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Investigating the relation of pre-internship and the basic sciences exams mean scores in Jundishapur University of Ahwaz students accepted at October 2010 and 2011

Elham Foraty[1], Mohammad Momeny[2]*

1. *Professional medicine PhD student, student moral committee, medical department, Ahwaz Jondi Shapur University of medical sciences, Ahvaz, Iran.*
2. *Assistant professor, radiology department, ahvaz Jundishapur university of medical sciences, ahvaz, Iran.*

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In the universities' educational system, especially the medical sciences universities, to enhance the quality of training and determine its strengths and weaknesses, a student monitoring system is necessary. The current study was conducted to determine the relation between pre-internship exam average scores and the basic sciences in Jundishapur University accepted in 2010-2011. The study was an analytical-cross sectional study with 137 subjects from the medical interns selected by the census sampling method. A checklist and researcher completed data. Then, the data were analyzed by SPSS20 software. There was no significant relationship between the gender, marital status, pre-internship test scores, and the basic sciences test scores in the student's acceptance year) $P > 0.05$.) However, there was a significant relationship between the student's ages and residence situation and their acceptance year ($P < 0.05$)Also, there was a significant relationship between the student's pre-internship test scores and the basic sciences test scores in 2011. ($P < 0.05$). The Pearson correlation test was 0/542 between the basic sciences and the pre-internship scores, indicating a positive relationship between two scores. There was a significant relationship between the student's pre-internship test scores and the basic sciences test scores at 2010) $P < 0.05$). Finally, we found predicting the pre-internship test scores at 0/398 (basic sciences test scores) + 7/941. The study results showed that the basic sciences test could be a good predictor of determining students' success in their later educational stages. Accordingly, we must consider the appropriate facilities and tools to encourage students to learn scientific and practical skills.

*** Corresponding author Email: dr.m.momeni@gmail.com**

Introduction

The student's educational achievement is very important for the students, their families, and their close relatives. It is one of the main goals of the universities and higher education centers in the country because in this way the students learning amount and finally their achievement to the educational goals are measured [Garakyaraghi et al. 2011]at the other hand, in order to evaluate such index, the evaluation methods should be used which are very diverse with different properties. Therefore, the educational progress index is an important part of the educational process and is used to achieve. Also, the changes made in the consecutive tests are very important, and considering them will make it possible to get important information that could help us treat good with the students and help them progress [Garakyaraghi, M et al. 2011, Dehghani Nazhvani, Zarepour 2018].

As one of the most prolonged educational courses, general medicine course is composed of 4 levels: basic sciences, physiopathology, training, and internship; each level has its properties that are collectively used for the student's better learning. To evaluate each of these levels, various methods are used, which can be in the form of the comprehensive exams in which the student's qualifications are stated in the end of term mean scores [Donnon, T 2007]. The comprehensive exams could approve or reject the student's qualification for entering the next level. During the medicine process, such exams including the basic sciences (after the course of the introductory science) and the pre-internship exams (after the training course) [Haghanifar, S 2012]. These exams have been started in the health and medical training organization, which exams are taking wo7ld to be the base of students entering into the physiopathology and medical levels. Pre internship exams are held after the training course and indicate the student's qualification for entering the internship level [Stan, A 2015].

The exams are taken based on the belief that the more prepared the students enter the next level, they will be better able to perform their duties in the hospital as one of the main factors which will lead the education to continue better the dynamic and effective route is the evaluation [Farrokhi-Khajeh-Pasha Y et al. 2012]. The basic sciences course and the background to better understand the later stages of medical sciences Ahwaz sciences and will help the students learn the medical sciences correctly. So, we find the importance of basic sciences [Hoffman RL et al. 2014]. On the other hand, the medical internship is the main course in evaluating the medical procedures after the medical stage, i.e., the internship, which determines the importance of pre internship exams and the students' learnings. All the items mentioned above show the importance of pre-internship and the basic sciences exams scores evaluation [Azizzadeh Forouzi et al. 2016]. In all countries, in various educational and different fields, different exams are taken to evaluate the exams in order to determine the predictability power of the exams for the future levels and exams for being able to do better programming to teach the students better [Murayama K, Elliot AJ 2009]. Different exams have been designed in case of the predictability power of the exams for the different levels of medical courses. For example, in the studies on the evaluation, the items like different educational years mean and also the relation of the mean and basic sciences exams or the relation of pre-internship exams and the student's medical abilities have been evaluated [Hayati D et al. 2012, Arianfar A et al. 2019], But, so far, in the few studies the two comprehensive medical exams, I.e., the basic sciences and pre-internship exams have been compared and evaluated. As a result, in this study, the aim is evaluation and comparison of the pre-internship and the basic sciences mean scores in Ahwaz Jondi Shapur medical sciences and the changes made in these scores to determine to what extent the basic

sciences exams could predict the student's future educational achievement of the students

Methods

The current study was an analytical – cross-sectional study conducted in March 2010. The statistical population composed of all medical interns of Ahwaz Jondi Shapur university of medical sciences entered the university in 2010 and 2011. The evaluated sample was selected by census and was 137 subjects.

