Original Article

The Influence of Quality, Price, Availability and Country of Origin Effect on Healthcare Consultants Prescription Decision Making

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Abstract

Objective: To propose a conceptual model for health care consultant's decision making based on the existing association among the price consideration by the healthcare consultant, quality i.e. early recovery of the patient to counter side effects of the medicine, easy availability in the market, and country of origin of manufacturer in the context of Khyber Pakhtunkhwa (KP) healthcare market.

Study Design: Cross sectional survey

Place and Duration: The study was conducted in three major hospital of Khyber Pakhtoonkhwa. Lady Reading hospital, Khyber teaching hospital and Hayat Abad medical complex Peshawar, during second half of 2011 and 2012.

Methodology: The required data was collected through well designed, self-administered questionnaire from the sample population using liker scale approach. The healthcare consultant prescription preferences were asked for quality, price, availability and country of origin in case of prescribing iron, multivitamins, anti-emetics and antibiotics as units of analysis. Data was collected from the healthcare consultants purposively selected from three major hospitals (i) Lady Reading Hospital (LRH), (ii) Khyber Teaching Hospital (KTH) and (iii) Hayatabad Medical Complex (HMC) of district Peshawar. A proportional allocation method was used for selecting a sample of 309 health care consultants working in the different specialties of the selected hospitals in order to obtain the required objectives. Further the reliability and validity of the data collection instruments were checked using Cronbach`s α. All the collected data were analyzed through a statistical package for social sciences (SPSS) v.16. The results of data were presented as counts and percentages. Bi- variant analysis was performed for evaluating the association of the mentioned variables with the health care consultant's preferences. A Chi-square test was used for testing the association between physician preferences and product quality in terms of efficacy and safety, product price, availability of the product and country of origin effect.

Results: Results based upon the multi attribute attitude model frame work in terms of **Cognition** { healthcare producer (product price value) →(product quality in terms of safety and efficacy)→(easily availability of the product) and country of origin of the produced product)}→**affect** (healthcare consultant satisfaction)→**conation (healthcare consultant prescribing behavior)**. Between the two cognitive constructs, producer product price value emerged as an important influencing factor upon healthcare

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consultant prescription decisions making, in terms of healthcare consultant satisfaction as compared to country of origin effect. Results also showed that producer product safety and efficacy is another important product feature influencing healthcare consultant behavior directly while easy availability of the producer product was influenced by the producer product price value.

Conclusion: The study highlights that quality of the drug in terms of safety and efficacy, economical prices and easy availability of the prescribed drug are the major influential factors upon healthcare consultants prescribing decisions. While country of origin is not significant to prescribing decision. Thus, pharmaceutical industry need to consider quality with economy and easily availability while formulating physician oriented marketing strategies.

Key words: Healthcare consultant, Quality, Price, Services Quality Gap, Availability ,

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Introduction

The main difference between pharmaceutical industry and other industries is that, in other commercial sector the consumer of the brand has alternate options for consumption purpose. Therefore customers of the pharmaceutical industry consist of two different classes. (i) Patient as the consumer, and (ii) physician as the customer.[1] Pharmaceutical marketing is different from other industries marketing practices as here the buying decision is not taken by the consumer but by another person i.e. healthcare consultant. However the prescribed drug purchasing and consuming is up to the patient. Thus, it is difficult to clearly define the customer in such transactions conceptually. The important role of the healthcare consultant in this connection is of great importance.[2] The role of the healthcare consultant is to integrate the conventional medical process, which emphasis upon the effectiveness and efficiency of the medical treatment approaches from their point of view, as patient centered rule which concerns with patients interest.[3] This has resulted into the pharmaceutical consumerism like strategies.[4] In the context of consumerism, pharmaceutical industry faces the challenges of product quality and patient satisfaction. According to Maheswaran[5], in the current market dynamism the goodwill of any brand or company results in positive perception of the customer. The "Made in" concept is the customer positive or negative persuasion a country of made or manufactures influencing upon customer decision making process.[6] In the context of customer decision making, country of origin (COO) is described as an external stimuli that allow the perception of quality in the mind of customer.[7] Contrary to this understanding the phenomenon of country of origin is difficult one. It is because of the multinational companies' expansion in the era of globalization, companies launch and promotes similar products known as "me too[a]` in the world.[8]

