

Analyzing Reasons of Psychological Stress for Graduate Engineers in Jordan

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Abstract The engineering branch in Jordan is one of the most desirable sectors to be studied, for its importance in building society and its requirements. The main objective of this study was to determine the most important reasons for increasing psychological stress on engineering students. By knowing the causes, we can generalize the causes of the phenomenon, which enables us to avoid or reduce its occurrence, so that the psychological stress of engineering students does not develop and become within the psychological disease. No one wants to weaken the pillars of society; development of the psychological state negatively affects all members of society. This research carried out using the electronic questionnaire method and its results analyzed using SPSS program, this is to produce the percentages shown in the tables. One of the most important results we obtained from this research is that we have identified 83% of the main causes of psychological stress among engineering students. The reasons that we mentioned confined to the academic and the economic. This will facilitate in the future to find solutions to the problems of psychological stress for engineers and prevent the development of the psychological state to become disease with increasing pressure.

Keywords: engineering, psychological stress, mental health, data analyses

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1. Introduction

Engineering majors considered of the most difficult majors in terms of study in the world. This difficulty causes many psychological stresses on students. Psychological stress affecting on mental health. [1]. The World Health Organization has defined this term as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" [2]. One of the reasons also important in our Jordanian society is the economic situation. It also has the effect of increasing the difficulty of studying. With the increase in economic pressures on students, the increase in psychological stress affects the progress in university years. [3]. The economic situation affects students, which causes them to go to work while they study, and in order to perform better in the study, this increases the pressure on them. Economic conditions affect students' practical and scientific lives and their future relationships. [4]. we do not forget that there are other reasons related to the mental health of students other than academic and economic reasons. Being in a relationship negatively affects you as a student, as it harms

mental health in emotional terms. [5].

However, such a reason does not have a clear appearance in our Jordanian society and has a wide impact, as are the academic and financial reasons. Our interest in this research was to target the Jordanian engineers, as it is a large group in society. The study of engineering has a great social impact in Jordan. The engineer in our society is a person who has a great social status and influence. Therefore, despite the difficulty of engineering in terms of study, many groups of society are interested in studying engineering, which increases the problems. Some of the engineers did not have interests and tendencies, and partly, their economic status made it more difficult to obtain an engineering degree. In addition, all of this adds to how difficult engineering can be for students. The topic is very sensitive, as lack of attention to the topic of stress can lead to complex problems. If students suffer from problems and turn to mental illnesses, the treatment will be very difficult and low in success in business and engineering colleges. Therefore, attention paid to find solution for these problems and not to reach difficult situations that affect society. [6]. we should pay attention to the causes of mental health problems for students and anticipate events in order to avoid the problem and help students who have developed their condition and solve their problems. [7].

In this research, we used efficient method to reach the largest base of engineers. We used the electronic questionnaire method on social media, and we published this questionnaire across major groups of Jordanian engineers. The goal here is to identify the most factors that cause stress on engineering students in Jordan. In order to reduce the development in cases of stress to diseases, and to know the causes, we were able to find solutions according to our Jordanian society. The sample taken from engineers who graduate from universities so that the picture is clear to them. We hypothesize that most engineering students exposed to psychological stress caused by academic or economic reasons. We also included in the questionnaire the aspect that participating in student activities of all kinds relieves psychological stress on students. However, there may be reasons for students not participating in activities, such as their interest in using all their time in the study, or working during the study prevents them from participating due to their limited time. In addition, to emphasize the importance of the topic, we added to the engineers a question to find out the extent of psychological stress on him after graduating from the university. To find out the percentage of their psychological stress turned into mental illness. So, if you lose the ability to enjoy the things of life specially your present .In addition, thinking about the past and the future increased greatly. If you lost the ability to recover from problems and even thought more about them. Your interests in matters of social life such as meeting friends Decreased and the desire to sit alone increased. Moreover, you had a lack of self-confidence. All these factors indicating that your psychological state has entered the stage of mental illness because of the studying and life pressures. [8]. After this work, we can be able to limit the problems and link them to engineering majors, gender, or engineering scientific level. All this could be the best solution to reduce and control the problem in the future. The results can also be taken to develop educational methods in Jordan and to focus the experience for generalization later after the results are confirmed.

