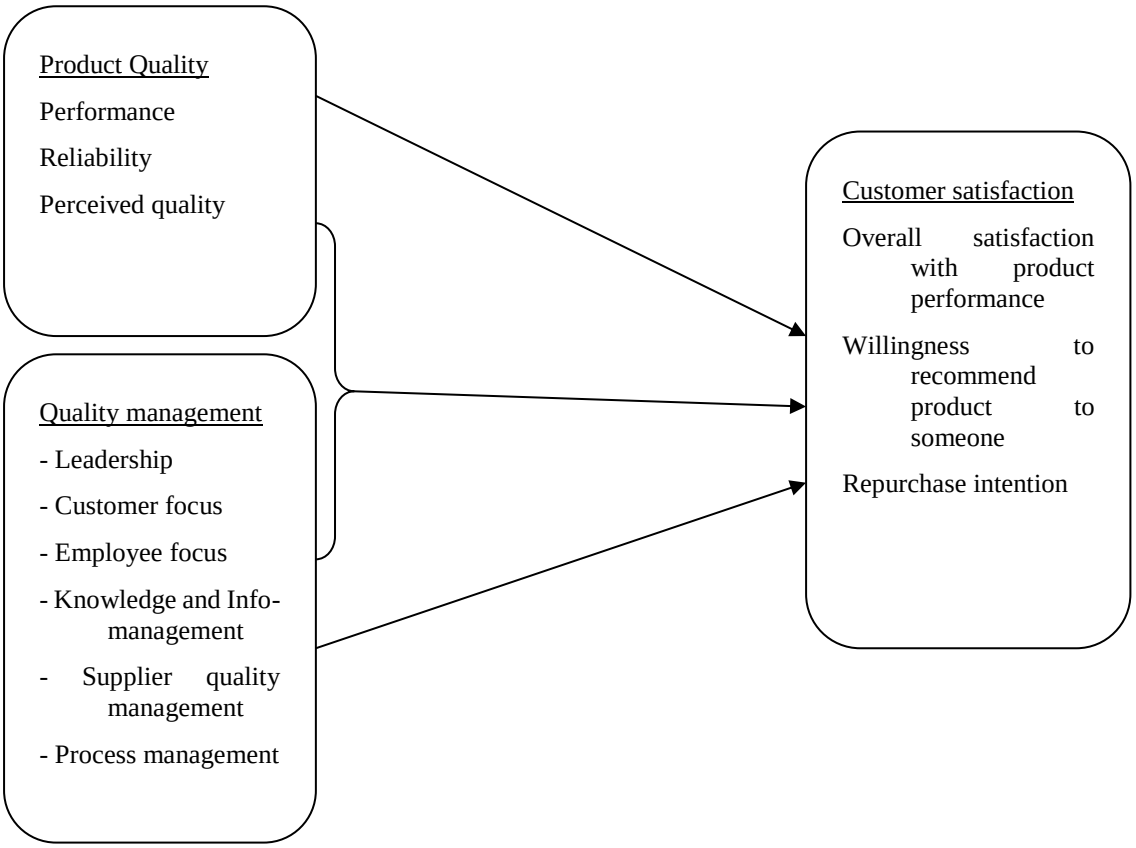
customers, organizational profitability, number of consumed products, developing clients' number.

2.2.4. Quality Management, Product Quality and Customer Satisfaction

There are several definitions to the concept of quality and its management, however, one of the most foremost names in the field of quality; Walter. E. Deming did not define this concept (Suarez, 1992). Instead, through his teachings, he created the connection between quality management practices, product quality and the satisfaction of customers (Stevenson, 2002). Quality management is very essential to an organization. Quality management determines the degree of product quality, and the degree of product quality determines the customer satisfaction levels (Suchanek et al., 2017). According to Ramos, et al. (2007), the application of quality management at each stage throughout the organisation would be visible in the eventual output/product; and subsequently, result in the improvement of employees and customer satisfaction. The quality of a product has immense influence on the product performance, and by extension customer satisfaction (Kotler & Armstrong, 2010). Research has proven over time that there's a positive connection between quality management, product quality, customer satisfaction, and organizational profitability (Angelova & Zekiri, 2011), however, the study was carried out in business environments without the peculiarities of the Nigerian business environment. The connection between the variables under study is so strong; a research work opined that quality management and customer satisfaction should be proxies when assessing the organizational performance (Abdallat & El-Emam, n.d.).