Review of Literature

Product quality, price, availability, country of origin relationship

Product quality is the most preferred topic in the field of marketing. Previous researches found that organizational performance is associated with product quality. [9,10] The literature also supports the association between product qualities with customer satisfaction. [11,12,13] Further, there is a strong association between the product quality and purchase decision.[9,10] Healthcare consultant product satisfaction is a major driver of prescribing decision as it plays a vital role in patient`s satisfaction.[4,14,15] have argued that an organization profit is linked with its product quality perception in the mind of customer. Usually in medical practice, the major preference is given to the latest information and technological advancement in order to ensure the desired healthcare outcomes and hence profitability.[16] The major challenge faced by the healthcare marketers is the value addition of their product in the customer mind by developing their product feature, advantage, benefit and thus minimizing per unit cost through productivity.[17] To earn profit through customer satisfaction the prerequisites are the competitive advantages leading to greater product value.[18] Though, product value in terms of price consideration is the most widely ignored approach in the healthcare. The total benefits drawn from a product and the cost incurred upon are usually conceptualized as the product perceived value.[19] The incurred cost may be further divided into two types i.e. (i) the

[a] It is a generic product in the same formula with different brand name.

monetary cost such as payable price by the patient and (ii) non monetary cost such as patient mental processing, physical movement and time spent for acquiring the prescribed product by the healthcare consultant. The product price value is also a cognitive construct just like product quality. Therefore it is described that the product price perception in the mind of the healthcare consultant before prescribing a product will be directly influenced by the product quality. Previous studies have established a link between product quality and product price value for healthcare consultant .i.e. product quality→ product price value link for healthcare provider.[20,21] Customer satisfaction is essential for retaining customer as it leads to desired commercial objectives of profitability in healthcare organizational strategies. For example increased ratio of customer retention, good words of mouth and increased revenue.[12,22] Satisfied healthcare consultants focus patients' compliance in their prescriptions which leads to patients satisfaction ultimately.[23] Therefore, satisfaction influences healthcare consultants prescribing behavior. In this regard the healthcare consultant satisfaction is the central focus of healthcare industry strategies.[24] Literature shows satisfaction and product quality as unique constructs. Though, there is a difference in between both and are confusing ones in the marketing literature.[24] The expectancy disconfirmation model basically explains the satisfaction construct in the marketing literature.[25,26] To differentiate product quality as a cognitive construct and satisfaction as an affective construct the conceptual model describes that the product quality, price, availability and coo will influence healthcare consultant satisfaction leading towards specific behavioral intentions. Such behavioral intentions provide a basis for prescription decision making.[27]

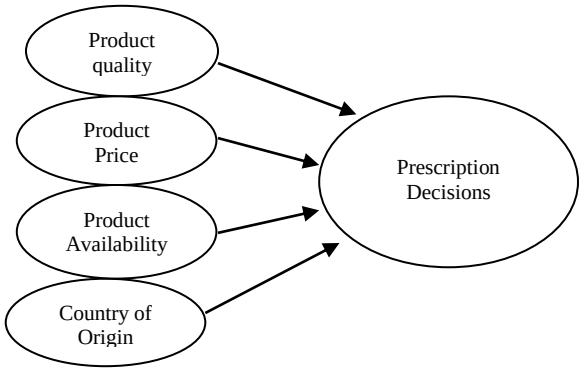


Figure 1: Model of Health Care Consultant Decision Making.

According to the Zeithaml[9] to get a better knowledge about the impact of quality on profit and other financial objectives of the organization there is a need to reconfigure the product quality as the top priority. Studies have found that product quality and behavioral intentions are correlated [9,10,28] Literature in health marketing showed that product quality directly influence patient behavioral intention towards the prescribed product by healthcare consultant.[29,30,31] There is sufficient availability of literature evidences upon the significant influence of satisfaction upon behavioral intentions in health care.[32,33,34] Healthcare consultant satisfaction with pharmaceutical services will have an impact on behavioral intentions. The studies of Aimini Al Muala and Iratimen support the association among product quality, price, availability and customer satisfaction.[35,36,37] Moreover, pharmaceutical companies influence healthcare consultants prescribing decisions through marketing mix strategies.[38,39] The above discussion provides a base for the following hypotheses. Therefore, the primary hypotheses of this research allow the causal relation between product quality, price, availability, COO and healthcare consultant satisfaction for prescription decisions.

