

International Competitiveness of Bangladeshi Pharmaceutical Industry

By

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A thesis submitted to the Department of Pharmacy in partial fulfillment of the requirements for the degree of Bachelor of Pharmacy (Hons.)

Department of Pharmacy
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August 2019

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Declaration

It is hereby declared that

1. The thesis submitted is my/our own original work while completing degree at Brac University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

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Approval

The thesis/project titled “International Competitiveness of Bangladeshi Pharmaceutical Industry” submitted by Md. Anan Chowdhury (15146059) of Spring, 2015 has been accepted as satisfactory in partial fulfillment of the requirement for the degree of Bachelor of Pharmacy on 22nd August, 2019.

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Ethics Statement

This study does not involve any animal or human trial.

Abstract

The study was done with 25 individuals from 10 different pharmaceutical companies holding more than 55% share of Bangladeshi pharmaceutical market to identify and evaluate some selected factors that promote and hinder the international competitiveness of Bangladeshi Pharmaceutical industry. Moreover, the apparent competitiveness of the participants' companies were also evaluated based on some potential factors. The development of Bangladeshi Pharmaceutical Industry started from 1980's and significant improvement has been seen during this journey. The journey of becoming an exporter from a 100% importing history in pharmaceuticals was not so easy. This study provides the importance of different factors that are currently helping, hindering Bangladesh to shine in the international market. The overall result and discussion provides idea about the competitiveness of Bangladeshi Pharmaceutical Industry in international market which concludes with a statement that is Bangladesh is currently a participator in international market, however, if the factors hindering the international competitiveness can be managed, Bangladesh will become a strong competitor in international market.

Keywords: Competitiveness, Pharmaceutical Industry, International Market, TRIPS, Factors.

Dedication

I am dedicating my thesis to Mohammad Kawsar Sharif Siam sir.

Acknowledgement

All praises to The Almighty Allah (SWT).

At first, the expression of my gratitude and respect goes to my honorable supervisor Mohammad Kawsar Sharif Siam AMRSC(UK), Senior Lecturer, Department of Pharmacy, BRAC University for his tremendous support and motivation.

Moreover, I would like to thank the honorable Chairperson of Department of Pharmacy Prof. Dr. Eva Rahman Kabir for her continuous inspiration and exceptional opportunities that she has given to me.

Last but not the least; I am thanking my seniors of department of pharmacy who has given me their valuable time to complete my questionnaire

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List of Acronyms

API	Active Pharmaceutical Ingredient
CAGR	Compound Annual Growth Rate
FDA	Food and Drug Administration
GDP	Gross Domestic Product
GNI	Gross National Income
IMS	International Management System
MNC	Multi-national Company
TRIPS	Trade Related Aspect of Intellectual Property Rights
SPSS	Statistical Package for the Social Sciences
SWOT	Strength, Weakness, Opportunities, Threats
WTO	World Trade Organization

Chapter 1

Introduction

1.1 Background

Pharmaceutical industry nowadays is a crucial portion of healthcare system all over the world. In past time pharmaceuticals have improved human health care system and also saved time spent in alternate health care systems and thus contributed in human development. Since it is directly related to the human welfare, pharmaceutical industries are of immense importance in developing a nation. Pharmaceutical industry is the world's one of the fastest growing industries that owns a revenue of around \$2.8 trillion. Not only are a sector of employment but pharmaceutical industries also a big part of foreign revenue earnings for many countries (M. Hussain, 2011).

In Bangladesh there was no pharmaceutical industry before 1971 and even many years after the liberation war Bangladeshi government could not manage to invest much on health sector. Pharmaceutical industry in Bangladesh started to develop from 1980's and showed a remarkable progress in last two decades. Behind this progress the primary factor was The Drug (Control) Ordinance in 1982 (Reich, 1994). The local companies and MNCs have shown their capability to produce 97% of all medicines needed and the remaining part is imported which are very sophisticated high tech medicines. It is hard to believe that only two decades before the scenario was completely opposite when most of the drugs were imported (Sultana, 2016).

Currently in Bangladesh, 240 pharmaceutical companies are present among which around 100 are operating. A total of 5600 brand are being manufactured by these companies.

International Management System (IMS) published in June 2015 says that the total size of Bangladeshi pharmaceutical industry is near about 117 billion take having an annual growth rate of around 11.37% (Hossain & Shoaib, 2014). With the employment of about 115,000 workers, Bangladeshi pharmaceutical sector has become the largest white collar employment sector (Sultana, 2016).

The growth of Bangladeshi pharmaceutical market has taken a remarkable rise from 2012-2017 when the CAGR was 15%. Moreover, from 2014-2017 there had been a historical rise in CAGR which was 21%. If this level of improvements continues, the pharmaceutical market size could reach BDT 330,000 million within 2020 according to the assumption of experts. Bangladeshi pharmaceutical sector is somewhat privileged to have a shield against foreign competitors because it is prohibited to export drugs which is already manufactured locally. And thus this sector is growing at an unbelievable speed. In the years 2016-2017 the contribution of pharmaceutical sector was 1.85% to the GDP. It is seen that from 2013-2014 to 2016-2017 pharmaceutical sector has more growth percentage than that of GDP (Limited, 2017).

Different factors are helping the Bangladeshi pharmaceutical industry to grow. For example, Along with country's economic growth the pharmaceutical sector also grew. According to Bangladesh Bureau of Statistics, the GDP growth rate of Bangladesh was 7.11% in 2015-2016 and 7.28% in 2016-2017. Since population growth rate is lower than GDP growth rate, per-capita income seems to increase. Thus chances of expenditure on healthcare sector increases. Moreover, Bangladesh has a population of 166 million people having an average population growth rate of 1.1% annually from 2008-2017. Increased population is a key factor in growth of pharmaceutical sector. In addition, in the year 2015-2016 per capita Gross National Income (GNI) was USD 1465 which was increased to USD 1610 in 2016-2017

maintaining an average growth of income 9.4%. Increased per capita income increases the chances that people will spend more on medicine. Last but not the least, from 2002 to 2015 life expectancy at birth has increased from 66.4 years to 72.2 years. People nowadays, wish to live more and this result in increased investment on health that helps in the growth of medicine sector (Limited, 2017).

Many Bangladeshi pharmaceutical companies have achieved different international certification and started to export medicines in different countries with a high quality international standards. According to the information of Bangladesh Association of Pharmaceutical Industries (BAPI), in 2016-2018, 1200 products got export registration. Basically Bangladesh exported pharmaceutical products to 107 countries in fiscal year 2016-2017. From these 107 countries Myanmar, Sri Lanka, Philippines, Vietnam, Afghanistan, Kenya and Slovenia holds 60.32% of total pharmaceutical exports. During 2016-2017 pharma export increased to USD 89.17 million from USD 82.11million in 2015-1016 (source: Bangladesh Export Promotion Bureau). From 2011-2012 to 2016-2017 export revenue CAGR was 13.23%. However, the contribution of export sales in pharmaceutical market in years 2016-2015 was only 4.59% which is remarkably low (Limited, 2017).

Bangladesh is passing a very favorable time at which they can become big in international market. From information provided by Zion market research, the growth of global generic market is assumed to have a CAGR of 10.8% from 1016-2021 and could reach USD 380.60 billion within 2021. Since around USD 60 billion worth patented drugs gone off patented in 2016, Bangladesh being a generic manufacturer apparently got a jackpot to become a big shot in global market utilizing this opportunity (Limited, 2017).

Since Bangladesh has an advantage of low labor cost, the close competitors like India and China lag behind a bit. The labor cost in Bangladesh is around 3 to 4 times less than that of India and China. Moreover, medicine price in Bangladesh is one of the lowest in the world which makes Bangladesh more favorable to export medicines than India and China. In addition, India and China are two of the major producers of pharmaceutical raw materials who are not authorized to produce patented raw materials because of restrictions from World Trade Organization (WTO). However, Bangladesh does not have this limitation due to Trade Related Aspect of Intellectual Property Rights (TRIPS). Thus Bangladesh is also having a good advantage here than the close competitors. (Limited, 2017).

