Doctors' Perceptions towards Domestic and Multinational Pharmaceutical Products: An Investigation from Developing Country

Jashim Uddin Ahmed, Md. Humayun Kabir Chowdhury**, Ishrat Jahan Synthia***, and Ishrat Sultana*****

This exploratory study focuses on doctors' perception towards domestic and multinational pharmaceutical products. Doctors can heavily influence drug purchase decisions by performing the roles of users (sometimes), influencer, gatekeepers and deciders, while patients perform the role of buyers and users. The difference in perception was measured in terms of products, brand image and pricing. Data were collected from a sample of 15 doctors (n=15) using a questionnaire comprised of 12 questions measured in Likert scales. The study reveals that brand image is the most influential factor for price of medicines and brand image is highly related to quality and the level of promotion for the underlying product. Furthermore, doctors perceive multinational products to be different and better than domestic products due to their stronger brand image. This study highlights that doctors' preferences are not fully unbiased and can be influenced by pharmaceutical companies. Due to its exploratory nature, findings might need to be validated in a further study with a larger sample.

Keywords: Bangladesh, pharmaceutical industry, brand, products, medicine, price

Studi yang bersifat eksplorasi ini fokus pada persepsi dokter terhadap produk farmasi domestik dan multinasional . Dokter dapat mempengaruhi keputusan pembelian obat dengan menjalankan peran sebagai pengguna (user), pemberi pengaruh (influencer) , penjaga arus informasi (gatekeeper) dan pembuat keputusan (deciders), sedangkan pasien melakukan peran sebagai pembeli (buyer) dan pengguna (user). Perbedaan persepsi diukur dalam hal produk, citra merek dan harga. Data dikumpulkan dari sampel 15 dokter (n = 15) dengan menggunakan kuesioner yang terdiri dari 12 pertanyaan yang diukur dalam skala Likert . Penelitian ini mengungkapkan bahwa citra merek merupakan faktor yang paling mempengaruhi harga obat-obatan dan citra merek sangat berkaitan dengan kualitas dan tingkat promosi untuk produk yang mendasarinya. Selain itu, dokter menganggap produk multinasional berbeda dan lebih baik dari produk dalam negeri karena citra merek yang lebih kuat . Penelitian ini juga memberikan kesimpulan bahwa preferensi dokter tidak sepenuhnya bebas bias dan dapat dipengaruhi oleh perusahaan obat-obatan. Karena penelitian ini merupakan penelitian eksplorasi, maka temuan penelitian ini perlu divalidasi dalam studi lanjutan dengan sampel yang lebih besar.

Kata Kunci: Bangladesh, industri farmasi, merek, produk, obat-obatan, harga

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"A generic drug is the same as a brand-name drug in dosage, safety, strength, quality, the way it works, the way it is taken and the way it should be used. The FDA requires generic drugs have the same high quality, strength, purity and stability as brand-name drugs."

U.S. Food and Drug Administration (FDA)

* North South University, Bashundhara, Dhaka-1229, Bangladesh. E-mail: jashim@northsouth.edu, jashimahmed@hotmail.com

** Southeast University, Banani, Dhaka-1213, Bangladesh. E-mail: mhkchowdhury@yahoo.com

***North South University, Bashundhara, Dhaka-1229, Bangladesh. E-mail: ishratj@northsouth.edu, synthia030@yahoo.com

**** United International University, Dhanmondi, Dhaka-1209, Bangladesh. E-mail: ishrat@bus.uiu.ac.bd

Introduction

The pharmaceutical industry has recorded tremendous achievements in the health sector and contributed to the economic development of many countries (Al-Alak & Al-Ameri 2012). In the last two decades, Bangladesh pharmaceutical industry has grown at a substantial rate and has been one of the most profitable sectors with more than 245 pharmaceutical companies in Bangladesh (The Financial Express 2013). This sector has one of the highest growth rates (with a 15 percent rate) and as of 2011 it has a total market size of US$1 billion. Bangladesh exports pharmaceutical products to 87 countries, including the US and a few European nations after meeting 97 percent of the domestic demand and reducing the country's dependence on imported medicines, i.e. vaccines, insulin and anti-cancer products etc, which represent three percent (Ahmed 2013; The Financial Express 2013).

