

# Factors Affecting Medical Representatives' Performance in Generic and Non-Generic Pharmaceutical Companies in Jordan: A Comparative Study

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## ABSTRACT

Sales representatives play a central role in many companies, spanning the boundary between the selling firm and the customer. This research aims to investigate the factors affecting the pharmaceutical medical sales representatives' perceived performance in both generic and multinational pharmaceutical manufacturing companies in the Jordanian market.

The population consists of the medical sales representatives in Jordanian pharmaceutical manufacturing companies and multinational (non- generic, research) pharmaceutical companies. The final selected sample consists of fifty seven medical sales representatives from eight generic and sixty seven medical sales representatives from ten multinational pharmaceutical companies.

The research findings indicate the following:

1. There was a significant differences between generic and multinational pharmaceutical companies when compared together in light of all independent variables (wages system, evaluation, training, sales target, promotional system and personality traits and skills).
2. When each independent variable taken separately; only wages system and training schedules showed differences.
3. Significant differences were found between generic and multinational pharmaceutical companies regarding medical sales representatives' performance.
4. For generic companies; there was positive effects only between the personality traits and the performance of the medical sales representatives

**Keywords:** Medical Representatives' Performance, Factors, Companies in Jordan.

## 1. INTRODUCTION

Sales representatives play a central role in many companies, spanning the boundary between the selling firm and the customer. For some customers the salesperson is virtually synonymous with the firm (BenMoussa, 2005). Medical sales representatives are salesmen responsible for promoting pharmaceutical products to physician of different specialties, leading physicians to prescribe the drug and increase the sales of the company. Medical sales representatives needs and

requirements change through years, the more the need increases for highly qualified medical sales representatives, the more the need to satisfy them.

There are two major kinds of pharmaceutical companies in Jordan. The first one is the non- generic (multinational, research, foreign) companies and the second are the generic (local, Jordanian) companies. The multinational companies are originator companies in the whole world such as: Merk, AstraZeneca, Roche and many others. As for the generic (local) companies in Jordan, they just imitate the originator products when the potencies of the products are expired.

Most modern drugs are developed by research in the laboratories of a multinational pharmaceutical company. While generic pharmaceutical companies produce generic

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products where the patent of the brand leaders has expired, making it possible for these new manufacturers to make and sell the drug (Taylor and Harding, 2001). According to Lopez and Reisner (2001) when a brand name drug's patent expires, other pharmaceutical companies than the originator (multinational company) can produce the same active chemical compound and sell the drug under its generic name.

There are many generic pharmaceutical companies in Jordan, almost 15 pharmaceutical manufacturing companies are present and they all are competing over the same imitated products. Generic companies do not have the required resources to develop new products, especially the development of new active ingredients which are indicated for special disease. Such developments require high investment (millions of dollars) that generic companies cannot afford (JAPM, 2004).

Personal selling are generally accepted to be the most effective form of pharmaceutical promotion (Smith, 1991). This research concentrated on the performance of the medical sales representatives and the factors influencing them. These factors may affect their attitude in achieving targets and profits. It is suggested that these factors either facilitate or hinder their performance. It is worth noting here that not much research has been conducted in Jordan to tackle this issue and the environment surrounding and affecting the medical sales rep's performance in the pharmaceutical field.

## 2. RESEARCH PROBLEM

Factors affecting medical representatives' performance was chosen as the focus of this study because there is a shortage in the number of highly qualified human resources to practice medical sales rep job. As many of generic companies in Jordan face a real difficulty and challenging issue in hiring and selecting the proper persons that fit well in the position, there has been little attention focused at the applicable systems to direct the effectiveness of hiring the perfect medical sales representatives.

Generally speaking, the ongoing process of hiring persons in the pharmaceutical companies depends mostly on the scientific background of the candidates. This criterion of recruitment ignores other important factors that should be taken into consideration such as the candidates potentials in marketing (i.e. acquired experience, knowledge and training). This problem forces

the pharmaceutical companies to face many challenges; the major threat lies in the fact that these companies have high turn over rates in their medical sales representatives. Kotler and Keller (2006) clarifies that the average annual turnover rate for all industries is almost 20 percent. And when a salesperson quits, the cost of finding and training a new person- plus the cost of lost sales- can be very high. A sales force with many new people is less productive.

On the other hand, the performance of the medical sales representatives in the pharmaceutical companies varies between multinational and the generic company. Thus, the research was conducted to define the major factors influencing the medical sales representatives' performance regarding their company's environment. In addition, by identifying these influencing factors which can be taken into consideration by all pharmaceutical companies in the future as well as be used to assist managers to take proper decisions in order to organize and upgrade the efficiency and performance of medical sales representatives. the research problem can be concluded in the following questions:

1. To what extend does the company's package (wage system, evaluation system, training schedules, sales target and promotional system) offered to its medical sales representative's affect their performance?
2. What are the major influences of the medical sales rep's personal traits on their performance?
3. Are there any differences between medical sales representatives' performance in both generic and multinational pharmaceutical companies?

## 3. RESEARCH OBJECTIVES

This research aims to study the factors that affect the pharmaceutical medical sales representatives' performance in both generic and multinational pharmaceutical manufacturing companies in the Jordanian market and to find out if there are any differences between the generic and multinational companies regarding the issue of medical sales representatives' performance.

## 4. RESEARCH LIMITATIONS

Pharmaceutical companies in Jordan are high in numbers; each company has its own system and is managed by different principles and legislations. Many limitations faced the researcher in the process of collecting the data, such as:

1. Pharmaceutical companies are located in scattered areas; inside and outside Amman, and some of them are far away.
2. 2- Many pharmaceutical companies have rejected to answer the questionnaire due to the company policy, and some of them took almost weeks to reject complete the questionnaires.
3. 3- Due to the reason that medical sales representatives are not available each day of the week in the office, the questionnaires were left with the marketing manager until their medical sales representatives complete them.

### 5. LITERATURE REVIEW

Despite the fact that Medical sales representatives are the most important factor in promoting pharmaceutical products in Jordan, not many studies have focused on Medical sales representatives. On the other hand, there have been few studies (as mentioned below) that handled pharmaceutical industry in general:

Leading Indicating Data (2004), concluded that representatives who consistently get beyond the waiting room have built a reputation for providing physicians with valuable product information. A recently released survey of 410 physician conducted by World Health quantifies what many already suspect: relationships matter. When deciding whether to see a Rep, physician in several practice areas rated their relationships with a Rep "extremely important," more so than the product he or she detailed. The manufacturer's reputation was the least important factor, across the board.

Friedman (2002) has shown that the management learned that managed care did require a focused sales effort, however this was in addition to, and not instead of, the detailing effort providing by a large field. Organization managed care demanded more, not less, sales effort, and more complex, not simpler, sales management structure. As the field force has remained the most potent and expensive instruments of the pharmaceutical company, it is essential that investment in this tool be optimized.

Ibrahim (2002) tried to emphasize the influence of promotional policies on both doctors and pharmacist behaviors toward the use of generic drugs in Jordan. He studied the influence of each promotional policy on the behavior of the doctors and pharmacists toward prescribing the generic products.

Al-Dmour and Al-Awamleh (2002) examined the

effects of transformational and transactional leadership of sales managers on sales people's self-perceived satisfaction and performance. The moderators were: self-efficacy, self-esteem and leadership deposition of salespeople. Results provided clear support for the belief that transformational and transactional leadership styles are not opposite ends of a continuum, but they have a closer relation. In addition, leaders to be successful they need to exhibit the two aspects of both at the same time.

Lloyd, and Newell (2001) presented research findings from a case study of a company's pharmaceutical sales force working in the United Kingdom and Ireland. They explore how changes in the nature of the customer and the competitive environment are affecting the way management are structuring the work process and the nature of skills required. A central focus is whether these changes are pushing management to increase the skills and knowledge of sales representatives or are encouraging the use of a more rigid and less autonomous form of work organization.