2. Methodology

In this paper, we use electronic questionnaire to collect our data about this important subject. Psychological stress is a very sensitive issue for young people of university age, so the issue must be studied from the side of our Jordanian society. We study the things that most affect the student during the study, and these pressures may turn into psychological diseases. Therefore, the reasons must confirm to find solutions. This questionnaire is divided into two parts. The first part contains the general questions found in the [Table 1](#). The second part contains the precise questions specialized in the field of determining the causes of psychological stress on the engineering student. It varies between multiple choice and open answers to increase the credibility of engineer's answers, test their concentration in the answer and identify their point of view to find the reason most affected on them. This part was divide into six sections; five of them represents reasons that may be cause psychological stress on the

engineering student in Jordan. At the end of the questionnaire is a set of questions (the sixth section) that evaluate the five groups and help to know the way in the field of decreasing stress problem from their experience of studying engineering in Jordan. In addition, the causal groups for psychological stress were as follows:

1. The academic orientation of the major: The assumption here is that a person who chose his engineering major due to his interest and tendencies can reduce psychological stress on him. This assumption came because in Jordan, the majority do not choose according to their desires and hobbies, but rather it is according to the average in secondary school. Choosing the major you want in Jordan reduces the difficulty of studying because you love it, so the pressure on the student is somewhat reduced.
2. The academic load for students: In Jordan, universities operate on a credit hour system, so we take the bachelor's degree 160 hours and 72 hours for the intermediate diploma. Now here is the average number of hours registered in the regular semester, indicate the number of years to obtain the degree as well as the impact of the academic load on the psychological. Finally the possibility of increasing the load on the student and its effect. The idea here is that increasing the number of semester hours increases the stress of studying and examinations. Excessive excess causes a significant increase in pressure. It may cause failure in some cases. This causes an increase in the period to obtain the degree, which also causes pressure because the student does not keep up with the other students.
3. Economic aspects (work during studying): Here, it is necessary to make sure of the possibility of reconcile between work and study if the student work while studying. There are students who need to work in order to save the tuition fees.
4. Participation in student activities (cultural, scientific, sports or otherwise): In this group, we assumed that the student who participates in student activities less affected by stress. This is because the activities get them out of the stressful academic atmosphere and increase their communication skills.
5. The difficulty level of the academic major: We know how difficult it is to study engineering, but there must be a difference in the difficulty ratio between the various engineering disciplines. Here, it is necessary to agree between your choice of difficulty level with your effort and your academic grade.
6. The last section is the one that contains the general summary of the study and it contained an evaluation of the previously mentioned reasons. It also determines the percentage of engineers exposed to psychological stress during the study. In addition, what extent did these stresses develop into diseases affecting psychological ones? Full details of the second part of the questionnaire provided in the [Table 2](#).

Table 1. The general questions about engineers.

Required questions	The possible answers
Name	Opened answer
Age	Opened answer
Gender	<ul style="list-style-type: none"> • Male • Female
Engineering major	<ul style="list-style-type: none"> • Mechanical engineering • Electrical engineering • Civil engineering • Computer engineering • Chemical engineering • Architectural engineering
Educational level	<ul style="list-style-type: none"> • Bachelor's degree • Intermediate diploma degree • Diploma then Bachelor's degree