Moreover, in 2015 the demand for API and excipients was BDT 60,000 million and the import of API and excipients was 59,720 million. This huge amount of import expenses will get reduced by the introduction of API Park at Munshiganj. This park will contain several plots of different sizes and prices. Some of the pharmaceutical companies such as Eskayef, Opsonin Pharma, Square Pharmaceuticals, Beximco Pharmaceuticals etc. have got plots in the API Park. Production of API and excipients will be done here which will reduce the large investment on imported materials. The expected completion year of the project is assumed to be 2020 (Limited, 2017).

Bangladesh has shown tremendous development in last few years. In the aspects of growth rate, quality, production, technology, international authority certification Bangladesh has improved a lot. Some of the companies have achieved FDA approval. The pace at which Bangladeshi pharmaceutical industries are growing in export scenario, this sector will surely mark their presence in global market showing a significant growth in GDP in pharmaceuticals. Despite of prevalence of notable problems Bangladeshi pharmaceutical sector has shown significant growth and has plenty of opportunities to grow more in future

(Tazin, 2016). This study will identify the prevailing problems that make Bangladesh less competitive, the factors that contribute to the competitiveness and suggest ways to overcome those problems and become more competitive in global market.

1.2 Literature Review

Many studies have been done regarding pharmaceutical industries in international perspective. However, studies are very limited in Bangladeshi perspective. Very few papers have been published on the competitiveness of different countries. Some of them are on specific country and some are of a whole continent. For example, Ramrattan & Szenberg studied the global competitiveness of United States of America (Ramrattan & Szenberg, 2016), Alhassan studied on the competitiveness of Saudi pharmaceutical industries (Alhassan, 2018), Gambardella & Bocconi studied global competitiveness of European countries in pharmaceuticals (Gambardella & Bocconi, 2000), Madhav studied competitiveness of Indian pharmaceutical industries (Madhav, 2012). However, other than some articles on the economic impact of pharmaceutical industries of Bangladesh, no study has been done on global competitiveness of Bangladeshi pharmaceuticals. For example, Jesmin Sultana studied future prospects of Bangladeshi pharmaceuticals (Sultana, 2016), Fariha Tazin studied the progress of Bangladeshi pharmaceutical industries (Tazin, 2016), Hossain & Shoaib studied the role of pharmaceuticals in economy of Bangladesh (Hossain & Shoaib, 2014).

People even in developing countries do not get pharmaceuticals in reasonable price but their access to the products could be easier by differential pricing. This was observed while studying on improvement of health in developing countries (Kremer, 2002). The United States has an advantage in both the number of new active ingredients for pharmaceuticals and

R&D where US\$20 billion is spent on drug development every year (Humer, 2005). Physicians and pharmaceutical representatives meet around four times a month on average (Wazana, 2000).

Meem Rafiul Hoq, Md. Ali Ahsan & Tanim. A. Tabassum performed a SWOT (Strength, Weakness, Opportunities and Threats) analysis on Bangladeshi pharmaceutical sector which provided different ways to surpass the weaknesses and threats along with possible utilization of the strengths and opportunities. (Hoq, Ahsan, & Tabassum, 2013).

Vital problems have been determined by Habib & Alam regarding marketing, production, quality control and export and they also suggested the ways to overcome the shortcomings along with the identification of development of pharmaceuticals in Bangladesh (Habib & Alam, 2012).

1.3 Objectives of the Study

This study is designed with the following objectives:

- To Identify and evaluate the factors contributing to international competitiveness of Bangladeshi pharmaceutical companies.
- To Identify and evaluate the factors contributing to company's performance in research and development.
- To identify the challenges and obstacles that Bangladeshi pharmaceutical companies face to become a good competitor in international market.
- To identify regulatory aspects that can contribute to international competitiveness of Bangladeshi pharmaceutical companies.
- To identify areas and ways to improve so that Bangladeshi pharmaceutical companies can become a better competitor in international market.

Chapter 2

Research Methodology

2.1 Type of Research

This research is a genuine survey-based quantitative submission for determining the international competitiveness of Bangladeshi Pharmaceutical Industry. The research is considered descriptive depending on the type of relationship among variables.

2.2 Measuring Tools

A prepared questionnaire containing five sections with a total of 71 questions. In order to collect the data the questionnaire was passed to different individuals. The five sections include questions regarding Factors promoting international competitiveness (21 questions), Factors unfavorable to international competitiveness (26 questions), comments or suggestion, General information of the person and his/her company (4 questions), Factors promoting international competitiveness of the firm that the person is working at (20 questions).

In the questionnaire Likert scale containing two different grades from one to seven such as 1= Not important at all 2= Not important 3= Somewhat unimportant 4= Neither important nor unimportant 5= Somewhat important 6= Important 7= Very important and 1= Strongly disagree 2= Disagree 3= Somewhat disagree 4= Neither agree nor disagree 5= Somewhat agree 6= Agree 7= Strongly agree were used. Likert scale is often used in surveys as a research tool.

To find the degree of importance/agreement, three levels were fixed (**High, Medium and Low**)

- **Low** level of importance/agreement has a mean value ≤ 3 .

- **Medium** level of importance/agreement has a mean value above 3 and below 5.
- **High** level of importance/agreement has a mean value ≥ 5 .

2.3 Sample Population

The sample population contains professionals having vast knowledge depending on educational and professional background in Bangladeshi Pharmaceutical Industry.

The research questionnaire was filled in hand by 23 professionals and 2 professionals on Google doc. form belonging to ten major pharmaceutical companies that hold more than 55% market share of total Bangladeshi pharmaceuticals market.

2.4 Statistical Techniques

Statistical Package for Social Studies (SPSS) was used to analyze the survey data in order to determine the frequencies, percentages, mean and standard deviation and describe the sample accordingly.

Chapter 3

Result and Discussion

3.1 Sample Description

The professionals sampled are executives (100%) mostly related to production and international marketing department of different pharmaceutical companies of Bangladesh (Table 1). Among the experts, 19(76%) has 1-4 years of experience and 6(24%) has below 1 year of experience (Table 2). All of the professionals sampled are working in companies that are finished product producers (Table 3). 24(96%) experts from the survey were not willing to disclose the annual turnover of their company and 1(4%) expert worked in a company that had an annual turnover of below 5 million US\$.

Table 1: Description of Samples Based on Position

What is your occupation in your company	Frequency	Percent	Valid Percent	Cumulative Percent
Executive	25	100.0	100.0	100.0

Table 2: Description of Samples Based on Experience

How long have you been with this organization	Frequency	Percent	Valid Percent	Cumulative Percent
1-4	19	76.0	76.0	76.0
Below 1	6	24.0	24.0	100.0
Total	25	100.0	100.0	

Table 3: Description of Samples Based on the Role of Their Company

What is the role(s) of your company in the value chains of Pharmaceutical industry	Frequency	Percent	Valid Percent	Cumulative Percent
Finished product producer	25	100.0	100.0	100.0

Table 4: Description of Samples Based on Annual Turnover of Their Company

What was the annual turnover of your company last year? (unit: million US \$)	Frequency	Percent	Valid Percent	Cumulative Percent
Below 5	1	4.0	4.0	4.0
Unwilling to answer	24	96.0	96.0	100.0
Total	25	100.0	100.0	

3.2 Data Analysis and Discussion

Data were collected in three different perspectives. The first perspective gave us the data regarding importance of the factors that promote the international competitiveness of pharmaceutical industries in Bangladesh (Table 5).