Figure 1 – Conceptual Model of the Study: Proposed Model for Quality Management, Product Quality and Customer Satisfaction



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2.3. Empirical Review

Ruggieri and Silvestri (2014), after analyzing the responses of 143 respondents (who partook in their research on quality and customer satisfaction), concluded from their research that quality management has a very significant relationship with customer satisfaction, opining that quality would not even matter without customer satisfaction. Suchanek, et al. (2017) researched on customer satisfaction and quality of product. They found out that there is a significant relationship between the quality of a product and customer satisfaction. Atiyah (2016) conducted a study on products quality and its impact on customer satisfaction; using the Diwaniyah diary factory as a study focus. The finding was a significant relationship between product quality and customer satisfaction. The study conducted by Sidin and Wafa (2014) on quality management implementation and the quality of production; using a research questionnaire to sample responses from 201 respondents showed that 22.7% of the variances in the quality of eventual production were explained by the practices of quality management adopted, the result indicates that quality management has significant influences on product quality.

3. Research Method

This research work employed the sample survey design, which is the gathering of useful information concerning a construct or several constructs from respondents of a research at a time. The population of this research is made up of two sets of respondents. On one hand, was the low, middle and top level staff of the production, marketing and sales, logistics, and operations department of the company, these departments were chosen because they are strongly involved with either the process of creating the product or distribution to wholesalers and retailers, as well as the receipt of feedback from customers. On the other hand, customers of the product were included into the research. The customers were chosen not only for their candid opinions on the product quality; as well as the satisfactory levels of the product. But also, to eliminate the bias retailers and employees of the company who used the product might have towards the company.

The sampling technique was a mixture of non-probabilistic sampling (judgmental sampling) and probabilistic sampling (random sampling). Judgmental sampling is a form of non-probabilistic sampling that is entirely based on the conviction of the researcher; who picks a group of persons that will provide the best information necessary to achieve the objectives of the research (Etikan & Bala, 2017).This was adopted because the researcher selected the departments used in this research, with the conviction that they had the best understanding of the constructs being researched. Random sampling is a form of probabilistic sampling where every person or item in the population has the same opportunity to be included into the selected few (Taherdoost, 2016). This was employed to eliminate any form of bias from the researcher's results and subsequent conclusion.

The sample size of this research was made up of five hundred respondents, that is, two hundred and fifty staff members of the company being studied, and two hundred and fifty customers of the company's pharmaceutical product. The customers were assessed through the retailers of the product. The information gathered in this research was obtained through the use of a primary research instrument, that is, a questionnaire. The researcher built a questionnaire of three sections, section A for bio-data of the all respondents; section B to measure quality management in the organisation, which was administered to staff members of the organisation only, and section C of the questionnaire which measured the product quality and the satisfactory levels from the perspectives of

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the customers, this was administered to customers only. A content validity was performed on the research instrument by an industry expert and a seasoned academician in the field of quality management to ascertain it satisfies the purpose of its creation. The reliability was conducted using twenty copies of the questionnaire. The result of .880 was arrived at using Cronbach Alpha test. The research instrument was accepted because any research instrument with reliability scores above .70 using Cronbach Alpha test is acceptable (Ghazali, 2016). The analysis of the data used in this research was done with descriptive statistics; including percentiles for demographic information, and inferential statistics (simple and multiple regressions) for testing of hypotheses.

4. Results and Discussion

The results discussed in this segment were done with the Statistical Package for Social Science (SPSS) version 20. The total copies of questionnaire distributed was two hundred and fifty, that is, two hundred and fifty with sections A and B for employees of the organisation only, and two hundred and fifty with sections A (slightly different from that of employees) and C for customers only. The return rate was seventy-two percent (72%) for employees of the organisation, that is, one hundred and eighty (180) copies of the questionnaire given to the organisation. While the return rate for customers was a hundred percent (100%), this was achieved because customers were only allowed to fill the questionnaire at the point of purchase and return to the retailer (for a gift item), however, approximately eighty-three percent (83%) was usable (properly filled till the end), that is, two hundred and seven (207) copies of the questionnaire given to retailers. To have an even distribution from members of the organisation and retailers for analysis and hypotheses testing, one hundred and eighty (180) copies of the questionnaire given to retailers was randomly selected.

Table 1 – Description of staff & customers respondents' bio-data

Staff bio-data				
		Frequency	Valid Percent	Cumulative %
Gender	Male	127	70.5	70.5
	Female	53	29.5	100
	Total	180	100	
Staff Level	Lower	70	38.9	38.9
	Middle	71	39.4	78.3
	Top	39	21.7	100
	Total	180	100	
Department	Production	85	47.22	47.22
	Marketing & Sales	23	12.78	60
	Logistics	19	10.56	70.56
	Operations	53	29.44	100
	Total	180	100	

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Table 1 – Description of staff & customers respondents' bio-data (cont.)