Hypothesis1: Pharmaceutical product quality is associated to healthcare consultant prescription decision making

Hypothesis 2: Pharmaceutical product price value is associated to healthcare consultant prescription decision making

Hypothesis 3: Pharmaceutical product availability is associated to healthcare consultant prescription decision making

Hypothesis4: Pharmaceutical product Country of origin is associated to healthcare consultant decision making

Methodology

The population of the study included all the practicing healthcare consultants e.g. house officers, trainee medical officers, medical officers and senior consultants serving in different specialties. The study was conducted in public sector major hospitals of Peshawar city during 2011 and 2012. These hospitals were Lady Reading Hospital, Khyber Teaching Hospital and Hayat Abad Medical Complex. Among 3009 population, a sample of 309 was drawn using stratified random sampling from all three tertiary teaching hospitals of Peshawar city. The required data was collected through well designed questionnaire from the population of the study. The questionnaire used Likert scales. The healthcare consultant prescription

preferences were asked in terms of few therapies. These therapies were iron, multivitamins, anti-emetics and antibiotics as unit of analysis as described by Easterby-Smith M.[40] These therapies were included just because these are the essential part of the healthcare consultant's prescriptions as per patient's requirements. Further the reliability and validity of the data collection instruments were checked using Cronbach`s α. The measurement items for product quality with an estimated value as α=0.80 for product price with an estimated value α=.88 for product availability with an estimated value α=.94 and for country of origin constructs with an estimated measured value α=.86 respectively.

Statistical Analysis: All the collected data were analyzed through a statistical package for social sciences (SPSS) v.16. The results of data were presented as counts and percentages. Bi- variant analysis was performed for evaluating the association of the mentioned variables with the health care consultant's prescription preferences. A Chi-square test was used for testing the association between healthcare consultants preferences and various brands in terms of product quality (efficacy and safety), product price, availability, and country of origin effect. Further the preferences of the health care consultants were analyzed for different brands of iron therapy, antibiotics, multivitamins, and antiemetic manufactured by multinational and national companies, and in the context of switching or not switching tendencies. The Chi-square test defined as:

$$\chi^2 = \sum_{i=1}^{r} \sum_{j=1}^{c} (Oij - eij)2 \,/e\ ij \qquad (1.1)$$

Chi-square distribution with (r-1) (c-1) degree of freedom. In equation, as mentioned in 1.1 Oij and eij indicates the observed and expected frequencies respectively.

Results

Influence of Quality, Price, Availability and Country of origin upon healthcare consultant prescription preferences

Various Brands	Chi-square	P-value	Significance
Quality	29.33	<0.001	highly significant
Price	29.061	<0.001	highly significant
Country of Origin	15.726	<0.05	Significant
Availability	25.352	<0.001	highly significant

The value of X^2= 29.33 shows that there is a significant association (P<0.001) between the variables under study suggesting that prescription decisions are influenced by quality significantly. Similarly in case of price factor the Chi-square value 29.061 proves that there is a significant association (P<0.001) between the variables under the study. The observed results in case of prescription decision pertain a strong association among the variables (price and quality) under the study. In case of country of origin consideration a Chi-square value X^2= 15.726 establish a significant association with (P<0.05) among the under studied variables. Similarly, in case of easy available consideration a Chi-square value X^2= 25.352 proved a significant association with (P<0.001) among the variables under consideration. All the above results are in favor of Brownfield ED.[41]

Association of brand preferences with different other options (switch or don`t switch)

Various Brands	**chi-square**	**P-value**	
iron therapy	7.286	<0.026	Significant
Antibiotic	2.187	<0.335	Non significant
Multivitamins	4.033	<0.133	Non significant
Antiemetic	6.244	<0.044	Significant

The above table pertain the association between health care consultants preferences for multinational and national brands in terms of their switching or not switching tendencies with respect to variables under study.