The study concluded that the changing natures of the customer and developments in the pharmaceutical industry have led management at Pharmacy to reorganize the work of their sales force. The policies adopted have emphasized the technical competence of sales representatives' performance (product knowledge, sales planning, etc.), rather than the softer elements (behavior, attitudes and appearance) of the worker-customer relationship found in many other studies.

Tashtosh (2000) emphasized that Jordan pharmaceutical companies are still having reliable marketing information system. He recommended delegating responsibilities to marketing department within local drug manufacturing company that make it possible for them to plan, implement and make use of existed market opportunities in local and global drug markets.

Muneer (1999) studied the factors affecting salesmen in insurance companies in Jordan. The aim of the study was to develop a database for helping the management of insurance companies in Jordan to select and appoint sales persons to be employed in the future. The independent variables were: demographic characteristics, personality traits and organizational factors while the dependent variable was the level of performance of sales person working in insurance companies. The study aimed to pay attention to the setting up and organizing of marketing department. He recommended many things to be

implemented concerning salesmen, such as: involving them in taking responsibilities of their own actions, enhancing their perception, and offering them fair and proper wages.

Makatef (1998) concentrated on HIKMA pharmaceutical company in Jordan. She found out that marketing job is one of the most needed jobs in any foundation. In addition, marketing plays a major role in promoting and marketing pharmaceutical products more successfully. She showed that HIKMA pharmaceutical manufacturing company has a good marketing department which uses marketing research concerning new products development and takes the responsibility for training their field force team.

Mua'lla (1997) indicated in his study that the salespersons in insurance companies in Jordan perceive the requirements for success in their career. Also the findings showed that there were direct effects by the salespersons' past experience and the number of training programs they have attended on their perception of the success requirements for their career. This means that the management in the insurance companies in Jordan has to give training more concern and importance. This will contribute in developing and improving their selling skills and will increase the awareness of their career and in turn contribute to their role clarity, and the challenges and opportunities manifested in. Brown, and Peterson (1994) studied the effect of working hard and smart on the accomplishments and performance of sales Representatives. They concluded that working hard and smart increases the performance of sales Representatives. They also studied many other factors and concluded that the desire to compete with others and the ability to perform the tasks have a positive influence on performance. On the other hand, the role conflicts have no negative influence on the performance. The researchers recommended the necessity of using these results by the managers in choosing, training; motivating and evaluating their medical sales Representatives. They also recommended that many other factors should be studied in the future.

Mujahed (1992) studied the relation between job satisfaction of the workers in the pharmaceutical factories and job performance, including the following factors: Company policy, quality of supervisors, work relations, work benefits and work conditions. Peterson (1990) emphasized the factors that make the training of sales force become successful and these factors are: set clear

objectives for the training, the contents are suitable, methods and technique of the training and qualification of trainer.

According to all mentioned studies, no study has focused directly on Medical sales Representatives in the pharmaceutical manufacturing companies in Jordan. Only one study dealt with sales persons in insurance companies, while all other studies included unrelated issues. Most studies emphasized that marketing is the major issue in pharmaceutical companies. Since Medical sales Representatives are one of the major tools of marketing in the pharmaceutical companies, this research will concentrate on the major factors that affect the medical sales representatives' performance.

### **Variables' Definitions**

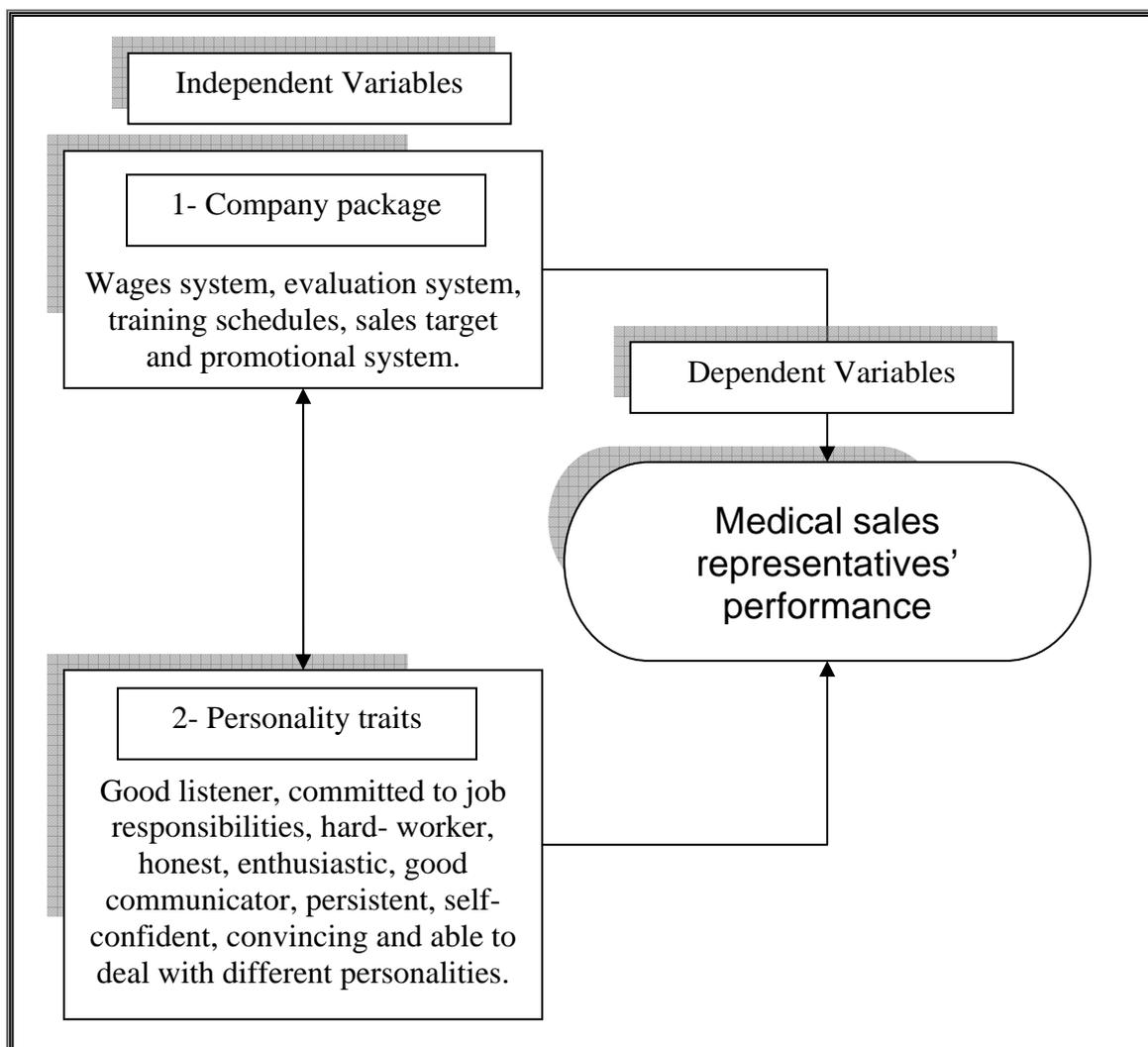
The dependent variable is the medical sales representatives' perceived performance, which is the primary concern, and can be explained by two major independent variables:

- 1- Company package: wages system, evaluation system, training schedules, sales target and promotional system.
- 2- Personality traits: Good listener, commitment to job responsibilities, hard- worker, honest, enthusiastic, good communicator, persistent, self- confident, convincing and dealing with different personalities.