Although multinationals (representing 13 percent of the market) are increasingly shrinking the business of domestic companies in Bangladesh, domestic companies still capture around 87 percent of the market, producing approximately 6,000 brands of medicines. Bangladesh is a developing country with a population of 150 million. Many of them are unable to purchase high-priced medicines (Ahmed 2012). It is a matter of concern that same generic medicines are selling at different prices, having different brand names. Domestic firms, producing at lower cost, have been the principal suppliers of drugs to the Bangladesh health care system (Oxfam Report 2001). The varying price of medicine is very irrational. For instance, Gliclazide BP 80mg 100 tablets are selling at BDT 750 (US$ 9.6) under a brand name Gliclid by a company, whereas the same Gliclazide BP 60mg 100 tablets are selling at BDT 1,800 (US$ 23) under a brand name Diomicron by another company. Lots of such examples could be cited. Patients do not know the generic as well as the brand name of the drugs. They depend on the prescriptions by the doctors. Most of the doctors prescribe high-priced medicine while the very same medicines with lower prices are available in the market (Hossain 2011)**.** Pharmaceuticals sector has been enjoying a steady growth over the last 15-20 years and has become a worth of BDT 30 billion (US$ 385 million) industry. The industry has low volatility in terms of growth, profit, raw material and cost of finished goods. Almost all the life saving imported products and new innovative molecules are channeled into and marketed in Bangladesh through these companies. The Drug Act of 1940 and its rules formed the basis of the country's drug legislation. A minimum quality standard is set by the Directorate of Drug Administration and companies generally follow Good Manufacturing Practices (GMP) which includes rigorous quality control (Chowdhury & Kabir 2009). A positive impact of the Drug (Control) Ordinance of 1982 was the limited availability of foreign currency which was exclusively utilized for importing pharmaceutical raw materials and finished drugs. Since Drug (Control) Ordinance of 1982, a rapid development of domestic manufacturing capability helped contain the dependence on the import of pharmaceutical products (raw material and finished product) around pre-1982 level. Under the Drug (Control) Ordinance, government fixes the maximum retail prices (MRP) of 117 essential drug chemical substances and others are priced through a system of indicative prices. This rule applies to domestic products only. Interestingly, even with withdrawal of price control from many products, prices have been set at affordable levels due to heavy competition in the market. The primary responsibility of drug quality control lies with the manufacturers. Domestic companies were only taking part in the distribution channel of MNCs. Millennium Development Goal 8 sets out the target for the international community in co-operation with pharmaceutical companies to provide access to affordable, essential drugs in developing countries (The Millennium Development Goals Report 2008).

Literature Review

In the past decade, pharmaceutical companies have been involved in intense direct-to-consumer advertising (DTCA) and promotion of prescription drugs. Spending on DTCA of prescription drugs has been increased (Donohue *et al.* 2007; Parker & Delene 1999). DTCA

spending grew from US$2.5 billion in 2000 to $3.3 billion in 2003, $4.2 billion in 2005, and $4.5 billion in 2009. There was a 80 percent increase in DTCA spending between 2000 and 2009. As a result, the average American television viewer spent more than 15 hours annually watching prescription drug advertisements; that was far more time than they spent with their family physicians (Brownfield *et al*. 2004). In developing countries pharmaceutical industry invests heavily in promotion, and it has used a variety of promotional strategies to stimulate sales of pharmaceutical drugs (Al-Areefi 2013). Since the rapid growth in pharmaceutical drugs is a global phenomenon, it is essential for understanding doctors' perception while prescribing drugs and understanding patients' needs and their preferences. The aim of this paper is to examine doctors' preferences for source of information and understanding the context, as well as the reasons why they choose specific branded medicine which they prescribe. Related constructs and literature are as follows:

Perceived Medicine Quality

Research reveals that perceived product quality has been the subject of considerable interest to practitioners and researchers, mainly in services marketing. This is due to the beneficial effects of marketing performance. The belief that high perceived quality leads to repeated purchases is at the heart of any business (Kennedy *et al*. 2001). Thus, when developing marketing strategies, marketers have to take into consideration perceived quality and every factor associated with it.

In the context of quality of medicine, it is little more than doctor perceptions as to "how well a particular drug from a particular pharmaceutical firm will perform for a particular patient's conditions" (Waheed *et al*. 2011). Quality of medicine comes first which is aimed at building brand image and increasing market share because its primary service is the patient's recovery or the exchange of trust. Domestic and multinational companies are competing with each other for their establishment and doctors have different perceptions of each pharmaceutical product regarding quality (Borkowski & Gordon 2006).