The criterion of e trance to the study was the students entering in October 2010 and 2011. The transferred students or the students who have passed the basic sciences in the other universities and the students with incomplete information were excluded from the study.

In this study, the researcher referred to Ahwaz Jondi Shapur university of medical sciences after acquiring the required authorities. After providing the obligation form for keeping the student's information private, the interns were selected by census and using educational files, their information was extracted, and the checklists were completed. The variables included demographic (sex, age, residence status, marital status) and the main variables (pre-internship scores and the basic sciences scores). Standard deviation was used to describe the data scattering, and the mean was used to describe the data median. Qualitative variables were used to describe the frequency and the percentage. Independent T-test and the ANOVA test were used to analyze the data. Smearolov-Kolmogorov test examined the normality. The significance level was set at 0/05, and all the analyzes were done with SPSS software version 24. As the basic sciences and pre-internship exams had different difficulty indexes and the evaluated topics are different, the student's scores were standardized for each exam before any evaluation. Moral code was obtained from the university to keep the morality, the privacy forms were completed and signed, and the researched sects were ascertained that if desired, the research results would be provided to them.

Findings

As the basic sciences and pre-internship exams had different difficulty index in two studies years, before any evaluation, the student's scores for each of the pre-internship exams (K) and the basic sciences (P) were calculated, and the standard scores were calculated based on the following formula for each of the students:

$$\text{basic sciences scores} = \frac{m-P}{\sigma}$$

$$\text{pre-internship standard scores} = \frac{m-K}{\sigma}$$

The findings related to student’s demographic characteristics are shown in tabl1

Table 1. Distribution and the percentage of the student's demographic characteristics per year of entrance

P value	total	year of entrance Distribution(percentage)		Statistical indicators / variables	
		2011	2010		
0/957	(38)52	(55/8)29	(44/2)23	man	sex
	(63)85	(55/3)47	(44/7)38	Woman	
0/002	(57)78	(66/7)35	(33/3)26	Less than 27 years	age
	(43)59	(40/7)24	(59/3)52	More than 27 years	
0/446	(82/5)113	(54)61	(46)52	single	

	(17/5)24	**(62/5)15**	**(37/5)9**	**Married**	**Marital status**
0/000	**(22/60)31**	**(61/30)19**	**(38/70)12**	**Non-dormitory**	**Housing status**
	(77/4)106	**(53/70)57**	**(46/30)49**	**dormitory**	

According to the results obtained from table 1, 85 persons (62%) of the studies students were female, 47 persons of them (55.5%) had been accepted in 2011, and 52 of them (38%) were made, 29 ones of them (55.8%) had been accepted at 2010. Generally speaking, from 137 students studied, 61 (44.5%) were accepted in 2010, and 76 students (55.5%) had been accepted in 2011. There was not a significant relationship between the student's gender and their year of acceptance) P>0.05)

The student's mean ages were **1/05±27/40,** and their minimum and maximum age were 26 and 32 years, respectively. The students accepted at 2010 mean age were **0/80±27/77,** and their minimum and maximum age were 27 and 30 years, respectively. The students accepted at 2011 mean age were**1/14±27**/11, and their minimum and maximum age was 26 and 32 years, respectively.

Seventy-eight students (57%) had less than 27 years old, 52 of them (66.7%) were accepted in 2011. There was not a significant relationship between the student's age and their year of acceptance) P<0.05)

113 students (82.5%) were single, 61 ones (54%) have been accepted in 2011, and 24 students (17.5%) were married; 15 ones (62.5%) have been accepted in 2010. There was not a significant relation between the student's marital status and the year of acceptance(P>0.05)

106 students (77.40%) were residents in dormitories, 57 ones (53.7%) have been accepted in 2011, and 49 students (46.30%) have been accepted in 2010. There was not a significant relationship between the student's residence status and the year of acceptance (P<0.05)

The student's mean scores in pre-internship and the basic sciences exams in 2010 and 2011 are compared in table 2.

Table 2. The students mean scores in pre-internship and basic sciences exams in 2010 and 2011

variables	Statistical indicators	year of entrance Distribution (%)		Total	P value
		2010	2011		
Sex	**Male**	**(44/2)23**	**(55/8)29**	**(38)52**	**0/957**
	Female	**(44/7)38**	**(55/3)47**	**(63)85**	
age	**Less than 27 years**	**(33/3)26**	**(66/7)35**	**(57)78**	**0/002**
	More than 27 years	**(59/3)52**	**(40/7)24**	**(43)59**	
Marital status	**single**	**(46)52**	**(54)61**	**(82/5)113**	**0/446**
	Married	**(37/5)9**	**(62/5)15**	**(17/5)24**	
Housing status	**Non-dormitory**	**(38/70)12**	**(61/30)19**	**(22/60)31**	**<0/000**
	dormitory	**(46/30)49**	**(53/70)57**	**(77/4)106**	