Customers' bio-data				
Gender	Male	69	38.3	38.3
	Female	111	61.7	100
	Total	180	100	
Working Status	Working class	124	68.9	68.9
	Business owners/Traders	40	22.2	91.1
	Unemployed	16	8.9	100
	Total	180	100	
Patronage	1-3yrs	89	49.4	49.4
	4-6yrs	75	41.7	91.1
	Above 6yrs	16	8.9	100
	Total	180	100	

Source: Field Survey, 2019.

4.1. Hypotheses testing

The hypothesis testing is based on one hundred and eighty (180) retrieved copies of the questionnaire after merging sections B and C together.

4.1.1. Hypothesis I

H0: Quality management has no significant impact on customer satisfaction.

Table 2 – Model summary

Model	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
1	.443[a]	.196	.189	.36594

a. Predictors: (Constant), Quality Management
b. Dependent variable: Customer Satisfaction

Table 3 – Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.683	.421		3.995	.000
	Quality Management	.509	.094	.443	5.410	.000

a. Predictors: (Constant), Quality Management
b. Dependent variable: Customer Satisfaction

Table 2 presents the model accuracy, in other words, it explains the relationship between variables, that is, quality management and customer satisfaction. R squared value is .387. This means that 38.7 percent of the dependent variable (customer satisfaction) is determined by the quality management practices being implemented. This makes quality management very relevant to the management of customer satisfaction. Based on the results of this research, the R value is .622, this shows that there is a positive correlation between quality management and customer satisfaction. Table 3 shows that there is a significant relationship between quality management and the achievement of customer satisfaction at 5 percent level of significance at .000. This means for every change in

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quality management, there is a corresponding change in the management of customer satisfaction. Therefore, we reject the null hypothesis which states that there is no significant relationship between quality management and customer satisfaction.

4.1.2. Hypothesis II

H0: Product quality has no significant impact on customer satisfaction.

Table 4 – Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.341a	.116	.109	.38370

a. Predictors: (Constant), Product Quality
b. Dependent Variable: Customer satisfaction

Table 5 – Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.514	.365		6.894	.000
	Product Quality	.310	.078	.341	3.971	.000

a. Predictor (Constant): Product Quality
b. Dependent Variable: Customer Satisfaction

Table 4 explains the relationship between product quality and customer satisfaction. The R squared value at .368 shows that 36.8 percent of the customer satisfaction levels of the customers of a firm are determined by the product quality. This means that product quality is crucial to the customer satisfaction of manufacturing firms. The table also reveals the R value as .607, which proves that both variables (product quality and customer satisfaction) are positively correlated. Table 5 shows that there is a significant relationship between product quality and customer satisfaction at 5 percent level of significance at .000. Therefore, for every change in product quality, there is a corresponding change in the customer satisfactory levels of the customers of the firm. Thus, we reject the null hypothesis; which states product quality has no significant impact on customer satisfaction.

4.1.3. Hypothesis III

H0: Quality management and product quality have no significant impact on customer satisfaction

Table 6 – Model summary

Model	R	R Square	Adjusted R^2	Std. Error of the Estimate
1	.443[a]	.196	.189	.36594
2	.467[b]	.218	.205	.36246

a. Predictors: (Constant), Quality Management
b. Predictors: (Constant), Quality Management, Product Quality
c. Dependent Variable: Customer Satisfaction

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Table 7 – Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.683	.421	.443	3.995	.000
	Quality Management	.509	.094		5.410	.000
2	(Constant)	1.384	.449	.363	3.084	.003
	Quality Mamagement	.417	.106		3.934	.000
	Product Quality	.153	.084	.168	1.821	.071

a. Predictors: (Constant), Quality Management

b. Predictors: (Constant), Quality Management, Product Quality

c. Dependent Variable: Customer Satisfaction

Table 6 explains the summary of both models, that is, simple regression using quality management as the independent variable and customer satisfaction as the dependent variable and the multiple regression using both quality management and product quality as independent variables, while maintaining customer satisfaction as the dependent variable. The table explains that there is a positive correlation between quality management and customer satisfaction (R Value .607). The table also shows that quality management accounts for 36.8 percent of the company's customer satisfaction levels, going by the R2 value at .368. However, when a second predictor variable (product quality) is included as well, the R2 value increases to .402. That is, both predictor variables combined; accounts for 40.2 percent. Therefore, if quality management alone accounts for 36.8 percent, the inclusion of product quality explains the additional 3.4 percent. The adjusted R2 value of the combined predictor variables at .392 shows a difference of .010 when subtracted from R2 value of the combined predictor variable (.402). This means that if the model were to be applied on the entire population as opposed to a sample, it would account for 1 percent less variance in the outcome.