Medicine Price

Price perception is the process by which consumers translate price into meaningful cognitions and it has been the interest of researchers for several years (Lichtenstein *et al*. 1988). Price conveys information to the consumer regarding the product quality (Erickson & Johansson, 1985) and this issue has been extensively studied more than any other factors in this domain (Dodds *et al*. 1991; Swan 1974; Zeithaml 1988). One of the most important findings in the literature is that fair prices are related to reference prices (Kahneman *et al*. 1986). The primary rule is that the actual price should be equal to the price that a consumer expects. Doctors' price sensitivity of medicine is an important issue and it is the centre of interest for fair pricing (Rice 2009). Price increases would be fairer if they benefit poor people rather than rich people. This type of fairness in price is very important for developing countries. According to Perez-Casas *et al*. (2009: 960), "pricing policy of pharmaceutical companies is not set according to the purchasing power of the different countries, but follows a general strategy of maximizing profit".

A worldwide increase in healthcare costs poses a burden of affordability of medicines (Jamshed *et al*. 2012). The prospect of better health and a higher quality of life has led to increase in both the number of prescriptions and the price of new medicines (Feldstein 2005). Despite technical know-how and quality of products, price plays an important role in determining the attitude towards purchase of medicines. In terms of price versus volume, what is not acceptable is a high-price: high-volume combination (Payers 2002). The cost of medicines incorporates several added costs prior to reaching patients (Perez-Casas *et al*. 2009). In pharmaceutical sector, medicine prices are the results of many different policy effects (Leopold *et al*. 2012). According to Olcay & Laing (2005: 10):

"Price of medicines is determined by a combination of variables, including national and individual income, government policy, degree of competition in the public and private markets, health system capacity, public policies, intellectual property protection, non-tariff barriers and import tariffs."

There are additional factors affecting pharmaceutical products. For instance, price discrimination by suppliers of patented products or the presence of a domestic pharmaceutical industry with the capacity to produce generic substitutes. Perhaps this is why a group of customers could not afford to purchase medicines beyond domestic pharmaceutical products.

Brand Image, Perception and Loyalty

Brands create strategic positions and specific perceptual associations in the minds of consumers (Henderson *et al*. 1998). Brand preference is strongly effective in medical products. Moss (2007: 318) strongly believes, "that good product brand work exists, for example, Novartis UK established Lamisil for fungal nail infection in the minds of the physician and patient via clever healthcare professional and disease awareness campaigns". Since consumers want to buy the product of a company they trust, previous experience and the reliability of the brand name obviously affect the buying decision. Rice (2009) states that brand-name drugs that are considered close substitutes for a given medical condition are marketed simultaneously, but sold at considerably lower prices. As a result, the physician's prescribing decision is often the choice between two or more brand-name drugs rather than between a brand-name and a generic drug.

Brand perception is consumers' ability to identify the brand under different conditions, as reflected by their brand recognition (Keller & Kotler 2006). Consumer-based brand equity was described for four dimensions; brand awareness, brand association, perceived quality, and brand loyalty (Pappu *et al*. 2005).

Brand awareness was defined as consumers' ability to identify the brand (Rossiter & Percy 1987). It refers to the strength of a brand presence in consumer's minds. Brand awareness has several levels starting from less recognition of the brand to dominance (Aaker 1991).

Perceived quality is evaluated and decided by consumers and it is another valuation of brand to push the customer. Brand is the image that consumers have in mind (Aaker 1991).

Brand loyalty is one of the most-cited concepts in marketing literature and was most commonly related to the repeated behavior of purchasing a specific brand over time (Iglesias *et al*. 2011). Brand loyalty can be described as consumer's conscious or unconscious decision, expressed through intention or behavior, to repurchase a brand continually and proclaim to be the ultimate goal of marketing (Yee & Sidek 2008). Moreover, brand loyalty exists when customers have a high relative attitude toward the brand, exhibited through repurchase behavior. This can be an asset to the firm, especially when a customer is willing to pay higher prices, and allows the firm to spend less money to serve and attract customers (Reichheld & Sasser 1990). Commitment and repeated purchase behavior are considered as necessary conditions for brand loyalty followed by perceived value, satisfaction and brand trust.

Consumer Perception

Consumer perception is the factor that mostly influences the consumers buying process. When a consumer confronts with a new product, s/he will consider salient attributes of the product and will form an opinion. In addition to this evaluation process, extrinsic cues might influence consumers' perceptions of quality in a more global manner by serving as an evaluative context of liking or disliking the new product. It is quite natural to surmise that a product that maximizes perceived quality would certainly be preferred to one that is perceived as low quality. But the question becomes important when one brand is preferred over another although they contain the same attributes. That's the reason why the concept caused consumer behavior researchers to perceive the construct differently from those of the economists. In consumer behavior literature, taken altogether, it is argued that the quality of a good is not only inherently related with the attributes in the good but also the psychological outcome a person or people have for it.