The company package offered to the medical sales representatives is expected to have an effect on their sales performance. The greater the wages system provided by the pharmaceutical company to its medical sales representatives, the higher is their performance. When medical's wages system is satisfying their needs and requirements they surely would motivate them to work harder and their performance would be increased. Also the highly effective evaluation system applied by the company the higher the performance of the medical sales rep. If medical sales representatives have less training, it would lead to lower performance because medical sales representatives should always regularly be trained to follow up any kind of changes or new developments, so they can adapt the changing environment. Then when the sale targets are developed in a more reasonable way, the higher is the performance of medical sales representatives; when the company set unreasonable target then the medical sales representatives would be frustrated. That would definitely affect their performance. Finally the higher the organizing of the promotional

system applied by the company, the higher the motivation of the medical sales Representatives would be. If the promotional system applied is highly organized and can

offer the medical sales Representatives better flexibility and control over their daily work, they will get higher results.



**Figure 1. Relationship between the independent and dependent variables.**

At the same time, the personality traits of the medical sales representatives also have an impact on their performance. The higher the honesty, enthusiastic, convincing and persistence of the medical sales representatives, the higher their performance will be. If the medical sales representatives are good listener, good communicator, have high commitment to their responsibilities and are able to deal with different personalities of doctors, their performance is expected to be higher. Also the higher the self confidence and the harder the work is presented by the medical sales representatives the better their performance will be.

The schematic diagram in Figure (1) shows the

relationships between the independent and dependent variables.

The research includes two independent variables, which are:

**1-Company Package:** it was measured by the following dimensions:

- **Wages System:** Wage (or more commonly wages) signifies a quantity of money paid for a quantity of work done (Wikipedia encyclopedia, 2007). And it was measured by the salary system (fixed), car allowances and the incentive system (quarterly or yearly).
- **Evaluation System:** is the systematic

determination of merit, worth, and significance of something or someone. Evaluation often is used to characterize and apprise subjects of interest in a wide range of human enterprises, and other human services (Wikipedia Encyclopedia, 2007).

- **Training Schedules:** refers to the acquisition of knowledge, skills, and competencies as a result of the teaching of vocational or practical skills and knowledge that relates to specific useful skills (Wikipedia Encyclopedia, 2007). Training was measured by many factors such as the location of the training, the qualification of the trainer, and the knowledge handled in the training.
- **Sales Target:** is the amount of a product a company expects to sell during a specific period at a specific level of marketing activities (Pride and Ferrell, 2003). These targets are estimated every year and can be set by the managers themselves with the participation of their medical sales representatives.
- **Promotional System:** is the communication with individuals, groups, or organizations to directly or indirectly facilitate exchanges by influencing audience members to accept an organization's products (Obeidat and AlDmour 2005). The system can have a direct effect on the performance depending on many factors such as: area distribution, type of products promoted, type of coverage, and the promotional tools used.

2- **Personality Traits:** in order to success, many medical sales representatives should have a variety of personality traits. According to Mua'lla (1997) personality traits can be classified into two groups: personality demands and professional demands. According to Pride and Ferrell (2003), personality is defined as a set of internal traits and distinctive behavioral tendencies that result in consistent patterns of behavior in certain situations. The research includes ten personality traits: good listener, commitment to job responsibilities, hard- worker, honesty, enthusiasm, good communicator, persistence, self- confidence, convince and dealing with different personalities.

The dependent variable is the performance of medical sales representatives, and is measured by calculating sales

analysis (the yearly achieved sales) of the medical sales representatives in order to evaluate their performance (Pride and Ferrell, 2003).

## 6. RESEARCH HYPOTHESES

It would be better to classify the hypotheses of the research into five groups as follows:

**Group One Hypotheses:** Group one hypotheses are relevant to the differences between generic and multinational companies regarding all independent variables together and each independent variable apart and they include:

- **Hypothesis One:** There are no significant differences between generic and multinational pharmaceutical companies regarding all independent variables together.
- **Hypothesis Two:** There are no significant differences between generic and multinational companies regarding each independent variable apart (wages system, evaluation, training, sales target, promotional system and personality traits). This can be presented by the following sub-hypotheses:
  1. There are no significant differences between generic and multinational companies regarding wages system.
  2. There are no significant differences between generic and multinational companies regarding evaluation system.
  3. There are no significant differences between generic and multinational companies regarding training schedule.
  4. There are no significant differences between generic and multinational companies regarding sales target.
  5. There are no significant differences between generic and multinational companies regarding promotional system.
  6. There are no significant differences between generic and multinational companies regarding personality traits.

**Group Two Hypotheses:** Group two hypotheses are relevant to the differences between generic and multinational companies regarding the performance of medical sales representatives:

- **Hypothesis One:** There are no significant differences between generic and multinational pharmaceutical companies regarding their medical sales representatives' performance.

**Group Three Hypotheses:** Group three hypotheses are relevant to the effect of independent variables (wages system, evaluation, training, sales target, promotional system and personality traits) on the dependent variable (performance of medical sales representatives) in both generic and multinational pharmaceutical companies and they include:

- **Hypothesis One:** There is no significant effect of the independent variables together on the performance of medical sales representatives.
- **Hypothesis Two:** There is no significant effect of each of the independent variables apart (wages system, evaluation, training, sales target, promotional system and personality traits) on the performance of medical sales representatives. This can be presented by the following sub-hypotheses:
  1. There is no significant effect of wages system for medical sales representatives on their performance.
  2. There is no significant effect of evaluation system performed to medical sales representatives on their performance.
  3. There is no significant effect of training schedule of medical sales representatives on their performance.
  4. There is no significant effect of sales targets required from medical sales representatives on their performance.
  5. There is no significant effect of promotional system applied by medical sales representatives on their performance.
  6. There is no significant effect of personality traits of medical sales representatives on their performance.

**Group Four Hypotheses:** Group four hypotheses are relevant to the effect of independent variables (wages system, evaluation, training, sales target, promotional system and personality traits) on the dependent variable (performance of medical sales Representatives) in the generic pharmaceutical companies only and they include:

- **Hypothesis One:** There is no significant effect of all the independent variables together on the performance of medical sales representatives in generic pharmaceutical companies.
- **Hypothesis Two:** There is no significant effect of each of the independent variables apart (wages system, evaluation, training, sales target, promotional system and personality traits) on the performance of medical sales representatives in generic pharmaceutical companies, this can be defined by the following sub-hypotheses:

- There is no significant effect of wages system for medical sales representatives on their performance.
- There is no significant effect of evaluation system performed to medical sales representatives on their performance.
- There is no significant effect of training schedule of medical sales representatives on their performance.
- There is no significant effect of sales targets required from medical sales representatives on their performance.
- There is no significant effect of promotional system applied by medical sales representatives on their performance.
- There is no significant effect of personality traits of medical sales representatives on their performance.

**Group Five Hypotheses:** Group five hypotheses are relevant to the effect between independent variables (wages system, evaluation, training, sales target, promotional system and personality traits) and the dependent variable (performance of medical sales representatives) in the multinational pharmaceutical companies only and they include:

- **Hypothesis One:** There is no significant effect between all the independent variables together and the performance of medical sales representatives in multinational pharmaceutical companies.
- **Hypothesis Two:** There is no significant effect between each of the independent variables apart (wages system, evaluation, training, sales target, promotional system and personality traits) and the performance of medical sales representatives in multinational pharmaceutical, this can be defined by the following sub-hypotheses:
  1. There is no significant effect between wages system for medical sales representatives and their performance in multinational pharmaceutical companies.
  2. There is no significant effect between evaluation system performed to medical sales representatives and their performance in multinational pharmaceutical companies.
  3. There is no significant effect between training schedule of medical sales representatives and their performance in multinational pharmaceutical companies.
  4. There is no significant effect between sales targets required from medical sales representatives and their performance in multinational pharmaceutical

companies.

5. There is no significant effect between promotional system applied by medical sales representatives and their performance in multinational pharmaceutical companies.
6. There is no significant effect between Personality traits of medical sales representatives and their performance in multinational pharmaceutical companies.