Frequency distribution of health care consultant's prescriptions influenced by quality and price of the drug:

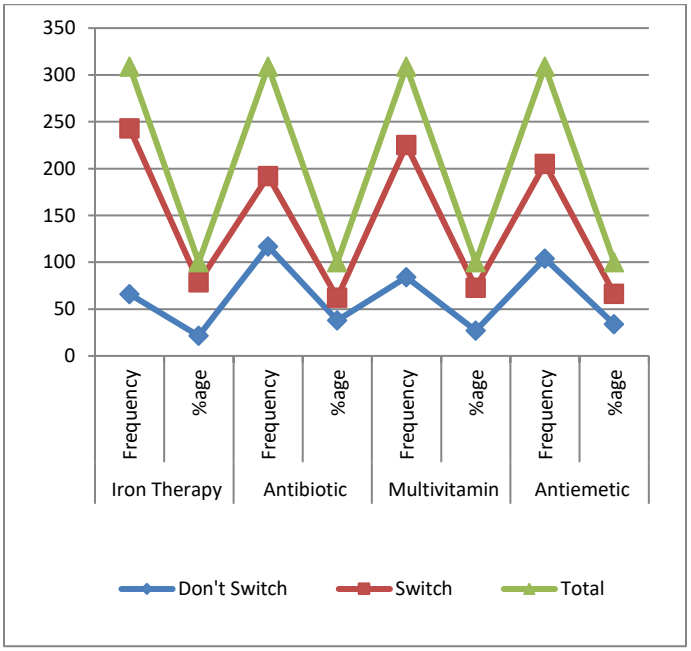
	Iron Therapy		Antibiotic		Multivitamin		Antiemetic	
	Frequency	%age	Frequency	%age	Frequency	%age	Frequency	%age
Efficacy	192	62.1	202	65.4	156	50.5	173	56
Safety	23	7.4	26	8.4	24	7.8	35	11
Price	68	22	46	14.9	90	29.1	55	18
Regularity of Visits	2	0.6	2	0.6	6	1.9	20	6.5
Services	7	2.3	7	2.3	7	2.3	9	2.9
Influentially of Seniors	13	4.2	22	7.1	22	7.1	17	5.5
Any Other	4	1.3	4	1.3	4	1.3	0	0
Total	309	100	309	100	309	100	309	100

The table shows that during prescribing iron therapeutic class more than 62% of the health care consultants prescriptions are influenced by efficacy of the drug as their major priority along with economy i.e. price as their second priority with 22% response. The results suggest that there is an association among of price and quality (efficacy and safety). In case of antibiotics the healthcare consultants prefer the efficacy as their top priority with 65.4 % while price in terms of economy as their second priority with 14.9%. Prescribing multivitamins by healthcare consultants are influenced by 50.5 % because of efficacy of the product. While 29.1 % of the health care consultants prefer price in term of affordability as their second priority.

Q1: Will you switch to another company if the prices of products manufactured by your preferred company are significantly increased in the following categories?

	Iron Therapy		Antibiotic		Multivitamin		Antiemetic	
	Frequency	%age	Frequency	%age	Frequency	%age	Frequency	%age
Don't Switch	66	21.4	117	37.9	84	27.1	104	33.7
Switch	243	78.6	192	62.1	225	72.9	205	66.3
Total	309	100	309	100	309	100	309	100

In case of prescribing Iron therapy 78.6% healthcare consultants are influenced by the price increase. In case of prescribing antibiotic 62.1% healthcare consultants are influenced by product price. In case of multivitamins prescribing 72.9% healthcare consultants value economical drugs. In case of antiemetic drugs prescribing 66.3 % healthcare consultants value lower priced drugs. The graphical illustration of the above results is as follows.