Consumers often perceive price as an extrinsic quality cue. Several studies have searched consumer perception of price as an indicator of quality, and many of these have shown price to operate in this manner (Erickson & Johansson 1985). Although there are so many arguments in favor and against this rationale, in this study

the idea of positive relationship between price and perceived quality is adopted. The arguments behind this assumption are: (a) producing quality good needs sophisticated machinery that cost more and this increases the price, (b) manufacturers use high quality ingredients to produce high quality products, and (c) it is unlikely that a product with low quality will be charged more in this competitive world.

It is assumed that when a consumer initially encounters a new product, important information about the product is often missing. In this case, consumers may form inferences about missing information by drawing a connection between available pieces of information, one of which is corporate image. Upon facing a brand, consumers' cognitive responses will focus on question such as "Does the manufacturer have the necessary skills, expertise, and technology to produce quality drugs?" The positive responses will develop into favorable evaluations toward the brand. The opposite will be observed in case of a negative response. Thus, corporate image that is relevant to the company's ability to produce output, is one likely source of consumers' quality perceptions. Both the domestic and multinational pharmaceuticals are producing medicines for different disease in accordance to patient's recovery and our research seeks to find out whether there is any difference and if there is any difference, what are the factors behind higher or lower sale of their products.

Research Method

This study is based on exploratory research with small sample size and non-representative. This type of research is used principally to gain a deeper understanding of something, which is carried out in the beginning of the research process and initial activities carried out to refine the problem into a researchable one which need not be precise (Robson 2002; Saunders *et al.* 2009)**.**

Questionnaire Method and Data Collection Procedure

The questionnaires were designed and developed based on informal discussion with some doctors and pharmacist to get insights and understanding of pharmaceuticals' products prescribing context. A short pretest took place before conducting the field survey using the questionnaire. In our research, we also initially did one focus group discussion (FGD), *a fact that is often ignored by researchers (*Hollander 2004).

A sample of doctors' views was used in this study, a method widely used in pharmaceutical sector drug choices (Cockburn & Pit 1997; Wulff *et al*. 2007). There are many arguments in favor and against the convenience samples. Several authors have enumerated the dangers of using convenient samples in research (Beltramini 1983; Oakes 1972). These authors have generally cited threats to external validity as their primary concern, arguing that convenient samples have the threat to be atypical of the 'general population', and that any findings based on convenient samples may therefore not be generalizable to other populations (Cunningham *et al*. 1974). However, some scholars disagree on this issue. Oakes (1972) contends that such arguments are unfounded because, regardless of what population is sampled; generalization can be made only with caution to other populations. In the same vein, Marshall (1996) argues that approach to 'selection of a sample is usually justified'. Because the primary focus of this study was to test theory and not effects generalization, considerations of internal validity were paramount and a convenient sample was appropriate (Calder *et al*. 1982; Cook & Campbell 1975; Tybout 1982). Concerns about external validity were secondary. A questionnaire served as a data-gathering instrument.

In this exploratory research, doctors were asked 12 questions (a sample of 15 doctors was chosen from three different hospitals), after reading the cover page of the questionnaire that only mentioned the purpose of the study. The second page contained the scale items, the measures needed to test the hypothesis. The last page contained the demographic question. In the questionnaire, the same question was asked to mark the evaluation on a 5-point Likert scale for both domestic and multinational pharmaceutical regarding each factor. Most subjects spent between 20 and 25 minutes filling out the entire questionnaire. By comparing the answers to the questions, we checked whether the factor

Table 1. Items of the Study Questionnaires

Elements	Questions	Criteria: Option/Scale
Proper R & D	Do pharmaceutical companies spend more on marketing and promotion than they do on research and development?	Always, usually, rarely, never
Quality, Production, Price, and Brand evaluation	Do all brand name medicines have generic equivalents?	
	Does local production leads to lower prices because of low quality?	1=strongly disagree, 5=strongly agree
Technological advantage of MNCs	Do all the multinationals use more efficient and technologically advanced production method than domestic firms?	

Table 2. Independent Variables & Questions

Independent Variables	Questions
Bangladesh pharmaceutical growth	"How would you rate the significance of each factor for the tremendous growth of the pharmaceutical sector in Bangladesh?"
Medicine price	"How would you rate the significance of the following factors in determining the price of medicines?"
Perception of Brand Image	"How would you rate significance of each option in how pharmaceutical companies promote their brand?"
Brand Loyalty	"How would you rate significance of each option which influences the Brand Loyalty in the pharmaceutical industries?"
Bangladesh Pharmaceutical Market Factor	"How would you rate the significance of each factor in advancing the performance of the Bangladesh pharmaceutical market?"