### Pharmaceutical Sector in Jordan

For over the past 40 years, the pharmaceutical industry has grown to 17 companies, becoming an export driven industry providing quality, safe and effective pharmaceuticals at affordable prices for millions of citizens in Jordan and the Middle East and North Africa region (MENA) (Jordanian Association of Pharmaceutical Manufactures (JAPM, 2004) Pharmaceuticals industry has come to play an important role in the Jordan economy and labor market that some refer to as “a sunrise industry” in Jordan. The total value of domestic production rose to almost US\$ 300 million in 2004, up from US\$ 77 million and US\$ 185 million in 1990 and 1995, respectively. In terms of exports, pharmaceuticals are second only to the garments industry, positioning it as the first value added industry in Jordan. With 70% of its sales accruing from exports, the pharmaceutical sector meets around 50% of the demands of the domestic market by units. Pharmaceuticals also contribute significantly to domestic employment. The sector directly employed more than 4000 people in 2004, up from only 1700 employees in 1991, where the Jordanian pharmaceutical sector is the highest paid sector in terms of average monthly wages and salaries. The drug industry also provides another 3000 jobs indirectly in supply and related industries. In other words, the seventeen pharmaceutical companies that currently operate in Jordan provide jobs to approximately 3.5% of the total work force employed in the country’s industrial sector, including minerals and crude materials. This sector specializes and excels in producing branded generics ranging from many dosage forms such as solids, semi-solids, liquids, aerosols and injectables as well as producing various licensed products from multinational companies. In addition, a number of Jordanian companies have secured approvals on some of their products from health authorities in United States (US), United Kingdom (UK), Germany and Sweden, while the rest are currently

in the process of pursuing these unconventional markets.

Afram et al. (2004) clarifies that pharmaceuticals production is one of Jordan’s largest and most significant industries, generating almost 20 percent of the country’s gross domestic product (GDP) from manufacturing, or around JD190 million in 2002. Its importance also stems from the fact that it is Jordan’s only significant “next-generation” industry, as well as the fact that it is driven by exports. It is also “home-grown,” with no substantial foreign investment to date (unlike garments, the country’s top export), and is not based on natural resources, like potash, phosphates, and vegetables (the country’s third, fourth, and fifth largest exports).

Jordan currently exports approximately 70 to 80 percent of its total pharmaceuticals production. As can be seen in Table (1), pharmaceutical exports were the country’s second largest in 2002, accounting for around 10 percent of total exports and outstripping traditional resource-based commodities, such as potash and phosphate.

**Table 1. Jordan’s top five exports (2002).**

Commodity	Value (JD million)	Total Exports (%)
Textiles and clothes	374.6	24.2
Pharmaceuticals	142.7	9.2
Potash	136.7	8.8
Phosphate	96.5	6.2
Vegetables	95.2	6.1

Source: Afram, G., Lloyd, J. and Sayegh, L. (2004, September). *Investment Promotion Sectoral Strategy 2005-2007: Pharmaceuticals* {On-line}, [http://www.amir\\_jordan.org](http://www.amir_jordan.org).

Furthermore, Jordan’s pharmaceutical exports have been growing over time. These exports have more than tripled over the past 10 years. In particular, they have grown at an average rate of approximately 12.4 percent per year over the period 2000-2002, as can be seen in Table (2).

**Table 2. Growth of Jordan’s pharmaceuticals exports (1999-2002).**

	1999	2000	2001	2002
Total Exports (JD million)	101	111	130	143
Growth rate (%)	-	10	17	10

Source: Afram, G., Lloyd, J. and Sayegh, L. (2004, September). *Investment Promotion Sectoral Strategy 2005-2007: Pharmaceuticals* {On-line}, [http://www.amir\\_jordan.org](http://www.amir_jordan.org).

Arab countries are the main export destination for Jordanian pharmaceuticals, with 98 percent of total exports going to these markets. Of these, Algeria, Iraq, and Saudi Arabia account for the bulk of exports, nearly two thirds in 2002. Some manufacturers are already exporting to the European market: UP, for instance, exported \$50 million worth of generic drugs to the German market in 2002. Most pharmaceutical imports, on the other hand, come from European countries. In 2002, pharmaceutical imports reached JD125 million, of which around two thirds came from European countries such as Germany, UK, Switzerland, and France. Pharmaceutical imports are of therapeutic classes that are not produced locally, such as cancer-treatment drugs. The size of the local market, or total local demand, was around JD175 million in 2002, with imports satisfying some 70 percent of local demand and local production satisfying the balance. As for the types of medication produced, 95 percent of locally manufactured drugs are generic. The remaining five percent are produced under license for sale in the Middle East.

Afram et al. (2004) indicate that the Jordanian pharmaceuticals industry has a fair level of competition, with 15 manufacturers, six of which are listed in the Amman Stock Exchange (ASE). All are eager to gain entry to new export markets and are striving to capture a greater share of the small domestic market. Prior to 1990, there were only six pharmaceutical manufacturers in Jordan. The increase in the number of manufacturers between 1991 and 1999 was primarily driven by the hope of new entrants to tap into the seemingly lucrative export markets for generic drugs that their predecessors had penetrated. These opportunists did not anticipate Jordan's accession to the World Trade Organization (WTO), which took place in April 2000, and the consequent requirements of adhering to stringent Intellectual Property Rights (IPR) and patent laws.

The Achievement of Market-Friendly Initiatives and Results (AMIR) Program's recent study of the local pharmaceutical cluster suggests that firm structure in Jordan is weak by international standards, and while pharmaceutical factory size varies, it is often considered to be below the scale needed for minimum efficiency. Average investment in a plant producing generic drugs in Jordan varies from \$4 to \$40 million, which is well below averages in the U.S. and Europe, and represents a low barrier to entry which partially explains the large number of firms. Strong firm rivalry, however, has proved to be

good for innovation. Furthermore, when coupled with Jordan's WTO accession and the consequent opening of markets, it is driving firms to shape up or face demise.

The total sales for all Jordanian pharmaceutical firms, both at home and abroad, amounted in to JD195 million in 2002, of which 74 percent was exported. Three companies, each with average annual sales of at least JD25 million, dominate local production: Hikma Pharmaceuticals, APM, and DAD. JPM and UP, each with total sales of JD 9 million in 2002, are arguably the sector's only two medium-sized companies. Taken together, these five companies represent around 85 percent of total industry sales and are responsible for around three quarters of the total sales of domestically produced pharmaceuticals. The other 12 companies are small, each with an average of total annual sales of less than JD4 million over the past three years.

Intense domestic competition and excess capacity, coupled with the stringent regulatory regime required for protection of IPR by the WTO, Trade-Related Aspects of Intellectual Property Rights (TRIPS) and the Jordan-U.S. Free Trade Agreement (JUSFTA), is pushing the industry toward consolidation and beginning to squeeze smaller producers out of the market.

The first merger of two privately owned Jordanian companies – Rawhi Pharmaceutical Industries and Al Kindi Pharmaceutical Industries – took place in 2000. The resulting company is currently operating under the name of Al Kindi Pharmaceutical Industries. The second merger between the publicly listed Al Razi Pharmaceutical Industries and the privately-owned JPM was approved in late 2003.

According to JPM, the new company will be listed on ASE and will operate under JPM's name with a total paid up capital of JD16 million. In April 2003, DAD signed a memorandum of understanding with APM to develop joint factories in Egypt and Algeria. Finally, in November 2003, the shares of both APM and Advanced Pharmaceutical Industries were suspended from trading at ASE after they announced their plans to merge.