Based on the results obtained from table 2, due to the morality of data(P>0.05)by Smearonov-Kolmogorov test at 2010 (basic sciences scores: P=0.612 and pre-internship test scores: P=0.962). The Pearson correlation test among two basic sciences scores and pre internship scores was 0/467 which indicated a positive and significant relation between the students' two scores. There was a significant relationship between the students in the basic sciences and pre-internship exams scores) P<0.05)

Also, in 2010 due to the morality of data (P>0.05) by - Kolmogorov -Smirnov test at 2010 (basic sciences scores: P=0.392 and pre-internship test scores: P=0.624). The Pearson correlation test among two basic sciences and pre-internship scores was 0/542, which indicated a positive and significant relationship between the student's two scores. There was a significant relationship between the students in the basic sciences and pre-internship exams scores) P<0.05)

According to the basic sciences exam scores, the raw coefficients and the standard equation regression are provided in table 3 to predict the pre internship and the basic sciences exam scores.

Table 3. The prediction of pre-internship exam scores according to the basic sciences exam scores.

variable	Beta raw coefficient	Standard error	Beta coefficient	T	P-value
Fixed amount	78/941	6/327	-	12/477	<0/000
basic sciences exams scores	0/398	0/053	0/542	7/790	<0/000

As is seen in table 3, the raw coefficients and the standard equation regression are provided to predict the pre-internship exam scores according to the basic sciences exam scores, and all are statistically significant. According to table 3, the equation for predicting the pre-internship exams scores according to the basic sciences exams scores is as follows:

78/941)+ basic sciences exams scores (398 = 0/ pre-internship exams scores

Discussion

Different tools are used to investigate the medical sciences universities' educational and research services quality. Some only consider the customer's perception of the quality of the services, some others consider the customer's perception and expectations from the quality of the services compared to each other, and some consider the expectations and perception independently [Li et al. 2013]. However, considering the systemic approach in the educational system, the element comprising educational services include the inputs (learners, teachers, equipment, the teaching-learning process, organizational), the product or output (educational progress report), final output (graduate, the produced knowledge, scientific services and the consequence (employment, unemployment) [Haghani et al. 2009]. As the systematic approach will simplify the investigation and then the enhancement determining the elements, so, in order to enhance the quality of educational services, we must consider all educational elements, including every beneficiary and internal and external customer, teaching and learning processes, the explicit mission of the organization, the texture and the environment, not only the qualitative measurements [Yousef et al. 2009].

Akbari et al. (2015), in a study conducted on Mashhad university of medical sciences, observed that there was a significant statistical relationship between the students two indices (basic sciences scores and the fifth year's first and second term means), and according to them they have stated that this index could be used to treat better the students [Akbari, Eskandari 2016] which were in line with the current study.

Farzian pour et al. (2014), in research, investigated the pre-internship and training courses in the basic sciences and medicine in the hospitals based on the surveys on Tehran university of medical sciences students. The total mean of the investigation results obtained from the internship and training courses in the theoretical and in rekeying to the applicable training was 3.32%, mental skills were 2.98%,

communicative skills 3.38%, and practical skills was 3.29% which were significantly related in the two courses [Farzianpour et al. 2015] and were in line with the current study.

Bijary and his colleagues (2013), in a study, examined the predictability credit of the basic sciences in pre-internship exams. They observed that the basic sciences mean scores and the students' pre-internship scores were 128/86±19/27and 118/54 ±18/82, respectively. They stated that the difference between the basic sciences and pre-internship exams mean scores were not statistically significant in the two genders. They calculated the Pearson correlation between the basic sciences and pre-internship exam scores as 0.55. Therefore, there is a special correlation between two comprehensive exams, such that using the basic sciences exams scores evaluation; the pre-internship exam scores could be relatively obtained [Bijari, B 2014], which is in line with the current study.

Shafi'ei et al. (2010) compared the comprehensive exams with the basic sciences exams scores mean scores. The researchers in this study calculated the basic sciences mean scores and also the basic sciences mean scores. They observed in their study that there was a significant difference between the basic sciences' comprehensive exams and the basic sciences mean scores which were not in line with the current study. This could be due to the differences in the student's educations in different universities. The educational years are also different with the current study [Shafii et al. 2010].

Conclusion

In medical sciences education and learning the diagnosis and treatment skills and practical capabilities, the students must gain the abilities to learn the lessons scientifically. According to the obtained results in this study, using basic sciences comprehensive test could be a good predictor in screening the students for entering the next level. Accordingly, it can be stated that considering the student's past scores average in the higher levels can be an appropriate diagnostic criterion for the student's later scores. Besides, the universities must lead the students to learn the lessons better and the individual and social abilities.

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Ethical approval

All the procedures performed in the studies involving human participants were in accordance with ethical standards of local ethics committee of Ahvaz Jundishapur University of Medical Sciences (IR.AJUMS.REC.1397.076), as well as 1964 Helsinki declaration. Written informed consent was obtained from all patients and normal subjects.

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