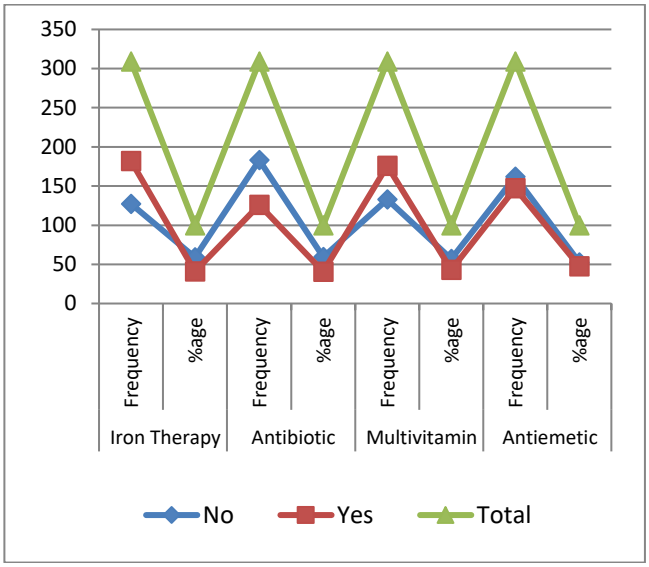


Q 2: If the prices of products manufactured by your preferred company are significantly reduced in the following categories? Will you switch to other companies?

	Iron Therapy		Antibiotic		Multivitamin		Antiemetic	
	Frequency	%age	Frequency	%age	Frequency	%age	Frequency	%age
No	127	58.9	183	59.3	133	56.9	162	52.5
Yes	182	41.1	126	40.7	176	43.1	147	47.5
Total	309	100	309	100	309	100	309	100

The health care consultants prefer those companies who offer low drug prices. It is evident that 58.9 % healthcare consultants are prescribing those drugs which are low in price, while only 41.1 % health care

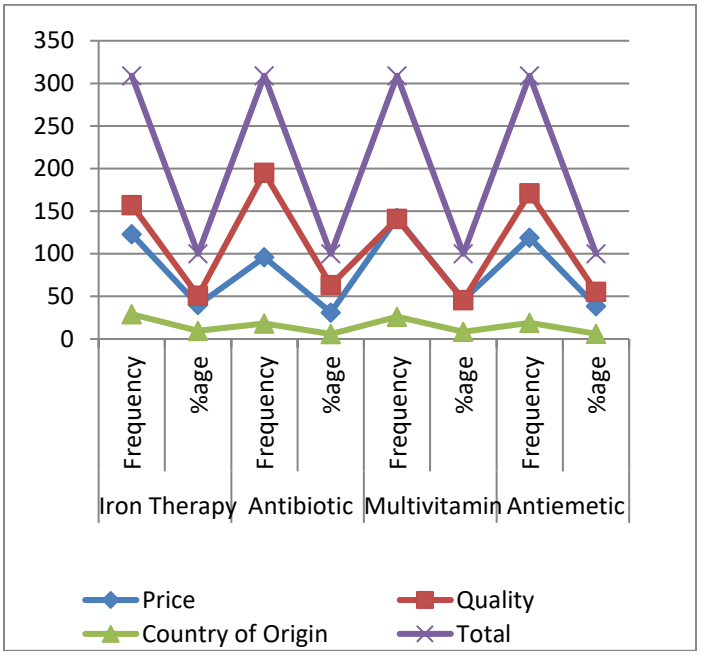
consultants do not prefer low price of the drug to be prescribed. The unit of analysis in this case was iron therapy. In case of antibiotics 59.3% health care consultants prefer economical products and hence do not switch. While 40.8% healthcare consultants are not influenced by low prices and will switch to other alternatives. Again in case of multivitamins 56.9 % health care consultants prefer lower price of a brand to be prescribed. While only 43.1% health care consultants do not prefer price of the drug. In case of prescribing the antiemetic drugs 52.5% health care consultants are influenced by lower prices of the prescribing drug. While 47.5% healthcare consultants are not influenced by the lower prices. The above results are also illustrated in below graph.



Q 3: During prescribing the following brands, indicate the importance you attach to each of the following factors by ranking them, assigning 1 to highly important factor and 3 to the least important factor.