## **7. RESEARCH METHODOLOGY**

**Population and Sampling:** Population of the Jordanian pharmaceutical manufacturing companies includes almost 17 generic companies, and more than 35 research (originator, multinational) companies; each manufacturing research company is present in its native country and dealing with an agent to distribute its

products, and has a marketing department in Jordan; which is specialized in promoting the company's products. Medical sales representatives are the major field team responsible for promoting to doctors and pharmacies in the Jordanian market. Therefore, the main target (unit of analysis) is the medical sales representatives in the pharmaceutical companies (generic and research) in Jordan. Two of the Jordanian generic companies have merged together so only 15 are left which are: API, ACPC, APM, DAD, Hayat, Hikma, JPM, Joriver, Joswe, Al-Kindi, MID Pharma, PIC, Philadelphia, RAM and UP. Almost each company (either generic or multinational) has a minimum number of four medical sales representatives in its field force team, but many of them have more than 30 medical sales representatives. Therefore, the sample included a maximum number of eight medical sales representatives from each company, as follows:- Almost 15 generic companies are available: all of them were included in the study and almost more than 35 multinational companies were available, but only 15 (which their sales in the Jordanian market in 2005 exceeded one million JD) were included in the study, which are: Pfizer, Sanofi Aventis, GlaxoSmithKline, Novartis, Wyeth, AstraZeneca, Abbott, Merck, Biochemie, Boehringer, Schering AG, Bristol, Merck AG, Roche and Solvay. Total of distributed questionnaires (sample size) are shown in Table (3).

**Table 3. Distribution of the sample.**

<b>Generic company</b>	15 X 8	=	120
<b>Multinational company</b>	15 X 8	=	120
<b>Total Medical sales Representatives</b>		=	<b>240</b>

*Prepared by the researchers.*

According to IMS (2005), Table (4) shows the sales (quarter two- 2005) by value of the top multinational companies and all Jordanian generic companies.

Table (4) shows that the sales of the top twenty-five pharmaceutical companies in Jordan are over one million JD, but also ACPC, API, Joriver, Philadelphia and Al-Kindi occupy ranking above thirty with annual sales below one million JD. As mentioned above, it was required from each company to fill out eight questionnaires in order to overcome the effects of the following obstacles:

**Table 4. Cumulative sales by value of pharmaceutical companies in Jordan.**

<b>Rank</b>	<b>Pharmaceutical company</b>	<b>Sales +00 (JD)</b>
1	DAD	5,848.7
2	Hikma	5,716.6
3	APM	5,578.7
4	Pfizer	4,702.7
5	Sanofi Aventis	4,098.2
6	GlaxoSmithkline	3,782.4
7	Novartis	2,871.5
8	RAM	2,719.6
9	Wyeth	2,301.8
10	AstraZeneca	2,279.6
11	Abbott	2,126.1
12	Merck	2,122.4
13	JPM	2,018.7
14	PIC	1,982.1
15	Biochemie	1,907.9
16	Boehringer	1,506.1
17	Joswe	1,436.8
18	Schering AG	1,395.4
19	UP	1,347.6
20	Hayat	1,320.5
21	Bristol	1,198.4
22	MID Pharma	1,162.8
23	Merck AG	1,133.9
24	Roche	1,107.2
25	Solvay	1,094.3
32	ACPC	776.3
38	API	556.5
41	Joriver	449.0
48	Philadelphia	369.4
	Al-Kindi	Not available

*Source: IMS Health, 2005.*

1. The medical sales representatives should have a minimum one year experience in the related company.
2. Some companies appear to have less than eight medical sales representatives in its team (in this case all available medical sales representatives were included despite the final number of them was below eight). So the total number of the sample is (124) medical sales representatives; (57) from generic companies and (67) from multinational companies, as Table (5) shows.
  - The total sample size was 240 medical sales

representatives from thirty companies; 15 of each generic and multinational companies.

- Five generic companies were excluded. The reason was that three of them depend on an agent to market and distribute their products (Hayat Pharmaceutical Industries, ACPC and Al- Kindi Pharmaceutical Industries); the other two companies could not be visited because the researcher could not reach the country manager of these companies (PIC and Joriver).
- Seven companies refused to fulfill the questionnaire mainly because it was against their policies, two were generics (DAD and MID Pharma) and five were multinationals (Boehringer, Bristol, Merck AG, Roche and Solvay).
- The final sample included 124 medical sales representatives in 18 different companies, 57 medical sales representatives from eight generics (API, APM, Hikma Pharmaceuticals, JPM, Joswe, Philadelphia Pharmaceuticals, RAM and UPM), and 67 medical sales Representatives from ten multinational companies (Pfizer, Sanofi Aventis, GlaxoSmithKline, Novartis, Wyeth, AstraZeneca, Abbott, Merck, Biochemie and Schering AG).
- About (144) questionnaires were expected; but only 124 were actually received which make about (86%) of the expected sample.

**Table 5. Final sample distribution.**

	Companies contacted	Companies excluded	Companies refused to fill the questionnaire	Final Sample	Expected number to be received	Actual number received	Sample received (%)
Generic Companies	15	5	2	8	64	57	89%
Multinational Companies	15	0	5	10	80	67	84%
Total	30	5	7	18	144	124	86%

*Prepared by the researchers.*

**Table 6. Distribution of subjects according to gender.**

Gender	Total		Generic		Multinational	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
Female	27	21.8	10	37.1	17	62.9
Male	97	78.2	47	48.5	50	51.5
Total	124	100	57		67	

**Table 7. Distribution of subjects according to age.**

Age (years)	Total		Generic		Multinational	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
22- 26	44	35.5	17	38.6	27	61.4
27- 31	57	46.0	28	49.1	29	50.9
32- 36	16	12.9	8	50	8	50
More than 36	7	5.6	4	57.1	3	42.9
Total	124	100.0	57		67	

**Table 8. Distribution of subjects according to educational level.**

Educational degree	Total		Generic		Multinational	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
Bachelor	117	94.4	55	47	62	53
Master	6	4.8	2	33.4	4	66.6
Others	1	0.8	0	0	1	100
Total	124	100.0	57		67	

**Data Collection Methods:** The research depended on gathering primary and secondary data. Secondary sources of data were: Information Medical Statistics (IMS). The Jordanian Association of Manufacturers of Pharmaceuticals and Medical Appliances (JAPM). And internet (On line data).

**Reliability of Data Collection Methods:** The Cronbach's alpha reliability coefficient of the six independent variables and the dependent variable were obtained. The results indicate that Cronbach's alpha of the fifty six items measuring independent variables: wages system, evaluation system, training system, sales target, promotional system, Personality traits and the dependent variable (performance) is 0.815. And as Sekaran (2003) clarifies the Cronbach's alpha should be more than 0.60. Thus, the internal consistency of the measures used in the research can be considered to be good.

**Analysis of Demographic Variables:** The demographic analysis will help in giving an overall view for the collected sample of (124) medical sales Representatives of different (18) pharmaceutical companies, and at the same time provides a better more detailed study of the sample. The demographic variables included in the questionnaire and will be discussed in this section are gender, age, educational level and marital status. Other variables concerning monthly basic salary and monthly car allowances will also be discussed. Distribution of sample according to gender (Table (6)) shows that 78.2% of the sample is males, while only 21.8% are females. Ten of the 27 females included in the sample were from generic companies while 17 were from multinational companies. So despite those females do not occupy more than one quarter of the sample, this result indicates that the percent age of females who are occupying the position of a medical sales representative in the pharmaceutical field is growing up and their

participation will be equal to males by the coming years.

Table (7) shows the distribution of sample according to age; where about 35.5% of the sample is between 22- 26 years old, 46% are between 27- 31 years old and 12.9% are between 32- 36 years old, but only 5.6% of the sample age more than 36 years old. And as shown the generic and multinational companies have almost the same number of representatives. in each age group except for the first group (from 22- 26 years old) where the multinational companies exceeded by ten.

