

# Pharmacy graduates differences between governmental and private universities in Jordan

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## Abstract

Jordan is an attractive country for Jordanian and non-Jordanian university students in which it has two types of universities (private and governmental). Pharmacy is one of the fields to be studied by students due to the wide range of jobs involved in the healthcare and pharmaceutical sectors. Thus, a high need for good quality assurance and collaboration between universities is needed due to the high competition among pharmacy graduates to build on their strengths and overcome their weaknesses.

**Method:** A cross-sectional standardized online survey was conducted for private and governmental universities in Jordan graduates using a 19-item questionnaire.

**Results:** Of a total number of 3771 pharmacy graduates, 1755 students (46.5) % were from private universities and 2016 (53.5)% were from governmental universities working in different pharmaceutical and non-pharmaceutical fields participated in this study. According to SPSS results, the type of university has a strong and significant correlation with job field, graduates' nationality, satisfaction, and cost of study with a P-value of less than 0.001.

**Conclusion:** pharmacy institutions at private universities have a different system when comparing it with governmental universities which have a major contribution to pharmacy graduates. Thus, a community of practice from different institutions should be made to improve graduate outcomes.

## Keywords

Pharmacy, graduates, community of practice, marketing, universities

## Introduction

In many countries like the United Kingdom (UK), and Ireland many agencies are responsible for assure the quality of teaching in higher education, especially those students that have a correlation with the healthcare sector (Laaksonen et al. 2015). This quality assurance can be different from one country to another, one city to another city, and in the case of Jordanian Universities, it could be different from one university to another university (Seyfried and Pohlenz 2018). Thus, a complete comparison between

different educational institutions from the same country or worldwide regarding learning outcomes, the ability of the graduates to increase their chances to get a job, and university rank is done day-to-day by university managers (van Vught and de Boer 2015). Many universities like Middle East University in Amman-Jordan have covered the learning outcomes and hosted European programs that can help its staff and graduates to mobilize to Europe and to the rest of the world with high quality like some universities in Bologna (Teichler 2012). In addition, universities now are well prepared to accept and attract a unique type

of students that came from non-academic backgrounds that don't have any secondary school certificates (Seyfried and Pohlenz 2018). Moreover, the increase in the heterogeneity of the university population has added pressure on the quality assurance departments to increase the student's ability to adapt country, university, and community system to be able to fulfil their country's requirements (Krempkow et al. 2015). Jordan is an attractive educational country for Jordanian and non-Jordanian students. In addition, it has two types of universities (private and governmental) which have different systems. Pharmacy is considered to be one of the most subjects to be studied by students due to the wide range of job fields provided by different healthcare and pharmaceutical sectors. In this paper, data have been collected from pharmacists graduated from different governmental and private universities to see the ability of these universities to fulfil quality assurance requirements and to find out both types of universities' strengths and weaknesses to increase the collaboration between these universities to enhance the learning outcomes.

## Methods

The study was constructed through a cross-sectional survey using a 19-item questionnaire. The questionnaire was prepared and designed for pharmacy graduates from both private and governmental universities in Jordan to tackle the differences and build a better educational system. The initial draft of the questionnaire went through content validity by different pharmacy and bioinformatics faculty members (Prof. Khalil Ataef, Dr. Mohammad Saadah, and Dr. Omar Alrashdan) from different private and governmental universities. The pre-final version was uploaded and designed on Survey planet on the following link <https://s.surveypplanet.com/m3klhzif>.

The research was approved by the Research and Ethics Committee at Middle East University, Petra University as a representative, and Applied Science University of private universities, while the University of Jordan and as a representative of governmental universities.

All results were analyzed using the SPSS program with a Two-tailed Pearson test to see the correlation significance between the type of university and other variables.

## Results

Pharmacists who graduated from private university show a higher diverse population with 40.9% of males and 59.1% of females against 16.5% of males and 83.5% of females at governmental universities. Both private and governmental universities show a closely similar graduate diverse nationality with 59.9 and 54.7% of Jordanian nationality and 40.1 and 45.3% with other nationalities respectively. Pharmacists who graduated from private universities show a good distribution between in the cost of study. The higher percentage of 38.6% was for the intermediate