Table 3. Descriptive Statistics

List of variables	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
Bangladesh Pharmaceutical growth	15	3.10	1.213	1.00	5.00	2.05	3.10	3.81
Medicine Price	15	3.67	1.155	1.00	5.00	2.96	3.67	3.87
Perception of Brand Image	15	3.58	1.132	1.00	5.00	2.86	3.58	3.86
Brand Loyalty	15	3.29	1.176	1.00	5.00	2.17	3.29	3.83
Brand Loyalty	15	3.17	1.293	1.00	5.00	2.99	3.76	3.90
Bangladesh Pharmaceutical Market Factor	15	3.71	1.371	1.00	5.00	2.98	3.71	3.89
Rate Domestic	15	3.62	1.425	1.00	5.00	2.97	3.62	3.85
Rate Multinational	15	3.23	1.264	1.00	5.00	2.19	3.23	3.84

that was asked influences the customer perception.

Design of the Study

Each question in the questionnaire was designed in order to investigate the understanding of the related study of the elements to get survey results.

The result was analyzed by descriptive nature and generalizes the idea of different items comparing domestic and multinational pharmaceutical companies. Questions were asked for measuring all five independent variables.

Results

The statistical package used is the SPSS 17, a most commonly used packages for quantitative research methods (Bryman & Cramer 2011). After data were collected, the data from questionnaires were tested using Wilcoxon signed-rank test.

Survey Data Analysis

The data analysis involved planned comparisons of the relevant variables. The Descriptive Statistics (Table 3) is where SPSS has generated descriptive and quartile statistics for the variables. Due to small sample (n=15), instead of parametric test, non parametric statistical tool was used. Here, Wilcoxon signed rank test was used where two related samples were compared to assess whether their populations mean ranks differ. By examining the final Test Statistics table, we can discover whether these changes are significant. This is the *p* value for the test.

We report the Wilcoxon signed-ranks test using the Z statistic (-0.608) which is based on positive ranking and Asymp. Sig. (2-tailed) is 0.534. We have seen in the analysis domestic pharmaceutical products' has negative ranks (7) and sum of ranks (44.00), multinational company products' has positive ranks (5) and sum of ranks (16.00) and remaining 3 are ties.

Table 4a. Comparison of participants' score

		N	Mean Rank	Sum of Ranks
Domestic Users	Negative Ranks	7[a]	4.00	44.00
Multinational Users	Positive Ranks	5[b]	4.00	16.00
	Ties	3[c]		
	Total	15		

a. Domestic Users < Multinational Users, b. Domestic UserS > Multinational Users, c. Domestic Users = Multinational Users

Table 4b: Test Statistics [b]

	Domestic Users – Multinational Users
Z	-0.608[a]
Asymp. Sig. (2-tailed)	0.534

Based on Positive ranks, b. Wilcoxon Signed Ranks Test.

Summary of Survey Data

We undertook numerous tests of robustness including descriptive statistics, Wilcoxon signed-ranks test using the *Z* statistic. In this section, Q 1 to Q 7 presents the several issues in this study, these being: (1) pharmaceutical companies' expenditure in more on marketing activities than their research and development, (2) doctors influencing when prescribe a specific medicine, (3) medicine brand issues, (4) factor in enhancing the competitiveness of the Bangladesh pharmaceutical market, (5) domestic production lead to lower prices because of low quality, (6) MNCs use more efficient and technologically advanced production methods than domestic firms, and (7) marketing directly to doctors represent higher returns for Drug Companies.

Q1. Do you believe pharmaceutical companies spend more on marketing and promotion than they do on research and development (R&D)?

By far the strongest response received on this survey is on this question which criticizes the companies. The lack of R&D infrastructure seems evident from doctors' responses, underscoring the lack of investments in R&D. Marketing and promotion, although important, do not lead to the development of new and innovative drugs which are critical for the development of the sector in terms of global competitiveness.

Q2. How would you rate the significance of the patient satisfaction factors in influencing doctors to prescribe a specific medicine?

Patient satisfaction is very crucial factor in the recommendation of a specific medicine. Benefits of the drugs as well as the brand of the medicine would correlate with this, as doctors are likely to believe the two go hand in hand with the patient's recovery.

Q3. Do all brand name medicines have generic equivalents?