Table 5: Frequency and percentage of data regarding factors promoting competitiveness

Factors	Not important at all	Not important	Somewhat unimportant	Neither important nor unimportant	Somewhat important	Important	Very important
Company structure	0(0%)	0(0%)	0(0%)	0(0%)	2(8%)	13(52%)	10(40%)
Enterprise policy	0(0%)	0(0%)	0(0%)	1(4%)	10(40%)	11(44%)	3(12%)
Product quality	0(0%)	0(0%)	0(0%)	2(8%)	1(4%)	7(28%)	15(60%)

Factors	Not important at all	Not important	Somewhat unimportant	Neither important nor unimportant	Somewhat important	Important	Very important
Low labor cost	0(0%)	0(0%)	1(4%)	3(12%)	7(28%)	7(28%)	7(28%)
Brand strategy	0(0%)	0(0%)	1(4%)	2(8%)	4(16%)	11(44%)	7(28%)
Availability of raw-materials (such as API) and backward linkage	0(0%)	0(0%)	0(0%)	1(4%)	3(12%)	17(68%)	4(16%)
Common industrial infrastructure	0(0%)	0(0%)	1(4%)	1(4%)	6(24%)	13(52%)	4(16%)
Skilled workers	0(0%)	0(0%)	0(0%)	0(0%)	1(4%)	6(24%)	18(72%)
Firm size	2(8%)	3(12%)	1(4%)	4(16%)	12(48%)	1(4%)	2(8%)
R&D and technological innovations	0(0%)	0(0%)	1(4%)	3(12%)	3(12%)	13(52%)	5(20%)
Patent rights	0(0%)	0(0%)	1(4%)	5(20%)	9(36%)	6(24%)	4(16%)
Tax exemption	0(0%)	0(0%)	0(0%)	2(8%)	9(36%)	8(32%)	6(24%)
International certification	0(0%)	0(0%)	1(4%)	5(20%)	4(16)	7(28%)	8(32%)

Factors	Not important at all	Not important	Somewhat unimportant	Neither important nor unimportant	Somewhat important	Important	Very important
Trade association	0(0%)	0(0%)	1(4%)	1(4%)	8(32%)	12(48%)	3(12%)
Academic-industrial relationship	0(0%)	0(0%)	0(0%)	3(12%)	7(28%)	12(48%)	3(12%)
Domestic market	0(0%)	0(0%)	0(0%)	2(8%)	8(32%)	12(48%)	3(12%)
International market	0(0%)	0(0%)	3(12%)	2(8%)	6(24%)	9(36%)	5(20%)
Domestic government's industrial policy	0(0%)	0(0%)	0(0%)	0(0%)	9(36%)	11(44%)	5(20%)
Foreign economic policies	0(0%)	0(0%)	2(8%)	3(12%)	8(32%)	10(40%)	2(8%)
International cooperation	0(0%)	0(0%)	2(8%)	1(4%)	8(32%)	10(40%)	4(16%)
TRIPS Agreement of the WTO	0(0%)	0(0%)	0(0%)	0(0%)	2(8%)	10(40%)	13(52%)

The Table 5 shows that, 8% of the experts think that company structure is somewhat important, 52% experts think that it is important and the other 40% experts think that

company structure is a very important factor that is promoting the competitiveness. Regarding enterprise policy, 4% participants think that it is neither important nor unimportant, 40% says it is somewhat important, 44% and 12% participants says it is important and very important respectively. 8% of the participants voted for product quality as neither important nor unimportant, 4% think it is somewhat important, 28% think it is important and the rest 60% believe that product quality is very important.

In case of low labor cost, 4% think it is somewhat unimportant, 12% think it is neither important nor unimportant, 28% think it is somewhat important, 28% think it is important and the rest 28% think it is very important. Brand strategy has 4% vote for somewhat unimportant, 8% vote for neither important nor unimportant, 16% vote for somewhat important, 44% vote for important and 28% vote for very important. Regarding availability of raw-materials and backward linkage, 4% of the participants think that it is neither important nor unimportant, 12% think that it is somewhat important, 68% of the total participants claimed that it is important and the other 16% think that it is very important. In case of common industrial infrastructure, 4% of the participants think it is somewhat unimportant, 4% think it is neither important nor unimportant, 24% think it is somewhat important, 52% think it is important and the rest 16% think it is very important. 4% of the participants think skilled workers is somewhat important, 24% think it is important and the other 72% think it is very important. Regarding firm size, 8% experts think it is not important at all, 12% think it is not important, 4% think it is somewhat unimportant, 16% think it is neither important nor unimportant, 48% think it is somewhat important, 4% think it is important and the rest 8% think it is very important. In case of R&D and technological innovation, 4% think it is somewhat unimportant, 12% think it is neither important nor unimportant, 12% think it is somewhat important, 52% think it is important and the rest 20% think it is very important. About patent rights, 4% think it is somewhat unimportant, 20% think it is neither important

nor unimportant, 36% think it is somewhat important, 24% think it is important and the rest 16% think it is very important.

For tax exemption, 8% think it is neither important nor unimportant, 36% think it is somewhat important, 32% think it is important and the rest 24% think it is very important. In case of international certification, 4% think it is somewhat unimportant, 20% think it is neither important nor unimportant, 16% think it is somewhat important, 28% think it is important and the rest 32% think it is very important. Regarding trade association, 4% think it is somewhat unimportant, 4% think it is neither important nor unimportant, 32% think it is somewhat important, 48% think it is important and the rest 12% think it is very important. 12% of the participants think academic-industrial relationship is neither important nor unimportant, 28% think it is somewhat important, 48% think it is important and the rest 12% think it is very important. In case of domestic market, 8% think it is neither important nor unimportant, 32% think it is somewhat important, 48% think it is important and the rest 12% think it is very important.

Regarding international market, 12% think it is somewhat unimportant, 8% think it is neither important nor unimportant, 24% think it is somewhat important, 36% think it is important and the rest 20% think it is very important. 36% of the participants think domestic government's industrial policy is somewhat important, 44% think it is important and the rest 20% think it is very important. For the factor foreign economic policies, 8% think it is somewhat unimportant, 12% think it is neither important nor unimportant, 32% think it is somewhat important, 40% think it is important and the rest 8% think it is very important. As far as international cooperation is concerned, 8% think it is somewhat unimportant, 4% think it is neither important nor unimportant, 32% think it is somewhat important, 40% think it is important and the rest 16% think it is very important. In case of TRIPS agreement, 8% think

it is somewhat important, 40% think it is important and the rest 52% think it is very important.

The table (Table 6) provides us with the mean and standard deviation value for each factor.

Table 6: Descriptive analysis of data regarding factors promoting competitiveness

Factors	Total Participants	Mean	Std. Deviation
Company structure	25	6.32	0.627
Enterprise policy	25	5.64	0.757
Product quality	25	6.40	0.913
Low labor cost	25	5.64	1.150
Brand strategy	25	5.84	1.068
Availability of raw-materials (such as API) and backward linkage	25	5.96	0.676
Common industrial infrastructure	25	5.72	0.936
Skilled workers	25	6.68	0.557
Farm size	25	4.28	1.621
R&D and technological innovations	25	5.72	1.061
Patient rights	25	5.28	1.100
Tax exemption	25	5.72	0.936
International certification	25	5.64	1.254
Trade association	25	5.60	0.913
Academic-industrial relationship	25	5.60	0.866
Domestic market	25	5.64	0.810
International market	25	5.44	1.261
Domestic government's industrial policy	25	5.84	0.746
Foreign economic policies	25	5.28	1.061
International co-operation	25	5.52	1.085
TRIPS (Trade Related Intellectual Property Rights) Agreement of the WTO	25	6.44	0.651

The mean of frequencies for the factors Company structure, Enterprise policy, Product quality, Low labor cost, Brand strategy, Availability of raw-materials (such as API) and backward linkage, Common industrial infrastructure, Skilled workers, Firm size, R&D and technological innovations, Patient rights, Tax exemption, International certification, Trade association, Academic-industrial relationship, Domestic market, International market, Domestic government's industrial policy, Foreign economic policies, International co-operation, TRIPS (Trade Related Intellectual Property Rights) Agreement of the WTO are 6.32, 5.64, 6.40, 5.64, 5.84, 5.96, 5.72, 6.68, 4.28, 5.72, 5.28, 5.72, 5.64, 5.60, 5.60, 5.64, 5.44, 5.84, 5.28, 5.52 and 6.44 respectively.