Results shown in Table (8); the distribution of sample according to educational level; indicate that the highest number of representatives. have bachelor degree (94.4%) including (55) medical sales representatives from generic companies and (62) from multinational companies, while medical sales representatives who have master degree are only 4.8%, four out of six of them are from multinational companies, and only one medical sales rep (0.8%) from the multinational companies have another degree.

Table (9) shows the distribution of sample according to marital status of medical sales representatives. It indicates that 49.2% of the sample is married and almost 50% are not. Almost (38) of single medical sales representatives are from multinational companies representing 61.3%, and this percentage can be justified by that around 61.4% of the medical sales representatives aged between 22-26 are from multinational companies.

When distributing the sample according to experience years, Table (10) shows that 42.7% of the sample have from 1 to 3 years of experience, around (30) medical sales representatives are from multinational companies and (23) from generics, while nearly 40.3% have an experience of 4 to 6 years. Only 10.5% have around 7 to 10 years of experience and 6.5% have more than 10 years of experience.

**Table 9. Distribution of subjects according to marital status.**

Marital status	Total		Generic		Multinational	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
Married	61	49.2	33	54.1	28	45.9
Single	62	50.0	24	38.7	38	61.3
Others	1	0.8	0	0	1	100
Total	124	100.0	57		67	

**Table 10. Distribution of subjects according to experience years.**

Experience (years)	Total		Generic		Multinational	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
1- 3	53	42.7	23	43.4	30	56.6
4- 6	50	40.3	23	46.0	27	54.0
7- 10	13	10.5	7	53.8	6	46.2
Over 10	8	6.5	4	50.0	4	50.0
Total	124	100.0	57		67	

**Table 11. Distribution of subjects according to basic salary (monthly).**

Basic salary (JD)	Total		Generic		Multinational	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
200- 250	6	4.8	6	100.0	0	0.0
251- 300	6	4.8	5	83.4	1	16.6
301-350	22	17.7	20	90.9	2	9.1
351- 450	30	24.2	12	40.0	18	60.0
More than 450	60	48.4	14	23.3	46	76.7
Total	124	100.0	57		67	

As we discussed above there is a variation in the sample collected regarding demographic variables. Concerning the basic salary and the car allowances the distribution of these two variables is viewed below. For distributing the sample according to basic salary, Table (11) shows that 4.8% of the sample receive between JD200 and JD250 monthly, and same percentage of the

sample receive from JD251 to JD300 monthly, while about 17.7% receive from JD301 to JD350, and about 24.2% get between JD351 and JD450, and the largest share receive more than JD450 and they represent 48.4% of the total sample. Around (46) of medical sales representatives in multinational companies receive more than JD450, while in the generic companies other highest

group including (20) medical sales representatives get more than JD 450 a month. receive only from JD301 to JD350 and only (14) of them

**Table 12. Frequency distribution by car allowance (monthly).**

Car allowance (JD)	Total		Generic		Multinational	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
150- 200	21	16.9	6	28.6	15	71.4
201- 249	19	15.3	15	78.9	4	21.1
250- 299	37	29.8	19	51.4	18	48.6
300- 350	33	26.6	15	45.4	18	54.6
More than 350	14	11.3	2	14.8	12	85.7
Total	124	100.0	57		67	

**Table 13. Results of testing the first group of hypotheses.**

No.	Hypotheses	Mean			F- test	Sig.
		Generic companies	Multi-national companies	Total		
H1	<b>Major hypothesis</b>	3.6951	3.8111	3.7578	4.943	0.028
	<b>Sub hypotheses</b>					
1	Wages system	3.1645	3.4248	3.3051	8.213	0.005
2	Evaluation system	3.5088	3.6873	3.6052	2.194	0.141
3	Training schedule	3.6572	3.9571	3.8192	9.936	0.002
4	Target sales	3.7118	3.6162	3.6601	1.360	0.246
5	Promotional system	3.5303	3.4948	3.5111	0.197	0.658
6	Personality traits	4.5982	4.6862	4.6458	2.030	0.157

**Table 14. Results of testing the second group of hypotheses.**

No.	Independent Variables	Mean		t- test	Sig.
		Generic companies	Multi-national companies		
1	All independent variables	1.5789	2.5373	-9.006	0.000

When distributing the sample according to monthly car allowance, Table (12) shows that around 16.9% of the sample receive from JD150 to JD200 on monthly basis, and about 15.3% receive from JD201 to JD249 monthly,

while about 29.8% receive from JD250 to JD299 composing the largest share. JD300-350 is given to around 26.6% of the sample, and finally more than JD350 is given to only 11.3% of the sample.

Also (48) of the multinational medical sales representatives receive between JD 250 and 350 and more as a monthly car allowance, while in the generic companies about (49) of their medical sales representatives receive between JD 250-350 only as monthly car allowances.

**Testing Hypotheses**

After collecting the needed data, statistical analyses for testing hypotheses were applied. The tests used include one way ANOVA, Independent- sample T-test, linear regression and multiple regressions.

**Table 15. Testing the third group of hypotheses.**

No.	Variables	R	R <sup>2</sup>	F- test	Sig.
1	All independent variables on Performance	0.308	0.095	2.041	0.066
2	Wages system on. Performance	0.159	0.025	3.173	0.077
3	Evaluation system on Performance	0.158	0.025	3.129	0.079
4	Training schedule on. Performance	0.165	0.027	3.428	0.067
5	Target sales on. Performance	0.093	0.009	1.075	0.302
6	Promotional system on. Performance	0.018	0.000	0.038	0.846
7	Personality traits on Performance	0.165	0.027	3.402	0.068

**Table 16. Testing the fourth group of hypotheses.**

No.	Variables	R	R <sup>2</sup>	F- test	Sig.
1	All independent variables on Performance	0.399	0.160	1.582	0.172
2	Wages system on. Performance	0.134	0.018	1.009	0.319
3	Evaluation system on Performance	0.236	0.056	3.239	0.077
4	Training schedule on Performance	0.213	0.046	2.626	0.111
5	Target sales on Performance	0.016	0.000	0.014	0.907
6	Promotional system on. Performance	0.040	0.002	0.087	0.769
7	Personality traits on Performance	0.283	0.080	4.771	0.033

**Table 17. Testing the fifth group of hypotheses.**

No.	Variables	R	R <sup>2</sup>	F- test	Sig.
1	All independent variables on Performance	0.237	0.056	0.597	0.731
2	Wages system on Performance	0.057	0.003	0.210	0.648
3	Evaluation system on Performance	0.036	0.001	0.085	0.771
4	Training schedule on Performance	0.168	0.028	1.896	0.173
5	Target sales on Performance	0.068	0.005	0.304	0.583
6	Promotional system on Performance	0.013	0.000	0.011	0.915
7	Personality traits on Performance	0.005	0.000	0.002	0.966

**Results of the First Group of Hypotheses:**

▪ **Hypothesis One:** There are no significant differences between generic and multinational

pharmaceutical companies regarding all independent variables together.

▪ **Hypothesis Two:** There are no significant

differences between generic and multinational companies regarding each independent variable alone (wages system, evaluation, training, sales target, promotional system and personality traits).

The results in Table (13) show that there are significant statistical differences between generic and multinational pharmaceutical companies when comparing all independent variables together. Whereas the mean of the total independent variables for the generic pharmaceutical companies is 3.6951, it is 3.8111 for the multinational pharmaceutical companies. So the F-test was 4.943 with significance below 0.05 (Sig. = 0.028).

According to the findings of testing each independent variable alone, only two independent variables (wages system and training schedule) showed significant differences between generic and multinational pharmaceutical companies.

#### **Results of the Second Group of Hypotheses:**

**Hypothesis One:** There are no significant differences between generic and multinational pharmaceutical companies regarding their medical sales representatives' performance.