Doctors have a different perception about the brand images while prescribing any pharmaceutical products. Results show that 9 out of 15 respondents disagreed with the same images of brand pharmaceutical products. They perceive pharmaceutical products depending on their branding. Interestingly, 3 respondents remained neutral and 3 respondents strongly disagreed with the statement.

Q4. What do you believe is the most important factor in enhancing the competitiveness of the Bangladesh pharmaceutical market?

Government regulation is the biggest factor affecting domestic competitiveness. This is likely to be true, especially in light of comprehensive TRIPS legislation that is affecting the pharmaceutical landscape at present (The Daily Kalerkantho 2012). Drug manufacturers and how they adapt to such legislation as well as increasing competition also play a role in the sector competition. Interestingly, only one respondent believed that either doctors or patients had any substantial affect on competition.

Q5. Does domestic production lead to lower prices because of low quality?

Doctors' perception of the product's value sets the price of the product. Their perception toward the domestic pharmaceutical company's product quality determines favorable impact on their mind although domestic pharmaceuticals are not as competitive as multinational compa-

Table 5. Factors for the growth of the pharmaceutical sector in Bangladesh

Factors	Domestic Mean ($\overline{X}_d$)	MNC Mean ($\overline{X}_m$)	t	p
a) Latest manufacturing techniques	3.13	4.470	-4.641	.001 (<0.01)
b) Government regulation	4.13	2.730	3.862	.002 (<0.01)
c) Intense competition	4.33	3.130	4.294	.001 (<0.01)
d) Marketing and promotional performance	4.13	3.200	2.824	.014 (<0.05)
e) Market demand	4.73	3.066	4.183	.001 (<0.01)

Table 6. Factors in determining the price of Medicines

Factors	Domestic Mean ($\overline{X}_d$)	MNC Mean ($\overline{X}_m$)	t	p
a) Quality	3.4000	4.4667	-5.1720	.001 (<0.01)
b) Promotion	3.4000	3.2000	0.5440	0.595(>0.05)
c) Brand image	3.6000	4.6667	-3.7560	0.002(<0.01)
d) Competition	4.0667	3.2000	2.5780	0.022(<0.05)

Table 7. How pharmaceutical companies promote their brand

Factors	Domestic Mean ($\overline{X}_d$)	MNC Mean ($\overline{X}_m$)	t	p
a) By introducing one new product	4.5333	2.800	6.985	0.000 (<0.05)
b) Profit maximizing	3.933	2.933	3.240	0.006 (<0.05)
c) Exploitative practice	2.800	2.533	0.7180	0.484 (<0.05)
d) Strong brand recognition	3.667	3.933	-0.5120	0.617 (<0.05)

nies in introducing latest technologically advanced production method. Surprisingly, none of the respondents strongly agreed with the lower pricing strategy of domestic pharmaceutical because of low quality.

Q6. Do all the multinationals use more efficient and technologically advanced production methods than domestic firms?

The MNCs have advantages over domestic companies in technologically advanced methods in production. Therefore, it is noteworthy to point out that MNCs hold 15 percent share of the market despite this advantage, which may suggest the significance of government legislation and advantages in domestic production.

Q7. Does marketing directly to doctors represent higher returns for Drug Companies?

There is a strong perception that marketing drugs directly to doctors means greater returns for companies. A crucial factor that determines the demand for prescription drugs is the role of the doctors as patient's agent in prescribing drugs. When treating a patient, doctors do not have perfect information on the most appropriate drug to prescribe, the possible substitute medicines that are available, their side effects, and their relative costs. Therefore, pharmaceutical companies devote a great deal of effort in marketing their medicines to doctors. Doctors are also unaffected by the cost of the medicines they prescribe. The lack of doctors' knowledge on prescription medicines, as well as their lack of a financial incentive to be concerned with the cost of drugs, combined with insurance to cover the patient's costs, have affected the structure of this industry (*see* for example, Feldstein 2005).

Findings

Bangladesh Pharmaceutical Growth

The findings of doctors' perception show that introduction of *latest manufacturing techniques* of MNCs is greater than that of domestic companies and the difference is significant. Similarly, doctors' perception show that *Government regulation* is the most powerful factor influencing tremendous growth of domestic pharmaceutical companies compared to MNCs and the difference is quite significant.