Companies	Iron Therapy		Antibiotic		Multivitamin		Antiemetic	
	Frequency	%age	Frequency	%age	Frequency	%age	Frequency	%age
Price	123	39.8	96	31.1	142	46	119	38.5
Quality	157	50.8	195	63.1	141	45.6	171	55.4
Country of Origin	29	9.4	18	5.8	26	8.4	19	6.1
Total	309	100	309	100	309	100	309	100

In case of iron therapy prescriptions 50.8% health care consultants are influenced by quality 39.8% health care consultants are influenced by price while only 9.4% health care consultants are interested in country of origin like factor. In case of antibiotic prescriptions 63.1 % health care consultants are quality conscious 31.1% health care consultants are price conscious while only 5.8% health care consultants are interested in country of origin like factor. In case of multivitamins again quality of the product account for setting health care consultants preferences in 45.6% cases which is almost equal to the 46 % contribution of the price of the product. In case of antiemetic prescriptions 55.4% healthcare consultants are quality conscious 38.54% health care consultants are price conscious while only 6.1% health care consultants are interested in country of origin like factor. The graphical representation of the above results is as follows:

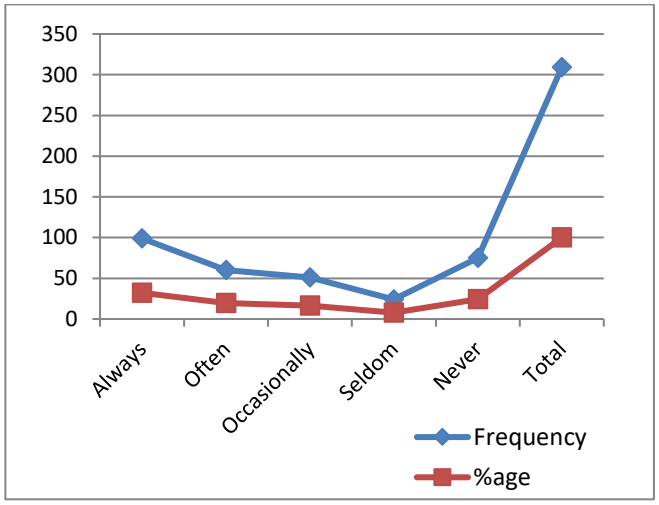


Q 4: Frequency distribution of health care consultant's preferences decisions in advance about country of origin (MNC`s & NC`s)

Scale	Frequency	%age
Always	99	32
Often	60	19.4
Occasionally	51	16.5
Seldom	24	7.8
Never	75	24.3
Total	**309**	**100**

As far as the healthcare consultants in advance pre mindset is concerned more than 32% set in advance. While more than 24% opposed to pre setting. However 19.4% healthcare consultants often set their minds in advance before prescribing any brand of a specific company and 16.5% make up their priorities on the

spot for prescribing any specific brand of a specific company.

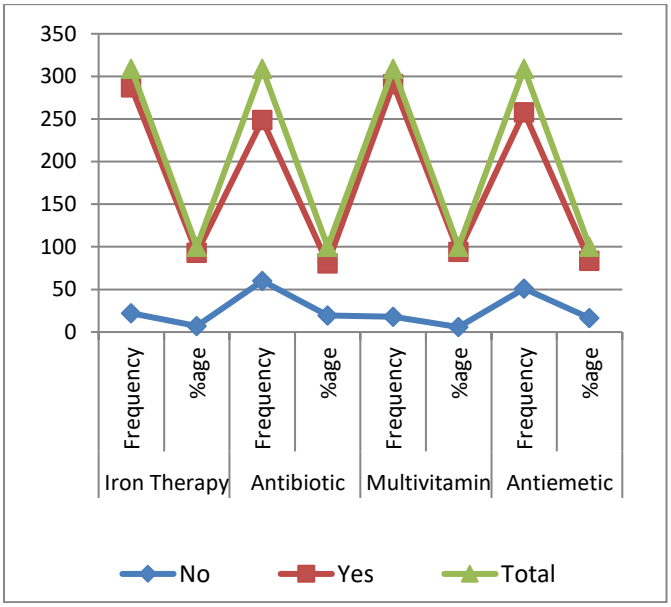


Q 5: If the brand of the preferred company is not available do you prescribe another brand which is easily available?