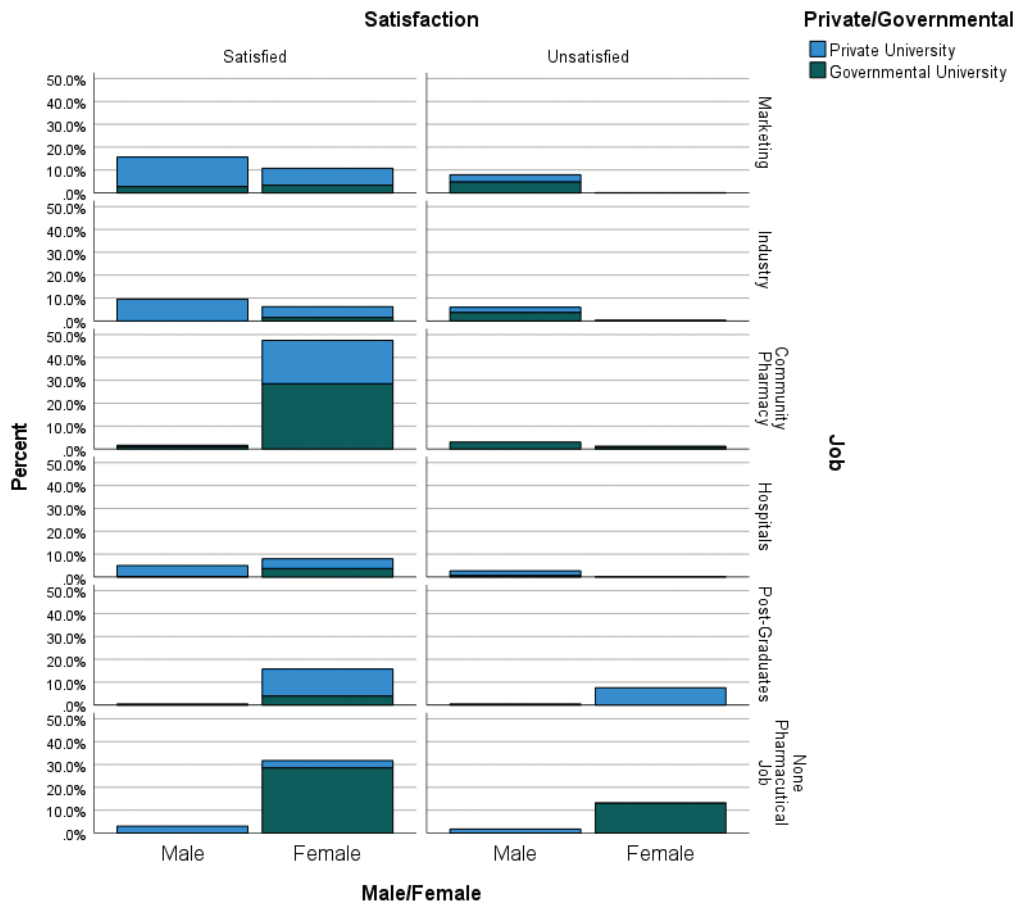
**Table 1.** Pharmacists' diversity between private and governmental university in Jordan.

	Graduates Study Cost			
	Privet Universities		Governmental Universities	
	Number of Graduates	% of Graduates	Number of Graduates	% of Graduates
<10000 JD	591	33.7	361	17.9
10000–24000 JD	678	38.6	754	37.4
>24000	486	27.7	901	44.7
Graduates Gender				
	Number of Graduates	% of Graduates	Number of Graduates	% of Graduates
Females	1038	59.1	1683	83.5
Males	717	40.9	333	16.5
Graduates Nationality				
	Number of Graduates	% of Graduates	Number of Graduates	% of Graduates
Jordanian	1052	59.9	1103	54.7
Middle East	571	32.6	834	41.4
None-Middle East	132	7.5	79	3.9
Working field				
	Number of Graduates	% of Graduates	Number of Graduates	% of Graduates
Marketing	417	23.8	217	10.8
Industry	299	17	103	5.1
Community Pharmacy	351	20	672	33.3
Hospitals	197	11.2	93	4.6
Postgraduate students	348	19.8	91	4.5
Not in the Pharmacy areas or with no job	143	8.2	840	41.7

**Table 2.** Pharmacist duration of study and satisfaction between private and governmental universities in Jordan.

	Graduates Study Duration			
	Privet Universities		Governmental Universities	
	Number of Graduates	% of Graduates	Number of Graduates	% of Graduates
> 5 years	33	1.9	617	30.6
< 5 years	195	11.1	367	18.2
= 5 years	1527	87	1032	51.2
Graduates' Study Duration Satisfaction				
	Number of Graduates	% of Graduates	Number of Graduates	% of Graduates
Unsatisfied	317	18.1	535	26.5
Satisfied	1438	81.9	1481	73.5

study cost at private universities and the lower percentage of 27.7% was for the graduates high cost of study. On the other hand, 44.7% of governmental universities graduates paid high amount of money to complete their study while only 17.9% of the graduates paid few amount of money to complete their study. According to Jordanian pharmacy market, pharmacists graduated from private universities show higher diversity in working fields with 23.8, 17, 20, and 11.2% of the graduates working in marketing, industrial, community pharmacies, and hospitals respectively. While the rest of them are either doing a postgraduate study 19.8% and 8.2% are without work or working in a field not related to pharmacy.