Doctors' perception shows that the domestic companies face significantly more competition than multinational pharmaceutical companies. The survey findings indicate of doctors' perception reveals that, domestic pharmaceutical companies are more successful in their *marketing and promotional performance* than the multinational companies and the difference is noteworthy. Doctors' perception of *market demand* for domestic pharmaceutical products is much

Table 8. Factors influencing the Brand Loyalty

Factors	Domestic Mean ($\overline{X}_d$)	MNC Mean ($\overline{X}_m$)	t	p
a) Price	3.4000	3.6670	-.673	0.512(>0.05)
b) Quality	3.5330	4.5330	-3.416	0.004(<0.05)
c) Prescribed by doctors	4.4667	3.1330	3.452	0.004(<0.05)
d) Unethical practice	3.4667	2.6667	2.567	0.002(<0.05)

Table 9. Factors in advancing the performance of the Bangladesh pharmaceutical market

Factors	Domestic Mean ($\overline{X}_d$)	MNC Mean ($\overline{X}_m$)	t	p
a) Government regulation	4.6000	3.200	3.8620	0.002(<0.05)
b) Drug manufacturers	3.7330	3.800	-0.2350	0.818(>0.05)
c) Doctors	3.6667	2.330	8.3670	0.000(<0.05)
d) Patients	3.8667	2.733	2.6740	0.018(<0.05)

higher than that for multinational pharmaceutical products.

Medicine Price

Doctors' perception of multinational pharmaceutical product's quality is significantly stronger than that of domestic pharmaceutical product's quality. Moreover, promotional activity was tested to determine the price of domestic and multinational pharmaceuticals. This study shows that doctors do not observe any difference in the promotional activity of pharmaceutical sector in determining price of medicines.

Doctors' perception shows that brand image of MNC's is greater than that of domestic companies and the difference is noteworthy. Most interestingly, we have found that quality and brand image for the MNC's product is higher than that of domestic products. Hence, doctors feel that domestic pharmaceutical companies are competing more than the multinational companies.

Brand Image

The findings of doctors' perception show that *chance of introducing one new product* by a domestic company is greater than that of MNCs. Similarly, doctors' perception of *profit maximization* of domestic pharmaceutical product is much higher than that of multinational pharmaceutical products.

The analysis reveals that doctors' perception about promoting a brand does not deal with *exploitative practice* or unethical practice. Interestingly, both domestic and multinational companies believe that reinforcing brand image has something to do with promoting the brand, but promoting brand of a pharmaceutical product is not varied by *strong brand recognition.*

Brand Loyalty

The brand loyalty toward domestic and MNCs does not depend on price. Result shows that doctors do not perceive any significant difference in *pricing* of these two pharmaceutical sectors that influences brand loyalty. The quality of MNCs is greater than that of domestic pharmaceutical companies respective to brand loyalty and the difference is significant.

Bangladesh Pharmaceutical Market Factors

Analysis of perceptions shows that domestic sector's advantage in *Government regulation* is much higher than that of MNCs. Result of this hypothesis shows that progression of the performance of the Bangladesh pharmaceutical market did not vary by *drug manufacturers*. More often than not, domestic pharmaceutical products are prescribed by the *doctors.* Moreover, the *patients* demand more of the domestic pharmaceutical products than that of Multinationals and the difference is noteworthy.

Discussions

In our research findings, we have seen that doctors perceive domestic and multinational pharmaceutical products differently. In relation to this, all the factors considered in this study are different for domestic and multinational pharmaceutical products. Therefore, the market demand for drugs seems to be the single most

significant factor creating growth in the pharmaceutical sector at present. It is not surprising due to the growing number of elderly and the introduction of more and better drugs to the population. Interestingly, government regulation is not considered to be highly effective relative to other factors, which tends to diverge from results indicating its impact. Therefore, it is clear that market demand for domestic pharmaceutical company products is very high, leading to tremendous growth of domestic companies.

Brand image seems to be the single biggest factor affecting the price of medicines. Brand image of medicine, however, can be affected by quality and promotion. As brand image comes down to the effectiveness of the medication, it is not surprising that this is the single biggest factor affecting price.

A brand promotion in pharmaceutical industry can be successful if it can bring one new product in the market followed by the reinforcing of brand recognition. According to Moss (2007:317) "brand image needs to be tracked and monitored against the chosen identity and continually adjusted to maintain an ideal positioning within the marketplace". Perhaps that is because pharmaceutical companies are not inclined to admit exploitative practices. Interestingly, both domestic and multinational companies believe that reinforcing brand image has something to do with helping to promote the brand. The test of hypothesis shows that doctors' perception toward domestic pharmaceutical companies differs mostly by its introduction of a new product.