Table 2. The second part of the questionnaire

Required questions according to the second part groups	The possible answers
1.1. Was the reason for choosing your engineering major your interests and tendencies in this field?	<ul style="list-style-type: none"> • Yes • No
1.2. Was your choice of the engineering major that you wanted to alleviate from the psychological stress on you during the study?	<ul style="list-style-type: none"> • Yes • No • Other than that
2.1. How long does it take you to obtain your degree in years?	<ul style="list-style-type: none"> • 2 • 3 • 4 • 4.5 • 5 • 6
2.2. What is the average number of credit hours registered in a regular semester?	<ul style="list-style-type: none"> • From 12 to 14 hours per semester • From 15 to 17 hours per semester • 18 hours or more per semester
2.3. Was the number of your semester hours causing stress?	<ul style="list-style-type: none"> • Yes • No
2.4. What were the periods of greatest stress during the semester?	<ul style="list-style-type: none"> • Examination period • Period of issuance of results • Other than that
2.5. Does the increase in the number of semester hours affect you in terms of stress?	<ul style="list-style-type: none"> • Yes • No • Other than that
3.1. Were you working while studying?	<ul style="list-style-type: none"> • Yes • No
3.2. Were you able to reconcile work and study?	<ul style="list-style-type: none"> • Yes • No • Other than that
3.3. Did your job increase your stress?	<ul style="list-style-type: none"> • Yes • No • Other than that
4.1. Were you participating in the student's activities? (cultural, scientific, sports, or other)	<ul style="list-style-type: none"> • Yes • No
4.2. Did your participation in student activities alleviate psychological stress on you?	<ul style="list-style-type: none"> • Yes • No • Other than that
5.1. What is the difficulty level of studying your engineering major?	<ul style="list-style-type: none"> • Hard • Intermediate • Easy
5.2. What is your grade point average in your degree?	<ul style="list-style-type: none"> • Acceptable • good • very good • Excellent
5.3. Was your weekly studies in line with the difficulty level of your major?	<ul style="list-style-type: none"> • Yes • No
5.4. Did your level of difficulty have a psychological effect on you?	<ul style="list-style-type: none"> • Yes • No
5.5. Did your college grade point average have an effect on increased stress on you?	<ul style="list-style-type: none"> • Yes • No
6.1. Was there any psychological stress you had during the study?	<ul style="list-style-type: none"> • Yes • No
6.2. Were your psychological stress related to the causes mentioned in the previous groups?	<ul style="list-style-type: none"> • Yes • No • Other than that
6.3. Has this psychological stresses developed into a psychological disease. On the other hand, remains linked to study and ended with your graduation and the disappearance of academic reasons.	<ul style="list-style-type: none"> • Yes, it developed • No, it did not develop • Other than that

Therefore, 150 engineers participated in this survey; all participants are holders of a degree. The most frequent age is 25 years, at 26.7%. The percentage of young engineers who participated in the questionnaire was less than 31 years old, 88%, and this makes the values more accurate because this group did not stop much from the study. The following data represent the general information ratios of the engineers participating in the survey. Which are gender, engineering major and educational level. The percentage of male engineers who participated in the questionnaire was more than the female, and the percentage was 62%. Female was 38%. Six engineering majors participated in the survey, Mechanical engineering is the highest major to participate with Civil engineering in the survey by 25.3% for each major and the major least participated in the survey is Architectural engineering, with 9.3%. Electrical engineering was 14.7%, Computer engineering was 12% and finally, Chemical engineering was 13.3%.The educational level most participated in the survey was a Bachelor's degree by 81.3%. Intermediate diploma degree 6% and Diploma then Bachelor's degree 12.7%.The study conducted on engineers who obtained a certificate, and here we ask them to know the extent of their psychological impact during the study period. The reason for choosing this sample in order to obtain high data and information accuracy is because the students on the study seats will be emotional in the answers and the results will not be accurate.

3. Results and Discussion

We talked in the previous section about the preliminary results of this online questionnaire. Now, before entering the three axes to analyze the results of the questionnaire, which are gender, major, and education level, it is necessary to verify the validity of this research by analyzing the sixth group of the questionnaire. In the sixth part, we review the first and second questions to find out the percentage of students who suffer from psychological stresses while studying in general. In addition, to make sure those students linked to the five previously mentioned reasons. Look at the Table 3. From these answers, we can say that there are stresses on the engineers during the study. In addition, we need to identify the reasons for these stresses for analysis.

Table 3. The results of sixth part questions.

Valid answers	Was there any psychological stress you had during the study?		Were your psychological stress related to the causes mentioned in the previous groups?	
	Frequency	Percent	Frequency	Percent
Yes	130	86.7	108	72
No	20	13.3	22	14.7
Other than that	0.0	0.0	20	13.3
Total	150	100	150	100

We see from the table, there are really stresses on engineering students. The percentage of engineers who exposed to psychological stress during the study was 86.7%. As for the association of psychological stress on

students with the reasons mentioned in the research. We exclude the third answer percentage (Other than that) because it is the answer that concerns engineers who were not exposed to stress in the first place which are 13.3%.To get the real percentage of students who were pressured by the previously mentioned reasons, see the Table 4.