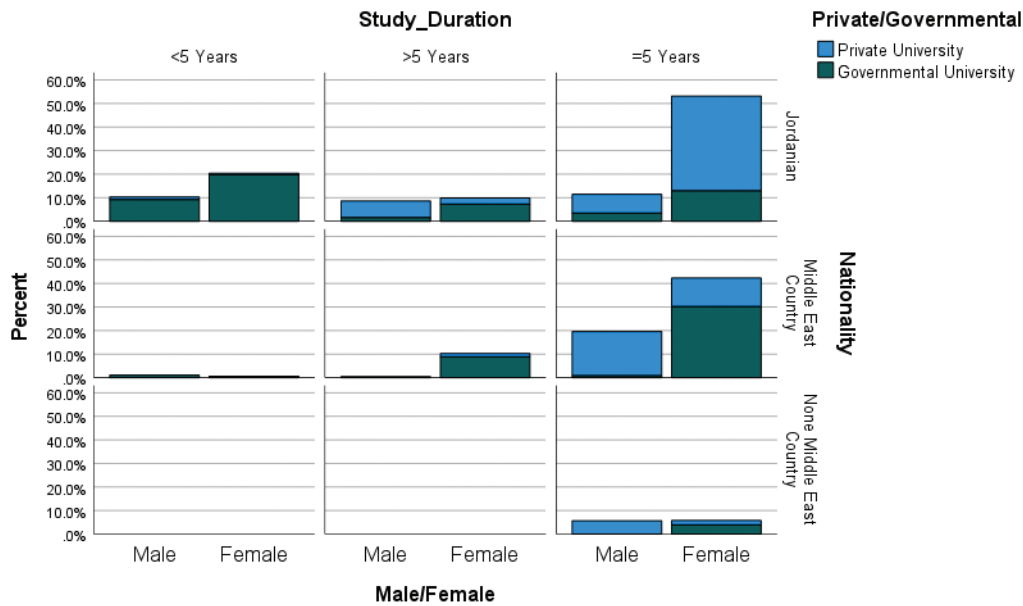
**Figure 1.** Correlation between Private and Governmental universities with job field and Graduates Satisfaction.

According to the results, the majority of pharmacists who graduated from private universities are graduated at the exact time of the study duration (5 years) with a percentage of 87%. While a minority of pharmacists have either graduated after or before the exact time of the study duration with a percentage of 1.9 and 11.1% respectively. Again, more than 50% of pharmacists who graduated from governmental universities (51.2%) have finished their study at the exact time of study duration (5 years). On the other hand, a higher percentage of pharmacists of 30.6% have graduated after 5 years than pharmacists of 18.2% who graduated before 5 years. According to pharmacists’ satisfaction results, both universities show very close results with a satisfaction percentage of 81.9 and 73.5% and an unsatisfaction percentage of 18.1 and 26.5% for both private and governmental universities respectively. According to Fig. 1, graduates’ study satisfaction was correlated with job field to check how much student activities either the scientific or non-scientific in addition to the presence of an advisor during the study will affect the chance of being accepted at different pharmaceutical fields. The two-tailed Pearson test at SPSS shows a strong correlation with a P-value of less than 0.001 and Fig. 1 indicates that more than 50% of the pharmacy graduates from both genders are satisfied. On the other hand, only the females who graduated from governmental universities had a higher satisfaction during their study period.

In Fig. 2, a correlation between Private and Governmental universities with graduates’ nationality and duration of the study was built to see how the universities help the students in the settlement as they come from other countries. Graduate nationality and study duration have a strong correlation as the Two-tailed Pearson test shows a P-value of less than 0.001. All most all non-Jordanian pharmacy graduates from private universities have graduated on the time. On the other hand, some pharmacy graduates at governmental universities have struggled with their studies and needed more than 5 years to finish their studies. According to the Two-tailed Pearson test and all other variables, the type of university has a significant correlation with all of the variables with a P-value of less than 0.001.