The results in Table (14) showed that there was a significant statistical difference between generic and multinational pharmaceutical companies when comparing medical sales representatives' performance. The calculated T equals -9.006 which showed statistical significant of 0.000 which is below 0.05. Whereas the mean of the generic pharmaceutical companies is 1.5789, it is 2.5373 for the multinational pharmaceutical companies. Which means that: the performance of the medical sales representatives in multinational companies is higher than the performance of the medical sales representatives in generic pharmaceutical companies.

#### **Results of the Third Group of Hypotheses:**

**Hypothesis One:** There is no significant effect of all the independent variables together on the performance of medical sales representatives.

**Hypothesis Two:** There is no significant effect of each of the independent variables on the performance of the medical sales representatives.

The results of testing both hypotheses of the third group which summarized in Table (15) show that there was no significant effect of all the independent variables either taken together or separately on the performance (dependent variable) of medical sales representatives.

**Results of the Fourth Group of Hypotheses:** Group four hypotheses state if there is any significant effect between all the independent variables together and the performance of the medical sales representatives using multiple regression, and for each independent variable apart using linear regression in the generic pharmaceutical companies only.

- **Hypothesis One:** There is no significant effect of all the independent variables together and the performance of medical sales representatives in the generic pharmaceutical companies.
- **Hypothesis Two:** There is no significant effect of each of the independent variables on the performance of medical sales representatives in the generic pharmaceutical companies.

Table (16) shows the results of using linear and multiple regressions to test the fourth group of hypotheses: The results show that there is no significant effect of all the independent variables together on the performance (dependent variable) of the medical sales representatives in the generic pharmaceutical companies. The F-test was 1.582 with no significance (sig. = 0.172 which is above 0.05).

Regarding other related sub-hypotheses, Table (16) demonstrates that there is no significant effect of each independent variable (wages system, evaluation, training, target sales and promotional system) and the performance of the medical sales rep in the generic pharmaceutical companies, but only the effect of personality traits on performance show a significant The F-test was 4.771 with statistical significant (sig. = 0.033 which is below 0.05).

#### **Results of Testing the Fifth Group of Hypotheses:**

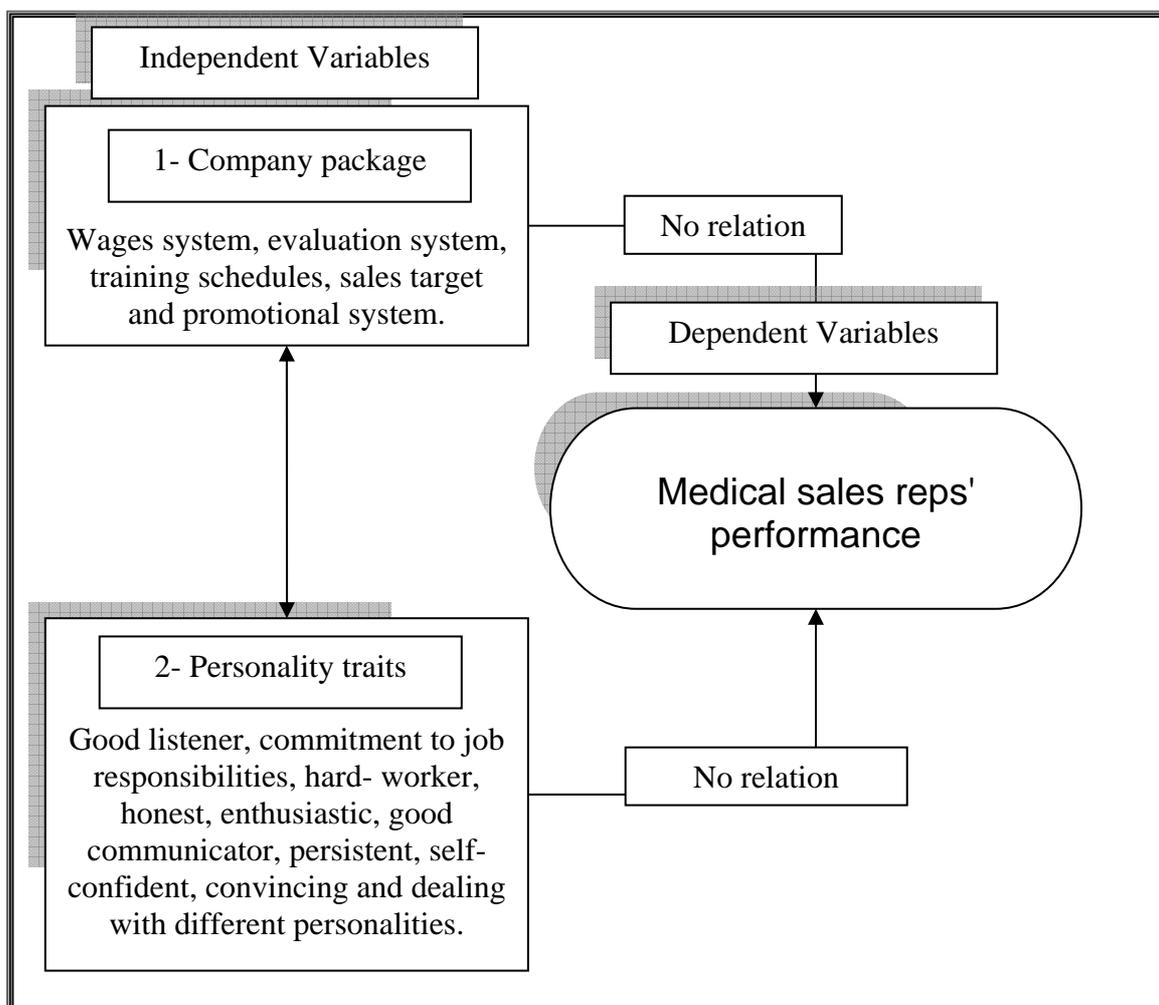
Group five hypotheses are relevant to the effect of all the independent variables together on the performance of medical sales representatives using multiple regression, and for each independent variable apart using linear regression in the multinational pharmaceutical companies only.

- **Hypothesis One:** There is no significant effect between all the independent variables and the performance of medical sales representatives in the multinational pharmaceutical companies.
- **Hypothesis Two:** There is no significant effect of each of the independent variables on the performance of medical sales representatives in multinational pharmaceutical companies. Regarding other related sub-hypotheses, Table (17) demonstrates that there is no

significant effect between each independent variable (wages system, evaluation, training, target sales, promotional system and personality traits) and the performance of the medical sales representatives in the multinational pharmaceutical companies.

Table (17) shows the results of using linear and

multiple regressions to test the fourth group of hypotheses: The results show that there is no significant effect of all the independent variables either taken together or alone on the performance (dependent variable) of medical sales representatives in multinational pharmaceutical companies.



**Figure 2. Effects between the independent and dependent variables (for the total sample and for multinational companies only).**

### 8. DISCUSSION AND ANALYSIS OF RESULTS

The objectives of the research were to study the factors affecting the pharmaceutical medical sales representatives' performance in both generic and multinational pharmaceutical companies in Jordan, and at the same time to find out if there are any differences regarding medical sales representatives in both generic and multinational pharmaceutical companies.