Table 4. The valid percentage of the student affect by mentioned reasons

Valid answer	Were your psychological stress related to the causes mentioned in the previous groups?			Valid Percent
	Yes	Frequency	Percent	
		108	72	83.1
	No	22	14.7	16.9
	Total	130	86.7	100
Missing	Other than that	20	13.3	
	Total	150	100	

We can conclude from the table that 83.1% of the students who exposed to stress during the study were due to the previously mentioned reasons. As for the students whose stress was not related to the aforementioned reasons, they may be emotional or family reasons and not main reasons for discussion in our research. In addition, we do not forget the percentage of students who were not exposed to any kind of pressure; it may be due to the luxury of this percentage or because of the lack of interest in any matters of life and the indifference of the students. We will study the five points that affected the engineers 'pressure during the study with the three main axes that unite engineers in Jordan.

3.1. The Gender Factor

As we mentioned earlier, the percentage of engineers who exposed to stresses during the study. We will show the percentage of male and female engineers. The percentage of males was 63% and females 37% of the engineers who were subjected to stress. As for the engineers whose stress was linked to the previously mentioned reasons. The percentage of males was 63.8% and females 36.2%. Now we will move on to explain the effect of the five groups on gender.

- The academic orientation of the major: We assumed that the engineer who choose the major who interest on them would reduce stress on him. The percentage of those who chose the major they wanted was 71.3%. The percentage of engineers who chose according to their desire and preferences and this reduced the pressure on them by 75%. As for the males, 72% chose and eased the pressure on them. As for females, 82% chose which relieved them of the pressure.
- The academic load for students: The academic period during which engineers were able to obtain certification was more for males than for females. This increases the pressure on male engineers. Males were the ones who had the most number of semester hours, and this was causing increased stress on them.
- Economic aspects (work during studying): The percentage of engineers who used to work during

the study is 30%. Most of them were male. The work increased the stress on the students by 62%, most of them males as well.

- Participation in student activities: 38% of the students participated in student activities. Participation in student activities for males reduced stress by 63%. In addition, for females, the subscription was reduced the stress by 80%.
- The difficulty level of the academic major: Males see that their majors are more difficult than females. While females have higher university rates than males. Male engineers studied more than females, in line with the difficulty of major. The rate and difficulty were causing increased stress on males than females.

3.2. Engineering Major Factor

Six engineering majors participated in the questionnaire, and their results were as follows:

- The academic orientation of the major: The percentage of selection for the major to its ability to relieve stress according to the engineering major was as that, Mechanical 66%, Electrical 76%, Civil 80%, Computer 75%, Chemical 88% and Architectural 71%. Chemical engineering major was the highest in stress relief because of selection, and mechanical engineering was the lowest percentage.
- The academic load for students: Depending on the period required to obtain the degree, Architectural engineering it took longer and the rest is approximately the same period. Civil and Mechanical engineering is the largest percentage of semester credit hours. In addition, they are the most vulnerable to psychological stress because of this factor.
- Economic aspects (work during studying): Most of the major that work and study at the same time is Mechanical engineering and the least Civil engineering. The students most exposed to psychological stress because of work are mechanical engineering students.
- Participation in student activities: Electrical, Civil and Mechanical engineering majors are the most involved in student activities. In addition, 65% of students from these majors because of participation in student activities relieved them of stress.
- The difficulty level of the academic major: The most difficult major from the engineers' point of view was Architecture and the easiest was Civil engineering. In terms of the school average, the highest are Civil engineering and the lowest are Mechanical engineering. The highest study hours are Architecture and the lowest are Mechanical engineering. Students with the highest overall exposure to this factor are Mechanical and Architectural engineering students and the lowest being Civil engineering students.