	Iron Therapy		Antibiotic		Multivitamin		Antiemetic	
	Frequency	%age	Frequency	%age	Frequency	%age	Frequency	%age
No	22	7.1	60	19.4	18	5.8	51	16.5
Yes	287	92.9	249	80.6	291	94.2	258	83.5
Total	309	100	309	100	309	100	309	100

Almost 93 % health care consultants switch their minds to another brand if the already prescribed brand by them is not available outside, in the market.

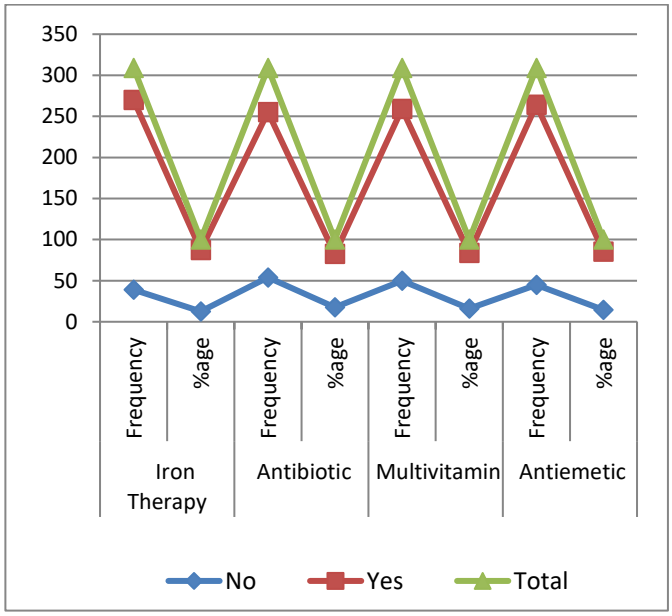
Similarly, in case of antibiotics the health care consultants change their prescription preferences only if their preferred brand is not available outside in the market, 80.6% healthcare consultants prefer changing their priorities and only 19.4% do not change their priorities. The healthcare consultants change their preferences in case of multivitamins as well if the prescribed multivitamins are not available in the market. As 94.2% of health care consultants prefer the availability of the brand while only 5.8% of the health care consultants do not change their priorities even if the prescribed brand is not available. In case of prescribing antiemetic 83.5% healthcare consultants change their minds to those companies' brands which are easily available outside in the market. While only 16.5% do not change their preferred brands of either multinational or national company. The results of the table is also illustrated in below graph:



Q 6: If (the formula) of your preferred brand manufactured by your preferred company is not available do you prescribe the same (formula) manufactured by other company?

	Iron Therapy		Antibiotic		Multivitamin		Antiemetic	
	Frequency	%age	Frequency	%age	Frequency	%age	Frequency	%age
No	39	12.6	54	17.5	50	16.2	45	14.6
Yes	270	87.4	255	82.5	259	83.8	264	85.4
Total	309	100	309	100	309	100	309	100

In case of iron therapy majority of the health care consultants change their preferences to the company whom products are available instead of i.e. 87.4% of health care consultants switch their priorities to another brand. Similar is the case with antibiotics, multivitamins, and antiemetic. If the healthcare consultants' prescription is not honored in the market, soon they change their priorities to the competitors who are manufacturing the same formula with a good quality. This may be true in case of both MNC,s and NC,s. The above results are also illustrated in below graph.



Discussion

The response of healthcare consultants in case of prescribing iron therapy, antibiotics, multivitamins and antiemetic remained the same almost. The healthcare consultant prescriptions were influenced by quality of a product as preliminary while economical prices and easily availability as their secondary priority. However, country of origin emerged as less important compared to quality, price and easy availability of the drug to be prescribed for the health care consultant.

Conclusion

This study conclude the influence of quality, price, and easy availability of the pharmaceutical drugs upon health care consultant prescribing decisions to a great extent while country of origin is also important factor

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