The test result shows that quality of medicine associated with a brand plays a significant role affecting brand loyalty which highlights why infrastructure and production are key determinants that must be enhanced in order to ensure standards of quality. It can be concluded that customers perceive multinational pharmaceutical company's medicine quality more positively, which influences the brand loyalty. Despite doctors play the critical role in prescribing medications and in brand awareness with customers, they are looked at as the least important factor influencing the performance of the pharmaceutical market.

Doctors' preferences for a medicine are almost fully depended on the influences of different pharmaceutical companies. Most of the respondents agreed that marketing products directly to them represents higher return for drug companies. This might happen because several medical representatives from different companies try to attract the doctors through gifts and other facilities. Therefore, doctors prescribe the medicine of that company which attracts them the most. However, doctors should do what is best for the patient and consider the financial capability of the patient. Doctors should not suggest expensive medicine to a poor patient. So, it can be said that doctor's ethics is the primary factor while referring a medicine.

Recommendations

From the research findings, we have seen that instead of proper R&D, marketing of pharmaceutical products are given more emphasis. An investigation should be conducted on the issue since healthy growth is likely to encourage the pharmaceutical companies to introduce new drugs and maintain a healthy competitiveness with respect to essential drugs.

Due to lack of government's monitoring policy and practice, pharmaceutical products manufactured locally cannot be ensured uniformly. Some of the leading pharmaceutical (domestic) manufacturers and the pharmaceutical exporters of Bangladesh have started to export to foreign countries which are strategically important for global expansion. Here, government should encourage setting up of more domestic companies and provide them with financial assistance.

In order to increase the LDCs export, pharmaceutical companies need to ensure compliance of the policies and principles. Formation of alliance and contract for exchanging views, information as well as technical know-how with developed countries like India, Pakistan, Brazil and Argentina should enrich this sector.

Many doctors are doing exploitative practice at present. An investigation is needed to emphasize the doctors' suggestions in order to fulfill their expectations from the company. Finally, we can quote from statements of Moss (2007: 320):

The [pharmaceutical] industry needs to move from tactical to strategic brand management, from a lim-

ited focus to a broad portfolio perspective, from a largely sales-driven approach to one that also takes into account brand identity and other sophisticated marketing concepts. At present, the pharmaceutical industry is not ready for the major changes that have already occurred within the consumer world but cost containment, diminishing pipelines and increasing governmental pressure on prices may well force its hand in the future.

After analyzing all the data, facts and figures from the survey of fifteen doctors, a theory can be developed that domestic and multinational pharmaceutical companies in Bangladesh have differences in their performance. The role pharmaceutical companies in a global economy is to carry-out research, develop and produce innovative medicines that improve quality of life and it is their duty to do so in a profitable way (Leisinger *et al*. 2012). The prevailing drug ordinance needs to be amended again to impose mandatory price approvals for all drugs from drug administration. To ensure quality medicine, the capacity of the drug testing laboratory needs to be enhanced as well (**Hossain 2011).** Finally, doctors should be fair while prescribing medicine to patients. Better treatment from doctors should be expected based on ethical behavior and morality.

Limitations and Future Research

This study is based on exploratory research. Exploratory research is used principally to gain a deeper understanding of something, which is carried out in the initial stages of the research process and initial activities carried out to refine the problem into a researchable one which need not be precise. Saunders *et al.* (2009) argue that exploratory research is just like the activities of a traveler without a set of itinerary in the sense that during the process traveler can adapt the new changes in his/her way. During the research process especially when it is exploratory research, a researcher should be ready to accommodate new changes and adjust according to new findings in the course of action (Robson 2002). This study is exploratory research in order to get the deeper understanding of doctors' perceptions towards domestic and multinational pharmaceutical products. This study is limited with fifteen respondents from a particular city of Bangladesh, which has been selected for the survey. In Bangladesh, although the current population is huge, the ratio of experienced and skilled doctors to population is very low, which keeps the doctors busy treating the patients (Uzzal 2013). It was a difficult job to get the doctors to participate in the study from their busy schedule and it was time consuming as well. Therefore, there was not enough data for getting valid and reliable conclusion and hence the effect of the perception of doctors needs to be investigated further with large sample size. The nature of this research justifies the smaller sample size (n=15) and non parametric equivalent of t-test has been used as data analysis (Saunders *et al.* 2009), as the focus is on in-depth interview of few doctors instead of collecting large sample data. Moreover, this research should have included doctors from all over Bangladesh. This is a shortcoming of the research. Finally, the research findings based on developing countries may or may not be applicable to developed and underdeveloped economies. Despite all these limitations, the research study indicates a promising direction for comprehending doctors' perceptions of pharmaceutical products.

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