3.3. Education Level Factor

Three tracks in Jordan to obtain an engineering degree. The bachelor's percentage of participation in the questionnaire is 81%, the intermediate diploma is 6%, and 13% are graduating to obtain a bachelor's from

the diploma. We classify it now with the following factors:

- The academic orientation of the major: The intermediate diploma is the one most affected by this factor positively. As their choice reduced the rate of psychological pressure on them, and the least affected positively are, bachelor's Students.
- The academic load for students: The graduation from a diploma to a bachelor's is need more time for graduation. The most academic loads are bachelor's Students. Diploma students who are graduating to obtain a bachelor's degree are the most stressed due to the number of hours they take in the semester.
- Economic aspects (work during studying): Diploma then Bachelor's degree students are the most percent of the work during studying by 52%. In addition, they are the highest percentage of susceptibility to work stress.
- Participation in student activities: The highest participation rate is intermediate diploma students, and they are the highest in terms of their participation in student activities relieving stress on them.
- The difficulty level of the academic major: As for the difficulty, the percentages were close, but the most difficult ones were the graduation from diploma to bachelors, and they were also the lowest university grade point average. In addition, the most hours of study during the semester. The highest rates are the bachelors of grade. The students with the highest pressure on difficulty are the intermediate diploma students. In addition, the highest stress because of the grade are diploma then bachelor's degree students.

3.4. Impact of Our Reasons Groups

Now we will mention the positive and negative impact of the reasons that we mentioned on the three main factors that we chose to study. These ratios show the group's influence on the three factors, but for all participants, not just those who followed the correct answer that is in line with the topic. This means that the ratio represents the impact of the group on the whole group, whether they chose or not, that the group affected them. See [Table 5](#), 6 and 7.

Table 5. Impact on gender

Group number	Gender	
	Male	Female
G1, The positive effect of the first group.	57%	49%
G2, The percentage of the students are not affected by this factor.	36%	29%
G3, The negative impact of the third group.	39%	7%
G4, The positive effect of the fourth group.	26%	26%
G5, The negative impact of the fifth group.	25%	22%

We notice that choosing the major the student wants has an effect on reducing pressure on 57% of males and 49% of females. As for completing the proportions, they

did not choose to major according to passion, or they did not relieve them of any pressure from choosing. As for the academic load, it has a major negative impact on males and females. The next factor is a specialist working with the study, and males had the highest percentage of affected by this factor. Participation in activities was reduced for students, whether male or female, by the same rate of 26%. In addition, the effect of difficulty was more on males than females. These percentages represent the total answers of students for each group of questions together.

Chemical engineering highest utilization of stress relief agent because of passion. The academic load less affects civil engineering. Mechanical engineering with the highest stress ratio because of work during the study. Electrical engineering has a positive effect in terms of relieving pressure in participating in student activities. The study difficulty factor was reflected in the increased pressure on mechanical and computer engineering more than other disciplines.

Table 6. Impact on engineering major

Group number	Engineering major					
	Mech	Elect	Civil	Comp	Chem	Archit
G1, The positive effect of the first group.	58%	59%	55%	33%	70%	35%
G2, The percentage of the students are not affected by this factor.	34%	36%	42%	33%	35%	7%
G3, The negative impact of the third group.	45%	37%	23%	11%	15%	7%
G4, The positive effect of the fourth group.	26%	36%	26%	22%	25%	21%
G5, The negative impact of the fifth group.	30%	22%	21%	30%	10%	29%

Table 7. Impact on educational level

Group number	Educational level		
	Bachelor's degree	Intermediate diploma degree	Diploma then Bachelor's degree
G1, The positive effect of the first group.	49%	90%	63%
G2, The percentage of the students are not affected by this factor.	34%	70%	16%
G3, The negative impact of the third group.	21%	12%	15%
G4, The positive effect of the fourth group.	25%	40%	60%
G5, The negative impact of the fifth group.	23%	22%	32%

Higher intermediate diploma, benefit from stress relief because of passion. The intermediate diploma is the lower affected by the academic load. Bachelor's degree with the highest percentage of work result pressure during the study. The diploma and then the bachelor's degree have the most positive impact in terms of relieving pressure in participating in student activities. The study difficulty factor was reflected in the increased pressure on the

diploma then the bachelor's. These results were due to the reason that the diploma is easier than the rest and the difficulty of moving from a diploma to a bachelor's degree due to a major change in the method of study. To note, these values represent the sum of the answers, for example, the stress relief as a result of participating in activities, the percentage mentioned in the tables represents the percentage for all those in the same category, whether they participated or not in the activities.