From the data of table 6, it is seen that other than the factor Firm size, the rest factors that are promoting the competitiveness of Bangladeshi pharmaceutical industries have a mean value of more than 5. From the mean scale decided in research methodology we can interpret that all of the given factors have high level of importance and they are contributing in a high proportion to make Bangladesh more competitive.

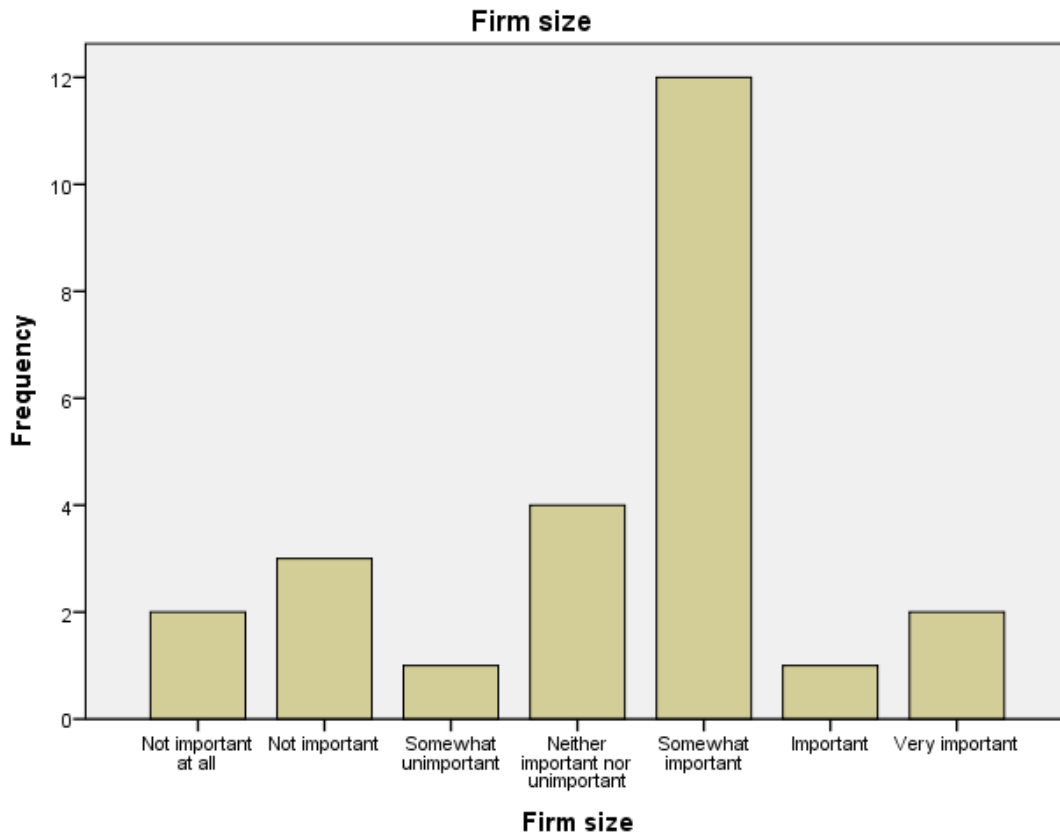


Figure 1: Frequency distribution chart for Firm size

(Firm size is interpreted as somewhat important from the data with some variations)

However in case of Firm size the mean is below 5 which means it is of medium importance to the experts. The possible reason behind the medium importance of Firm size can be that the competitiveness in international market does not always depend on the amount of product one produce, rather all the countries of the world prefer quality of the product, patient safety and proper efficacy in a reasonable price. Due to the vast variation in response regarding firm size the standard deviation becomes as high as 1.621. Thus it can be interpreted that there are two different group of participants who think very different regarding the size of the firm (Figure 1).

In case of Low labor cost, Brand strategy, R&D and technological innovations, Patient rights, International certification, International market, foreign economic policies,

International co-operation, the standard deviation is seen above 1. A standard deviation above 1 indicates that the data collected is highly spread. The reason behind such different thinking of the participants can be the type of company they are working at, the location of their industry, and their perspective regarding the regulatory aspects. For example, there shall be high difference in thought between participants working in a local company and participants working in a MNC regarding factors whose impacts are different for local or international companies. Moreover, Trade Related Intellectual Property Rights (TRIPS) has huge impact on Bangladeshi pharmaceutical sector. Since Most of the local companies in Bangladesh are producers of generic medicine, TRIPS can help Bangladesh the most to grow in international market.

The following table (Table 7) provides the data regarding factors that are hindering Bangladeshi pharmaceutical industries to improve competitiveness.

Table 7: Frequency and percentage of data regarding factors hindering competitiveness

Factors	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Poor quality of drugs	1(4%)	0(0%)	0(0%)	0(0%)	0(0%)	5(20%)	19(76%)
Lack of capacity to locally produce APIs and other raw materials	0(0%)	0(0%)	1(4%)	1(4%)	4(16%)	8(32%)	11(44%)
Lack of sophisticated machinery and production facilities	0(0%)	0(0%)	2(8%)	2(8%)	5(20%)	6(24%)	10(40%)

Factors	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Lack of R&D facilities and incapability to conduct bioequivalence and bioavailability tests	0(0%)	1(4%)	2(8%)	4(16%)	3(12%)	7(28%)	8(32%)
Lack of proper marketing strategies	0(0%)	0(0%)	0(0%)	2(8%)	2(8%)	13(52%)	8(32%)
Lack of access to information about potential export market	0(0%)	0(0%)	1(4%)	5(20%)	4(16%)	10(40%)	5(20%)
Lack of international certification	0(0%)	2(8%)	2(8%)	2(8%)	6(24%)	10(40%)	3(12%)
Inadequate human capital skills	1(4%)	0(0%)	0(0%)	0(0%)	3(12%)	11(44%)	10(40%)
Lack of domestic investment	0(0%)	0(0%)	1(4%)	2(8%)	8(32%)	11(44%)	3(12%)
Lack of foreign direct investment	0(0%)	0(0%)	0(0%)	6(24%)	3(12%)	16(64%)	0(0%)

Factors	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Lack of common industry infrastructure	0(0%)	0(0%)	2(8%)	1(4%)	6(24%)	14(56%)	2(8%)
Weak scientific support for universities, public research institutes and firms	0(0%)	1(4%)	1(4%)	0(0%)	8(32%)	10(40%)	5(20%)
Low levels of collaboration between firms and public research institutes	0(0%)	0(0%)	2(8%)	0(0%)	8(32%)	10(40%)	5(20%)
Lack of strong linkage between industry and academia	0(0%)	1(4%)	1(4%)	5(20%)	9(36%)	3(12%)	6(24%)
Small domestic market	0(0%)	0(0%)	2(8%)	6(24%)	4(16%)	11(44%)	2(8%)
Dominance of Indian and Chinese pharmaceutical firms in international markets	1(4%)	0(0%)	1(4%)	4(16%)	5(20%)	12(48%)	2(8%)

Factors	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Extreme competition in international market apart from Indian and Chinese firms	0(0%)	2(8%)	3(12%)	3(12%)	8(32%)	7(28%)	2(8%)
Absence of intellectual property protection	1(4%)	0(0%)	0(0%)	2(8%)	9(36%)	10(40%)	3(12%)
Weak regulatory mechanism	0(0%)	0(0%)	0(0%)	1(4%)	3(12%)	13(52%)	8(32%)
Bureaucratic rigidity	0(0%)	0(0%)	1(4%)	2(8%)	9(36%)	3(12%)	10(40%)
Corruption	0(0%)	0(0%)	0(0%)	1(4%)	2(12%)	4(16%)	17(68%)
Poor country image	6(24%)	2(8%)	1(4%)	1(4%)	3(12%)	7(28%)	5(20%)
Considering patient safety	0(0%)	0(0%)	0(0%)	2(8%)	5(20%)	10(40%)	8(32%)
cGMP standards	0(0%)	0(0%)	0(0%)	1(4%)	3(12%)	9(36%)	12(48%)
Lack of governmental support		1(4%)		1(4%)	5(20%)	11(44%)	7(28%)
Internal rivalry		3(12%)	1(4%)	2(8%)	9(36%)	7(28%)	3(12%)