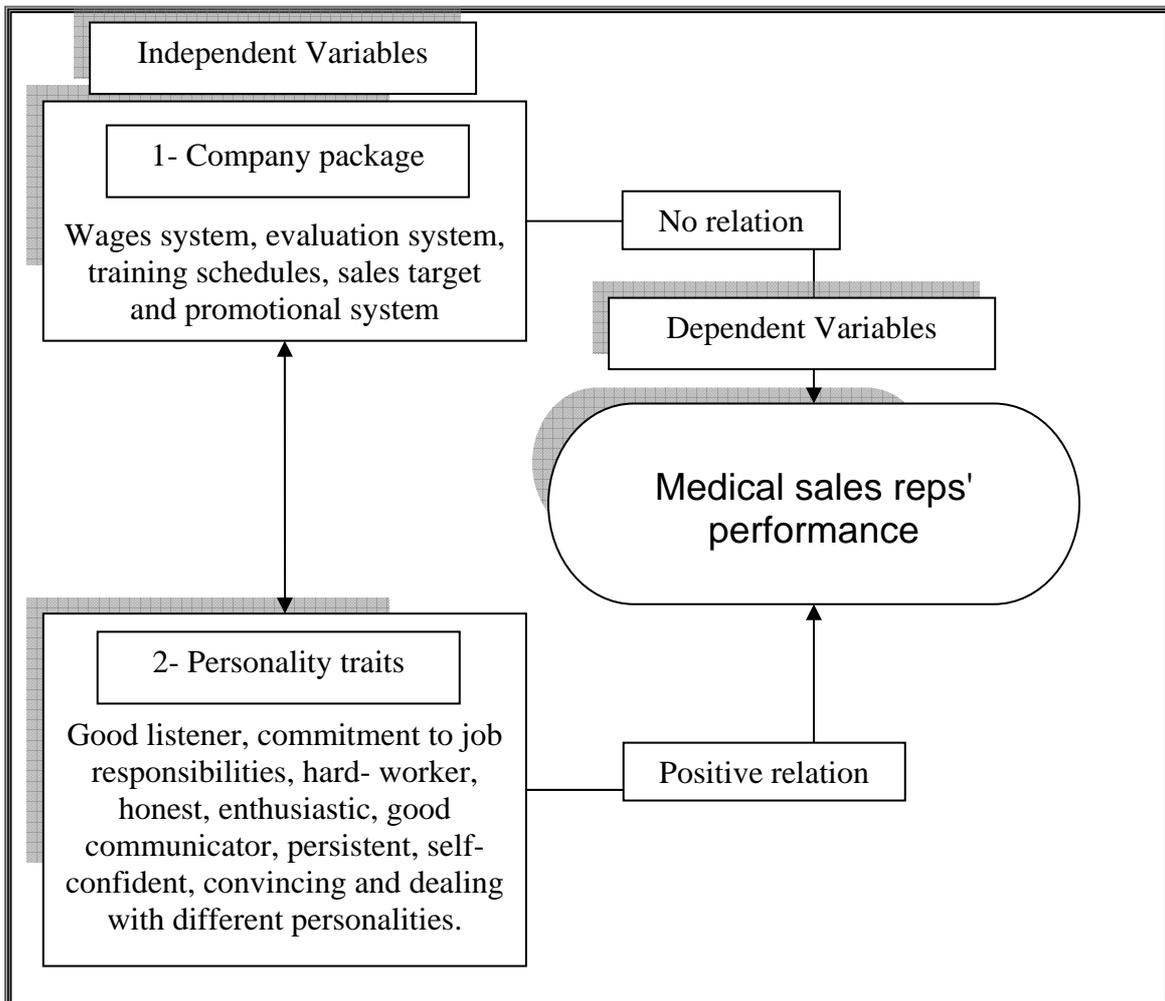
The population was medical sales representatives in the Jordanian pharmaceutical manufacturing companies

and multinational pharmaceutical companies. The final selected sample where from the data was collected was 57 medical sales representatives from eight generic and 67 medical sales representatives from ten multinational pharmaceutical companies. The data collected were analyzed using one way ANOVA, independent- sample T- test, linear and multiple regressions.

The research found that there were differences between generic and multinational pharmaceutical companies when compared together in light of all independent variables, and when comparing each

independent variable alone in both generic and multinational pharmaceutical companies; only wages

system and training schedules showed differences.



**Figure 3. Effects between the independent and dependent variables (for generic companies).**

These results clarified that multinational companies offer better wages system than generic ones, as the survey showed that 64 medical sales representatives in the multinational companies received a salary over JD351, while in the generic companies only 26 medical sales representatives received same. Also training schedules conducted by multinational companies are done with more professionalism and includes traveling to the country of origin to take highly professional training. While training in the generic companies is routine and takes a shorter period of time.

Then the research concluded that there are significant statistical differences between generic and multinational pharmaceutical companies when comparing medical sales

Representatives' performance. Which means that the performance of the medical sales representatives in multinational companies is higher than the performance of the medical sales representatives in generic pharmaceutical companies? And this result could be due to that multinational pharmaceutical companies offer better wages system and training schedules -as mentioned above-.Also the research indicated that there are no effects between the independent variables together (wages system, valuation, training, sales target, promotional system, and personality traits) and the dependent variable (medical sales Representatives' performance) as shown in Figure (2).

These results might be due to the fact that medical

sales representatives in both generic and multinational companies are all Jordanians and they grow in the same culture and environment, so that the research could not indicate a noticeable differences or effects when comparing generic and multinational pharmaceutical companies.

These results could be justified by the idea that the performance of medical sales representatives in the Jordan market is not affected by these variables mentioned above, and there should be other factors (variables) that have a noticeable effect on the performance, such as: effective supervising, the effect of number of calls per month, number of promoted products, type of management and many other factors that should be studied in other researches.

And when the effects between the independent and dependent variables were studied for both generic and multinational companies independently; there were no effects between the variables concerning the multinational companies (Figure (2)), while regarding generic companies; there was a positive effect only between the personality traits and the performance of the medical sales representatives as shown in Figure (3).

## 9. CONCLUSIONS AND RECOMMENDATIONS

The main conclusions can be summarized as follows:

- **First:** There are differences between generic and multinational pharmaceutical companies regarding all independent variables together, and when comparing each independent variable apart there is a significant difference regarding wages system and training schedules only.

- **Second:** There are significant statistical differences between generic and multinational pharmaceutical companies when comparing medical sales representatives' performance. And that means the performance of the medical sales representatives in multinational companies is higher than the performance of the medical sales representatives in generic pharmaceutical companies.

- **Third:** There is no significant effect of all independent variables on the performance of medical sales representatives, or between each of the independent variables and the performance of medical sales representatives in both generic and multinational pharmaceutical companies. This indicates that the performance of medical sales representatives in both generic and multinational pharmaceutical companies does

not depend highly on each of the independent variables included in the research (wages system, evaluation, training schedule, target sales, promotional system and personality traits).

- **Fourth:** There is no significant effect of all independent variables on the performance of medical sales representatives, or between each of the independent variables and the performance of medical sales representatives in generic pharmaceutical companies. But there is a significant effect of the independent variable (personality traits) on the performance of medical sales representatives in generic pharmaceutical companies. This suggests that the major independent variable which shows a significant effect to the performance of medical sales representatives in generic pharmaceutical companies is the personality traits, so all the other independent variables show no significant effects to the performance of medical sales representatives.

- **Fifth:** There is no significant effect of all independent variables and the performance of medical sales representatives, or between each of the independent variables on the performance of medical sales representatives in multinational pharmaceutical companies. So it is indicated that all the independent variables have no direct effect on the performance of medical sales representatives in multinational pharmaceutical companies.

### Recommendations

1. Generic pharmaceutical companies should design a fair and adequate wages system to stimulate the performance of their medical sales representatives, and this should include a mix of basic salary, car allowances and incentives, taking into account that the wages system should be comparable to that available in multinational pharmaceutical companies.
2. Generic pharmaceutical companies should also take a great and deep interest in developing training schedules covering all medical sales representatives' needs and increase their knowledge to become better and comparable to others.
3. The training schedules should be well planned and the company must follow up with medical sales representatives in order to evaluate the results and the effects of training on their work, and also to assure the fulfillment of the training goals.
4. For gathering a great advantage of this research,

other future researches should be held to cover other variables that might have great influences on the performance of the medical sales representatives

especially in the generic companies, and to reach and find out any major obstacles that stand ahead, and then all these problems should be solved.

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multiple linear regression	67	Independent- sample T-test	57	One-way ANOVA :	regression
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)		(			-2
)		(			-3
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