4. Conclusion and Future Work

The conclusions from this questionnaire after its analysis indicated that 76% of students who chose the major they want, this choice relieved the stress on them. Here, we conclude that not choosing the major you want increases the stress of studying on engineers. A large percentage choose engineering for social reasons, without the desire or passion for engineering major. We also conclude that the more time you took to obtain the certificate, the pressure on you was high, and the fewer the semester hours, the less pressure on the student. The problem here is that most engineers take a higher academic load than they can bear, which increases the stress on them even more. A 30% of students study and work together. Half of them cannot be in line between study and work. In addition, 90% of them cause his work to increase the stress on him. This is due to the students' economic conditions that may cause mental illness in the future. A 38% of students participate in student activities. A 70% of them took part in activities that relieved the study pressure on them. Of course, a large part does not participate in activities because he thinks they are a waste of time. Although the study shows that participation in activities relieves study pressure, and your lack of participation in activities may be the reason for your inability to empty your negativity. All the engineers agree that their specialty is not easy. Most of the graduates' rates range from good to very good, at 72%. The difficulty of the major that the engineer entered affected 74% of the students by increasing the stress, but it did not affect them by increasing the hours of study. The result was that the reasons mentioned in the questionnaire represent 83.1% of the causes of stress among students during the study.

We did not discuss two questions previously in this research. They are as follows: First, the most periods that the student suffers from stress during the study. The result was that the exam period was the most affected by the period of stress by 73.3% and the period of results was causing pressure on 21.3%. The project period (representing an option other than that, and the students were the ones who filled in this option) represented a pressure of 5%, which makes us mention the need to make most of the courses finish with a project and not an exam to determine the rate, because this method is the least stress on students. Second, it is a very frightening point. The questionnaire indicated that 11% of students after completing the study and because of their exposure to stresses, these psychological stresses turned into mental illnesses, which makes us, take a comprehensive look at the issue to reduce the disastrous consequences for society.

Through these results, it is necessary to work on discussing and finding solutions to this problem centered on psychological stress on engineering students and the transformation of stressors into psychological diseases over time. That is through solving the basic causes of problems and working to develop the method of education. Finally, support for education must be increased in economic terms, which may be a solution to major problems in the future. This is the future point of developing educational methods to reduce psychological stress and increase the benefit from university studies in order to be ready to practice work after graduation without problems.

References

- [1] Gorter, R., Freeman, R., Hammen, S., Murtomaa, H., Blinkhorn, A., & Humphris, G. (2008). Psychological stress and health in undergraduate dental students: fifth year outcomes compared with first year baseline results from five European dental schools. *European Journal of Dental Education*, 12(2), 61-68.
- [2] World Health Organization. (2005). *Promoting mental health: concepts, emerging evidence, practice: a report of the World Health Organization, Department of Mental Health and Substance Abuse in collaboration with the Victorian Health Promotion Foundation and the University of Melbourne*. World Health Organization.
- [3] Guo, Y. J., Wang, S. C., Johnson, V., & Diaz, M. (2011). COLLEGE STUDENTS' STRESS UNDER CURRENT ECONOMIC DOWNTURN. *College Student Journal*, 45(3).
- [4] Okioga, C. K. (2013). The impact of students' socio-economic background on academic performance in Universities, a case of students in Kisii University College. *American International Journal of Social Science*, 2(2), 38-46.
- [5] Deziel, M., Olawo, D., Truchon, L., & Golab, L. (2013, July). Analyzing the mental health of engineering students using classification and regression. In *Educational Data Mining*. 2013.
- [6] Lipson, S. K., Zhou, S., Wagner III, B., Beck, K., & Eisenberg, D. (2016). Major differences: Variations in undergraduate and graduate student mental health and treatment utilization across academic disciplines. *Journal of College Student Psychotherapy*, 30(1), 23-41.
- [7] Lee, M. F., & Adam, W. W. (2016, December). A comparison study of methods to solve the mental health problem between the engineering and non-engineering students. In *2016 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)* (pp. 179-183). IEEE.
- [8] Meaning of Mental Health, Canadian Mental Health Association (2013), retrieved from http://www.cmha.ca/mental_health/meaning-of-mentalhealth/#.UHR5GVH08YQ.



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