The table (Table 7) contains a total of 26 factors and 25 participants took part in the survey. Regarding the factor poor quality of drugs, 4% participant strongly disagreed, 20% agreed and rest 76% strongly agreed. In case of lack of capacity to locally produce APIs and other raw materials 4% said they somewhat disagree, 4% were neutral, 16% said they somewhat agree, 32% agreed and 44% strongly agreed. For lack of sophisticated machinery and production facilities, 8% said they somewhat disagree, 8% were neutral, 20% said they somewhat agree, 24% agreed and 40% strongly agreed. Regarding lack of R&D facilities and incapability to conduct bioequivalence and bioavailability tests, 4% participants disagreed, 8% said they somewhat disagree, 16% were neutral, 12% said they somewhat agree, 28% agreed and 32% strongly agreed. In case of lack of proper marketing strategies, 8% were neutral, 8% said they somewhat agree, 52% agreed and 32% strongly agreed. For the factor lack of access to information about potential export market, 4% said they somewhat disagree, 20% were neutral, 16% said they somewhat agree, 40% agreed and 20% strongly agreed. In case of lack of international certification, 8% participants disagreed, 8% said they somewhat disagree, 8% were neutral, 24% said they somewhat agree, 40% agreed and 12% strongly agreed. In regard to inadequate human capital skills, 4% strongly disagreed, 12% said they somewhat agree, 44% agreed and 40% strongly agreed.

For lack of domestic investment, 4% said they somewhat disagree, 8% were neutral, 32% said they somewhat agree, 44% agreed and 12% strongly agreed. In the matter of lack of foreign direct investment, 24% were neutral, 12% said they somewhat agree, 64% agreed. With regard to lack of common industry infrastructure, 8% said they somewhat disagree, 4% were neutral, 24% said they somewhat agree, 56% agreed and 8% strongly agreed. In case of weak scientific support for universities, public research institutes and firms, 4% of the participants disagreed, 4% said they somewhat disagree, 32% said they somewhat agree, 40% agreed and 20% strongly agreed. For low levels of collaboration between firms and public

research institutes, 8% said they somewhat disagree, 32% said they somewhat agree, 40% agreed and 20% strongly agreed. Regarding lack of strong linkage between industry and academia, 4% of the participants disagreed, 4% said they somewhat disagree, 20% were neutral, 36% said they somewhat agree, 12% agreed and 24% strongly agreed. In case of small domestic market, 8% said they somewhat disagree, 24% were neutral, 16% said they somewhat agree, 44% agreed and 8% strongly agreed. In regard to the factor dominance of Indian and Chinese pharmaceutical firms in international markets, 4% of the experts strongly disagreed, 4% said they somewhat disagree, 16% were neutral, 20% said they somewhat agree, 48% agreed and 8% strongly agreed. Regarding extreme competition in international market apart from Indian and Chinese firms, 8% of the participants disagreed, 12% said they somewhat disagree, 12% were neutral, 32% said they somewhat agree, 28% agreed and 8% strongly agreed.

For the factor mentioned as absence of intellectual property protection, 4% of the participants strongly disagreed, 8% were neutral, 36% said they somewhat agree, 40% agreed and 12% strongly agreed. In case of weak regulatory mechanism, 4% were neutral, 12% said they somewhat agree, 52% agreed and 32% strongly agreed. For the factor named bureaucratic rigidity, 4% said they somewhat disagree, 8% were neutral, 36% said they somewhat agree, 12% agreed and 40% strongly agreed. In response to corruption, 4% were neutral, 12% said they somewhat agree, 16% agreed and 68% strongly agreed. In case of poor country image, 24% of the participants strongly disagreed, 8% of them disagreed, 4% said they somewhat disagree, 4% were neutral, 12% said they somewhat agree, 28% agreed and 20% strongly agreed. With regard to the factor named as considering patient safety, 8% were neutral, 20% said they somewhat agree, 40% agreed and 32% strongly agreed. For cGMP standards, 4% of the participants were neutral, 12% said they somewhat agree, 36% agreed and 48% strongly agreed. In response to lack of governmental support, 4% of experts

disagreed, 4% were neutral, 20% said they somewhat agree, 44% agreed and 28% strongly agreed. In case of the factor mentioned as internal rivalry, 12% of the participants disagreed, 4% said they somewhat disagree, 8% were neutral, 36% said they somewhat agree, 28% agreed and 12% strongly agreed.

The following table (Table 8) shows the analysis of mean and standard deviation for each factor that the participants think are hindering the global competitiveness of Bangladesh in pharmaceutical sector.

Table 8: Descriptive analysis of data regarding factors hindering competitiveness

Factors	Total Participant	Mean	Std. Deviation
Poor quality of drugs	25	6.56	1.227
Lack of capacity to locally produce APIs and other raw materials	25	6.08	1.077
Lack of sophisticated machinery and production facilities	25	5.80	1.291
Lack of R&D facilities and incapability to conduct bioequivalence and bioavailability tests	25	5.48	1.503
Lack of proper marketing strategies	25	6.08	.862
Lack of access to information about potential export market	25	5.52	1.159
Lack of international certification	25	5.16	1.434
Inadequate human capital skills	25	6.08	1.256
Lack of domestic investment	25	5.52	0.963
Lack of foreign direct investment	25	5.40	0.866
Lack of common industry infrastructure	25	5.52	1.005
Weak scientific support for universities, public research institutes and firms	25	5.60	1.190
Low levels of collaboration between firms and public research institutes	25	5.64	1.075
Lack of strong linkage between industry and academia	25	5.20	1.354
Small domestic market	25	5.20	1.155

Factors	Total Particip- ant	Mean	Std. Deviation
Dominance of Indian and Chinese pharmaceutical firms in international markets	25	5.24	1.332
Extreme competition in international market apart from Indian and Chinese firms	25	4.84	1.405
Absence of intellectual property protection	25	5.40	1.225
Weak regulatory mechanism	25	6.12	0.781
Bureaucratic rigidity	25	5.76	1.200
Corruption	25	6.48	0.872
Poor country image	25	4.36	2.378
Considering patient safety	25	5.96	0.935
cGMP standards	25	6.28	0.843
Lack of governmental support	25	5.84	1.143
Internal rivalry	25	5.00	1.472

If we look into the above table (Table 8), the mean value of the responses for Poor quality of drugs, Lack of capacity to locally produce APIs and other raw materials, Lack of sophisticated machinery and production facilities, Lack of R&D facilities and incapability to conduct bioequivalence and bioavailability tests, Lack of proper marketing strategies, Lack of access to information about potential export market, Lack of international certification, Inadequate human capital skills, Lack of domestic investment, Lack of foreign direct investment, Lack of common industry infrastructure, Weak scientific support for universities, public research institutes and firms, Low levels of collaboration between firms and public research institutes, Lack of strong linkage between industry and academia, Extreme

competition in international market apart from Indian and Chinese firms, Small domestic market, Dominance of Indian and Chinese pharmaceutical firms in international markets, Absence of intellectual property protection, Weak regulatory mechanism, Bureaucratic rigidity, Corruption, Poor country image, Considering patient safety, cGMP standards, Lack of governmental support, Internal rivalry are 6.56, 6.08, 5.80, 5.48, 6.08, 5.52, 5.16, 6.08, 5.52, 5.40, 5.52, 5.60, 5.64, 5.20, 5.20, 5.24, 4.84, 5.40, 6.12, 5.76, 6.48, 4.36, 5.96, 6.28, 5.84 and 5.00 respectively.