## Discussion

Pharmacy graduates at private universities show a higher diversity in many considerations such as gender, nationality, and working fields. The population in private universities look very close to many pharmacy students communities like Australia. In 2018, the percentage of female pharmacists was 63% which was very close to the percentage of 59.1% for the female pharmacists who graduated from private universities (Martin et al. 2021). Moreover, male pharmacists are in the previously mentioned community percentage of 38%



**Figure 2.** Correlation between Private and Governmental universities with graduates' nationality and study duration.

is close to the percentage of male pharmacists of 40.9% who graduated from private universities (Martin et al. 2021). This can help the pharmacy community in Jordan to have leadership equality to improve the healthcare outcome and improve pharmacy sectors in Jordan (Martin et al. 2021). While the percentage of female and male pharmacists (83.5 and 16.5% respectively) who graduated from governmental universities are unequal. Thus, a major effect on leadership and healthcare in Jordan especially in the pharmacy community could be faced and lead to poor service especially since there was a strong correlation between the type of university and gender. In addition to equality between males and females in Jordanian community, people are divided between males and females in an equal ratio. Thus, an equal number of female and male pharmacists are needed to be able to perform a holistic treatments especially with Middle East culture in male/female relationships (Listerborn 2015).

Regarding nationality diversity, both private and governmental universities show a good diversity of pharmacy graduates. Private universities graduates show a higher percentage of non-Middle East nationalities of 7.5% against 3.9% from governmental universities. Many benefits have been encountered from international education, especially regarding mutual cultural understanding as most of these graduates are possible future leaders who will have a major reflection and contribution to their countries and worldwide (Volet and Renshaw 1995).

Pharmacy in Jordan has many fields like marketing, community pharmacies, hospitals, industry, and teaching at schools or universities as a post graduate. This diversity can give the chance for pharmacists to find a job to overcome the inflation that hit the world due to many local and international situations like Covid-19 spreading and restrictions (Armantier et al. 2021). Pharmacists who graduated from private universities worked in a highly diverse pharmacy field than governmental universities. This diversity between pharmacists who graduated from private

universities and governmental universities is due to the skills gained during the study period and the cross-linking between different cultures (Muraina et al. 2021). The highest percentage of 23.8% for pharmacists who graduated from private universities are working in the marketing field as the income is relatively higher. While the highest percentage of pharmacists who graduated from governmental universities are working in other fields or didn't get the chance to work in pharmacy fields. While the rest of the graduates from private universities have been distributed in the different pharmaceutical fields in very close percentages except for community pharmacies (a lower percentage of pharmacists graduated from private universities and a higher percentage of pharmacists graduated from governmental universities). Also, this can be confirmed by the correlation between type of university and job field which was significant with a P-value of less than 0.001. In addition, graduate's satisfaction due to the scientific and non-scientific activities and the presence of study advisor has a significant correlation with a P-value of less than 0.001 when tested using Two-tailed Pearson test. Pharmacists who graduated on time was the highest in both private and governmental universities with a percentage of 87 and 51.2%. The huge difference between private and governmental universities is due to the quality of services by private universities because the ability of faculty staff to communicate with students (Tovar 2014). This can be a results of the huge number of students at governmental universities in comparison with private universities (Ali et al. 2016). On the other hand, a minority of pharmacists graduated either after or before the predicted study period at private universities due to the quality of services mentioned before (Tovar 2014; Ali et al. 2016). While the percentage was higher for the pharmacists who graduated from governmental universities because of the quite higher numbers of students during the study period (Ali et al. 2016). All this indicates the importance of experience

exchange between private and governmental universities in Jordan to enhance the adaptation to Jordanian community and universities for non-Jordanian students.

## Conclusion

Pharmacists in Jordan graduated either from private or governmental universities are highly trained. The differences between those graduates are the personal skills that obtained through the activities provided either by the universities or by the tutors at those universities. It's obvious that the personal skills obtained during study at private universities was the main factor cause the highly diverse graduates filed in relation to the governmental universities' graduates. This could be a reason of a well-trained member of staff at private universities. In addition, the number of students is playing a vital rule in the ability of each member of staff to communicate with their own students to build their personal skills. As a result, both private and governmental universities need to

collaborate and to create a community of practice to enhance students experience to improve the quality of graduates to be fit for different pharmaceutical field. The governmental Universities are graduating ten times more graduates than private universities and the results show a small population from those graduates. Thus, a more specified and more sample from Governmental universities graduates are needed to have a true and good representation of them.

## Conflict of interest

This research has no conflict of interest.

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## Supplementary material 1

### SPSS tables

Authors: Saif Aldeen Jaber

Data type: SPSS data (docx. file)

Explanation note: This table contains SPSS table.

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