Table 7 gives us b-value estimates which indicates the individual contribution of each predictor to the model, and also tells us of the relationship between customer satisfaction and each predictor variable. For this result, both independent variables have positive b-values; indicating positive relationships. b-value .614 and .256 representing quality management and product quality respectively shows that there is a positive correlation between the dependent variable (customer satisfaction) and the independent variables (quality management and product quality). Quality management b-value = .614, this means that for every unit increase in quality management, there will be a corresponding increase in customer satisfaction by .614; if the effect of product quality is held constant. Product quality b-value = .256, this means that for every unit increase in product quality, there will be a corresponding increase in customer satisfaction by .256; if the effect of quality management is held constant. The t values for quality management and product quality at 5.116 and 2.588 respectively asserts that quality management had more impact and significant contribution to the model.

The standardized beta value for quality management is .463 while product quality is .234; this means that quality management is considerably more significant than product quality in the model; which aligns with the predictions of the t values. This means that for every unit increase by standard deviation in quality management, customer satisfaction increases by 0.463 standard deviation. Also, for every unit increase by standard deviation in product quality, customer satisfaction increases by 0.234 standard deviation. However,

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the results show that they (independent variables) are significant at 5 percent level of significance. Therefore, we reject the null hypothesis which states that quality management and product quality have no significant impact on customer satisfaction.

4.2. Discussion of findings

The results explain that the relationship between quality management and customer satisfaction is a significant one at 5 percent level of significance at .000. The result also showed that there's a positive correlation between quality management and customer satisfaction, and 38.7 percent of the dependent variable (customer satisfaction) is determined by the quality management practices being implemented. In other words, quality management is relevant to the management of customer satisfaction. This means for every change in quality management, there is a corresponding change in the management of customer satisfaction. Consequently, the null hypothesis which states that there is no significant relationship between quality management and customer satisfaction was rejected. This result aligns with that of Ruggieri and Silvestri (2014), whose results showed a very significant relationship between quality practices and customer satisfaction.

On the relationship between product quality and customer satisfaction, it was discovered that 36.8 percent of the customer satisfaction levels of the customers of a firm are determined by the product quality. This means that product quality is crucial to the customer satisfaction of manufacturing firms. The result also revealed that both variables (product quality and customer satisfaction) are positively correlated. There is a significant relationship between product quality and customer satisfaction at 5 percent level of significance at .000. Therefore, product quality has a significant impact on customer satisfaction. This result is in support of prior research conducted by Suchanek, Richter & Kralova (2017); who researched on customer satisfaction and quality of product. They found out that there is a significant relationship between the quality of a product and customer satisfaction. The result also aligns with the findings of Atiyah (2016); who researched product's quality and its impact on customer satisfaction, using Diwaniyah dairy factory as a study. The research found out that products quality has a significant impact on customer satisfaction.

Finally, having both quality management and product quality as independent variables; and customer satisfaction as the dependent; showed that they account for 40.2 percent of the dependent variable (customer satisfaction). The adjusted R2 value of the combined predictor variables at .392 shows a difference of .010 when subtracted from R2 value of the combined predictor variable (.402). The implication is that the model would account for 1 percent less variance in the outcome if applied to the entire population, in other words, it is a good model.

The results also indicate that quality management is considerably more significant than product quality in the model showing their combined impact on customer satisfaction. However, the results show that they (independent variables) are significant at 5 percent level of significance, indicating a significant relationship between quality management, product quality and customer satisfaction.

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4. Conclusions and Recommendations

The study findings show that there is a significant relationship between quality management and customer satisfaction. It also shows that there is a significant relationship between product quality and customer satisfaction, as well as a significant relationship between the combination of quality management and product quality on customer satisfaction. These results corroborate the findings of other researches done within the sphere of the subject matter. The result also aligns with the offline quality theory of Dr. Genichi Taguchi, who believed that creating the structures outside the processing that affect the process; and subsequently, the product quality and customer satisfaction; was the right route for manufacturing companies. It is recommended that very explicit policies are created to further drive the improvement of the current state of their product quality. It is also recommended that efforts are made to get periodic feedback from their esteemed customers to enable them stay in touch with their customers' preference and concerns regarding the product.

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