From the above data analysis it can be stated that other than Poor country image and Extreme competition in international market apart from Indian and Chinese firms all of the factors in Table 8 has high degree of agreement that they hinder the competitiveness of Bangladeshi pharmaceutical industry.

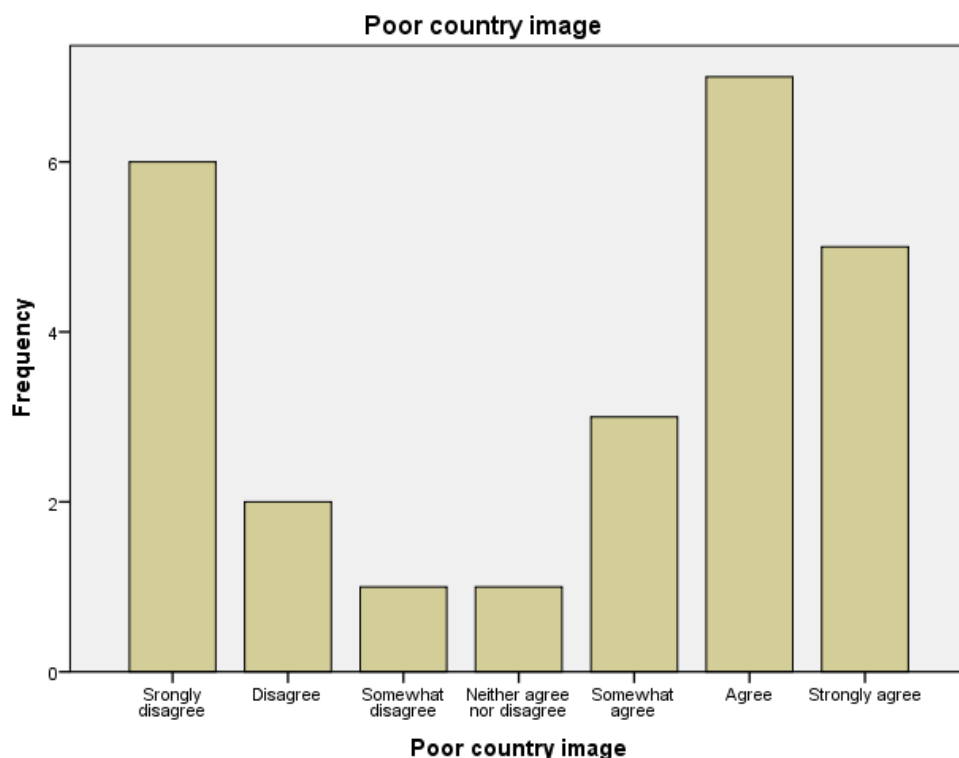


Figure 2: Frequency distribution chart for Poor country image
 (Mean shows medium importance but the participants are divided into two groups)

The given figure (Figure 2) shows the distribution of responses regarding the factor Poor image from which we can interpret that, participants are distributed in two different groups. Therefore the mean has come to a neutral point which is 4.36. The reason behind such response can be interpreted as Bangladesh having somewhat good image in global market. However, the standard deviation for this factor has a value of 2.378 (Table 8) which shows that the data is divided into two groups. This wide difference in thought of the participants can be interpreted as difference in the market of the companies they are working at. For example, companies having products that are exported in foreign countries has more situations where poor country image becomes a vital factor. On the other hand, companies serving 100% products to the local people deal with very less circumstances on which poor country image has remarkable impact. Therefore, the data is somewhat divided in two groups.

For the matter of Extreme competition in international market apart from Indian and Chinese firms the mean value is 4.84. The obtained shows that the participants were neutral regarding this factor. Bangladesh is one of the very few countries that has very cheap labor cost. India and China also has very cheap labor cost. In the production of pharmaceutical products, labor cost is a very important factor. Other than south Asia, most of the countries in the world have high labor cost which results in high price of medicines. However, Bangladesh also has an advantage of producing medicines at a low price because of having permission to produce generic drugs under the TRIPS agreement by WTO. These are the probable reasons because of which Extreme competition in international market apart from Indian and Chinese firms did not get high level of agreement in regards that it hinder the competitiveness of Bangladeshi pharmaceutical industry.

Other than Lack of proper marketing strategies, Lack of domestic investment, Lack of foreign direct investment , Corruption, Considering patient safety, cGMP standards all other aspects has standard deviation value more than 1 (Table 8). In the above mentioned factors maximum

participants has somewhat same point of view. Being a third world country, this is not a shocking result because most of these factors are closely related to the economy, system and living standards of a country.

Data regarding the factors that are important for companies in which the participants are working to improve their competitiveness are given in Table 9.

Table 9: Frequency and percentage of data regarding factors promoting competitiveness of companies

Factors	Not important-at all	Not important	Somewhat unimportant	Neither important nor unimportant	Somewhat important	Important	Very important
Low priced products	0(0%)	0(0%)	0(0%)	3(12%)	3(12%)	10(40%)	9(36%)
High quality products	0(0%)	0(0%)	0(0%)	1(4%)	5(20%)	10(40%)	9(36%)
API skill	0(0%)	0(0%)	0(0%)	1(4%)	2(8%)	16(64%)	6(24%)
Backward linkage	0(0%)	0(0%)	0(0%)	3(12%)	7(28%)	12(48%)	3(12%)
Brand image	0(0%)	0(0%)	0(0%)	0(0%)	3(12%)	8(32%)	14(56%)
International certification	0(0%)	3(12%)	3(12%)	1(4%)	2(8%)	10(40%)	6(24%)
Dynamic corporate strategy	0(0%)	1(4%)	1(4%)	0(0%)	5(20%)	15(60%)	3(12%)
Extensive marketing strategy	0(0%)	0(0%)	1(4%)	0(0%)	6(24%)	10(40%)	8(32%)
Extensive sales and distribution network	0(0%)	0(0%)	0(0%)	2(8%)	6(24%)	15(60%)	2(8%)

Factors	Not important at all	Not important	Somewhat unimportant	Neither important nor unimportant	Somewhat important	Important	Very important
Skilled workers	0(0%)	0(0%)	0(0%)	0(0%)	2(8%)	5(20%)	18(72%)
High employee motivation	0(0%)	1(4%)	2(8%)	2(8%)	5(20%)	10(40%)	5(20%)
Large firm size	0(0%)	3(12%)	4(16%)	5(20%)	8(32%)	4(16%)	1(4%)
High capital investment	0(0%)	0(0%)	1(4%)	4(16%)	5(20%)	13(52%)	2(8%)
Superior physical capital and technological excellence	0(0%)	0(0%)	0(0%)	4(16%)	4(16%)	15(60%)	2(8%)
High R&D expenditure and new product development	0(0%)	1(4%)	2(8%)	4(16%)	10(40%)	5(20%)	3(12%)
Patent rights	0(0%)	0(0%)	1(4%)	1(4%)	7(28%)	13(52%)	3(12%)
Collaboration with reputed foreign firmsMNCs/	0(0%)	0(0%)	2(8%)	4(16%)	9(36%)	9(36%)	1(4%)
Large domestic market share	0(0%)	0(0%)	5(20%)	2(8%)	6(24%)	9(36%)	3(12%)

Factors	Not important at all	Not important	Somewhat unimportant	Neither important nor unimportant	Somewhat important	Important	Very important
Significant export record	0(0%)	0(0%)	4(16%)	3(12%)	5(20%)	11(44%)	2(8%)
Long time existence in the market	1(4%)	2(8%)	1(4%)	0(0%)	7(28%)	9(36%)	5(20%)

The Table 9 shows that, 12% of the experts think that low priced product is neither important nor unimportant, 12% think that it is somewhat important, 40% experts think that it is important and the other 36% experts think that low priced product is a very important factor that gives their company more competitiveness. Regarding high quality products, 4% participants think that it is neither important nor unimportant, 20% says it is somewhat important, 40% and 36% participants says it is important and very important respectively. 4% of the participants vote for API skill as neither important nor unimportant, 8% think it is somewhat important, 64% think it is important and the rest 24% believe that it is very important. In case of backward linkage, 12% think it is neither important nor unimportant, 28% think it is somewhat important, 48% think it is important and the rest 12% think it is very important. Brand image has 12% vote for somewhat important, 32% vote for important and 56% vote for very important.

Regarding international certification, 12% think that it is not important, 12% think that it is somewhat unimportant, 4% of the participants think that it is neither important nor unimportant, 8% think that it is somewhat important, 40% of the total participants claimed that it is important and the other 24% think that it is very important. In case of dynamic

corporate strategy, 4% of the participants think that it is not important, 4% think it is somewhat unimportant, 20% think it is somewhat important, 60% think it is important and the rest 12% think it is very important. 4% of the participants think extensive marketing strategy of their company is somewhat unimportant, 24% think it is somewhat important, 40% think it is important and the other 32% think it is very important. Regarding extensive sales and distribution network, 8% think it is neither important nor unimportant, 24% think it is somewhat important, 60% think it is important and the rest 8% think it is very important. In case of skilled workers, 8% think it is somewhat important, 20% think it is important and the rest 72% think it is very important. About high employee motivation, 4% think that it is not important, 8% think it is somewhat unimportant, 8% think it is neither important nor unimportant, 20% think it is somewhat important, 40% think it is important and the rest 20% think it is very important.

For large firm size, 12% participants think it is not important, 16% think it is somewhat important, 20% think it is neither important nor unimportant, 32% think it is somewhat important, 16% think it is important and the rest 4% think it is very important. In case of high capital investment, 4% think it is somewhat unimportant, 16% think it is neither important nor unimportant, 20% think it is somewhat important, 52% think it is important and the rest 8% think it is very important. Regarding superior physical capital and technological excellence, 16% think it is neither important nor unimportant, 16% think it is somewhat important, 60% think it is important and the rest 8% think it is very important. 4% of the participants think high R&D expenditure and new product development is not important, 8% think it is somewhat unimportant, 16% think it is neither important nor unimportant, 40% think it is somewhat important, 20% think it is important and the rest 12% think it is very important. In case of patent rights, 4% participants think it is somewhat unimportant, 4%

think it is neither important nor unimportant, 28% think it is somewhat important, 52% think it is important and the rest 12% think it is very important.

Regarding collaboration with reputed foreign firms/MNCs, 8% think it is somewhat / unimportant, 16% think it is neither important nor unimportant, 36% think it is somewhat important, 36% think it is important and the rest 4% think it is very important. 20% of the participants think large domestic market share is somewhat unimportant, 8% think it is neither important nor unimportant, 24% think it is somewhat important, 36% think it is important and the rest 12% think it is very important. For the factor significant export record, 16% think it is somewhat unimportant, 12% think it is neither important nor unimportant, 20% think it is somewhat important, 44% think it is important and the rest 8% think it is very important. As far as long time existence in the market is concerned, 4% participants think it is not important at all, 8% think it is not important, 4% think it is somewhat unimportant, 28% think it is somewhat important, 36% think it is important and the rest 20% think it is very important.

Table 10: Descriptive analysis of data regarding factors promoting company's competitiveness

Factors	Total Participant	Mean	Std. Deviation
Low priced products	25	6.00	1.000
High quality products	25	6.08	0.862
API skill	25	6.08	0.702
backward linkage	25	5.60	0.866
Brand image	25	6.44	0.712
International certification	25	5.24	1.739
Dynamic corporate strategy	25	5.64	1.114
Extensive marketing strategy	25	5.96	0.978

Factors	Total Participant	Mean	Std. Deviation
Extensive sales and distribution network	25	5.68	0.748
Skilled workers	25	6.64	0.638
High employee motivation	25	5.44	1.356
Large firm size	25	4.36	1.381
High capital investment	25	5.44	1.003
Superior physical capital and technological excellence	25	5.60	0.866
High R&D expenditure and new product development	25	5.00	1.258
Patent rights	25	5.64	0.907
Collaboration with reputed foreign firms/MNCs	25	5.12	1.013
Large domestic market share	25	5.12	1.333
Significant export record	25	5.16	1.248
Long time existence in the market	25	5.28	1.646

From the above table (Table 10) it is evident that, regarding extent of importance Low priced products, High quality products, API skill, Backward linkage, Brand image, International certification, Dynamic corporate strategy, Extensive marketing strategy, Extensive sales and distribution network, Skilled workers, High employee motivation, Large firm size, High capital investment, Superior physical capital and technological excellence, High R&D expenditure and new product development, Patent rights, Collaboration with reputed foreign firmsMNCs/, Large domestic market share, Significant export record and Longtime existence in the market have mean values 6.00, 6.08, 6.08, 5.60, 6.44, 5.24, 5.64, 5.96, 5.68, 6.64, 5.44, 4.36, 5.44, 5.60, 5.00, 5.64, 5.12, 5.12, 5.16 and 5.28 respectively.

From the data given in table 10, it is seen that large firm size is the only factor that has mean value 4.36 that is less than 5 and from the importance scale described in methodology it can be called a factor of medium importance in improving competitiveness of the participant's firms. Since some of the companies in Bangladesh does not have a very large firm size, the result has come to a neutral point. For example, employees working in companies that have a large firm size think that the size of their firm is giving them more competitiveness that the companies having small firm size. However, there are participants who work for companies having small firm size and to them it will apparently not get enough importance in terms of improving their competitiveness. That is why the standard deviation of this facto has a value of 1.381 (Table 10) which means the data are widely distributed and it is shown in Figure 3.

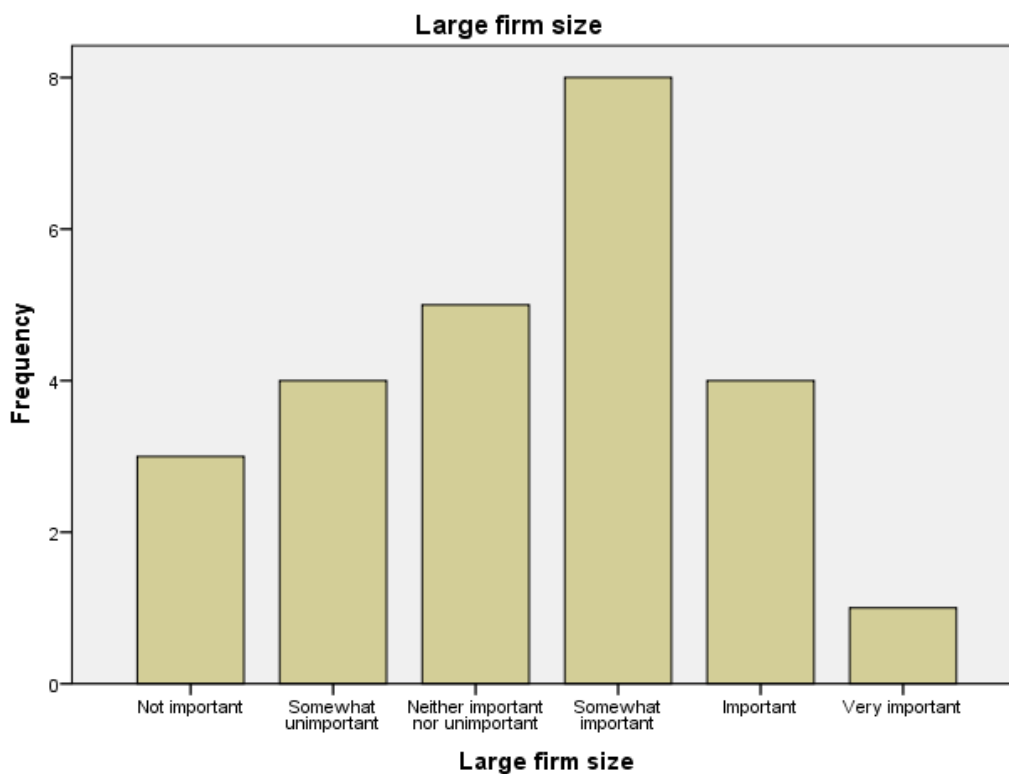


Figure 3: Frequency distribution chart of Large Firm Size

(Large firm size is somewhat important but participants have very different views)

The standard deviation values of Low priced products, International certification, Dynamic corporate strategy, High employee motivation, Large firm size, High capital investment, High R&D expenditure and new product development, Collaboration with reputed foreign firms/MNCs, Large domestic market share, Significant export record and Long time existence in the market is obtained above 1 shown in Table 10. This can be interpreted as widespread distribution of responses regarding these factors. In case of low priced product, the presence of such variation is probably due to the participation of some employees from multi-national companies that have higher product prices. Another reason can be the consideration of product quality to lower the product price that does not help a company to be globally competitive.

Moreover, variations in the responses are also seen in case of the factor mentioned as High employee motivation. From the figure (Figure 4) given below we can see that maximum responses are indicating that their companies are focusing enough in motivating their employees and thus developing their global competitiveness. However, some of the responses are completely opposite. Those responses are indicating towards companies having policies that focuses less on employee motivation. This factor has such variation in responses due to different company policies in different companies of Bangladeshi pharmaceutical sector.

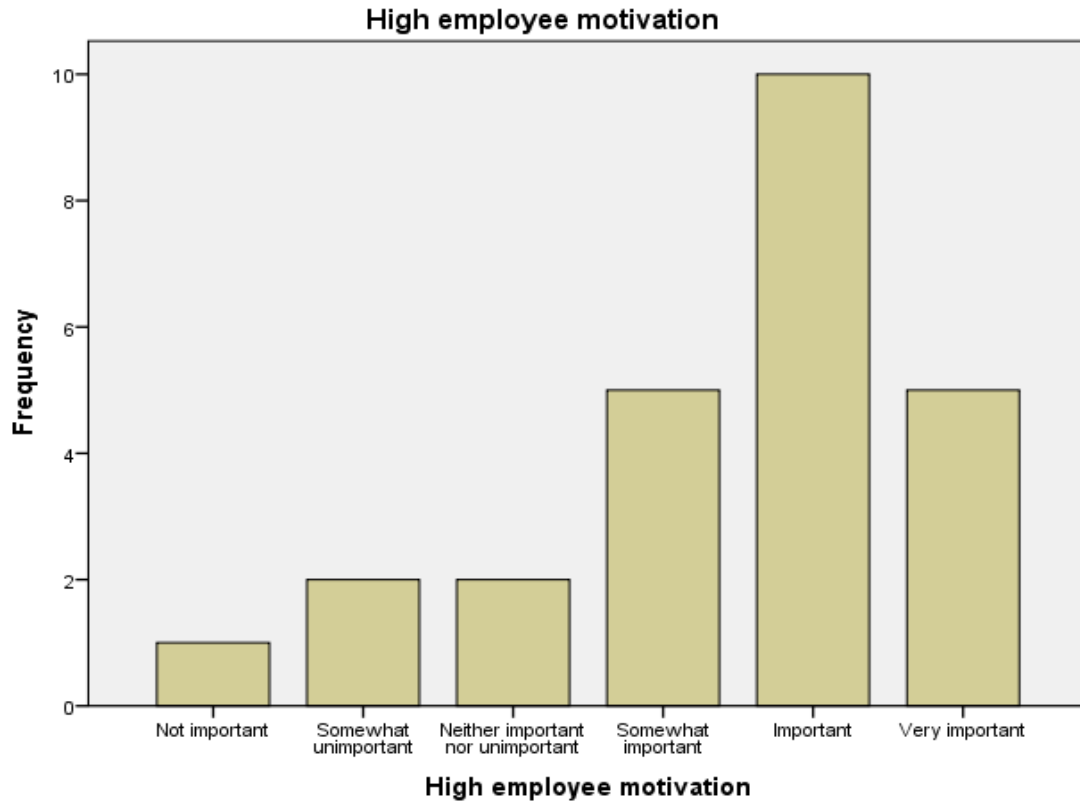


Figure 4: Frequency distribution chart for High Employee Motivation

(High employee motivation is given enough importance but it varies from company to company)

Chapter 4

Conclusion and Recommendations

Understanding the competitiveness of Bangladesh Pharmaceutical Industry is very important for the policymakers in order to make decisions. This survey provides elemental proof to the policymakers to make them able to construct better policies to be more competitive in international market.

From the results of this study it is evident that currently Bangladeshi Pharmaceutical Industry has enough competitiveness to shine in the international market if the industry can overcome the factors that are hindering their competitiveness. Most of the obstacles regarding international competitiveness are related to the system of the country. Bangladesh has a favorable competitiveness regarding the factors promoting the country's and the company's competitiveness. However, if the governmental policies, level of corruption, availability of all tests and domestic and foreign investment is not properly managed then it would be very difficult for Bangladesh to make her pharmaceutical industry well known in international market.

The suggestions below may help Bangladesh to improve competitiveness:

- Pharmaceutical industry has already in advantage because of the reduction of customs duty on raw materials and the upcoming establishment of API park in Munshiganj.
- To improve international competitiveness, Bangladesh must initiate bioequivalence tests.
- Constructing Clinical Research Organization (CRO).
- Arrangement of global fair can have a productive impact.
- R&D departments should get more attention.

References

- Alhassan, A. (2018). The Competitiveness Of Saudi Pharmaceutical Industry Using Porter 5 Forces The Competitiveness Of Saudi Pharmaceutical Industry Using Porter 5 Forces Analysis, (January 2016).
- Gambardella, A., & Bocconi, L. (2000). Global Competitiveness In Pharmaceuticals : A European Perspective, (November).
- Habib, M. A., & Alam, M. Z. (2012). Business Analysis Of Pharmaceutical Firms In Bangladesh: Problems And Prospects. *Journal Of Business And Technology (Dhaka)*.
- Hoq, M. R., Ahsan, A., & Tabassum, T. A. (2013). A Study On Swot Analysis Of Pharmaceutical Industry : The A Study On Swot Analysis Of Pharmaceutical Industry : The Bangladesh Context. *Asian Business Consortium*, 2(January).
- Hossain, M. M., & Shoaib, S. M. (2014). Role Of Pharmaceutical Sector In The National, 3(2), 951–960.
- Humer, F. B. (2005). Innovation In The Pharmaceutical Industry — Future Prospects.
- Kremer, M. (2002). Pharmaceuticals And The Developing World, 16(4), 67–90.
- Limited, E. S. (2017). Pharmaceuticals Industry Of Bangladesh.
- M. Hussain. (2011). Pharmaceutical Industry In Oic Member Countries. *Sesric*, (October 2011), 1–16.
- Madhav, V. V. (2012). Competitiveness Of Indian Pharmaceutical Industry – Areas Needing Attention. *Indian Journal Of Commerce & Management Studies*, Iii(1), 48–56.

- Ramrattan, L., & Szenberg, M. (2016). Global Competition And The United States Pharmaceutical Industry. *The American Economist*.
- Reich, M. R. (1994). Bangladesh Pharmaceutical Policy And Politics. *Health Policy And Planning*, 9(2), 130–143.
- Sultana, J. (2016). Future Prospects And Barriers Of Pharmaceutical Industries In Bangladesh. *Bangladesh Pharmaceutical Journal*.
- Tazin, F. (2016a). Pharmaceutical Industry Of Bangladesh : Progress And Prospects, 1(1), 19–30.
- Tazin, F. (2016b). Pharmaceutical Industry Of Bangladesh: Progress And Prospects. *The Millennium University Journal*, 1(1).
- Wazana, A. (2000). *Physicians And The Pharmaceutical Industry Is A Gift Ever Just A Gift?* *Jama* (Vol. 283).

